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Introduction to the Special Issue on Advances in Structural
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INTRODUCTION TO THE SPECIAL ISSUE ON ADVANCES IN STRUCTURAL
MICROECONOMETRICS

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Structural models are being increasingly used in economics to address a wide range of questions. Since its creation more than 50 years ago, the *Annals of Economics and Statistics* have been a natural home to papers analyzing important questions through the lens of an estimated economic model. The papers that are included in this special issue showcase the exciting breadth of topics, along with the wide range of methods that characterize structural microeconomics today.

A first set of papers addresses important questions in the economics of education and in labor economics. In his paper “Fast-Tracked to Success: Evidence on the Returns to Vocational Education in Switzerland”, Fernando Saltiel estimates the academic and labor market returns to vocational education in Switzerland, a country in which firm-based vocational education is particularly developed. To do so, he estimates a dynamic discrete choice model where students sort across academic and vocational tracks based on their cognitive and non-cognitive skills. In contrast to most of the earlier studies conducted in contexts where secondary vocational and tertiary tracks are not as tightly associated as they are in Switzerland, Saltiel finds that there are positive returns to vocational tracks relative to academic tracks.

In “Selective Migration, Occupational Choice and the Wage Returns to College Majors”, Tyler Ransom evaluates the importance of selection biases affecting estimated returns to education in the US since workers choose their location and occupation. Because “treatment” is multidimensional (15 destinations and 2 occupations), the author resorts to one simplification and one technique. First, the selection term is restricted to depend on the probabilities of choosing the current location and occupation and of choosing the current location and non-chosen occupation instead of letting it depend on all choice probabilities (Dahl, 2002). Second, these probabilities are estimated as a function of exogenous variables using machine learning techniques such as classification trees. The main results are that OLS estimated returns are upward biased and that selection strongly depends on spatial effects.

In their paper “Gender Gaps in Latin American Labor Markets: Implications from an Estimated Search Model”, Mauricio Tejada, Claudia Piras, Luca Flabbi and Monserrat Bustelo provide new insights about the mechanisms underlying the gender gap in Latin American labor markets, focusing on the case of Argentina, Chile, Colombia and Mexico. To do so, the authors estimate a job search model which captures two key features of these labor markets, namely a high prevalence of informality as well as self-employment, while allowing for endogenous participation decisions. Counterfactual policy experiments indicate that the participation margin substantially magnifies the impact of different types of gender-equalizing policies on the output per-capita.

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Finally, in their timely paper “Diffusion of Covid-19 in Social and Production Networks: Simulation Evidence from a Dynamic Model”, Victor Aguirregabiria, Jiaying Gu, Yao Luo, and Pedro Mira apply tools and methods from the literature on dynamic games to specify a tractable model which ties together agents’ decisions in the labor market and the spread of the Covid-19 virus. The computational simulations presented in this paper demonstrate how different government policies - such as subsidies for working from home, or mandatory Covid-testing - affect the spread of the virus.

The next papers contribute to the very active structural literature in empirical industrial organization. In the paper “Misallocation or Mismeasurement? Evidence from Plant-Level Data”, Baiyu Dong and Yu-Wei Hsieh study a fundamental issue that arises when one seeks to measure capital misallocation. Measuring capital is a particularly challenging task, and, in most datasets, measurement errors are pervasive. It follows that the extent of misallocation, along with its impact on productivity are likely to be biased. This paper tackles these problems by proposing a novel, Fourier-based, estimation method for production technology that is robust to classical measurement errors on capital. Using Korean plant-level manufacturing data, the authors show that the productivity loss induced by capital misallocation is significantly overestimated if one doesn’t take such measurement errors into account.

Yosuke Hirose’s paper, “Estimating Inefficiency in Online Auctions”, applies a structural approach to analyze how consumers respond amidst the persistent problem of potential seller misbehavior in online auctions. Using data on sales of handheld videogame consoles on eBay, Hirose studies how consumer risk aversion may lead to inefficiency in the auctions, as the bidders with largest valuations for an item may not win it due to risk aversion. Particularly, his results confirm that the feedback or reputation mechanism on eBay works effectively in curbing inefficiency in these auctions.

Chuhang Yin Geissler’s paper, “Long Term Neighborhood Effects of Religious Preferences”, presents a novel and clever use of the differentiated product demand framework developed in the empirical industrial organization literature to study a key question in urban economics - namely, the extent to which residents in communities “vote with their feet” and self-sort to areas where their neighbors share their preferences. Geissler’s analysis uncovers clear evidence of such self-sorting in Glaswegian neighborhoods among religious lines, which has contributed to persistent differences in wage earnings between the neighborhoods.

Spatial sorting is also at the center of “Why are Low-Skilled Workers less Mobile?” by Benoit Schmutz, Modibo Sidibé and Elie Vidal-Naquet, which analyzes the determinants of mobility differences across skill groups in France in recent years using matched employer-employee data. They use a model of equilibrium search describing the transition between major French cities in which mobility costs and search frictions can be estimated as shown in previous work by Schmutz and Sidibé (2019). They find that mobility costs do not vary across skill groups in absolute terms while search frictions are widely different and much bigger in low-skill groups. Furthermore, the authors show in counterfactual experiments that relocation subsidies have little impact while policies affecting spatial frictions do.

The last set of papers are more methodological in nature. Jeremy Fox’s “Note on Non-parametric Identification of Distributions of Random Coefficients in Multinomial Choice Models” considers the identification of “mixed” multinomial choice models in which the joint distribution of both the coefficients as well as the choice-specific error terms have

unknown distributions. Importantly, Fox’s main result establishes the nonparametric identification of the joint distribution without relying on typical (and arguably less realistic) “identification at infinity” arguments, which essentially allow researchers to apply identification results for simpler binary-choice settings to the multinomial-choice environment.

In “Counterfactual Worlds” Andrew Chesher and Adam Rosen extends their work in Chesher and Rosen (2017) on generalized instrumental variables. A counterfactual world defined by a treatment indicator is a set of interrelated outcomes also determined by exogenous variables. The latter are of three types: determinants of outcomes, confounders, or true instruments. Confounders appear in unconfoundedness or conditional independence restrictions. True instruments are assumed marginally independent of unobserved shocks determining outcomes. The authors study the partial or point identification of such structures, and qualify the importance of the different restrictions. They provide several detailed examples; one is a training scheme for unemployed which affects their whole future, such as getting a job and its associated wage and duration.

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