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Education

Ph.D. Candidate, Economics, Temple University 2014-present
Dissertation: "Essays on understanding macroeconomic fluctuations: an input-output network approach"
Expected Completion Date: May 2023
M.A., Economics, Temple University 2014
B.S., Information & Computing Science, Shenyang Agricultural University, China 2011
Graduation with honors

Research Interests

Primary Field — Macroeconomics
Secondary Field — Industrial Organization

Teaching Experience

Instructor, Temple University
Econ 1101 Macroeconomic Principles — Spring 2021, Fall/Spring 2020, Summer 2017-2019
Econ 1102 Microeconomic Principles — Fall 2022, Spring 2020
Econ 3502 Intermediate Macroeconomic Analysis — Summer 2016

Teaching Assistant, Temple University — Fall/Spring 2021-2022, Fall/Spring 2014-2017
Econ 1101 Macroeconomic Principles — Professor Michael Leeds/Professor Moritz Ritter
Econ 1102 Microeconomic Principles — Professor Shreyasee Das/Professor George Lady
Econ 3502 Intermediate Macroeconomic Analysis — Professor Yuan Yuan
Econ 3563 International Trade — Professor Brenden Mason
Econ 3564 International Monetery Economics — Professor Yuan Yuan

Awards and Honors

Graduation Completion Grand, Temple University, 2023
Outstanding Teaching Assistant, Temple University, 2022
Teaching & Research Assistantship, Temple University, 2014-2021
National Scholarship (top 1%), Shenyang Agricultural University, 2011
University Scholarship (top 5%), Shenyang Agricultural University, 2007-2010

Job Market Paper

"*The Importance of Input-Output Network Structure in the U.S. Economy*"

Hulton's Theorem argues that in the presence of input-output linkages, the impact of an industry-level shock on the aggregate economy is entirely captured by the size of this industry, regardless of its position in the network. This paper proposes that the production network structure in isolation represents an essential channel in shaping GDP growth and growth volatility. First, I show evidence that as industries in the U.S. economy became sparsely connected from 1970 to 2017, that is, many more industries relied on a few central input suppliers for production, GDP growth tended to slow down and be more volatile. Motivated by these empirical facts, I embed input-output linkages into a multisector real business cycle model and provide a nonlinear characterization of the macroeconomic impact of sector-specific productivity shocks to highlight the key role of production network structures. Finally, I measure realized sector-level productivity shocks from the data, feed them into the model, and study model-implied relationships between production network structure, GDP growth, and growth volatility. Our calibrated model is able to explain about 20% of the business cycle fluctuations as observed in the data. Moreover, our results imply that network connections matter beyond industry sizes.

Other Research Papers

"*Do financial shocks drive real business cycle fluctuations in China?*"

Over the past several decades, China has enjoyed one of the world's fastest-growing economies and succeeded in rebounding quickly from historical recessions, especially the global financial crisis of 2008-2010. This paper studies the extent to which financial shocks, shocks that originated from the financial market, can shape business cycle fluctuations in China. First, I document the business cycle properties of China's economy from 1994 to 2017 and show the procyclicality of dividend payout and the countercyclicality of debt repurchases with real GDP, respectively. To account for these features, I develop a real business cycle model that allows firms to raise funds via debt and equities to understand the role of financial shocks in generating macroeconomic dynamics. In the model, I assume that payments to labor need to be made before the realization of revenues, so a firm might need to raise funds to fill liquidity shortages between two periods. However, when both financing and liquidating capital assets become challenging to a firm, especially during recessions, it must cut budget constraints by laying off workers. This paper finds that financial shocks contribute significantly to the growth of output, investment, hours worked, and debt repurchases, and thus are the main driving force of macroeconomic fluctuations in China through the real economic factor, labor.

"*The Network Origin of the Industry Size Variations*" (work in progress)

In this paper, I study the question of why some industries are big while others are small in the U.S. economy using a production network approach. Specifically, I identify the supply side and demand side characteristics of buyer-supplier relationships that contribute to the variations in industry size over the 1970−2017 period. Empirically, I conduct a variance decomposition of industry total sales into the supplier, buyer, and final demand components using the two-way fixed effects method. Our results suggest that the supplier component, which relates to an industry's productivity or product quality, explains a majority of the variation in industry sizes (67%). In other

words, being an important or attractive input supplier in the network is fundamental in shaping industry sizes. To account for the empirical facts, I build a multisector real business cycle model that allows for various sources of industry heterogeneity both on the demand side and the supply side and conduct a model-based decomposition of industry sales. And finally, I use the model for counterfactual analyses to assess the role of the production network by removing network linkages.

"*The impact of service outsourcing on labor productivity*" (work in progress)

This paper investigates the impact of service outsourcing on sectoral labor productivity in the United States over the period 1963-2019. Outsourcing refers to a situation where firms or sectors contract out particular jobs, such as accounting, data analyzing, and cleaning, to specialized companies rather than produce them in-house. In the paper, I observe that service-related sectors were becoming more central input suppliers in the U.S. economy over the sample period, which coincident with the fast-growing service outsourcing activities. I also document a significantly positive correlation between the change in employment in the service sectors and their supply of output within the network. Our results imply that this structural transformation might trigger labor reallocation towards service sectors and thus influence sectoral labor productivity. To account for these sectoral movements, I incorporate the input-output network into a multisector real business cycle model to quantitatively assess the role of industry sourcing mode in labor productivity.

Conferences and Seminars

As a Presenter

"*The Importance of Input-Output Network Structure in the U.S. Economy*": Midwest Economics Association 86th Annual Meetings, 2022; the VIII Permanent Workshop of SHAIO, 2021; International Input-Output Association (IIOA) Online Development Programme, 2021; Pennsylvania Economic Association Annual Conference, 2021.

As a Discussant

Midwest Economics Association 86th Annual Meetings, 2022: "*Inventories, Input-Output Structure, and International Business Cycles*" (by Chengyuan He)

Pennsylvania Economic Association Annual Conference, 2021: "*Crime Rate Convergence in Pennsylvania Counties: A Spatial Examination Using Panel Data*" (by Jozefowicz, Habacivch, and Redilla)

Software

Intermediate: MATLAB, DYNARE, STATA, EVIEWS LaTeX
Basic: R, SAS, GEPHI

Other

Languages: Chinese-Mandarin (native), English (fluent)
Nationality: China (F-1 visa)

References

Professor Pedro Silos (Chair)
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Professor Michael Leeds (Director of Graduate Studies)
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Professor Martin Lopez-Daneri
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Professor Charles Swanson
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