

PHILOSOPHY OF ECONOMICS

Matthias Brinkmann

matthias.brinkmann@philosophy.ox.ac.uk

Structure

Historical Views

14. 10. Introduction
Features of Economic Theorising
Popperian Approaches

21. 10. Lakatosian Perspectives
Friedman's Instrumentalism

Recent Questions

28. 10. Reiss's Explanatory Trilemma
Sugden: Credible Worlds

4. 11. Economic Models, cont.
Ceteris Paribus Laws
(Experiments in Economics)

Today's Lecture

1. Explanation
2. Reiss's Explanation Trilemma
3. Models do not explain?
4. Sugden's Credible Worlds

EXPLANATION

Deductive-Nomological (DN) model of explanation

1. Empirical Laws

$$\forall x(Fx \rightarrow Gx)$$

2. Empirical Statements about Boundary Conditions

$$Fa$$

3. Explanandum (follows by implication from 1, 2)

$$Ga$$

Adequacy Conditions

1. Argument must be deductively valid
2. Explanans must contain law(s)
3. Explanans must have empirical content
4. Explanans must be true

(Rough approximation:) **Something is a scientific explanation iff it is a DN argument which fulfils the adequacy conditions**

Deductive-Nomological (DN) model of explanation

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$$\forall x(Fx \rightarrow Gx)$$

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Some Observations

- Central role for laws and causation
- Symmetry between explanation and prediction
- Only true premises can explain

Explanation: Summary

- Answering “why?” questions
- Alternative models of explanation
 - Unificationist account: A scientific explanation provides a unified account of a range of different empirical phenomena
 - Causal Account: A scientific explanation of an event is to provide information about what caused it

REISS'S TRILEMMA

Models

- A central element in economic theorising is model-building
- Models *model* things: they represent a part of reality
- Models are local and narrow, theories wide and more encompassing
- Different theories might use different models
 - growth theory contains different growth models
- Building models is independent from theories, and might often precede theories

Reiss's Trilemma

The following three claims are inconsistent:

1. Economic models are false (i.e., they rest on false assumptions about the world)
2. Economic models are explanatory
3. Only true models (i.e., those resting on true assumptions) can explain

(Reiss, Julian. "The Explanation Paradox." *Journal of Economic Methodology* 19, no. 1 (2012): 43–62.)

Reiss's Trilemma

1. Economic models are false
2. Economic models are explanatory
3. Only true accounts can explain

- Models vs Theories
 - if you think models cannot be false by themselves, the claim that they adequately represent reality certainly can
- Models misrepresent reality because they
 - fail to represent everything
 - represent objects in an idealised or impossible way
 - misrepresent the (causal) interactions between entities
 - contain entities, interactions and properties that do not actually exist

Reiss's Trilemma

1. Economic models are false
2. **Economic models are explanatory**
3. Only true accounts can explain

- Intuitive and economic consensus: economic models “feel” explanatory
- Various Examples: Hotelling, Akerlof, Schelling, etc.

Reiss's Trilemma

1. Economic models are false
2. Economic models are explanatory
3. **Only true accounts can explain**

Why did the door open? Because John pressed the button.

- For this to be a good explanation,
 - there has to be a button
 - the button-pressing should be actually connected with the door-opening
- A minimal commitment for any theory of explanation (?)
- Follows directly from the DN account (and plausibly the causal account)

Responses to the Trilemma

Deny (1) Economic models are true (in some sense) (Mäki)

Deny (2) Economic models do not explain (Aydinonat)

Deny (3) Economic models, while false, still explain (Sugden)

A Related Problem

1. Economic models are thought experiments: they provide no new empirical data
2. Economic models provide us with new (explanatory) knowledge about empirical phenomena
3. New (explanatory) knowledge about empirical phenomena can only be gained through new empirical data

MODELS DO NOT EXPLAIN?

Models do not explain?

- Models only predict, they do not explain (Friedman)
- Models do not explain, theories do (Hausman)
 - this only shifts the issue
- Models as a heuristic to generate predictions (Alexandrova)
 - this makes it somewhat mysterious why economists spend so much time on building models

Models do not explain?

- Conceptual exploration (economics as a challenging sudoku puzzle)
 - e.g., explain what is mathematically possible
 - existence proofs (e.g., Nash equilibria), impossibility proofs (e.g., Arrow's theorem), uniqueness proofs
 - some game theory/social choice might fall under this heading
 - if true, we probably shouldn't ground policies around them/spend so much money on economics
 - most economists think they do more than that

SUGDEN, “CREDIBLE WORLDS”

Sugden, “Credible Worlds”

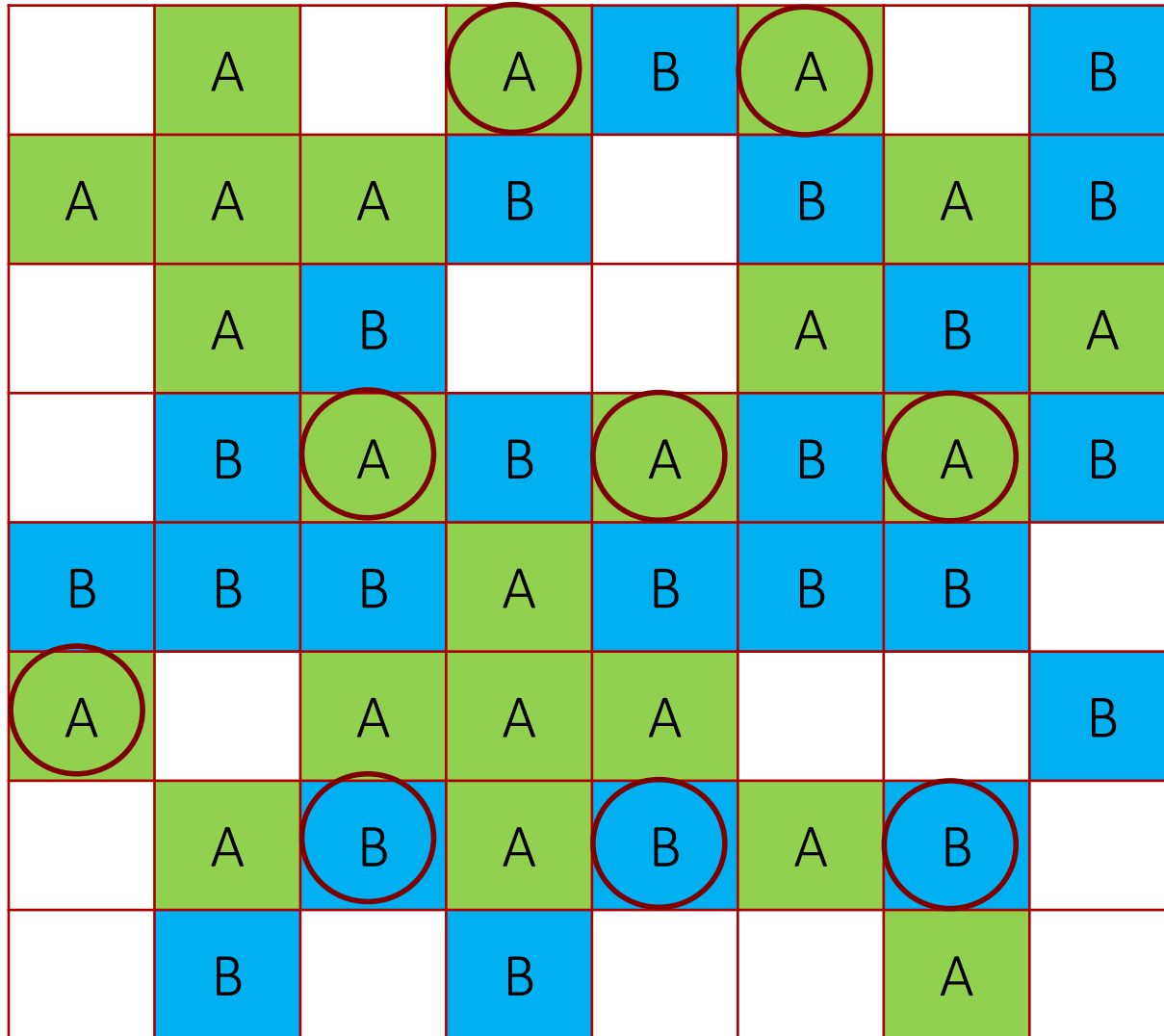
1. Schelling's Checkerboard City
2. Sugden's Critique of Competing Views
3. Sugden's Credible Worlds
4. Criticism

Schelling's Checkerboard Model

	A		A	B	A		B
A	A	A	B		B	A	B
	A	B			A	B	A
	B	A	B	A	B	A	B
B	B	B	A	B	B	B	
A		A	A	A			B
	A	B	A	B	A	B	
	B		B			A	

- Agents move on two-dimensional grid
- There are two types of agents (A and B)
- Each type of agent wishes that more than one-third of their neighbours are of their kind

Schelling's Checkerboard Model



- These agents prefer to move

Schelling's Checkerboard Model

	A	A	A	B			B
A	A	A	B		B		B
A	A	B				B	
	B		B		B		B
B	B	B	A	B	B	B	
		A	A	A	B	B	B
B	A	A	A	A	A	A	A
B	B				A	A	A

Schelling's Checkerboard Model

	A	A	A	B			B
A	A	A	B		B		B
A	A	B				B	
	B		B		B		B
B	B	B	A	B	B	B	
		A	A	A	B	B	B
B	A	A	A	A	A	A	A
B	B				A	A	A

- A possible outcome
- Highly segregated outcome
- Explains (?) the impact of positive discrimination on segregation
- Mild discriminatory preferences can lead to strong segregation patterns
- One of the origins of agent-based modelling

Sugden, “Credible Worlds”

1. Schelling's Checkerboard City
2. **Sugden's Critique of Competing Views**
3. Sugden's Credible Worlds
4. Criticism

Sugden's Rejection of Competing Views

- **Falsificationism:** Akerlof/Schelling-style modelling must look like “pseudo-science” on this view
- **Friedman:** The models don't make clear predictions, and it's hard to distinguish “assumptions” from “predictions” in these models
- **Conceptual Exploration:** The models are intended to explain reality to us
- **Models as Isolation:** these models do much more than isolate
it does not seem right to say that the checkerboard model isolates some aspects of real cities by sealing off various other factors which operate in reality: just what do we have to seal off to make a real city – say Norwich – become like a checkerboard? (22)

Sugden, “Credible Worlds”

1. Schelling’s Checkerboard City
2. Sugden’s Critique of Competing Views
3. **Sugden’s Credible Worlds**
4. Criticism

Models as Caricatures

There is something about the idea of economic models as caricatures: models take features from the real world, but depict them in an exaggerated fashion (Gibbard/Varian)

Credible Worlds

- Inductive Inferences
 - From observing something about the housing market in Baltimore, Philadelphia ..., we make an inference about the housing market in NY
 - We make such inferences because the markets **are similar**
- Sugden's Guiding Idea: Inductive Inferences from Model to Reality
 - Why should we not be able to make an inference from an abstract model to concrete cases?
 - What we need is a similarity between model and reality

Models as Credible Worlds

We recognize the significance of the similarity between model cities and real cities, or between model markets and real markets, by accepting that the model world *could be* real – that it describes a state of affairs that is *credible*, given what we know [...] about the general laws governing events in the real world.

On this view, **the model is not so much an abstraction from reality as a parallel reality**. The model world is not constructed by starting with the real world and stripping out complicating factors: although the model world is simpler than the real world, the one is not a *simplification* of the other. (p. 25)

Two Schemata (p. 19)

Explanation

E1 – in the model world, R is caused by F

E2 – F operates in the real world

E3 – R occurs in the real world

[There is a credible similarity between real and model world]

Therefore, there is reason to believe:

E4 – in the real world, R is caused by F.

Prediction

P1 – in the model world, R is caused by F.

P2 – F operates in the real world.

[There is a credible similarity between real and model world]

Therefore, there is reason to believe:

P3 – R occurs in the real world.

Reinterpreting Sugden

1. Economic models are false (**yes**)

Economic models are not simplifications of reality, but constructed independently from it

2. Economic models are explanatory (**yes**)

We can use economic models for both prediction and explanation

3. Only true accounts can explain (**no**)

Economic models can explain because they provide us with “credible worlds” from which we can draw inductive references

Sugden, “Credible Worlds”

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Problems

- The central notion of “credible worlds” is vague
 - credible = what is accepted by mainstream economists?
- Accounts of “verisimilitude” in the philosophy of science have been proven very difficult to state
- It’s not clear that inductive inferences from “credible worlds” are reliable
- Unrealistic assumptions come back: we should not use induction if we know that the inductive base is very different

Thanks!