



PHILOSOPHY OF ECONOMICS & POLITICS

LECTURE 9: RATIONALITY

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Today's agenda

- * Hayek was a **critic of the standard conception of rationality** he found in his contemporary economics and developed an alternative
- * This alternative might be called '**evolutionary rationality**'
- * Today I will
 - * **motivate** why conceptions of rationality are so important for the social sciences
 - * **introduce** the standard conception
 - * **summarise** some empirical 'anomalies' or 'paradoxes'
 - * and finally **present** an overview of alternatives, including Hayek's

Why do social scientists assume humans act rationally?

- * Methodological individualists often assume that social phenomena are best explained by referring to **individuals' beliefs and desires**
- * This model is called '**folk psychology**'
- * Obviously, not any old beliefs and desires will do
- * Assuming that people are instrumentally rational provides one way to connect beliefs, desires, and actions:
 - * An individual **performs** A because she **desires** X and **believes** that A leads to X

Why do social scientists assume humans act rationally?

- * Citing beliefs and desires of the appropriate kind is usually enough for **explaining people's actions in ordinary contexts**
- * But it places enormous **cognitive demands concerning the mental life of others** on the person who seeks to explain someone else's action
- * Not only do we have to know individual's **actual beliefs** and **desires** (i.e., her reasons for action), we also have to know **which of these reasons she acted on**
- * Social scientists are not normally in that position
- * Instead, they have to **infer** reasons for action from **observable behaviour** and **objective constraints**

Why do social scientists assume humans act rationally?

- * This is what rational-choice theories really do for the social scientist: they **provide constraints** on admissible means-ends reasoning **so that motives can be inferred from observable actions**
- * A stupid example: if I know that Sally, in a situation where both apples and bananas are available, chose apples, and I assume (a) that Sally always acts on the strongest desire, and (b) that she is aware of the available options, I can infer that she had a stronger desire for apples than for bananas (i.e., that she **preferred** apples to bananas!)
- * Different (standard) models of rational choice provide such constraints for different types of situations

Theories of rational choice

- * For example:
 - * Choice under certainty: **ordinal choice theory**
 - * Choice under risk: **expected utility theory**
 - * Strategic choice: **game theory**
- * In each case:
 - * A number of **formal assumptions** about preferences is made
 - * Experimental and other evidence shows that people's behaviour (on average) **violates these assumptions**

Paradoxes of rational choice

- * Ordinal choice theory, for instance, assumes that individuals have **stable**, **complete**, and **transitive** preferences over alternatives
- * And yet, people's choices will not always reflect this: The '**self torturer**' (a **Sorites paradox**)
- * Expected utility theory assumes in addition the '**sure-thing principle**'
- * Which has been shown to be empirically violated in the **Allais paradox**

Paradoxes of rational choice

- * Game theory uses a **dominance principle** similar to the sure-thing principle to solve games: 'If action A makes me better off no matter what the other's strategy is, choose A!'
- * This too leads to paradoxical results:
 - * **Prisoners' dilemma**/Tragedy of the commons challenge the idea that game-theoretic behaviour is rational
 - * **Public goods games** show empirically that people don't always behave according to the predictions of game theory
 - * The **chain-store paradox** illustrates that it might not be the best strategy always to appear rational

Responses

- * What can we do in the light of these paradoxes? 3 types of response
 - * **Deny:** Blame 'auxiliary hypotheses' for failures
 - * **Accept:** Offer a behavioural theory that builds on empirical findings
 - * **Rethink Rationality:** Assert that the fault does not lie with individuals but with the assumed standard of rationality; offer an alternative standard under which the observed behaviour comes out as rational

Deny

- * Note that scientific hypotheses (e.g., about how people behave in certain situations) are never tested in isolation but rather **against a backdrop of 'auxiliary assumptions'** about the proper functioning of the experimental equipment, 'bridge principles' that connect theories with observations etc. etc.
- * This is the so-called '**Duhem-Quine Problem**'
- * One strand of the literature finds some evidence that when the design of experiments is improved, results match more closely the predictions of rational choice theory
- * E.g., it matters that people play with real (and substantial amounts of) money and not hypothetical 'tokens', that they are given time to learn the rules of the game, how utility functions are defined

Accept

- * Another strand in the literature accepts the experimental results and argues that they suggest that humans are at best **‘boundedly rational’** (Herbert Simon) but often behave in a **shortsighted, not perfectly self-interested and weak-willed** manner
- * This strand in the literature thus also accepts traditional rational choice theory as the **standard** to determine what to count as rational
- * **Behavioural economics** builds on these results and develops behavioural (i.e., descriptive) theories to explain them: prospect theory, hyperbolic discounting, behavioural game theory (which includes social preferences)

Aside: Nudge Theory

- * Nudge theory or **libertarian paternalism** is another outcome of this way of thinking
- * Nudge theory starts from the premiss that **individuals do not always choose in ways that are good for them**
- * It adds to that the **paternalist** idea that these individuals should be helped to make better decisions by government policies
- * The '**libertarian**' part of the programme refers to the principle that **the range of options individuals face should not be affected** by the policy; i.e., that the options deemed 'bad' by the policy maker should not explicitly outlawed or made prohibitively expensive
- * Paradigm: Carolyn's cafeteria

Rethinking Rationality

- * A third strand in the literature argues that **the experimental results do not show that people are irrational** — because they assume a poor conception of rationality
- * Many experimental results can be reinterpreted as displaying rational behaviour under an **alternative standard of rationality**
- * One school of thought also builds on **Herbert Simon's** work
- * Gerd Gigerenzer's '**ecological rationality**' explains behaviour by assuming that decision makers use 'simple and smart heuristics' that are cognitively inexpensive but powerful
- * Example: Linda the bank teller
- * Hayek's '**evolutionary rationality**' also falls into this camp

Evolutionary Rationality

- * Hayek regarded the human mind as a **complex system of rules** that emerged out of a long-term evolutionary process in which supraindividual patterns of interaction exert selective force on the change of those rules
- * We cannot explain all aspects of behaviour as a consequence of intentional choices as the rules evolve as a consequence of **unintended consequences** of earlier choices
- * Three layers of rules: those shaped by
 - * **Darwinian selection**, by
 - * **Cultural selection**, and by
 - * **Individual selection**
- * Hayek is suspicious of the constructivistic design of rules because he believes that the supraindividual process of evolution is more powerful in accumulating information than mere individual information processing

Evolutionary Rationality

- * Recall the **chain-store paradox**: here the incumbent can realise the ‘rational’ (highest) payoff only by behaving irrationally in the second step; but if the rival knows/believes this, he never needs to realise the irrational option
- * Change interpretation: ‘**harem game**’
- * Here the **payoffs realised in the game determine the behavioural patterns** with which players enter future games
- * Evolutionary rationality is a **higher-order rationality** that encompasses rational and irrational behaviour (as defined by traditional rational choice theory)
- * In this way apparently irrational behaviour can be explained, for example co-operation in (one-shot) prisoners’ dilemma or public-goods game due to **social norms and emotions that help to sustain them**

Conclusions

- * The main lessons of today's discussion are:
 - * There is more than one '**model of rationality**'
 - * There is much evidence that individuals behave in ways that **violate traditional rational choice theory**
 - * There is **more than one way to respond**
 - * Hayek developed an **alternative account of rationality that can explain at least some of the experimental phenomena**