M. Manoharan—Analysis of Some Stochastic Models in Inventories and Queues—1989—
Dr. A. Krishnamoorthy.

The thesis entitled Analysis of Some Stochastic Models in Inventories and Queues. This thesis is devoted to the study of some stochastic models in Inventories and Queues which are physically realizable, though complex. It contains a detailed analysis of the basic stochastic processes underlying these models. In this thesis, (s,S) inventory systems with nonidentically distributed interarrival demand times and random lead times, state dependent demands, varying ordering levels and perishable commodities with exponential life times have been studied. The queueing system of the type $E^k/G^{a,b}/1$ with server vacations, service systems with single and batch services, queueing system with phase type arrival and service processes and finite capacity $M/G/l$ queue when server going for vacation after serving a random number of customers are also analysed. The analogy between the queueing systems and inventory systems could be exploited in solving certain models. In vacation models, one important result is the stochastic decomposition property of the system size or waiting time. One can think of extending this to the transient case. In inventory theory, one can extend the present study to the case of multi-item, multi-echelon problems. The study of perishable inventory problem when the commodities have a general life time distribution would be a quite interesting problem. The analogy between the queueing systems and inventory systems could be exploited in solving certain models.