Abstract

The Marshallian Macroeconomic Model (MMM) developed by Veloce and Zellner (1985) provides a novel way to study sectoral dynamics of an economy in the presence of a dynamic entry/exit equation. Later extended by Zellner and Israilevich (2005) to include interactions between households, production firms and the government, this model exhibits very interesting dynamical behavior of key economic variables such as the sales, number of firms and prices at the aggregate as well the disaggregated level. Zellner and Israilevich (2005) show that such dynamical behavior can range from smooth convergence or damped oscillatory convergence to equilibrium to "booms and busts" typical of chaotic systems depending on the choice of parameter values.

Under these observations we have undertaken the task of examining more closely the change in the qualitative properties of the long-run equilibrium in a special nested case of the two sector MMM under variation of parameter values. We show the possibility of stable solutions and an oscillatory convergence to the long-run equilibrium and are able to offer a plausible explanation of such behavior based on price and income elasticity parameters. Additionally we detect the presence of codim-1 Hopf bifurcations in this model when we vary either the sector one entry/exit parameter or the tax rate.