

Career of General Equilibrium Theory in
the Soviet Union
(a case of Viktor Polterovitch):
sociological history vs. performativity?

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“The story of ‘equilibrium’ is one in which empirical work, ideas of facts and falsification played no role at all”

(Weintraub, E. Roy. 1983. “On the Existence of a Competitive Equilibrium: 1930-1954.” *Journal of Economic Literature* 21(1): 1–39).

“The mathematical economics – or pure mathematics – is conceived to have no history” [...] “the most stubbornly internalistic subfield of the history of science”

(Weintraub, E. Roy and Philip Mirowski. 1994. “The Pure and the Applied: Bourbakism Comes to Mathematical Economics.” *Science in Context* 7(2): 245–272).

Questions of this study:

- What were the favorable/ limiting conditions for the development of the GE theorizing in the Soviet context?
- How was this theory interpreted in terms of the Soviet economy? What political-economic problems did it address?
- And, finally, what influence did it have on the Soviet economic science and policy?

Development of the GET

- Léon Walras (*Elements of Pure Economics*, 1870s):
 - In perfectly competitive markets consumers demand equals producers supply for all goods;
 - Equilibrium prices are reached through a trial-and-error process in the market exchanges (“tâtonnement”).
- Axiomatization and formalization of the GET (1930s - 1950s)
- Arrow–Debreu–McKenzie model (1950s):
 - joint proof by Gérard Debreu and Kenneth Arrow of the existence of a general competitive Walrasian equilibrium, 1954;
 - Lionel McKenzie, 1959;
 - Gérard Debreu, *Theory of Value* (1959).

The “performative effects” of the General Equilibrium Theory

- Influence on the economic knowledge:
 - the Walrasian model became the core of mainstream “neo-classical” economics
 - high standards of the mathematical rigor
- Ideological impact:
 - the GET perceived as a proof of the superiority of capitalism over socialism

Mathematical economics in the Soviet Union during the Cold War (since the late 1950s)

- “Optimization theory” (Leonid Kantorovich)
 - Optimal planning, optimal allocation of resources, activity analysis, input-output tables
- General equilibrium theory
 - Arrow/Debreu models, disequilibrium, dynamics, computable models
- Game theory
- Complex systems, etc.

Institutional niches of a relative intellectual autonomy

- Optimization considered as a topic of strategic importance by the Soviet authorities (Economic Reform of the mid-1960s);
- A highly technical mathematical language inaccessible to “profanes”;
- An access to the Western up-to-day literature; contacts with Western scholars.

Career of Viktor Polterovitch

(Born in 1937 in Moscow)

- 1962: a diploma in engineering from the Moscow Oil and Gas Institute;
- 1962-1966: an engineer at the Institute of Automation of Oil and Gas Industry (Moscow);
- 1962-1966: a complete course at the Department of Mechanics and Mathematics of the Moscow State University;
- 1966-now: a researcher at the Central Institute of Mathematics and Economics, Moscow.

Evolution of the works of Viktor Polterovitch on the GET

- 1966-1970: the problem of optimization of the Soviet economy;
- 1970s: equilibrium analysis within the Soviet context of optimal planning (to defend decentralizing decisions);
- 1980s: disequilibrium technics to analyze Soviet practices of rationing and phenomena of market imperfection (queues, deficit, black markets)

Reasons for a belated and limited reception of the GET in the Soviet context

- *Intellectual* (predominance of optimal planning based mainly on linear programming);
- *Ideological* (socialist framework and a traditional distrust of mathematical economics as “bourgeois science”);
- *Institutional* (a relative isolation from the Western academia; a separation of the GET from the established economic research institutions in the USSR).

Conclusive remarks

- Formal mathematical models (applied to economics) cannot be “simply” transferred to a new institutional and intellectual context: a work of interpretation and adaptation.
- *The GET, in the Soviet Union, has been often perceived not as an abstract descriptive model but a practical tool, especially for planning.*
- Mathematical economic models are not inherently performative; they may be *occasionally* performative when mobilized by actors, in favorable conditions.
- *In the Soviet case, a failure to transform the planning system because of a general hostility to the ideas of decentralization and market socialism.*