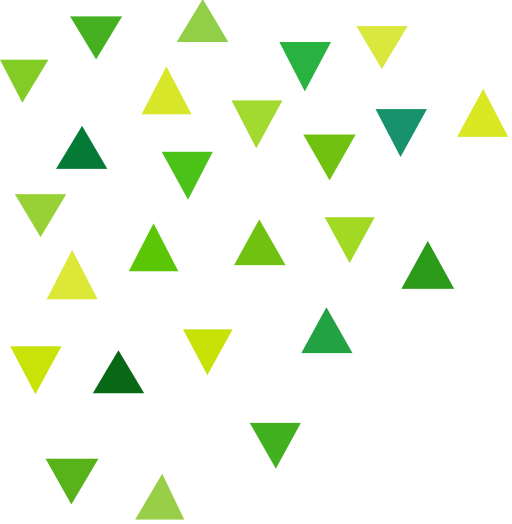


Cannabis Data Science #60

April 6th, 2022

*" **Utility** analysis is a highly theoretical construct ... to serve as a link in the chain connecting human preferences with economic behavior."*

- Martin Weitzman,
Utility Analysis and Group Behavior: An Empirical Study (2008).

A neurological measurement device.

Utility

- Individuals behave **as if** they receive utility from *believing* they have satisfied their preferences.
- Utility is generally not compared between individuals.

  The Impossibility of Interpersonal Utility Comparisons, Hausman (1995)
- Utility maximazation is found by maximizing the Lagrangian

$$\mathcal{L} = \mathcal{U}(x, \alpha) + \lambda(I - p_x \cdot x)$$

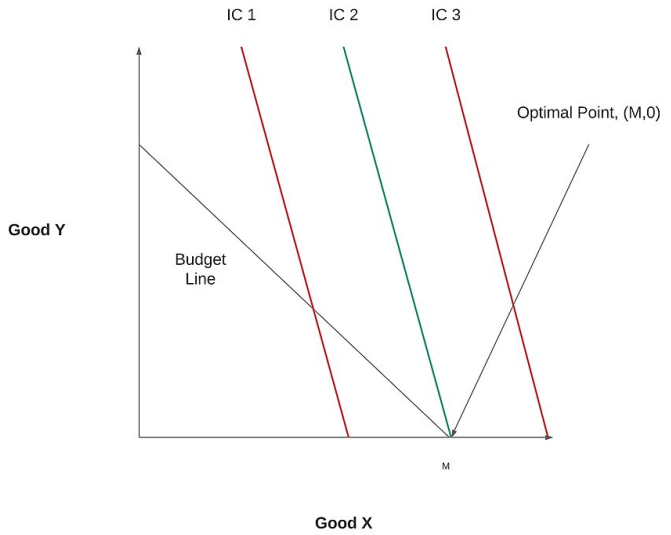
  where utility is maximized at consumption set x^* given prices, p_x, and a consumer's preferences, α.

Consumer Choice

Consumers are people who purchase your product.

Potential consumers are

- Those interested in purchasing, who haven't.
- Those that purchase a substitute product.
- Those using illicit avenues.



A corner solution withe optimal bundle $(M, 0)$.
Author: Stephanosg
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Our Scientific Method

1. Experimental design: based on prior research.
2. Hypothesis generation: record!
3. Collect data.
4. Test our hypothesis.
5. Reproduce.

Question and Hypothesis

Question of the day.

- How does the price of other goods affect cannabis consumption?
- How will inflation affect the **proportion** of people using cannabis and the **quantity** of cannabis consumed by people who consume cannabis?

These are questions that the Cannabis Data Science group is uniquely positioned to answer.

Coming up in Saturday Morning Statistics

- Logit, Probit, and Tobit model extensions!
- Heckman (1981) showed that estimating choice models based on observed choices may lead to strong state dependence *if* participation is not modeled.
- Heckman-selection (Tobit Type II) models can correct for selection bias and yield **unbiased** and **consistent** estimates, even when the proportion of missing data is substantial.

 Thank you for coming.

Insight of the Day

- Modeling both participation and consumption is critical in making **unbiased**, **consistent** predictions in the cannabis industry.

In Saturday Morning Statistics this week, we will do just that. What would you like to talk about next week?