



How Rational Choice Models Can (and Do) Contribute to Theory and Empirical Research in Sociology

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Outline

- The “standard rational choice approach” and why it is attractive
- “The proof of the pudding...” – How the approach contributes to theory and empirical research on a core problem of sociology: the problem of social order
- By way of conclusion: Some remarks on how to tackle puzzles, on theoretical pluralism and social rationality, and on “what would be ‘better alternatives’?”



The Rational Choice Approach

- The rational choice approach as a research program comprising guidelines on how to construct, test, and refine models for the explanation of social phenomena and processes

Core Features of the Rational Choice Approach I

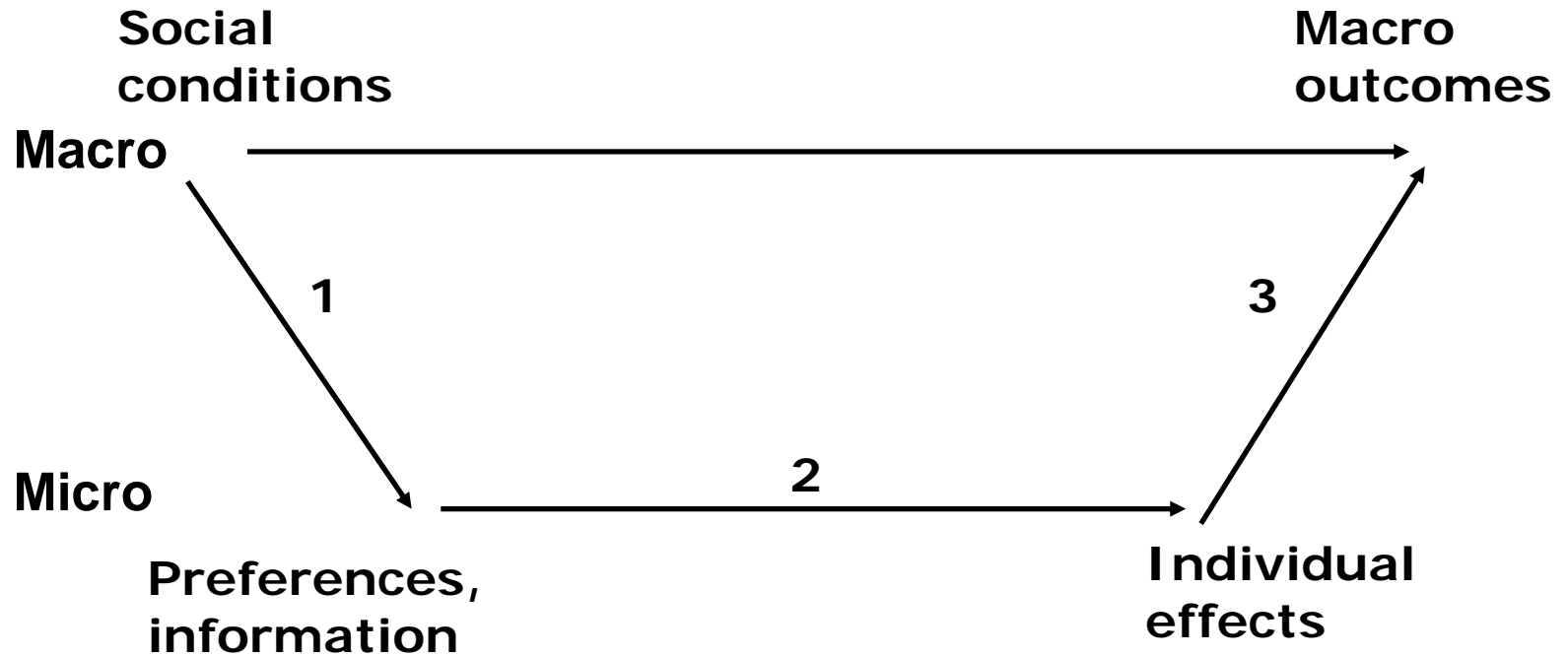
- Start with a model that includes assumptions on consistent preferences and beliefs of actors. Hence, start with a model that includes (expected) utility maximization and Nash equilibrium behavior as a core theoretical assumption
- *Note:* (expected) utility maximization is *not* an assumption *but* is an *implication* of assumptions on consistent preferences and beliefs
- *Note:* distinguish between assumptions on consistent preferences and beliefs (= rationality assumptions) and substantive assumptions on the nature of preferences (and beliefs) such as selfishness, inequity aversion, risk aversion etc.



Core Features of the Rational Choice Approach II

- Focus on explaining macro-outcomes as a result of macro-conditions and rational choice assumptions

Core Features of the Rational Choice Approach III



1. Bridge assumptions

2. Equilibrium behavior

3. Transformation rules

Core Features of the Rational Choice Approach IV

- Sociological explananda involve assumptions on macro-phenomena; macro-micro-macro transitions are complex and require simplifications, hence...
- ... heuristic rule for refining models (“method of decreasing abstraction”): keep the assumptions concerning individuals and their cognitive make-up and abilities as simple as possible (observing the principle of “sufficient complexity”); however, when feasible, do employ more complex alternatives to the assumption of “atomized interactions in perfect markets”



Why Is the Rational Choice Approach Attractive?

- Focus on generating empirically testable hypotheses...
 - Ultee: “Theory as a system of *propositions* rather than a system of concepts”
- ... that follow from more general theory and additional assumptions
 - Sociology as a *system* of propositions rather than a set of unrelated statements
 - Sociology as a problem- and theory-driven science in the tradition of Popper (rather than as being purely data-driven)



Why Is the Rational Choice Approach Attractive?

- Hypotheses on macro-phenomena are “generated” in a systematic way (preferably: deduced) from underlying theory, including micro-level assumptions...
- ... using the same “strategy of theory-construction” and similar theoretical assumptions in diverse fields
 - Relation with “middle-range theory” à la Merton
 - Due to the “family resemblance” between those middle range theories: building up a “common core” and “unity in diversity” in a fragmented discipline (see Boudon)



The Rational Choice Approach and “Analytical Rigor”

- Rough summary of the attractive features: the rational choice approach provides “analytical rigor”
 - Rational choice approach as a variant of “analytical sociology” broadly conceived
- Analytical rigor is more important than using rational choice assumptions *per se*: the rational choice approach is not an end in itself but a tool for constructing and improving good social theory



**“The Proof of the Pudding is in the Eating” –
How the Rational Choice Approach
Contributes to Theory and Empirical
Research on a Core Problem of
Sociology: The Problem of Social Order**



Some Brief Remarks on the History of ISA RC 45

- RC 45 started as a very small “Ad Hoc Group” with one tiny session at the ISA World Congress in Mexico City 1982
- Compare this modest start to the 10 well-attended sessions at the Gothenburg 2010 ISA Congress: RC 45 hasn’t been that unsuccessful... 😊

The 1982 Edited Volume

Theoretical Models and
Empirical Analyses

Contributions to the Explanation of
Individual Actions and Collective Phenomena

W. Raub (Ed.)



Universiteit Utrecht

The 1982 Edited Volume

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... and a Seminal Contribution in the 1982 Edited Volume

Thomas Voss

RATIONAL ACTORS AND SOCIAL INSTITUTIONS: THE CASE OF THE ORGANIC EMERGENCE OF NORMS

Introduction

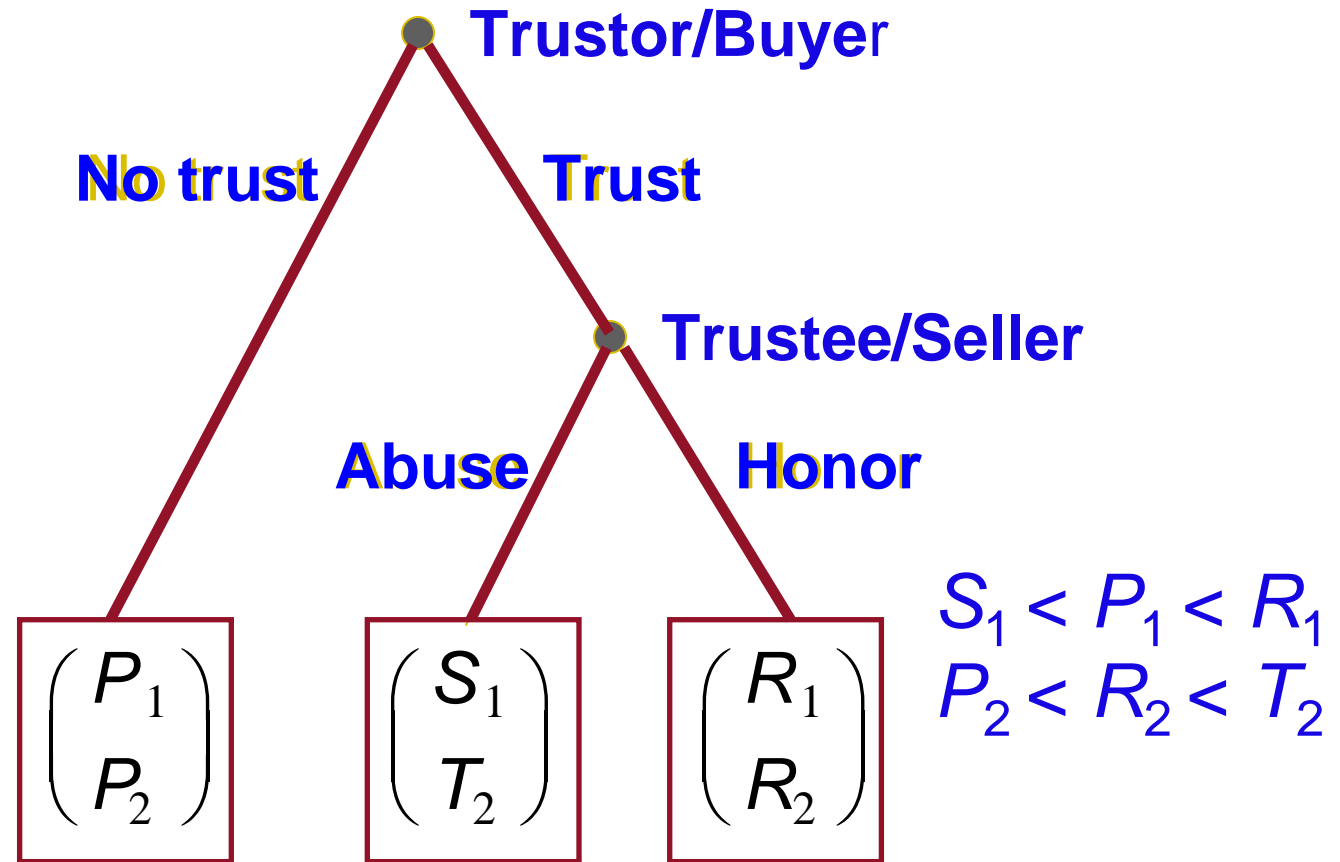
One of the most promising branches of the structural-individualistic program in sociology is the economic approach to social phenomena. It rests on the idea that individual behavior under social conditions and its collective consequences should be explained with explicit recourse to the behavioral assumption of rational action¹⁾ (as elaborated in utility and game theory). The success of this approach largely stems from the insight that the social institutions which can be dealt with by such an approach are by no means exhausted by competitive markets of transferable physical commodities. On the contrary, it has been widely recognized that markets tend to fail under certain conditions and that in these cases an efficient allocation of resources can only be achieved if markets are supplemented, or replaced by other institutional arrangements consisting of norms, social networks of various kinds, or of hierarchies.

The task of this essay is to investigate whether the economic approach might contribute to a solution to one of the most important problems in theoretical sociology, viz. the problem of order in society. To this end I shall first (Part I) present a short and highly stylized reconstruction of the Durkheimian

Game-Theoretic Models of Trust and Cooperation

- The problem of social order as “the most fundamental empirical difficulty of utilitarian thought” (Parsons 1937)
- Reconstruction of the problem: conditions for cooperation of rational (and possibly selfish) actors in social dilemmas
 - Prisoner’s Dilemma, Trust Game, Investment Game, Public Good Games...
 - ... as well as: coordination problems, bargaining problems
 - In general: noncooperative games with an inefficient solution

Example: The Trust Game





Theoretical Insights



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Insight 1: Trust Based on Conditional Cooperation – Dyadic Control Effects

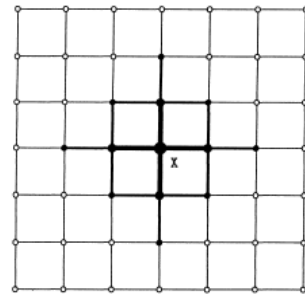
- Trustfulness and trustworthiness as an equilibrium outcome of indefinitely often repeated Trust Games between trustor and trustee
 - Conditional strategies providing for rewards and punishments
 - Trust based on enlightened self-interest
- The model yields conditions for rational trustfulness and trustworthiness such as...
 - Information of the trustor on the trustee's behavior
 - Shadow of the future and incentives
 - Coordination (due to multiple equilibria)

Insight 2: Testable Hypotheses

- Bridge assumptions can be introduced that specify how social (macro-) conditions affect the actors' incentives and information in a repeated Trust Game
- Hence, the game-theoretic model together with those bridge assumptions allows for deriving testable hypotheses on social (macro-) conditions for trustfulness and trustworthiness
- Note: these hypotheses follow from more general theory rather than coming "out of the blue"



Insight 3: Extension to Networks – Network Control Effects



- The model can be generalized to a network of actors: e.g., trustors can exchange information about trustees
- This allows to derive hypotheses on how network characteristics (e.g., density, trustors' outdegree) affect trustfulness and trustworthiness
- Related research on “strategic network formation”: endogenizing networks



Insight 4: Further Extensions

- Many results for the Trust Game can be generalized and apply to other social dilemma games, too (including n -person games)
- Group size effects
- Effects of risk preferences
- Models and hypotheses on complementary mechanisms of trust and cooperation such as commitments (“hostages”)
- Models and hypotheses on trust and cooperation through a “mix of mechanisms” such as repeated interactions plus commitments





Empirical Research



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DONALD P. GREEN
IAN SHAPIRO

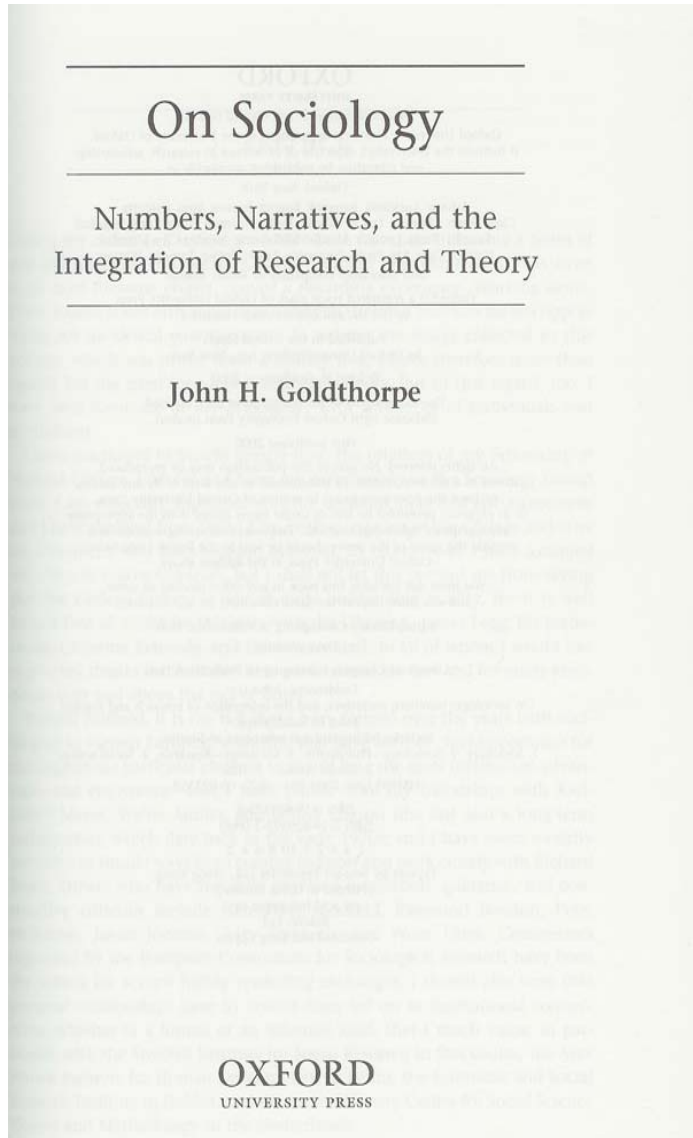
PATHOLOGIES OF RATIONAL CHOICE THEORY

A CRITIQUE OF
APPLICATIONS
IN POLITICAL
SCIENCE

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On Sociology

Numbers, Narratives, and the
Integration of Research and Theory

John H. Goldthorpe

OXFORD
UNIVERSITY PRESS





5

The Quantitative Analysis of Large-scale Data Sets and Rational Action Theory: For a Sociological Alliance

IN SOCIOLOGY today, the quantitative analysis of large-scale data sets (QAD) and the deployment of rational action theory (RAT) are not closely related activities. In this chapter, however, it is my aim to show that they could with advantage become highly complementary features of the sociological enterprise; and, further, that the desirability of creating stronger ties between QAD and RAT is in fact well brought out by an examination of the main lines of criticism that each presently encounters.

Convergence between the Rational Choice Approach and Empirical Research

- Major progress: increasing convergence between the rational choice approach and empirical research in the past 15-20 years
 - See Wittek et al. (eds.) (Forthcoming) *Handbook of Rational Choice Social Research*
- Large-scale survey research
- Behavioral (experimental) game theory

Beyond Goldthorpe and Behavioral Game Theory

- Approach: use complementary research designs (survey, vignette study, lab experiment) for multiple tests of the same hypotheses (cf.: triangulation, cross validation)

Alternative Designs: Advantages and Disadvantages

	Advantages	Disadvantages
Survey	Actual interactions	Measurement problems; less control over variables
Lab experiment	Control over incentives and embeddedness variables	Abstract; external validity
Vignette study	Less abstract than lab experiments; control over variables	Hypothetical interactions; lack of "incentive compatibility"

Insight 5: Summary of Empirical Evidence

	Survey	Vignette study	Lab experiment
Dyadic control	<ul style="list-style-type: none"> • Consistent support for dyadic control effects on trust of trustor • Quite some support for dyadic control effects on trustworthiness of trustee 		
Network control	<ul style="list-style-type: none"> • Consistent support for network control effects on trustworthiness of trustee • Hardly support for network control effects on trust of trustor 		
Dyadic and network learning	<ul style="list-style-type: none"> • Consistent evidence that trustors react to own experiences of previous trustee behavior as well as to information on others' experiences with the trustee 		





Back to Theory



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Insight 6: Empirical Research → More Complex Models

- The empirical evidence on learning effects induces the application of new theoretical models: finitely repeated games with incomplete information
- Note: empirical research thus induces *more* rather than less complex theoretical models



Theories for Deriving Hypotheses on Embeddedness Effects

	Dyadic embeddedness	Network embeddedness
Control	Models for indefinitely often repeated games with complete information	
Learning	Adaptive learning models; information diffusion models	
Learning and control	Models for finitely repeated games with complete information	



Embeddedness Mechanisms

	Dyadic embeddedness	Network embeddedness
Learning	Common history of past interactions: information about the partner from own experiences	Information from third parties about their past experiences with the partner
Control	Expected future interactions: opportunities for conditional cooperation via, e.g., "tit for tat"	Opportunities for conditional cooperation involving third parties: "voice" (reputation effects)

Hypotheses – Summary

	Dyadic embeddedness	Network embeddedness
Learning	Trust increases (decreases) with positive (negative) own experiences with the trustee	Trust increases (decreases) with positive (negative) information on the trustee received from other trustors
Control	Trust and trustworthiness increase with the likelihood of future interactions	Trust and trustworthiness increase with the trustor's control opportunities through her network with other trustors



**By Way of Conclusion: Some Remarks on
How to Tackle Puzzles, on Theoretical
Pluralism and Social Rationality, and on
“What Would be ‘Better Alternatives’?”**



Examples of Puzzles

- There are many puzzles for the rational choice approach and some are related to my “case study”, e.g.
 1. “standard (...) models based on full rationality and narrow self-interest tend to overestimate the difficulties of promoting trust in one-shot situations, and underestimate the difficulties in ongoing interactions” (Bolton & Ockenfels 2009: 31)
 2. Consistent support for network control effects on trustworthiness of trustee but hardly support for network control effects on trust of trustor



Rational Choice Models Provide “Benchmarks”

- **Puzzles** := systematic deviations from the predictions that follow from the standard assumptions of (1) equilibrium behavior and (2) selfishness (“utility=own money”)
- Such puzzles become themselves explananda (Harsanyi: the standard assumptions provide “benchmarks”)
- The explanation of these puzzles requires, by definition, modifications of the standard assumptions
- Adequacy criterion for such modifications: independent testability / new predictions (*including new predictions on macro outcomes and/or effects of social conditions*)

Strategies for Modifying RC Models

1. Modifying rationality assumptions (e.g., bounded rationality, evolutionary models, etc.)
2. Modifying substantive assumptions on preferences and beliefs (e.g., non-selfish utility, inequity aversion, etc.)
3. Modifying assumptions on the social context
4. Combinations of 1, 2, and/or 3

Theoretical Pluralism, Including Social Rationality

- **All modifications and theoretical alternatives should be welcomed that assure independent testability and provide new predictions (*including new predictions on macro outcomes and/or effects of social conditions*)**
- **I see no reason to construe artificial fault lines between a “standard rational choice approach” and such modifications, including social rationality**

What Would Be a “Better Alternative” to the Standard Rational Choice Approach?

- A “better alternative” (in the sense of new and empirically supported predictions) would have to satisfy two criteria:
 1. “Better” as a theory of individual behavior
 2. “Better” as a theory of macro-phenomena
- What to do as long as a better alternative is not available? Encourage theoretical pluralism!

Thanks for your attention!

- Apologies for rushing through (too) much material
- More information:
<http://staff.fss.uu.nl/wraub>
- Review paper on the literature on embeddedness effects on trust: Buskens & Raub (2010) Rational Choice Research on Social Dilemmas, *mimeo*, Utrecht (downloadable from the website)
- Raub, Buskens & Van Assen (2011) Micro-Macro Links and Microfoundations in Sociology, *Journal of Mathematical Sociology* 35: 1-25





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Additional Slides



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Examples of Hypotheses

