

# DEOKJAE JEONG

SSK Inclusive Economic Policy Research Team  
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## EDUCATION

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Ph.D. in Economics, <b>University of California, Davis</b>	2024
M.S. in Economics, <b>University of Wisconsin, Madison</b>	2018
M.A. in Economics, <b>Sung Kyun Kwan University (Korea)</b>	2012 ( <i>coursework complete</i> )
B.A. in Law, <b>Sung Kyun Kwan University (Korea)</b>	2010

## RESEARCH INTERESTS

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Applied Microeconomics, Labor Economics

## RESEARCH EXPERIENCE

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<b>SSK Inclusive Economic Policy Research Team</b>	
Postdoc	2024 ~ Present
<b>Korea Institute of Public Finance</b>	
Center for Performance Evaluation and Management	2014 ~ 2015
<i>Research Associate</i>	
<b>Korea Development Institute</b>	2012 ~ 2014
Department of Human Resource Development Policy	
<i>Research Associate</i>	

## WORKING PAPERS

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**Automation, Human Task Innovation, and Labor Share: Unveiling the Role of Elasticity of Substitution** (with Seungjin Baek and Giovanni Peri)

*Abstract:* This paper investigates the elements contributing to the change in labor share, with a specific focus on the roles of 'automation' and 'innovation in human tasks.' We construct a general equilibrium model that distinctly incorporates both robot and non-robot capital to derive an econometric specification. Using task data from O\*NET and employing the most recently developed sentence embedding tools to match tasks and patents, we construct a novel 'innovation in human

tasks' variable for multiple countries. This allows us to empirically evaluate the impact of innovation in human tasks on labor share across countries for the first time in the literature. Our accounting analysis suggests that the positive influence of human task innovation outweighs the adverse effects of automation in most of countries we study. From our regression analysis, we estimate the elasticity of substitution between labor and non-robot capital to be less than one, while the elasticity of substitution between tasks is greater than one. With these estimates, we elucidate the direct and indirect effects of automation and innovation in human tasks on labor share.

### **How the Reduction of Temporary Foreign Workers Led to a Rise in Vacancy Rates in South Korea** (Submitted to the Journal of Human Capital)

*Abstract:* This paper investigates the impact of a reduction in low-skilled Temporary Foreign Workers (TFWs) on job vacancies in South Korea's manufacturing sectors. The study harnesses a quasi-experimental event —the commencement of a COVID-19 quarantine policy in January 2020— as the foundation to pinpoint the causal link between the dwindling numbers of TFWs and the subsequent increase in job vacancies. This stringent quarantine measure acted as the 'shift' component in my shift-share instrument, while the pre-pandemic distribution of TFWs across various manufacturing sectors functioned as the 'share' component. Utilizing Difference-in-Difference regressions with continuous intensities, the research underscores that sectors with a heavy dependence on TFWs witnessed a significant spike in vacancies a year following the COVID-19 outbreak, and this surge lasted for two years. Consequently, firms grappled with the challenge of securing full-time staff, given that most of these foreign workers (E9 visa holders) had been primarily engaged in full-time roles. This highlights that domestic workers are not readily available to fill vacant positions, especially as full-time workers. The paper also incorporates the Local Projection methodologies to substantiate these observations.

### **Measuring Routine and Cognitive Task Indices Using Large Language Models to Analyze Occupational Change in the United States** (with Tai Lee, Submitted to Labour Economics)

*Abstract:* This study proposes an innovative methodology for quantifying Routine Task Intensity (RTI) and Cognitive Task Intensity (CTI) using Large Language Models to analyze O\*NET task descriptions. Employing these LLM-derived measures, we reveal a consistent decline in routine occupations across Service and Sales sectors, with Sales receiving limited attention in existing literature. Regression analysis indicates a significant upward trend in cognitive impact on wages for females, particularly in Service, Sales, and to a lesser extent, Management occupations, while routine coefficients remain stable across five decades. These results underscore the growing

significance of cognitive skills, especially for women in the workforce. Despite limitations in LLM output reliability and replicability, our methodology offers a complementary perspective to existing approaches, enabling a comprehensive understanding of labor market transformations.

## WORK IN PROGRESS

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### **Market Concentration and Labor Share: An EU Critique of the Superstar Firms Theory** (with Corinne Stephenson)

*Abstract:* This paper contends that the Superstar Firms theory by Autor et al. (2020) inadequately explains the decline in labor share in EU countries. Although market concentration has risen in the U.S., it has notably decreased overall in EU nations. We first demonstrate the weak correlation between market concentration and changes in labor share in the EU using CompNet data. We then delve deeper with firm-level data from Orbis. Finally, we offer compelling reasons that are unique to the EU context. We conclude that while the Superstar Firms theory is a robust explanation for the U.S., it cannot be universally applied.

## PRESENTATIONS (\*: Scheduled)

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SSK Networking 4th Joint Symposium	2024
Western Economic Association International 99th Annual Conference	2024
American Economic Association Annual Meeting	2024
Korea-America Economic Association Job Market Conference	2023
Applied Microeconomics Student Talk, UC Davis	2022, 2023
Annual All-California Labor Economics Conference	2023
Advisees' Meeting Presentations, UC Davis	2021, 2022, 2023

## TEACHING EXPERIENCE

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<b>UC DAVIS, Teaching Assistant</b>	2018 ~ 2024
ECN 1A	Introductory Microeconomics
ECN 1B	Introductory Macroeconomics
ECN 100A	Intermediate Microeconomics
ECN 101B	Intermediate Macroeconomics
ECN 110B	World Economic History
ECN 131	Public Finance

## FELLOWSHIPS

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Research Award, UC Davis, Department of Economics	2023
Non-Resident Tuition Fellowship, UC Davis	2019 ~ 2022
SimSan Scholarship, SimSan Foundation	2010 ~ 2012
Scholarship for Academic Excellence, Sung Kyun Kwan University	2009

## SKILLS

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Stata, Python, SAS, R, MATLAB  
English (fluent), Korean (native), Japanese (advanced)

## REFERENCES

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### **Giovanni Peri**

Professor  
University of California, Davis  
Department of Economics  
[gperi@ucdavis.edu](mailto:gperi@ucdavis.edu)

### **Oscar Jorda**

Professor  
University of California, Davis  
Department of Economics  
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### **Athanasios Geromichalos**

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Department of Economics  
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