

Welfare or Well-Unfair: Incorporating Heterogeneous Income Into Normative Analysis

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2019

Outline

1. Show (or remind) us why typical welfare estimations are an imperfect tool for normative economics
2. Outline the general goal of what I hope to do
3. Show the idea of a method for Micro BLP type estimation

Motivating Example



(a) A Banana



(b) Jeff Bezos



(c) Me

Motivating Example

- ▶ Who should get the banana?
- ▶ Economists often use “How much are you willing to pay?”
- ▶ Jeff - “I mean it’s one banana Nathan. What could it cost, \$10? look I’d pay \$100”¹
- ▶ Nate - “I missed lunch and am really hungry, I would pay \$5”²
- ▶ Who get’s more welfare from the banana? Does Jeff get 20 times more welfare?
- ▶ Traditional Econ 101 essentially says yes

¹Not an actual quote

²Also not an actual quote.

Justification For Willingness to Pay

- ▶ We are Maximizing the size of the “pie” and we can redistribute later
 - ▶ While this may be true in some sense the pie is typically not redistributed
- ▶ We are getting a sense of the “cost” of a policy and then the reader can decide which is better based on equity concerns
 - ▶ The equity trade off is pretty clear in the banana example
 - ▶ What about more complicated policies impacting various groups?

More Complicated Examples

- ▶ Deciding between a tax on rice and caviar
- ▶ Allowing a merger that raises the price of low quality goods but lowers price and cost of high quality goods
- ▶ Deciding on health-care mandates, subsidies or restrictions
- ▶ Replacing old technology with new
- ▶ In these examples the normative equity trade-offs are more burdensome for the reader

Main Goal

- ▶ Reduce the number of comparisons we leave to the reader
- ▶ i.e. reduce the dimensionality of the problem
- ▶ Make these policy trade-offs more comparable to the banana problem
- ▶ Create Normative parameter to capture the Equity Trade-off

Informing a Normative Choice

- ▶ Use something like the following:
 - ▶ For which X would the following make roughly the same difference? One thousand dollars to a family with an income like yours, or X dollars to a family with half your family's income?
- ▶ Provides us with a way to translate surplus from a given individual into a subjective welfare measure incorporating income
- ▶ Outcome is normative (as it should be)
- ▶ We can provide welfare analysis for a menu of different responses and report them back

Basic Idea

Let CS = Consumer Surplus, $D(i)$ = demand for consumer i , P = Price, K = Number of consumers, \bar{M} = mean income, I_i = Income, W = Welfare

Discrete consumer surplus could be calculated like so:

$$CS = \sum_{Q=1}^K (D(i) - P)$$

But, from the answer to our above question we can derive a willingness to pay to “welfare” weights

$$N(i) = \frac{\bar{M}}{I_i^2}$$

Now we can derive a truly normative metric for welfare

$$W = \sum_{Q=1}^K (D(i) - P) \cdot \frac{\bar{M}}{I_i^2}$$

BLP Idea

- ▶ $\mu_{ij} = U_{ij} + \epsilon_{ij}$, $\mu_{i0} = \epsilon_{i0}$
- ▶ ϵ_{ij} i.i.d. \sim type-1 extreme value distribution
- ▶ U_{ij} is linear in price with coefficient α_i

Now we can get compensating variation as

$$CV_i = \frac{V_i^1 - V_i^0}{\alpha_i} N(i)$$

where

$$V_i = \ln\left(1 + \sum_{j=1}^J e^{U_{ij}}\right)$$

Now we can take the expectation of this over observable demographics (including income which impacts our weights) and unobservable taste shocks

Discussion

- ▶ Welfare results are no longer in dollars. Only meaningful up to a normalization
 - ▶ I would argue this isn't as bad as it sounds
 - ▶ Everything is relative (Policy A vs what?)
 - ▶ Surplus is in dollars but the quantities are hard to wrap our heads around without a comparison to another market/policy anyway
- ▶ The weights will have to rely on parametric assumptions of preferences for equity
 - ▶ The current approach also relies on a parametric assumption that willingness to pay = welfare

Discussion

- ▶ We also care about other metrics like consumption, wealth, or health
 - ▶ Given the data, we could incorporate these issues as well
- ▶ Connection between willingness to pay and welfare may differ between different goods
 - ▶ In health-care, willingness to pay is basically ability to pay

Possible Paper Paths

- ▶ Rerun the analysis of past Micro BLP papers using this technique
- ▶ Try to estimate weights using exogenous shocks to income
- ▶ Tie the weights to a verifiable policy outcome. Like a target intergenerational transmission.

The End

Thank You