Quantitative Finance > General Finance

Price and Quantity Trajectories: Second-order Dynamics

Eric Kemp-Benedict

(Submitted on 14 Apr 2012)

In two previous papers the author developed a second-order price adjustment (t\^atonnement) process. This paper extends the approach to include both quantity and price adjustments. We demonstrate three results: a analogue to physical energy, called "activity" arises naturally in the model, and is not conserved in general; price and quantity trajectories must either end at a local minimum of a scalar potential or circulate endlessly; and disturbances into a subspace of substitutable commodities decay over time. From this we argue, although we do not prove, that the model features global stability, combined with local instability, a characteristic of many real markets. Following these observations and a brief survey of empirical results for price-setting and consumption behavior in markets for "real" goods (as opposed to financial markets), we conjecture that Stigler and Becker's well-known theory of consumer preference opens the possibility of substantial degeneracy in commodity space, and therefore that price and quantity trajectories could lie on a relatively low-dimensional subspace within the full commodity space.

Subjects: **General Finance (q-fin.GN)**
Cite as: **arXiv:1204.3156 [q-fin.GN]**
(or **arXiv:1204.3156v1 [q-fin.GN]** for this version)

Submission history

From: Eric Kemp-Benedict [view email]
[v1] Sat, 14 Apr 2012 09:33:51 GMT (20kb)

Which authors of this paper are endorsers?