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## Employment

Assistant Professor, California State University, Northridge, August 2016-present.

## Education

Ph.D. in Economics, Southern Methodist University, Dallas, TX, May 2016
M.A. in Economics, Southern Methodist University, Dallas, TX, May 2011
M.Phil. in Economics, Jawaharlal Nehru University, New Delhi, India, 2008
M.A. in Economics, Jawaharlal Nehru University, New Delhi, India, 2006
B.S. in Economics, University of Calcutta, Kolkata, India, 2004

## Research Interests

Macroeconomics and Monetary Economics, Energy Economics, International Economics

## Dissertation

**Dissertation Title**: "Oil Prices, Firm Entry, Exit and Aggregate Output Fluctuations"
**Dissertation Advisor**: Nathan Balke

## Research Experience

**AEA CSWEP Summer Economics Fellow**, Federal Reserve Bank of Dallas, 2014
**Intern**, International Monetary Fund, Summer 2013
**Research Assistant**, National Institute of Public Finance & Policy (NIPFP), New Delhi, India, January 2007-January 2008
**Summer Intern**, Competition Commission of India, New Delhi, India, Summer 2005

## Teaching Experience

**Assistant Professor**, California State University, Northridge, Department of Economics
Principles of Macroeconomics, Fall 2016
**Adjunct Professor**, Southern Methodist University, Department of Economics
Intermediate Microeconomics, Fall 2015, Intermediate Macroeconomics, Spring 2014, Principles of Macroeconomics, Fall 2013
**Teaching Assistant**, Southern Methodist University, Department of Economics
Principles of Macroeconomics (Undergraduate), Principles of Microeconomics (Undergraduate), Microeconomics (Graduate), Fall 2009- Spring 2013
**Tutor**, Altshuler Learning Enhancement Center, Southern Methodist University, Summer 2011

## Publications

Book Chapter: Canada: Macroeconomic Implications and Challenges of the Unconventional Energy Revolution (2015) (with Lusine Lusinyan, Dirk Muir & Julien Reynaud), International Monetary Fund Selected Issues Paper, IMF Country Report: Canada (2014) (with Lusine Lusinyan, Dirk Muir & Julien Reynaud)

## Research Papers

*Oil Price Shocks, Firm Entry and Exit in a Heterogeneous Firm Model (Job Market Paper)*

Oil price shocks are considered to be one of the important factors behind U.S. recessions, yet little is known about the transmission channels of oil price shocks. What complicates the matter further is the small share of oil in production. To address the issue the literature has incorporated amplifying channels such as endogenous depreciation or variable markups. This paper investigates the hitherto unexplored area of the effect of oil price shocks on firm dynamics. In particular, we seek to understand the role oil price shocks play in the entry, exit decision of firms. Using data on U.S. firm births and business failures we find that oil price shocks have a significant negative effect on firm entry and a positive effect on firm exit. This suggests that the extensive margin- the number of existing firms is an important mode of transmission for oil price shocks. We present a DSGE model with heterogeneous firms which replicates this behavior of firm entry and exit and show that inclusion of firm entry and exit amplifies the effect of oil price shocks. Further, the DSGE model is able to explain selection patterns over the business cycle as the firms surviving after an oil price shock are bigger and more productive.

*Energy in a Model of Firm Entry (R&R at Macroeconomic Dynamics)*

Nine out of the last ten recessions in the U.S. have been preceded by an increase in the price of oil as noted by Hamilton (2008). Given the small share of energy in GDP this phenomenon is difficult to explain using standard models. In this paper, I show that firm entry can be an important transmission and amplifying channel for energy price shocks. The results from the baseline DSGE model predict a drop in output which is two times the impact in a model without entry. The model also predicts an increase in energy prices would lead to a decline in real wages, investment, consumption and return on investment. Additionally, using U.S. firm level data I demonstrate that a rise in energy prices has a negative impact on firm entry as predicted by the DSGE model. This lends further support towards endogenizing firm entry when analyzing the effects of energy price shocks.

*Oil Price Shocks and the Extensive Margin*

In this paper, I incorporate firm heterogeneity and explore the transmission channels of oil price shocks in a static model following Melitz (2003). The model builds on the framework of Bernard, Redding & Schott (2007) with two factors of production, oil and labor. I show in a heterogeneous firm setup, if factor bundles in entry are different from factor bundles in production, exogenous increase in oil prices can lead to an increase in firm level productivity. This is in contrast to the standard approach of modeling energy in the literature where energy price shocks are treated as negative productivity shocks. Furthermore, an increase in oil prices also leads to increase in aggregate price level, profits and prices of surviving firms. So there is some reallocation of market shares towards more productive firms. However, the gain in industry productivity is not sufficient to offset the decline in the number of surviving firms and as a result aggregate output falls. I also compare the aggregate output elasticity from heterogeneous firm models with a homogenous firm model and an aggregate competitive firm model. Simulations from my model suggest higher output elasticity in heterogeneous firm models vis-à-vis symmetric firms or the aggregate

competitive model. Through this analysis, we can also compare the contribution of the extensive and the intensive margin in all the different model setups.

*Intensive and Extensive Margins of Adjustment*

Many believe the extensive margin is an important propagation and amplifying channel for productivity shocks. This paper argues that this amplification mechanism depends crucially on the specification of the entry costs. Using the Melitz, Bilbiie and Ghironi (2012) framework we show that when technology shocks affect only the production sector the model fails to generate any effect on the extensive margin. When technology shocks affect both the production and entry sector, the impact on the extensive margin depends on risk aversion parameter in the utility function and the mobility of labor across the production and entry sector. In particular, high values for risk aversion and low substitutability of labor across sectors both dampen the effects on the extensive margin and increase the importance of the intensive margin in propagation of shocks.

## Papers in Progress

Firm Entry and Exit Decisions with Financial Frictions (with Nathan S. Balke and Enrique Martinez – Garcia)
Oil Price Shocks and Optimality of Monetary Policy in a Model with Endogenous Firm Entry (with Anna Kormilitsina)
Role of Oil Prices in Forecasting Exchange Rates (with Mariam Kharaishvili)
Entry or Mark-ups: A Comparison of the Amplification Mechanism
Oil Price Shocks and Firm Failures: A Sectoral Analysis

## Other Research

Exploring Intra-Canada and Canada-U.S. Inter-Industry Linkages: An Input-Output Analysis, International Monetary Fund, Mimeo
Sustainability of the Fiscal Position: A study of 14 Indian States (with Manmohan Agarwal)

## Presentations

American Economic Association Meetings, January 2017 (scheduled)
Southern Economic Association, Chair, Presenter & Discussant, November 2016 (scheduled)
Southern Economic Association, Presenter & Discussant, November 2015
United States Association for Energy Economics, October 2015
Brown Bag Seminar, Southern Methodist University, October 2015
Federal Reserve Bank of Dallas, July 2014
Southern Methodist University, Graduate Research Day, February 2013
Southern Methodist University, May 2012

## Honors and Awards

Finalist, Joseph L. Fisher Doctoral Dissertation Fellowship, Resources for the Future, 2015- 2016
Graduate Student Development Grant, Southern Methodist University, 2015
Graduate Student Assembly Fund, Southern Methodist University, 2015
Full Tuition Scholarship and Teaching Assistantship, Department of Economics, Southern Methodist University, Fall 2009 – Spring 2012
Omicron Delta Epsilon (ODE), International Honor Society in Economics, 2012

University Grants Commission Scholarship, Jawaharlal Nehru University, New Delhi, India, 2007-08

## Professional Membership

American Economic Association, Southern Economic Association, United States Association for Energy Economics

## Skills

Proficient in MS Office, Scientific Workplace, Stata, Matlab, Dynare, Eviews, SAS

## References


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