

Quantifying the Welfare Gains of Variety: A Sufficient Statistics Approach

Kory Kroft, Jean-William P. Laliberté, René Leal-Vizcaíno, and Matthew J. Notowidigdo*

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Abstract

This paper develops a new revealed-preference approach for valuing changes in product variety. We show that the “variety effect” – the change in consumer surplus resulting from a change in the number of available products, holding prices constant – can be represented graphically as the area between the inverse market demand curves before and after the change in product variety. Our key contribution is to derive a sufficient statistics formula for the variety effect under the assumption of parallel inverse market demand curves. This formula depends on the price elasticity of demand when variety is fixed and the price elasticity of demand when variety is permitted to vary. We demonstrate that a wide class of continuous and discrete choice models give rise to parallel inverse demand curves, showing that our formula is robust. We illustrate the value of our approach by considering an empirical application to taxes. In particular, we show how one can implement our sufficient statistics formula using reduced-form estimates of the effect of taxes on variety and the effect of taxes on prices and quantities in two cases: where variety is held constant and where variety responds to a change in taxes through firm entry or exit. Combining retail scanner data from grocery stores in the U.S. with detailed local sales tax data and using within-store and between-store variation in rates and exemptions, we estimate a large effect of sales taxes on product variety. Finally, we discuss several additional applications in Industrial Organization and Public Economics.

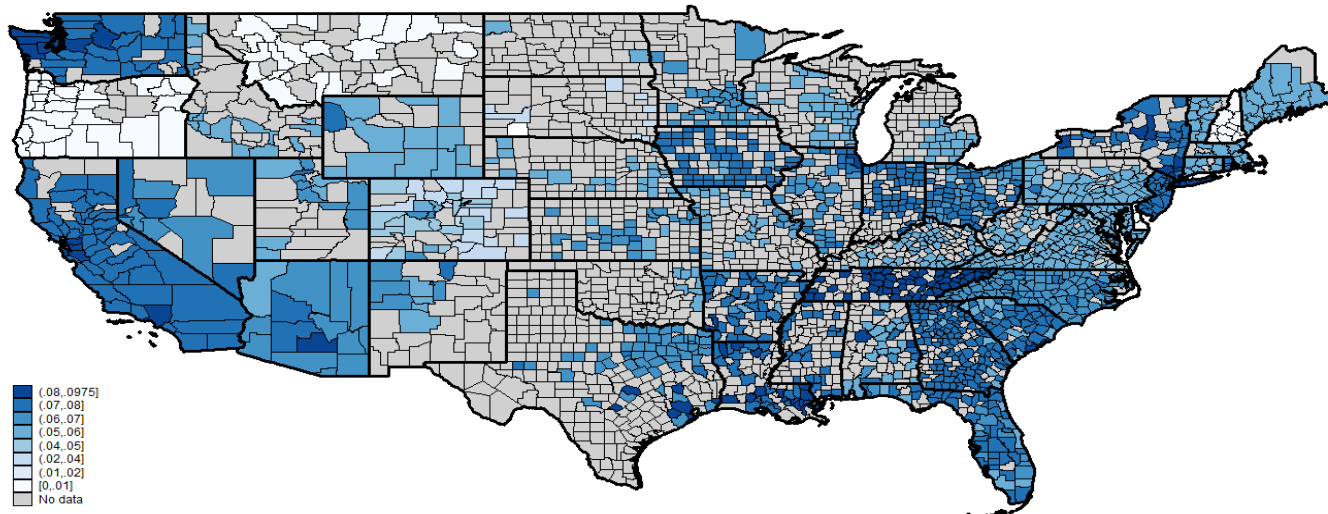
JEL codes: H21, H71, F12, L13.

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*Kroft: University of Toronto and NBER, kory.kroft@utoronto.ca; Laliberté: University of Toronto, jw.plaliberte@mail.utoronto.ca; Leal-Vizcaíno: Northwestern University, renelealv@u.northwestern.edu; Notowidigdo: Northwestern University and NBER; noto@northwestern.edu. We thank Simon Anderson, Raj Chetty, Julie Cullen, Amy Finkelstein, Nathan Hendren, Louis Kaplow, Henrik Kleven, Nicholas Li, Jesse Shapiro, Rob Porter, Aviv Nevo, Stephen Coate, and numerous seminar participants for helpful comments. We thank Eileen Driscoll, Robert French, Pinchuan Ong, Adam Miettinen, Boriana Miloucheva, Shahar Rotberg, Marc-Antoine Schmidt, Jessica Wagner and Haiyue Yu for extremely valuable research assistance. We gratefully acknowledge funding from the Social Sciences and Humanities Research Council (SSHRC). Any opinion, findings, and conclusions or recommendations expressed in this material are those of the authors(s) and do not necessarily reflect the views of the SSHRC.

Figure 5: Map of Cross-Sectional Variation in Salex Tax Rates

State+County sales tax rates, as of September 2008



Note: No data indicates counties for which no grocery store sales were recorded in Nielsen's Retail Scanner data in 2008.