The Model Worlds of Frisch 1930

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The model worlds analysis

- What was it?
- Where did it come from?
- What made it singular?
- What happened to it?
The Yale lectures of Ragnar Frisch (1895-1973)
Frisch calendar

- 1926 Frisch introduced the term *l'économétrie* and defined its programme
- 1929 Correlation and scatter in statistical variables
- 1929 Statics and dynamics in economic theory
- 1930 autumn term Yale lectures
- 1930 December Econometric Society founded
- 1933 *Econometrica* begins publication
- 1933 Propagation and impulse problems in dynamic economics published
- 1934 Statistical confluence analysis by means of complete regression systems published
Structure of the Yale lectures

1. General Considerations on Statics and Dynamics in Economics
2. Dynamic Formulation of Some Parts of Economic Theory
1 General Considerations

made up of

1. What is economic theory?
2. Distinction between a static and a dynamic economic theory.

1.2 was a development of “Statics and dynamics in economic theory” (1929)
1.1 gave the back story
What is economic theory?

- The observational world itself, taken as a whole in its infinite complexity and with its infinite mass of detail, is impossible to grasp.
- In order to create points where the mind can get a grip, we make an intellectual trick: in our mind we create a little *model world* of our own, a model world which is not too complicated to be overlooked, and which is equipped with points where the mind can get a grip, so that we can find our way through without getting confused.
- And then we analyse this little model world instead of the real world.
- This mental trick is the thing which constitutes the rational method, that is, theory.
- Instead of the expression `model world' we could also use the expressions `schemes of thought' or `system of fictions'.
Another sort of question that the scientist has to answer is: why did it happen? Why did this situation exist? Why did the events follow the course they did? The answers to these questions constitute the rational part of the investigation. By the power of his mind the scientist tries to discern or impose some reasonable order onto what happened and the things he observed.

The words `explain', `understand', etc. mean nothing else than to construct a model world where the occurrence of some particular regularity (or phenomenon) is a sufficient condition for the occurrence of some other regularity (or phenomenon.)
Influences on Frisch

His thought stimulated by

- Kant
- Poincaré
- Vaihinger

The three emphasised that man is a creator rather than a passive recorder of experience.

Kant thought of space as subjective and ideal

Poincaré based mechanics on linguistic conventions

Vaihinger based thought of all kinds on fictions

V appears to have had most influence on Frisch
DIE
PHILOSOPHIE DES ALS OB.
System
der theoretischen, praktischen und religiösen
Fiktionen der Menschheit
auf Grund eines idealistischen Positivismus.
Mit einem Anhang über Kant und Nietzsche.

Von
HANS VAIHINGER.

Ich bin überzeugt, dass der hier
hervorgehobene Punkt einmal ein Eck-
stein der philosophischen Ethikmoraltheorie
werden wird.

F. A. Lange.

Siebente und achte Auflage.

Leipzig / Verlag von Felix Meiner / 1922.
Vaihinger on fictions

- Indispensable in science as well as metaphysics
- A real fiction is an ideational construct which contradicts reality and is self-contradictory.
- Constructs which contradict reality but which are not self-contradictory are semi-fictions.
- Many different kinds of fiction.
Schematic fictions

- a subjective and abstract representation is formed in order to base theoretical procedures upon it and not upon the far more complicated reality. To a certain extent the laws of nature are here studied by means of simpler models, containing, it is true, the essentials of reality, but in a much simpler and purer form.

A typical example is von Thünen's isolated state

- It consists in postulating an imaginary city, in order the better to determine conditions of agriculture, transportation, etc. Around it in concentric zones are arranged the different spheres of activity from which the necessary means for supplying the requirements of the city are drawn. With the aid of this ingenious artifice all agricultural and economic laws are then systematically deduced.
Vaihinger’s influence

- Well-known among German-speaking scientists and commentators on science
- Often criticised but *fictions* (like Kuhn’s *paradigms* more recently) became part of the language
- An English translation was published in the International Library of Psychology, Philosophy and Scientific Method but not taken seriously by Anglo-American philosophers
- Work was not noticed in English writing on the methodology of economics
The English tradition in the methodology of economics

- Begins with Mill and Cairnes
- Updated to reflect the contributions of Jevons and Marshall in Neville Keynes’s *Scope and Method of Political Economy* 1891/1917
- Restated by Roy Harrod *Scope and Method of Economics* 1938 with a nod to Schultz’s econometrics
The English tradition

- The chief question was how to obtain reliable knowledge of economic laws, whether by the “method of specific experience” or by “deduction”
- The answer was deduction
- Deduction involved theory
- Frisch and the tradition were agreed on the importance of theory but gave different accounts of how theory worked.
Model worlds in Neville Keynes?

No construction in the big print but openings in the small print

Thus

Theory developed for simple cases first

- Numerical examples are constructed—by their help students are “assisted towards understanding the operation of such laws as that of supply and demand”
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- Vaihinger based thought of all kinds on fictions
- V appears to have had most influence on Frisch
And then came models

It was in the 1930s that economists really `discovered' the idea of models. It was in that decade that these objects became conceptualised, gained the label model and a fuller understanding of their usefulness developed.

Mary Morgan
The models?

- New objects like the macroeconometric models of Tinbergen

- Old objects like the Robinson Crusoe model.

(In statistics Fisher’s hypothetical infinite population becomes Egon Pearson’s conceptual model.)
Das Modell in 1935—"scheme" in English

Quantitative Fragen der Konjunkturpolitik

Von Professor Dr. J. Tinbergen Scheveningen


Summary: Questions of business cycle policy involve dynamic problems. It is necessary to distinguish between data and economic entities both of which can be either constant or variable. The even course of given endogenous movements may be influenced by exogenous changes. Variations of data may proceed regularly or irregularly. By means of a simplified scheme, equations may by formulated for the national budgets, foreign trade, fixing of prices and wages, expansion of the economic structure, dividend policy, international capital movements, and productivity. Regular endogenous movements are examined. These can be influenced
But the problem is too complex for direct frontal attack. "In all negotiations of difficulty", Bacon wrote, "a man may not look to sow and reap at once, but must prepare business and so ripen it by degrees. In this spirit economists have devised and made use of the fiction of a stationary state. Nobody pretends that the study of this artificially simplified model is of value for its own sake. But, as an introductory stage towards understanding real conditions, it has an important part to play.

_The Economics of Stationary States_ Pigou
Pigou treats a succession of models of increasing complexity

(1) isolated man, (2) a purely exchange economy, in which there is exchange of services, but no production, (3) a purely production economy, in which various services co-operate in the production of a single commodity, (4) an economy in which many commodities are produced by co-operation, and exchanged among themselves.

All the creations of theorists who had not called them models
Model worlds in Frisch’s later writing

- I have not found model worlds discussed in Frisch’s later writings.
- Frisch constructed what Pigou and Tinbergen would have called “models” he did not call them such, preferring terms like “macro-dynamic system”
- His student Haavelmo revived model worlds and wrote about models in a 1939 methodological piece.
Models in the Probability Approach 1944

Trygve Haavelmo (1911-1999)

“model”: 64 occurrences
Theoretical models are necessary tools in our attempts to understand and "explain" events in real life. In fact, even a simple description and classification of real phenomena would probably not be possible or feasible without viewing reality through the framework of some scheme conceived a priori.
Explanations

it is not to be forgotten that they are all our own artificial inventions in a search for an understanding of real life; they are not hidden truths to be `discovered.
It is almost impossible, it seems, to describe exactly how a scientist goes about constructing a model. It is a creative process, an art, operating with rationalized notions of some real phenomena and of the mechanism by which they are produced.
Summary

Frisch’s model worlds analysis

- was an account of how economic theory worked written in a different idiom from that of the English school—a contribution to methodology

- was not a manifesto for the new modelling of the 1930s

- resurfaced in the Probability Approach applied to the new models of the 1930s—and keeps resurfacing…