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Jaehee Song

Address:
Department of Economics
Yale University
New Haven, CT 06520-8268

Telephone: +1 203-503-8773

E-mail: jaehee.song@yale.edu

Web page: jaeheesong.com

Citizenship: Republic of Korea, F-1 Visa

Fields of Concentration:
Public Economics
Industrial Organization
Urban Economics

Desired Teaching:
Microeconomics
Applied Econometrics
Industrial Organization
Public Economics
Urban Economics

Comprehensive Examinations Completed:
2018 (Oral): Industrial Organization, Labor Economics
2017 (Written): Microeconomics, Macroeconomics

Dissertation Title: *Essays on Housing Supply Regulations*

Committee:
Professor Steven Berry (Chair)
Professor John Eric Humphries
Professor Costas Meghir

Expected Completion Date: May 2022

Degrees:
Ph.D., Economics, Yale University, 2022 (expected)
M.Phil., Economics, Yale University, 2019
M.A., Economics, Yale University, 2018

B.S., Mathematical Sciences (*Highest Honor*), Korea Advanced Institute of Science and Technology, 2016

Fellowships, Honors, and Awards:

University Dissertation Fellowship, Yale University, 2020–2021
Yale University Fellowship, 2016-2021
Cowles Foundation and Economic Growth Center Fellowship, 2016-2021
Doctoral Study Abroad Scholarship, Korea Foundation for Advanced Studies, 2016-2021

Research Grants:

Research Grant, Tobin Center for Economic Policy, 2020-2021

Seminar and Conference Presentations:

2021: Minneapolis Fed Junior Scholar Conference (Invited)

Teaching Experience:

Spring 2019/Spring 2020/Fall 2020, Teaching Assistant to Prof. John Eric Humphries, Introduction to Data Analysis and Econometrics, Yale College

Fall 2018, Teaching Assistant to Prof. Costas Meghir, Applied Data Analysis and Econometrics, Yale College

Research Experience:

Research Assistant to Prof. John Eric Humphries, Yale University, 2018-2019
Research Assistant to Prof. Paul Goldsmith-Pinkham, Yale University, 2019
Research Assistant to Prof. Yusuke Narita, Yale University, 2017

Working Papers:

"The Effects of Residential Zoning in U.S. Housing Markets", *Job Market Paper*

Work In Progress:

"Exclusionary Zoning Practices in Response to Transportation Developments"

Languages:

Korean (native), English (fluent)

References:

Prof. Steven Berry
Yale University
Department of Economics
New Haven, CT 06520
PO Box 208268
Phone: +1 203-432-3556
steven.berry@yale.edu

Prof. John Eric Humphries
Yale University
Department of Economics
New Haven, CT 06520
PO Box 208268
Phone: +1 203-432-5075
johneric.humphries@yale.edu

Prof. Costas Meghir
Yale University
Department of Economics
New Haven, CT 06520
PO Box 208268
Phone: +1 203-432-3558
c.meghir@yale.edu

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Dissertation Abstract

The Effects of Residential Zoning in U.S. Housing Markets [Job Market Paper]

Zoning regulations restrict the type and quantity of housing constructed. Such regulations have recently come under scrutiny, with policymakers and advocates arguing that relaxing zoning laws will lower housing costs and increase access to high-opportunity neighborhoods. This project studies minimum lot area regulations, the most widespread form of zoning controls, in U.S. housing markets. I first construct a unique nationwide data set of minimum lot area requirements from municipal tax records. Then, I leverage a border discontinuity design and develop a novel model of housing demand and supply to evaluate the effects of minimum lot area regulations on housing prices, construction, and the welfare of different socioeconomic groups.

The paper consists of three parts. First, I apply a structural break detection algorithm to the distribution of constructed lot areas to estimate the neighborhood-level minimum lot area requirements for over 29,000 municipalities. I document two descriptive facts from this data. First, strict zoning regulations are pervasive across the U.S.: 42% of residential land is subject to minimum lot area requirements of 1 acre or greater. Second, zoning regulations appear to distort the composition of housing characteristics, with 16% of residential lots bunching at the minimum lot size constraints.

Second, I estimate the effects of minimum lot area regulations on housing prices and density, and on residential sorting. In my analysis, I address the endogeneity concern that zoning stringency is correlated with unobserved location amenities by comparing single-family homes near municipal borders where the regulation level changes. The results suggest that doubling the minimum lot area increases property values by 14% and rent by 6% and reduces housing density by 37%. In addition, stricter zoning disproportionately attracts white and wealthier households.

Finally, I develop a model of housing demand and supply and use the framework to evaluate a counterfactual statewide reform on minimum lot areas. On the demand side, households have heterogeneous preferences for neighborhood zoning stringency. On the supply side, developers factor in the additional costs imposed by zoning and non-zoning regulations. I find that white households strongly prefer strict zoning in their neighborhoods. Additionally, both zoning and non-zoning supply restrictions impose substantial costs on housing construction. The estimates imply that, for example, halving minimum lot areas in Connecticut would cause new homes to be substantially smaller and cheaper and thus would benefit racial minorities, while minimally affecting existing home values.

Exclusionary Zoning Practices in Response to Transportation Developments

Historians have documented that suburban communities historically set stricter zoning laws to prevent the inflow of racial minority households. They argue such practices were especially

common in response to transportation developments, which allowed minorities to more easily access these suburban communities. In this project, I study the effect of increased potential inflow of racial minorities on the stringency of residential zoning by leveraging variations in transportation networks and out-migration shocks. To do this, I assemble a data set on the highway and railroad networks during the mid-to-late 1900s. I estimate a model of migration using 1935 to 1940 migration flows. Then, I use the estimated model to predict the inflow of Black households from 1940 to 1970 given the change in transportation networks and economic conditions in their prior locations. My preliminary findings indicate that municipalities that expected more Black inflow imposed stricter minimum lot area regulations.