Basics of Revealed Preference Theory

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Preference Relations

- Express preferences between different elements of a set (e.g. snacks in a supermarket)
- There can exist multiple preference relations over the same set (e.g. taste, health rating)
- Important to systematically talk about preferences

Rationality

- Modern theories of rationality are agnostic about direction of specific preferences
- Impossible to evaluate without knowing goals
- Therefore we make assumptions about the structure of preferences

Preference Relation 1: Revealed Preference R

Let $C = \{a, b, c, ...\}$ be the set of choices and $P = \{p_a, p_b, p_c\}$ the set of prices at each choice

R is a binary relation over elements of C: $R \subseteq C \times C$

$aRb \leftarrow p_a \cdot a \geq p_a \cdot b$

R is transitive: $aRb \wedge bRx \rightarrow aRc$

Preference Relation 2: Strict Revealed Preference S

S is a subset of R: $S \subseteq R$

$aSb \leftarrow p_a \cdot a > p_a \cdot b$

Generalized Axiom of Revealed Preferences (GARP)

For a rational decision maker the following criterium holds for the preference relations R and C

Axiom: $aRb \iff \neg bSa$

Implications of GARP

- If a DM's preferences comply with GARP, then she acts as if she was maximizing a utility function
- Choices are deterministic: There is no variability in choice ceteris paribus
- Preferences are stable over time