

# MELATI NUNGSARI

## ADDRESS

Asia School of Business in Collaboration with MIT Sloan  
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## PERSONAL CELL NUMBER

+6013-290-3225 (Malaysia)

## ACADEMIC POSITIONS

Assistant Professor of Economics (05/17 - Present)

*Asia School of Business in Collaboration with MIT Sloan Management  
Kuala Lumpur, Malaysia*

Research Affiliate (08/17 - Present)

*Sloan School of Management at the Massachusetts Institute of Technology  
Cambridge, MA, USA*

International Faculty Fellow (05/17 - 08/17)

*Sloan School of Management at the Massachusetts Institute of Technology  
Cambridge, MA, USA*

Assistant Professor of Economics (08/16 - 05/17)

*Lacy School of Business at Butler University  
Indianapolis, IN, USA*

Visiting Assistant Professor of Economics (08/15 - 08/16)

*Department of Economics at Davidson College  
Davidson, NC, USA*

## EDUCATION

*The University of North Carolina at Chapel Hill (08/10 - 05/15)*

Ph.D. in Economics

Dissertation Title: Essays on Pricing and Matching on Two-Sided Platforms

Dissertation Committee: Gary Biglaiser (Main Advisor), Peter Norman, Helen Tauchen, Andy Yates, Fei Li

*Knox College, Galesburg IL (08/06 - 06/10)*

Bachelor of Arts in Mathematics and Economics (Magna Cum Laude)

Honors in Mathematics: Measure Theoretic Probability and its Applications to Finance

## RESEARCH INTERESTS

Industrial Organization, Market Design (Search and Matching Theory), Applied Game Theory, Public Economics, Labor Economics

## PUBLICATIONS

### Journal articles

- Nungsari, M., Dedrick, M., and Patel, S. (2017). Team Teaching an Interdisciplinary First-Year Seminar on Magic, Religion, and the Origins of Science: A 'Pieces-to-Picture' Approach'. *Journal of the Scholarship of Teaching and Learning*, Vol. 17, No. 1, February 2017, 24-36.

## Public Scholarship

- Nungsari, M. Ideas to Curb Our Brain Drain. *The Edge Malaysia Weekly*. 8 January 2018. <http://www.theedgemarkets.com/article/mysay-ideas-curb-our-brain-drain>.
- Nungsari, M. We Solved Our 2-Body Problem - by Moving to Malaysia. *The Chronicle of Higher Education*. 18 June 2017. <https://www.chronicle.com/article/We-Solved-Our-2-Body-Problem/240389#comments-anchor>.

## RESEARCH

### Under Review

#### **Using Classroom Experiments To Teach Market Design and Matching Theory**

*Coauthored with Sam Flanders.*

Abstract: Market design studies alternative mechanisms to allocate resources when standard markets fail. One important application of market design is the study of two-sided matching markets; that is, markets where each side has preferences over partners on the other side. Some examples of matching markets include the labor market, marriage and dating, the allocation of kidneys to recipients, the sorting of Greek members into fraternities and sororities, and the assignment of students to public high schools in many American cities. Introductory market design is often taught as an upper-level undergraduate class that requires a significant amount of mathematical preparation. In this paper, we describe a market design class with a special focus on matching theory that was taught to students with limited mathematical and economics background. This class was taught in the spring semester of 2016 at a liberal arts college in North Carolina. Specifically, we outline two classroom experiments that were very effective at getting across the abstract concepts detailed in the class. The first experiment focused on two ideas, the first being that of a “thick matching market” – a market where there are many potential matches and where the cost of searching for a partner is low. The second was “market segmentation”, the idea of breaking up a large matching market into smaller segments to decrease search costs for participants. The second experiment explored the idea that assortative mating in income and education—individuals tending to match to partners of similar income and education levels—has led to an increase in income inequality in the US in recent history.

#### **Searching for Yourself: A Model of Pricing on a Two-Sided Matching Platform with Horizontally-Differentiated Agents**

Abstract: This paper presents preliminary results from a research project on externalities and pricing and two-sided matching platforms. I study how a monopolist firm operating a two-sided matching platform optimally sets its prices in the presence of agents who are horizontally-differentiated, à la Salop (1979). Agents are searching for their ideal match (their own type) and face a two-part tariff pricing schedule set by the firm. In the steady-state equilibrium, profit maximization dictates that two-part tariffs reduce to a uniform pricing – that is, the monopolist optimally sets per-transaction prices to 0 and charges all agents the same fixed fee to join the platform regardless of their type. The results of the paper may be interpreted in terms of matching externalities – when there are none, the resulting optimal pricing strategy is non-distortionary. I conclude the paper by presenting more complicated extensions that can be studied from this model.

### Working Papers

#### **Quality Versus Fit: Market Design and Externalities on Multidimensional Matching Platforms**

*Coauthored with Sam Flanders.*

Abstract: This paper studies externalities in one-to-one matching markets when agents have preferences over multidimensional types by utilizing a minimal search setting where agents are either

high or low quality and have an idiosyncratic per-match “fit” shock. Applications include dating and marriage, job search, and school choice. It identifies a novel source of externalities that does not exist in the one-dimensional models focused on in the previous literature, but is endemic in multidimensional settings, appearing in both search and frictionless matching models so long as non-transferabilities are present. Agents match too aggressively on traits where preferences are homogeneous across agents (quality), and too little on traits where preferences are heterogeneous across agents (fit). This effect is decomposed into an intermatch externality – when you match to someone, you impose a cost on the rest of the market by removing them from it, and an intramatch externality – you don’t account for your partner’s payoffs when choosing partners. Given these generic externalities, we provide a survey of instruments a matching platform could use to improve surplus, analyzing for each the efficiency properties of the solution and its ease of implementation under a variety of assumptions. Having the platform act as a middle-man to make the transfers that agents cannot make directly is an obvious way to achieve first best, but may be difficult to implement. Utilizing two-part tariffs can improve efficiency somewhat, and is easy to implement, but cannot address the inefficient fit/quality tradeoff. Splitting the platform along quality can achieve first best in some settings, but will forego increasing returns to scale if they exist in the model. Censoring agents’ choice sets (curating the set of partners they can see on the platform) is only effective in some settings when studied in isolation, but when combined with two-part tariffs can achieve first best in any setting.

### **Pricing and Incentives in Defined Contribution Systems**

*Coauthored with Marcela Parada-Contzen and Sam Flanders.*

Abstract: This paper studies the effects of different pricing schemes and auction mechanisms on overall surplus levels in a privately managed, defined contribution retirement system. One such system is in Chile, where retirement savings are mandatory and taken as a fixed percentage out of monthly salary. In Chile, a small number of banks compete on the prices they charge for managing a retirement account through bidding in a sealed-bid first-price auction. The winner of the auction gets monopoly rights over new consumers entering the labor market for two years. As with many other retirement systems, Chilean authorities have puzzled over the lower-than-expected level of retirement savings throughout the years. In this paper, we examine this problem by considering the effects of different pricing schemes on firm behavior. In particular, we develop a model that captures the strategic interactions between firms as well as demand characteristics to derive the pricing and bidding schemes that maximize efficiency. We consider a repeated auction with effort and compare three different pricing schemes – the first is a fixed price that is paid regardless of the returns that a firm provides, the second is pricing based on returns whereby the firm can charge higher prices if they are able to get higher returns for their customers, and the third is a hybrid pricing scheme where firms bid on a guaranteed rate of return rather than taking a management fee as a fixed percentage of investment. We prove that the third pricing scheme is the most efficient.

### **Congestion, Gas Taxes and Vehicle Choice**

*Coauthored with Sam Flanders.*

Abstract: Road congestion imposes large costs on individuals since long commutes yield significant decreases in productivity and leisure times. Congestion may also have ambiguous impacts on environmental pollution, either increasing it relative to a congestion-free regime through more frequent and longer vehicle usage, or decreasing it due to forgone travel. In this paper, we study the effects of gasoline tax policies on road congestion. To do this, we develop a model of household vehicle choice utilizing individual-level data from the 2009 National Household Travel Survey and combine it with a model of congestion, measured by average road speeds, which utilizes road-level data on traffic congestion collected by state and national-level departments of transportation. We estimate counterfactual regimes in which gas taxes are at different levels in order to answer questions regarding optimal gas taxes for a fixed geographical area.

## Work in Progress

- “Measuring the Impact of Language Interventions on the Economic Outcomes of Refugees in Malaysia” - with Sam Flanders.
- “Measuring the Cost of Legal Exclusion: An Experimental Analysis of the Rohingya Refugee Labor Market in Malaysia” - with Sam Flanders & Nicole Henniger.
- “Identifying the Factors Affecting the Oversupply of High-End Residential Developments in Klang Valley” - with Sam Flanders.
- “Network Effects and Market Unraveling in the Commercial Development Sector in Malaysia” - with Sam Flanders

## RESEARCH GRANTS

- United Nations High Commissioner for Refugees - 20,000 Malaysian Ringgit  $\approx$  USD \$5,000 (Dec 2017 - June 2018)
  - Partial funding for the “Measuring the Impact of Language Interventions on the Economic Outcomes of Refugees in Malaysia” research project.

## TEACHING

### Teaching Experience

- *Asia School of Business (May 2017 - Present)*

#### INSTRUCTOR:

- ECON101D: Advanced Economics II for MBAs (Winter 2018)

This class was almost entirely taught using games and classroom experiments. I covered an extended treatment of game theory and strategy, auction theory, platforms, and two-sided matching with applications to real-world business problems.

#### FACULTY ADVISOR:

- AL 101C: Summer Action Learning (Summer 2017)
- AL 101A: Action Learning Trek in Southeast Asia III (Fall 2017)
- AL 101D: Action Learning Trek in Southeast Asia III (Fall 2017)
- AL 101B: Action Learning Trek in Southeast Asia II (Winter 2018)
- AL 101E: Action Learning - Social Enterprises in Malaysia (Winter 2018)

- *Butler University (August 2016 - May 2017)*

#### INSTRUCTOR:

- EC 231: Principles of Microeconomics (Fall 2016)
- EC 354: Intermediate Microeconomics (Fall 2016)
- EC 231: Principles of Microeconomics (Spring 2017)
- EC 495: Industrial Organization (Spring 2017)

- *Davidson College (August 2015 - July 2016)*

#### INSTRUCTOR:

- ECO 101B: Introductory Economics (Fall 2015)
- ECO 101C: Introductory Economics (Fall 2015)
- ECO 225: Public Sector Economics (Fall 2015)
- ECO 101C: Introductory Economics (Spring 2016)

- ECO 282: Economics of Matching (Spring 2016)  
I designed and taught this new introductory market design class that studied the design and use of market-based mechanisms to solve problems of economic resource allocation. We studied the basics of matching theory, how markets fail, and how a policy-maker can redesign these “broken” markets. After obtaining a good understanding of the foundations to matching theory, we looked at applications to real-life markets: the National Residency Matching Program (NRMP), kidney transplant markets, student-school choice, job search, and marriage and dating. We answered some of the following questions: How is the dating market different than the market for coffee? How can matching theory help explain the increasing level of inequality in the US? How do firms behave when setting prices in matching markets? How do markets typically fail and how can a policy-maker address these failures to increase economic efficiency?

- *The University of North Carolina at Chapel Hill (August 2011-May 2014)*

- I completed the UNC Economics Teacher Training Program (TTP) in Spring 2012.

**INSTRUCTOR:**

- ECON 101: Principles of Economics (Summer Session I, 2012)
- IDST 89: Magic, Religion, and Science (Fall 2013)  
I designed this interdisciplinary first-year undergraduate seminar as part of a interdisciplinary collaboration project with two colleagues from Archaeology and Religious Studies. This is a discussion-based class, where we explore how society and scholars have constructed definitions of magic, religion, and science. We study how these definitions have overlapped in various societies and how they have been mutually exclusive in others. My contribution to the class was to provide an economic approach to understand how people make decisions and to provide methods for analyzing political and economic backgrounds of various societies.

**TEACHING ASSISTANT:**

- ECON 101: Principles of Economics (Fall 2011)
- ECON 420: Intermediate Theory: Money, Income, and Employment (Spring 2012)
- ECON 890 (Graduate): Advanced Quantitative Methods for Economists (Fall 2012)
- ECON 711 (Graduate): Microeconomic Theory II (Game Theory) (Spring 2013)
- ECON 511: Game Theory for Economics (Spring 2014)
- ECON 511 (Honors): Game Theory for Economics (Spring 2014)

**TEACHING AWARDS**

- *Honored Guest, Butler University Faculty and Staff Appreciation Day - 2016/17*
- *Best Graduate Teaching Assistant (UNC Economics Department) - 2012/13*

**CONSULTING EXPERIENCE**

- MIT-UTM Sustainable Cities Program – MIT Faculty Advisor
  - The MIT- UTM Malaysia Sustainable Cities Program (MSCP) is a five-year effort, initiated and run by faculty at the Massachusetts Institute of Technology (MIT) and the Universiti of Teknologi of Malaysia (UTM), with generous support by the Ministry of Education of Malaysia. The MSCP mission is to study and document sustainable city development efforts in Malaysia.
- General Electrics (GE)
- Motorola
- United Nations High Commissioners for Refugees (UNHCR)
- Creador (Private equity firm focused on growth capital investments in South and Southeast Asia)

## OTHER HONORS AND AWARDS

- *24th Eurasian Business and Economics Society (EBES) Conference Best Paper Award*
  - My paper with two co-authors titled “Pricing and Incentives In Defined Contribution Retirement Systems” was one of the top 3 papers (out of 178 papers in total) at the January 2018 conference in Bangkok. Acceptance of the award was contingent on publishing the paper in one of the EBES journals, which we declined.
- *Royster Society of Fellows – Chancellor’s Fellowship (2010-2015)*  
UNC-Chapel Hill Graduate School’s premiere interdisciplinary fellowship program for recruiting exceptional graduate students.
- *Phi Beta Kappa (2010)*
- *Vinton C. Johnson Prize (2010)*  
Awarded annually to the outstanding senior economics major at Knox College
- *Victoria Legner Junod Prize in Mathematics (2010)*  
Awarded annually to the outstanding senior math major at Knox College

## RESEARCH CONFERENCES AND TALKS

- K-Novasi Pengajaran and Pembelajaran (Pendidikan 4.0: Graduan Kalis Masa Depan), Universiti Kebangsaan Malaysia, Selangor, Malaysia, January 17-18, 2018.
- 24th Eurasia Business and Economics Society Conference, Bangkok, Thailand, January 10-12, 2018.
- 2018 American Economic Association Annual Meeting, Philadelphia, PA, January 5-7, 2018.
- The 42nd Conference of Federation of ASEAN Economic Associations, Kuala Lumpur, Malaysia, December 5-8, 2017.
- 2017 Research Workshop on the Health of Migrants and Refugees, Kuala Lumpur, Malaysia, November 9-10.
- 2017 World Bank Group Research Seminar, Kuala Lumpur, Malaysia, October 24.
- 2017 Asia School of Business Research Seminar, Kuala Lumpur, Malaysia, October 10.
- 2017 Conference of the Society of Economic Measurement, MIT Sloan School of Management, Cambridge, MA, July 26-28.
- 2017 Leaders of Experiential and Project-Based Education Conference, Darden School of Business at The University of Virginia, Charlottesville, VA, June 20 - June 22.
- 2017 National Conference on Teaching and Research in Economic Education (Hosted by the American Economic Association), Denver, CO, May 31 - June 2.
- 2017 Midwest Economic Association Meeting, Cincinnati, OH, March 31 - April 2.
- Fall Research Seminar, Lacy School of Business, Butler University, IN, October 2016.
- 2016 Midwest Economic Theory Conference, Krannert School of Management, Purdue University, West Lafayette, IN, December 2-4.
- 2016 National Conference on Teaching and Research in Economic Education (Hosted by the American Economic Association), Atlanta, GA, June 1-3.
- 85th Annual Conference of the Southern Economic Association, New Orleans, LA, November 21-23, 2015.
- UNC-Chapel Hill Research Seminar, Fall 2015.
- 2015 Singapore Economic Review Conference, Singapore, August 5-7.
- 2015 National Conference on Teaching and Research in Economic Education (Hosted by the American Economic Association), Minneapolis, MN, May 27-29.
- 14th Annual Economics Teaching Workshop, University of North Carolina at Wilmington, Wrightsville Beach, NC, October 4th, 2014.

- 12th Annual Columbia/Duke/MIT/Northwestern Industrial Organization Theory Conference, Duke University, Durham, NC, November 23-24, 2013.
- Networks and Development: Exploring an Emerging Theme (National Science Foundation), Louisiana State University, Baton Rouge, LA, March 24-25, 2012.
- Undergraduate Research Symposium (Midwestern States Consortium for Mathematics and Science), The University of Chicago, Chicago IL, November 6-8, 2009. [Presented mathematics research project funded by the Ford Foundation and a Richter Foundation grant titled *Polynomial Invariants for Knots and Amphicheirality*]

## **PROFESSIONAL DEVELOPMENT**

- Participant, Harvard Business School's Case Method Teaching Seminar, Boston, MA, August 18-19, 2017.
- Fellow, 2015 Duke University Summer Institute on the History of Economic Thought (Hosted by the Center for the History of Political Economy), Durham, NC, June 1-13.

## **LEADERSHIP**

- President, UNC Economics Graduate Student Association (2012-2013)
- President, UNC Omicron Delta Epsilon (The International Economics Honor Society) (2012-2013)

## **COMPUTER SKILLS**

Mathematica, Matlab, Stata

## **COMMUNITY SERVICE**

- Companion, *Orange Country Rape Crisis Center* (February 2014 - May 2015)  
I volunteered my time at the center by staffing the 24-Hour Crisis Line. I supported survivors of sexual assault by providing information on the medical, legal, and mental health resources available in the community. I sometimes accompanied survivors to receive medical treatment, file a police report, or meet with legal services.

## **LANGUAGES**

English (native), Malay (native)

## **PROFESSIONAL AFFILIATIONS**

American Economic Association

## REFERENCES

### **Gary Biglaiser**

Professor of Economics  
Department of Economics  
UNC-Chapel Hill  
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### **Helen Tauchen**

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### **Vikram Kumar**

Professor of Economics and Chair  
Department of Economics  
Davidson College  
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