

Abstract

In this study, we first review the bifurcation phenomena in dynamic economic systems and point out the importance of bifurcations together with a summary of the common types of bifurcations which have been encountered in economic research. Although bifurcation analysis is a relatively new subject with steadily growing interest in economic literature, previous research reveals the potential importance of further studies on bifurcation using different dynamic models.

Therefore, we continue exploring the bifurcation phenomena in an open economy New Keynesian model developed by Gali and Monacelli (2005). We find that open economy framework brings about more complex dynamics, a wider variety of qualitative behaviors and policy responses. Introducing parameters related to the open economy structure affects the values of bifurcation parameters and change the location of bifurcation boundaries. Thus the stratification of the confidence region, as often seen in closed economy New Keynesian models, is still an important risk to be considered in the context of the open economy New Keynesian functional structures. Econometrics and optimal policy design become more complex with an open economy. Dynamical inferences need to be qualified by the increased risk of bifurcation boundaries crossing the confidence regions and policy designs needs to take into consideration that a drastic change in monetary policy can produce an unanticipated bifurcation, if that econometrics research was not adequate.

Keywords: Stability; Bifurcation; Open Economy; New Keynesian; Determinacy; Macroeconomics; Dynamic Systems