Rowan Shi

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Fields

Spatial Economics, International Trade

Education

PhD (expected) in Economics, Princeton University 2014 - 2020
Advisors: Stephen Redding, Eduardo Morales, Oleg Itskhoki

BA in Mathematics and Economics, University of California, Berkeley 2009 - 2014
Highest Honors in Economics, Distinction in General Scholarship

Job market paper

Evaluating a EU tax harmonization with Kathleen Hu

The European Union features a deeply integrated market, notably with free trade and free movement of people. On the other hand, member states still independently set many policies, including corporate tax rates. Low-tax countries such as Romania could be attractive locations for production, given this combination of policies. Goods produced there could be later shipped widely within the EU tariff-free, while profits are taxed at a low rate. However, low-tax countries also tend to be lower in several measures of productivity, sparking a narrative that they rely precisely on low tax rates to attract economic activity. Large high-tax countries like France and Germany have pushed for EU-wide tax rate equalization in response. We evaluate the effects of such a policy using a quantitative spatial model with heterogeneous firms, where multinational activity arises endogenously as firms choose an optimal set of countries in which to produce. This firm decision is a combinatorial discrete choice problem, where a naive solution method is computationally infeasible. A main contribution of this paper is devising a numerical algorithm which solves for the firm's policy function quickly and robustly over the entire range of firm productivity levels. We find that the tax rate generating the same level of EU-wide tax revenue is 27.26%. The country-level variation introduces a menu of production locations, where firms trade off a low tax burden with productive considerations. When taxes are instead the same in each country, firms choose affiliate locations only for productivity reasons. As a result, we find that the harmonization policy increases total output by 0.38%. This aggregate response masks large distributional consequences, with large countries experiencing net job creation and higher real wages. For example, the real wage in France would increase by almost 1% and there would be 10% more firms. On the other hand, a mirror effect occurs in small countries with formerly low rates. The number of firms in Romania decreases by around 18%, with real wages falling around 1.5%.

Works in progress

Combinatorial discrete choices in general equilibrium

This paper proposes a method to compute the solution to combinatorial discrete choices over a range of parameter values. A CDC problem is characterized by a set of interdependent discrete choices, and are typically computationally burdensome to solve without a strategy. However, these types of problems are common in the trade and industrial organization literatures. For example, a trade economist may be interested in predicting the set of export markets a firm may choose to enter. The choice to enter a specific market may affect the value of entering a separate market if production technology is not linear. In this case, each possible export market cannot be considered separately. Often, a model of this type will feature firm heterogeneity, with productive firms making systemically different choices compared to a less productive firm. In this case, firm productivity serves as a parameter value along which the optimal solution varies. Moreover, the choices of all firms are necessary for computing

aggregates in general equilibrium, so the CDC must be solved for multiple firm productivities. Conditional on the objective function satisfying two intuitive and frequent conditions, the algorithm introduced here solves for the solution as a function of firm productivity. It reduces computation time by several orders of magnitude compared to existing methods, allowing for a CDC problem with heterogeneity to be feasibly embedded in a general equilibrium model. Additionally, it is flexible and easily applicable in practice. Code in Julia is provided for easy implementation.

Brazil's import liberalization and its non-traded sector

During the 1990s, the Brazillian government unexpectedly and quickly implemented tariff cuts for most imported products. This paper examines the liberalization's differential effect on within-sector industry reallocation across local labor markets. To do so, I use administrative panel data to follow firms through the period when the policy was enacted. In particular, I document that in areas more exposed to the trade shock, resulting import competition had relatively larger negative effects on small establishments compared to large ones. Small establishments were more likely to contract or exit compared to their large counterparts, in both traded and non-traded industries. In fact, the estimated effect is positive for the largest plants. In other words, plants with over 500 employees in more exposed areas were more likely to survive and expand than those in less exposed areas. In traded industries, the total effect was negative, leading to 2 million fewer jobs on net. However, in non-traded industries, the total effect was positive, implying 1 million new jobs on net. This result also suggests new sources of gains from trade, if within-industry reallocation from small plants to large plants implies sectoral productivity improvement.

Awards and fellowships

Summer Fellowship, International Economics Section, Princeton University 2016 - 2019
Doctoral Fellowship, Princeton University 2014 - 2020

Teaching

Course organizer, Introduction to microeconomics, Prof. Kelly Noonan 2018 - 2020
Course organizer, Introduction to microeconomics, Prof. Henry Farber 2019
Teaching assistant, Introduction to microeconomics, Prof. Kelly Noonan 2018
Teaching assistant, Ethics and economics, Prof. Thomas Leonard 2017
Teaching assistant, Introduction to macroeconomics, Prof. Elizabeth Bogan 2016 - 2017

Research experience

Research assistant, Prof. Oleg Itskhoki 2015
Research assistant, Prof. Mark Aguiar 2014
Research assistant, Prof. Yuriy Gorodnichenko 2013