

Discussion on "Detecting Endogenous Changes in Economic Dynamics: from Frisch's Pendulum to Long Swings" by F. Louçã

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The Intellectual Legacy of Christopher Freeman
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- ▷ *Founding metaphors* of a research program
- ▷ Frisch vs. Schumpeter
- ▷ Exogenous change vs. internally determined historical change
- ▷ Structure and shocks

Structure and shocks (1)

- ▷ Frisch (1933) distinction between *propagation* and *impulse* mechanisms.
 - Propagation: “structural properties of the swinging system”, characterized by a system of deterministic differential equations; equilibrating mechanism.
 - Impulse: the “source of energy” for the business cycle, *the club striking the rocking horse*.

Frisch is open to accept the idea that impulse may be something different from exogenous shocks.

Swings may be explained “in the light of Schumpeter’ theory of the innovations” by “new ideas...new technical procedures ...that... accumulate in a more or less continuous fashion, but are put into practical application on a larger scale only during certain phases of the cycle”.

Structure and shocks (1)

- Slutsky ([1927] 1937) “The Summation of Random Causes as the Sources of Cyclical Processes”
- Frisch (1939) “A Note on Errors in Time Series”
Frisch ([1938] 1948) “Statistical versus Theoretical Relations in Economic Macrodynamics”

Error terms of regression equations are mixtures of *stimuli* (the club striking the rocking horse) and *aberrations* which include “errors in the rational behavior of individuals”, event which are at odds with the theory, errors of measurement

Structure as *autonomy*: invariance under intervention.

▷ Haavelmo (1944) “The Probability Approach in Econometrics”

The data generating process is characterized by a structural and dynamic element and an unexplained random element.

The structure (causal relations among the macro variables) should be described by a priori economic theory

The error term conform to a tractable probability distribution (e.g. Gaussian).

▷ Large-scale structural model

- Tinbergen (1937) (1939)
- Cowles Commission program (cfr. Marschak and Koopmans)
- Klein Goldberger model (1955)

Formalization of the problem of identification

Counterfactual analysis

The Adelmans' (1959) test

▷ New classical macroeconomics

- Rational expectation hypothesis: Muth (1961); Lucas (1972); Sargent (1972)
- Lucas critique (Lucas 1976)
- Hansen and Sargent (1980) structural model.

Structure and shocks (5-6-7)

- ▷ Real Business Cycle models (and their successors DSGE models)
 - Kydland and Prescott (1982) (1990) (1996)
- ▷ Vector Autoregressive (VAR) and Structural VAR models
 - Sims (1980)
- ▷ Alliance between RBC/DSGE and SVAR approach.

A moral from this story?

- ▷ There has been the tendency in the quantitative analysis of business cycles towards either:
 - detailed articulation of idealized economic structures (detached from reality)
 - data-driven approaches but poor in structural analysis
- ▷ Should someone in the Schumpeter/Freeman tradition eschew current econometric tools to analyse business cycles?
- ▷ Challenge: incorporate historical change and structural change in the quantitative analysis of business cycle
- ▷ Step in this reduction: to wed ABM to VAR analysis.