

Mechanism Explanations in Rational Choice and Analytical Sociology: What is the Best Micro-Foundation?

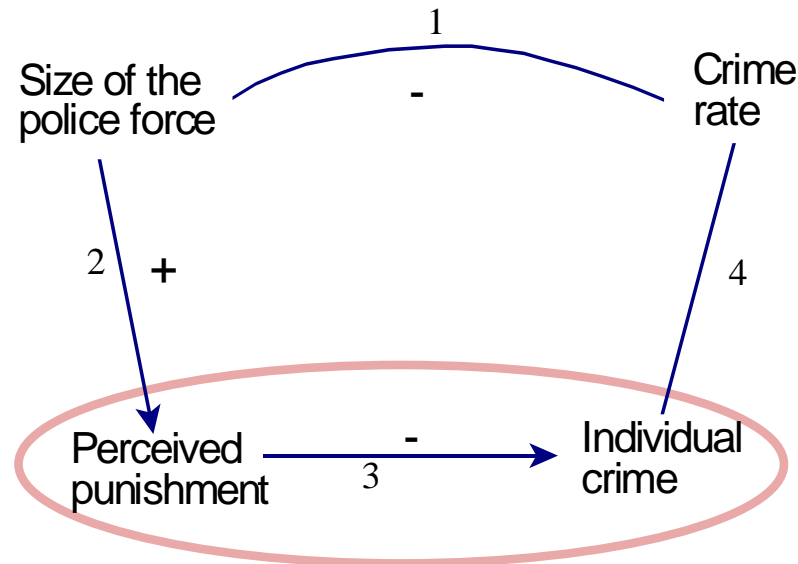
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Introduction

Analytical Sociology (AS) and Rational-Choice Sociology (RCS) have – at least – one thing in common: the goal to formulating **micro-macro explanations**. In AS, this is a **mechanism-based explanation**.

Example:



Such explanations require **a micro theory**, that is, a theory about individual behavior (in order to avoid ad hoc explanations).

What is an appropriate micro theory?

There are **different positions** of advocates of Analytical Sociology (AS) and Rational Choice Sociology (RCS) .

- (1) Advocates of AS raise major **objections against rational choice theory** that lead to the rejection of this theory.
- (2) Advocates of AS claim to have a **superior micro theory**, namely DBO theory.
- (3) Advocates of AS claim that there is **no need to apply a general theory**.

To what extent are these claims acceptable? This is discussed in this presentation

Before these claims can be discussed it needs to be clarified which **version of RCT** is the target of the critique. There is

- a **narrow neo-classical version** at one end of a continuum, assuming, in particular:
 - egoistic preferences,
 - full and correct information,
 - objective utility maximization (from the viewpoint of an observer),
- a **wide social-psychological version** at the other end of a continuum, assuming in particular
 - egoistic or other preferences (altruistic desires, desire to norm compliance),
 - beliefs (may but need not be wrong),
 - subjective utility maximization (from the viewpoint of the actor) – may, but need not, coincide with objective utility maximization.
 - What is relevant must be determined in empirical research (to avoid ad hoc explanations).

- The **wide version seems superior** because it can explain a wider range of phenomena.
- This version is implicitly used **already by the Scottish moral philosophers** (e.g. Adam Smith, David Hume, Adam Ferguson – see Vanberg 1975: ch1).
- The wide version is **increasingly accepted and widely applied**.
 - see already H. Simon with his idea of satisficing, behavioral economics and the heuristics-and-biases program (Kahneman, Thaler), game theory (ultimatum game); most rational choice theorists in sociology apply it, research on value expectancy theory in social psychology
- The wide version **includes the narrow version** as a special case:
 - There is thus no contradiction between the wide and narrow version,

In what follows I always refer to the wide version of RCT.

Contents of the Presentation

I will deal with the following issues referring to the application of micro theories:

- A major critique of RCT is the **arbitrariness charge**: Any factor can be included in a rational choice explanation. So no valid explanation is possible.
- Another major critique of RCT is **the rejection of subjective utility maximization**. Instead, **reason-based explanations** are preferred.
- Claim of advocates of AS is that **DBO theory is a superior to RCT**.
- **Pluralism claim of AS**: Applying a general theory is not required, application of middle range theories is preferable.

To what extent are these criticisms acceptable?

Issue 1: Can Any Factor Be Included in a Rational Choice Explanation?

“Finding a rational choice model that fits a particular phenomenon becomes almost trivially easy as **there are no real constraints on preferences and beliefs that can be attributed to the individuals in question.**” (Hedström and Ylikoski 2014, p. 60)

X “The wide version of RCT is able to **assimilate almost any psychological concept or theory and translate it into more or less "soft" incentives or a more or less inaccurate belief.**” (**Kroneberg and Kalter 2012**: 82)

X “Even if the resulting explanations are testable, the underlying **wide version of rational-choice theory (see Opp, 1999) allows assimilating almost any variable as an “incentive”** and is therefore of little explanatory power and heuristic value” (**Kroneberg 2014**: 111)

Let us look at an **example**: The explanandum is „S brought an **umbrella** (Hedström 2005). Let S have the following preferences and beliefs:

Desires/preferences of S

S likes to fly to the moon

S wants to marry his girlfriend

S does not want to get wet

Beliefs of S

Apples are healthy

The US government was responsible for 9/11

An umbrella put up protects against rain

S is aware that he owns an umbrella

Explanandum:

S brought his
umbrella today

Is the selection of the desires and beliefs to explain the action arbitrary?

RCT includes a **selection criterion** that can be reconstructed in the following way:

Selection criterion for goals:

Does the **action** to be explained lead to the satisfaction of **desires**? (These are the **relevant** desires or goals.)

Desires/preferences of S

S likes to fly to the moon

S wants to marry his girlfriend

S does not want to get wet

Beliefs of S

Apples are healthy

The US government was responsible for 9/11

An umbrella put up protects against rain

S is aware that he owns an umbrella

Explanandum:

S brought his umbrella today

Selection criterion for beliefs:

Does the **action** to be explained most likely **realize the desires**?

Conclusion

The critique that in a given explanation with RCT any desire or belief can be included is clearly not tenable.

It goes without saying that it **must be empirically measured** which desires/beliefs **exist** and whether an actor **relates** certain desires/beliefs to the action, as outlined before.

Issue 2: The Assumption of Subjective Utility Maximization


The rejection of **subjective utility maximization** – henceforth **UM** – in AS raises the following questions:

- What is the **evidence** for and against UM?
- Which are the **alternatives** to UM – and is there evidence that supports these alternatives?
- Do advocates of AS **implicitly apply UM**?

The **propagated** methodology may differ from the methodology **actually applied**. Perhaps proponents of AS actually apply UM, in contrast to their verbal confessions?

Is there empirical evidence for or against UM?

- Existing **general theories assume** subjective utility maximization, but the **concept** is not used. For example:
 - dissonance and balance theory (people are better off if there is consonance or balance)
 - learning theory (law of effect)
 - value expectancy theory (VET) in social psychology
 - etc. etc.
- **Empirical research** that confirms those social psychological theories thus confirms subjective utility maximization (e.g. dissonance theory, VET).



„In der psychoanalytischen Theorie nehmen wir unbedenklich an, daß der Ablauf der seelischen Vorgänge automatisch durch das **Lustprinzip** reguliert wird, das heißt, wir glauben, daß er jedesmal durch eine unlustvolle Spannung angeregt wird und dann eine solche Richtung einschlägt, daß sein Endergebnis mit einer Herabsetzung dieser Spannung, also mit einer **Vermeidung von Unlust oder Erzeugung von Lust** zusammenfällt.“

Incidentally: the **reality principle** (Realitätsprinzip) refers to subjective **constraints** that prevent the reduction of unpleasure.

Thus, Freud includes basic ideas of rational choice theory!

- Many (or perhaps all?) **theories of the middle range** implicitly assume utility maximization – even if their advocates are not rational choice scholars.
 - Anomie theory, theories of divorce, status inconsistency theory, theories of protest ...
- It is striking that numerous **classical and renowned writers** assume UM, in quite different formulations. Assuming that they are not stupid implies that this can be counted as some evidence for UM.

Here are some examples:

Sigmund Freud (1921: 1): It is assumed that psychic processes are regulated by the **pleasure principle** (Lustprinzip) an unpleasant tension leads to a process with the outcome that the **tension is diminished and thus „coincides with avoiding unpleasure and generating pleasure.“**

Thomas Schelling (1971, on Segregation): People **are „happy“ when** a certain percentage of their neighbors are similar (such as having the same race). People move to become happier.

Robert Axelrod on „The Evolution of Cooperation“ (1984) apparently uses a wide version of RCT: The players need not be „rational. They need not be trying to maximize their rewards. Their strategies may simply reflect standard operating procedures, rules of thumb, instincts, habits, or imitation. ... The actions that players take are not necessarily even conscious choices. A person who sometimes returns a favor, and sometimes does not, may not think about what strategy is being used. There is no need to assume deliberate choice at all.” (18). “Rational” seems to mean that actors objectively maximize utility. However, **actors want to “choose effectively”** (29) or choose an “effective strategy” (30). In his **example of the Live-and-Let-Live system in World War I mutual cooperation is “more valued” than defection** (85). All this amounts to assuming that there is some subjective utility maximization

Thomas Hobbes in his „Leviathan“ (1651) assumes that actors do what they think is **best for them, e.g. to transfer rights** so that a state can originate (e.g. Taylor 1987: 26-163, Ullmann-Margalit 1977: 62-72).

Talcott Parsons makes various assumptions about individual behavior. In his „action frame of reference“ he states: „Reduced to its simplest possible terms, then, a social system consists in a plurality of individual actors interacting with each other in a situation that has at least a physical or environmental aspect, actors who are motivated in terms of a **tendency to the „optimization of gratification“** ...“ (1951: 5, emphasis added)


Émile Durkheim proposes various hypotheses about individual behavior in his work. Often a sort of utility maximization is implicitly suggested, e.g. in 1915 (Elementary...): 211: When he describes dramatic social changes „men become different. The **passions moving them [men] are of such an intensity that they cannot be satisfied except by** violent and unrestrained actions, actions of superhuman heroism or of bloody barbarism. This is what explains the Crusades, for example ...”

Karl Marx has proposed a theory of collective action which predicted revolutionary action of workers that overthrows capitalism. This assumes certain **incentives (deprivation) that drive collective action to overthrow capitalism which makes workers better off**. Olson (1965: 1002-110) argued that these incentives are misspecified.

In regard to the **general approach** we find a reiteration of the approach of the Scottish Moral philosophers claiming that *individuals do* what they think is best but that the aggregate result is „not willed“ (e.g. letter of Engels to J. Bloch).

Max Weber distinguishes several **types of action**. The arguments **imply** that **persons choose those types of action (e.g. instrumental or value-rational) that are best from their perspective**. Accordingly, several authors assert that Weber's argument is at least close to rational choice theory (e.g. Norkus 2001).

In regard to Weber's substantive contributions the „**Protestant Ethic** ...“ clearly implies utility maximization: ignorance (or **uncertainty**) of one's **predestination** is dissonant (costly) and people solve this dissonance by regarding occupational success as a signal for being saved.



Thus, the hypothesis that **humans do what they think is best for them**, in the given situation, is generally accepted.

The **expression „utility maximization“** is rarely (or never) used.

And there is clear **empirical evidence** that supports this proposition.

Is there a better alternative to utility maximization?

„DBO theory makes no assumption that actors act rationally, however; it only assumes that they **act reasonably** and with intention.

... DBO theory does not exclude that actors act ... according to the canons of rationality, but such situations are rare and it therefore seems inappropriate to use rational choice theory as the general point of departure“ (Hedström 2005: 61).

This means that action is reason-based and not utility maximizing (same interpretation in Manzo 2014a: 24).

What exactly is meant by „reason-based“ action?

„**Beliefs and desires** ... cause an action in the sense of providing **reasons** for the action ... a particular **combination of desires and beliefs** constitutes a „**compelling reason**“ for performing an action“ (Hedström 2005: 39).

Unclear: When is a combination of reasons "**compelling**"?

Plausible: If there are „compelling“ reasons to perform action A (such as attending this conference) this means that this is the best action from the perspective of a participant.

Example: Assume, a person has **reasons in favor of and against** a certain behavior – how will the person decide?

Assume Mr. Smith has two options:

Desires	Options of Mr. Smith and beliefs	
	Walk with Umbrella	Take a taxi
Improve health	Likely	Unlikely
Save time	Unlikely	Likely
Save money	Likely	Unlikely
Get wet	Likely	Unlikely

Which action is predicted by the reason-based approach?

Expectancy value theory could be applied

Behavioral consequences (simplified):

- Health,
- Time required,
- Fare needed

$$\text{SEU(Walk)} = p \cdot U(\text{Health}) + p \cdot U(\text{Time}) + p \cdot U(\text{Fare})$$

$$\text{SEU(Taxi)} = p \cdot U(\text{Health}) + p \cdot U(\text{Time}) + p \cdot U(\text{Fare})$$

Prediction: Action with highest SEU is chosen

NOTE: Obviously, p and U must be measured

Question: How would a reason-based approach determine the action chosen?

The implicit application of UM in AS

In order to reconstruct which theory advocates of AS actually apply **I have analyzed numerous articles representing research in Analytical Sociology.**

There are two collections of articles:

Hedström, Peter, and Peter Bearman (Eds.). 2009. *The Oxford Handbook of Analytical Sociology*. Oxford: Oxford University Press.

Manzo, Gianluca (Ed.). 2014. *Analytical Sociology. Actions and Networks*. Chichester, UK: Wiley.



Topics are, among others:

- Diffusion,
- unemployment,
- residential segregation,
- fertility decisions,
- witch persecution,
- crime,
- cooperation,
- divorce,
- collective action,
- formation and change of social networks and group formation.

I did not find any clear specification of the meaning of a reason-based vs. a utility-maximizing behavior.

I present a few examples from Manzo 2014:

Witch Persecutions: Mitschele 2014 – see p. 151: The author addresses witch hunting in early modern Scotland: there was great temporal variation, and it was striking that there was a disproportionate engagement of the gentry. „I argue that witch-hunters are those among the gentry who – being excluded from landed privilege – saw a window of opportunity opening through the emergence of office vacancies.“ **Prosecution of witches was a means to get a reputation as a social order maker** and, consequently, get into contact with the political elite and having a chance of upward mobility – which certainly made the witch hunters better off.

Elections and Cooperation: Grossman and Baldassarri 2014: 203: The authors report a public goods experiment that **applies standard rational choice theory**.

Subgroup formation: Abell 2014. This is an application of **balance theory** that is based on hypotheses assuming that people prefer cognitive balance to imbalance. This accords with a wide version of RCT.

Job instability (Fountain/Stovel) 2014: 342. „... When mobility is voluntary, the mobile worker **takes advantage of new opportunities** and shifts from a worse job to a better job.“

Diffusion of protest: González-Bailón, Borge-Holthoefer, Moreno 2014: this article is based on the diffusion literature with authors such as Coleman/Katz/Menzel, Granovetter, Marwell/Oliver, Macy etc. and does not in any way change their **background theory which is some version of RCT**.

AS research from other sources

Empirical research before the advent of AS that is cited as **good examples for AS** uses a wide RCT/DBO version

Example: Boudon 1974 (mentioned in Manzo 2014: 9 „as a good example of an empirically oriented study that contains in practice many of the ideas underlying P1–P7”). This work clearly assumes that subjects do what they think is best for them – such as getting a good position.

Voting: Baldassarri 2013 (The Art of Voting). She is one of the few authors who **explicitly pursues a „reason-based“ approach**. She summarizes her position in the following way: “... our argument is that by using different strategies of reasoning, voters ... are able to make the complex task of evaluating political contests manageably simple, and so to reach a **satisficing decision**” (210) (= Herbert Simon).

Agent-based modeling – see classic examples of Schelling 1971 and Axelrod 1984 – normally assume that actors act in order to get better off.



Conclusion

The actual research I analyzed does **not show any evidence for a clear alternative to subjective utility maximization.**

Issue 3: Is DBO Theory a Superior Alternative to RCT?

DBO theory (Hedström 2005: 38-66)

Desires (D) – no restriction on kind of desires,
beliefs (B) – which need not coincide with reality, and
opportunities (O) – i.e. behavioral opportunities
Decision algorithm is missing (reason-explanation unclear). Thus, the theory has no explanatory content (Diekmann 2010).

→ Behavior

Wide RCT (e.g. Opp 1999)

Preferences (= desires),
beliefs
opportunities (behavioral opportunities are part of the beliefs about available behavioral options)
Subjective utility maximization

→ Behavior



Thus:

- **DBO theory**

- consists of the **same variables** as RCT,
- **lacks** a proposition that specifies how individuals act in choice situations,
- and is thus **a deficient version of RCT.**

- **Implication:** The **critique** of RCT holds for DBO theory as well. AND: if DBO theory is such as great theory RCT is even better due to missing decision mechanism!

Issue 4: Application of a General Theory or of Theories of the Middle Range?

There are several possible strategies in regard to the choice of a micro theory:

- **Strategy 1: Take the best:** Always examine whether RCT/DBO can be applied. If there is an alternative theory that seems more fruitful, perhaps a middle range theory, apply the better theory.
= position of advocates of rational choice theory.
- **Strategy 2: Theoretical pluralism** (e.g. Manzo 2014a: 22) = no need to apply a general theory, **position of proponents of AS.**

Strategy 1: Take the best: always start with the general theory ...

This methodological rule is based on **two arguments**:

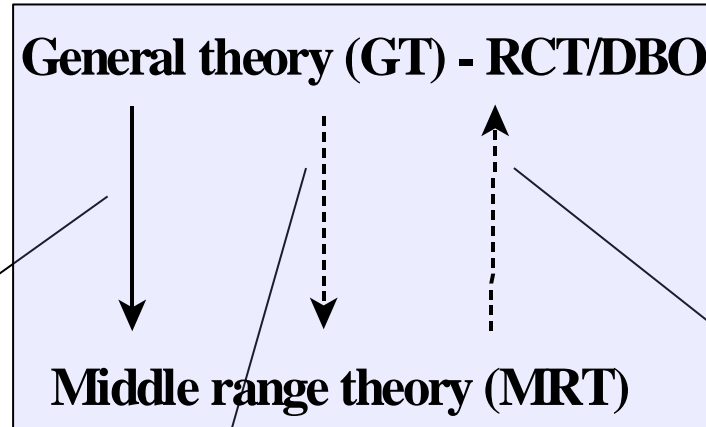
(1) **General theories often correct specific theories** (= middle range theories – see already **Malewski 1967**).

Example: **Deprivation theory** in social movements research.
RCT/DBO (the theory of collective action such as Olson etc.) corrects this theory.

(2) **Specific theories often correct general theories**

Example: **A narrow version of RCT/DBO** is at odds with theories of political participation showing the impact of perceived (and not real) political influence.

General and specific theories are related in the following way:



GT be **implies** MRT
in its original form

Important: this would
be an additional
confirmation of GT

GT **falsifies/
corrects** MRT

Important: this would
Be a new falsification
of MRTs.

MRT **falsifies/
corrects** GT

Important: this
would be a new
falsification of GT.

**Thus: Renouncing the application of general theories
misses an opportunity for scientific progress!!!**

Conclusion

Strategy should be: Always apply a general theory such as RCT/DBO **and** examine whether there are alternative better theories.

- **If there are better alternative theories:**
 - apply them and
 - examine possibilities to improve the general theory
- **If the general theory seems superior:**
 - show in which respects alternative theories are deficient.

Final note: To what extent is Analytical Sociology an acceptable research program?

My position and probably of most advocates of Rational Choice Theory is:

- These **basic claims of the research program of AS** – rigorous sociology, mechanism explanations, „realistic“ explanations, emphasis on agent-based modeling – are perfectly in line with my convictions and the conviction of most proponents of RCS.
- However, there are some **superfluous claims** – such as the ones I have discussed – that **should be given** up.

- If these superfluous claims are given up, then Rational Choice and Analytical Sociology have a **very large common core**.
 - **Agent-based modeling** is done by advocates of both camps; this holds for
 - **applications of game theory** as well.

- **Thus, both „schools“ can learn from each other.**



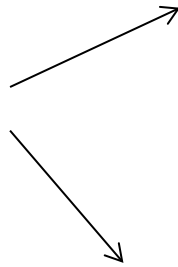
Here is a **summary of the claims** of AS from a call for papers for the annual AS conference of 2017 (emphases added):

“Analytical sociology is a general approach to explaining the social world. It is concerned with phenomena such as common ways of (inter-) acting in a society, **social network structures and patterns of segregation, and collectively shared and diffused cultural ideas.** The mode of explanation is to specify in **clear and precise ways** the **mechanisms** through which social phenomena are brought about. Parts of analytical sociology focus on action and interaction as the cogs and wheels of **social processes**, while others consider the dynamic social processes that these actions and interactions bring about.



There is a **picture** that may help to depict the **relationships** between RCS and AS:

Analytical and rational choice sociology



Die Gelehrten (The Erudites)
by Gabriel von Max

Appendix: Some strange changes in AS over time

The two versions of DBO theory:

1. The rational choice version of DBO theory

In **Hedström and Swedberg 1996** – DBO theory (the term is not used) is labeled as „rational choice theory“:

“**Rational choice theory proper** only concerns the action mechanism which translates **interests, beliefs, and opportunities** into choice of action” (ibid. 129), and
„actors, when faced with a choice between different courses of action, will choose the course of **action that is best with respect to the actor’s interests**“ (128).

2. The AS version of DBO theory: reason-based vs. utility maximization (Hedström 2005, see before).

Increasing tendency to denigrate RCT

Praise of RCT (and, consequently of DBO)

"Rational choice theory provides an action theory that is useful in many branches of sociology and, perhaps even more importantly, rational choice theory represents a type of theorizing that deserves to be emulated more widely in sociology. This type of theorizing is *analytical*; it is founded upon the principle of *methodological individualism*; and it seeks to provide causal cum *intentional explanations* of observed phenomena" (Hedström and Swedberg 1996: 127-128, emphasis added).

In Hedström and Ylikoski 2014 (67) there is at least some praise of RCT: " ... while some rational-choice researchers have made important contributions to the toolbox of mechanisms ..." (ibid. 67)

In his Palgrave article Hedström and Stern (2008) present empirical research in support of RCT (and DBO!)

Rejection of RCT (and, consequently of DBO)

Rational choice explanations are “unacceptable, as they are built upon implausible psychological and sociological assumptions. Empirically false assumptions about human motivation, cognitive processes, access to information, or social relations cannot bear the explanatory burden in a mechanism-based explanation” (Hedström and Ylikoski 2014: 67).

"There is nothing in the idea of a mechanism-based explanation that would require the explanation to be articulated in terms of rational choice theory“ (Hedström and Ylikoski 2010: 60). See also Hedström/Ylikoski 2014: 67

But perhaps here the narrow version is referred to – which is not indicated In the text! All this cannot be taken seriously for the wide version of RCT.

Question: Does this imply that **desires, beliefs and opportunities are irrelevant**? This contention would contradict existing social psychological theories and research.

„A least for the purposes discussed here I cannot see any alternative theory that is clearly preferable to the DBO theory“ (Hedström 2005: 41)



What are the „**compelling reasons**“ for these radical changes?
I have not found any detailed discussion.

I think that such **general condemnation** is not helpful. One should discuss specific issues.

END OF APPENDIX

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Thanks
for
listening!

