

# MELATI NUNGSARI

## ADDRESS

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## PERSONAL CELL NUMBER

+1-309-299-1279 (US)

## ACADEMIC POSITIONS

Assistant Professor of Economics (05/17 - Present)  
*Asia School of Business in Collaboration with MIT Sloan Management  
Kuala Lumpur, Malaysia*

International Faculty Fellow (05/17 - Present)  
*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 - 07/16)  
*Department of Economics  
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. We Solved Our 2-Body Problem - by Moving to Malaysia. *The Chronicle of Higher Education*. 18 June 2017. Web.

## RESEARCH

### Under Review

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

*Coauthored with Sam Flanders.*

*At the Journal of Economic Education*

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**

*At Economics Bulletin*

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

#### **Externalities and Pricing on Multidimensional Matching Platforms**

*Coauthored with Sam Flanders.*

Abstract: We study multidimensional matching on a two-sided platform operated by a profit-maximizing monopolist. Utility is assumed to be non-transferable. Agents on one side of the market have preferences over both homogeneous and heterogeneous dimensions. Homogeneous traits can be interpreted as vertical characteristics, where all agents agree on the ranking of the characteristic. In contrast, agents have different preferences over heterogeneous traits. We find two previously unstudied externalities that result from our matching framework. We call the first the *rivalry externality* and the second the *no-transfers externality*. In particular, from a social welfare-maximizing perspective, we find that in a model with multidimensional matching, agents tend to match too aggressively on traits that are homogeneous and not aggressively enough on the heterogeneous dimensions. We show that these externalities are not unique to search models, but also appear in frictionless markets,

such as those studied by Gale and Shapley (1962). These two externalities have interesting pricing implications for the monopolist, who may find it optimal to charge distortionary per-interaction prices to correct for them.

### **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.

## **TEACHING**

### **Teaching Experience**

- *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*

#### HONORS AND AWARDS

- *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

- 2017 Conference of the Society of Economic Measurement, MIT Sloan School of Management, Cambridge, MA, July 26-28. [Attendee]
- 2017 Leaders of Experiential and Project-Based Education Conference, Darden School of Business at The University of Virginia, Charlottesville, VA, June 20 - June 22. [Attendee]
- 2017 National Conference on Teaching and Research in Economic Education (Hosted by the American Economic Association), Denver, CO, May 31 - June 2. [Presenter]
- 2017 Midwest Economic Association Meeting, Cincinnati, OH, March 31 - April 2. [Presenter]
- Fall Research Seminar, Lacy School of Business, Butler University, IN, October 2016. [Presenter]
- 2016 Midwest Economic Theory Conference, Krannert School of Management, Purdue University, West Lafayette, IN, December 2-4. [Presenter]

- 2016 National Conference on Teaching and Research in Economic Education (Hosted by the American Economic Association), Atlanta, GA, June 1-3. [Attendee]
- 85th Annual Conference of the Southern Economic Association, New Orleans, LA, November 21-23, 2015. [Presenter]
- UNC-Chapel Hill Research Seminar, Fall 2015. [Presenter]
- 2015 Singapore Economic Review Conference, Singapore, August 5-7. [Attendee]
- 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. [Fellow]
- 2015 National Conference on Teaching and Research in Economic Education (Hosted by the American Economic Association), Minneapolis, MN, May 27-29. [Attendee]
- 14th Annual Economics Teaching Workshop, University of North Carolina at Wilmington, Wrightsville Beach, NC, October 4th, 2014. [Attendee]
- 12th Annual Columbia/Duke/MIT/Northwestern Industrial Organization Theory Conference, Duke University, Durham, NC, November 23-24, 2013. [Attendee]
- Networks and Development: Exploring an Emerging Theme (National Science Foundation), Louisiana State University, Baton Rouge, LA, March 24-25, 2012. [Attendee]
- 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*]

## **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**

Malay (native), English (native).

## **PROFESSIONAL AFFILIATIONS**

American Economic Association, Midwest Economics Association

## REFERENCES

**Gary Biglaiser**

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Department of Economics  
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