General Equilibrium Dynamics of Multi-Sector Growth Models

Bjarne S. Jensen and Mogens E. Larsen

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This paper analyzes Walrasian general equilibrium systems and calculates the static and dynamic solutions for competitive market equilibria. The Walrasian framework encompasses the basic multi-sector growth (MSG) models with neoclassical production technologies in N sectors (industries). The endogenous behavior of all the relative prices are analyzed in detail, as are sectorial allocations of the primary factors, labor and capital. Dynamic systems of Walrasian multi-sector economies and the family of solutions (time paths) for steady-state and persistent growth per capita are parametrically characterized. The technology parameters of the capital good industry are decisive for obtaining long-run per capita growth in closed (global) economies. Brief comments are offered on the MSG literature, together with apects on the studies of industrial (structural) evolution and economic history.

Keywords: pareto efficacy, walrasian equilibria, factor accumulation JEL classification: F11, F43, O40, O41.

1 Introduction

Dynamics is concerned with calculating the motions of the widest variety of objects, and with deriving (computing) the implications (effects) of these motions. Its basic principles and logical structure have long been a model for other scientific disciplines. The domain of dynamics in physics (mechanics) have been extended tremendously on both macroand microscopic scales, Pais (1986). In the discipline of economics, dynamics began in macroeconomics, in particular with business cycle and the basic one- and two-sector growth models. However, standard microeconomic (producer/consumer) theory is more naturally involved with decentralized mechanisms for resource allocation in static multi-sector modeling and general equilibrium dynamics. We may briefly refer

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François E. Cellier

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