

# SOYOUNG LEE

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## CONTACT

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## EMPLOYMENT

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Senior Economist, Bank of Canada, 2020 -

## EDUCATION

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### **The Ohio State University**

Ph.D., Economics, 2020

M.A., Economics, 2015

### **Seoul National University**

B.A., Economics, 2008

## RESEARCH INTERESTS

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Macroeconomics, Financial frictions, Income and Wealth inequality

## CONFERENCE PRESENTATIONS

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Annual International Journal of Central Banking Research Conference	2021
Society for Economic Dynamics Annual Meeting	2021
Firm Heterogeneity and Macroeconomy	2021
Computing in Economics and Finance	2021
World Congress	2020
Computing in Economics and Finance (Finalist, Graduate Student Paper Contest)	2019
Young Economists Symposium	2018
Society for Economic Dynamics Annual Meeting	2018
Midwest Macroeconomics Meetings	2018

## INVITED SEMINARS

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### **2020**

University of Guelph, Bank of Canada, Stockholm University, University of Surrey, Rutgers University, Board of Governors, Simon Fraser University, University of Tennessee

## TEACHING EXPERIENCE

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### **Ohio State**

Principles of Macroeconomics	Instructor, Spring 2019
Intermediate Macroeconomics	TA, Fall 2018
Financial Economics I	TA, Spring 2018
Principles of Microeconomics	TA, Fall 2017
Principles of Macroeconomics	TA, Fall 2016, Spring 2017 and Fall 2019

**The Macroeconomic Effects of Debt Relief Policies during Recessions**  
(Job market paper. Latest version is available at [here](#).)

2019

I study the aggregate and microeconomic effects of debt relief programs during recessions. My model allows households to default on their mortgages and enter into foreclosure, default on unsecured debt and enter into bankruptcy, or both. The result is the first general equilibrium model with aggregate uncertainty, accommodating uninsurable income risk, unsecured debt, financial assets, mortgages, housing, bankruptcy, and foreclosure. The model successfully replicates the distribution of household wealth as well as key asset and debt components. Using this unique laboratory, I explore how one form of household debt forgiveness affects another, how households with differing asset positions are affected, as well as the consequences for aggregate series such as GDP and investment.

General equilibrium movements in house prices and interest rates play an important role in creating an interdependence between the portfolio adjustments of households and the long-term effects of a policy intervention. I find that a mortgage principal reduction program targeting loan-to-value ratios among highly leveraged borrowers delivers significant and persistent increases in aggregate consumption, investment, and output during a recession. It dampens the decline in house prices and stimulates capital accumulation, driving lower interest rates. The initial rise in house prices has lasting effects as it reduces subsequent foreclosures and effectively loosens financial constraints on households. Comparing mortgage forgiveness to a tax rebate, an untargted transfer to all households, I find that the tax rebate is more effective in reducing bankruptcy, and the principal reduction is more effective in reducing foreclosure and supporting house prices. Both policies have similar overall effects on aggregate consumption, but their distributional effects are different.

**The Role of Firm Heterogeneity in Earnings Inequality**

2018

Over the past three decades, individual earnings inequality has risen alongside increases in the concentration of firm employment and revenue in the U.S. This paper studies the factors underlying these trends and their macroeconomic impacts. I extend a canonical uninsurable earnings risks model with heterogeneous firms and labor market search friction as in Lucas and Prescott (1974). The model successfully replicates the earnings distribution, individual and firm factors in earnings variance, and the firm size distribution. Using this quantitatively disciplined model, a counterfactual exercise is designed to decompose the factors affecting the rise in earnings inequality. I show that the individual component in wages explains most of the rise in earnings inequality. Surprisingly, changes in the firm productivity distribution and worker allocation across firms do not contribute to the rise in earnings inequality but mitigate it.

**Generalized Endogenous Grid Method for Models with a Default Option**  
(with Youngsoo Jang)

2021

Default risk models have been widely employed to assess the ability of households and nations to insure themselves against shocks. Grid search has often been used to solve these models because the complexity of the problem prevents the use of faster but less general methods. In this paper, we propose an extension of the endogenous grid method to default risk models, which is faster and more accurate than grid search. In particular, we find that our solution method leads to a more accurate bond price function, and that this makes substantial differences in the main predictions of the canonical sovereign debt model. When applied to Arellano's (2008) model, our approach predicts a standard deviation of the interest rate spread one-third lower and defaults 3 to 5 times less frequently than does the conventional approach. On top of that, our method is efficient. It is approximately 4 to 7 times faster than grid search when applied to a canonical model of Arellano (2008) and 19 to 27 times faster than grid search when applied to the richer model of Nakajima and Rios-Rull's (2014). Finally, we show that our method is applicable to a broad class of default risk models by characterizing sufficient conditions.

(with Aubhik Khan)

In a model of entrepreneurship with entry, exit and a time-varying distribution of production, we examine the effects of differences in initial leverage on the severity and duration of a recession. Towards this, we develop a model where entrepreneurs produce using capital and labor and finance their businesses using loans subject to default risk. Entrepreneurs hold liquid assets which serve as collateral; their debt is illiquid.

Our model economy implies a misallocation of resources as productive entrepreneurs without collateral are cannot undertake high levels of investment given the effect of rising leverage on default risk and loan rates. Following a severe downturn that worsens balance sheets, an economic recovery is a gradual process as many entrepreneurs struggle to fund capital spending.

We find that the distribution of leverage has substantial implications for the speed of the recovery. When aggregate leverage is a third higher than its long run mean, a large negative TFP shock drives a sharp rise in default. This causes a pronounced and persistent reduction in the number of businesses which, in turn, reduces the endogenous component of aggregate total factor productivity. The subsequent economic recovery is slower; the half life of output rises from 7.5 years to 15. However, leverage does not, by itself, imply a slow recovery.

## WORK IN PROGRESS

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### **The household credit channel of monetary policy – A bottom-up approach**

with Christian Bustamante, Xing Guo, Katya Kartashova and Alexander Ueberfeldt

### **Hand to Mouth Dynamics**

with Felipe Alves, Colin Grimes, Jim MacGee and Tom Pugh

## LANGUAGES

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English (fluent), Korean (native)

Fortran 90 (with Open MP), Matlab, Stata, R, Python

## FELLOWSHIPS, AWARDS AND HONORS

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Kennedy Fellowship

Ohio State, 2019

Alumni Grants for Graduate Research and Scholarship

Ohio State, 2018

Dissertation Fellowship

Board of Governors, 2018

Journal of Money, Credit and Banking Travel Grant

Ohio State, 2018

Overseas Traineeship

Bank of Korea, 2014 - 2016

## PAST EXPERIENCE

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### **The Bank of Korea**

Economist, 2008-2014.

## REFERENCES

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**Professor Aubhik Khan** (Advisor)

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The Ohio State University  
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**Professor Julia K. Thomas**

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