

Introduction

We define “model building in economics,” as the fruitful area of economics designed to solve real-world problems using all available methods available without distinctions: mathematical, computational, and analytical. Wherever needed we should not be shy to develop new techniques — whether mathematical or computational. This was the philosophy of Prof Tom Kronsjo, in whose memory we dedicate this volume. The idea is to develop stylized facts amenable to analytical methods to solve problems of the world.

The articles in this volume are divided into three distinct groups: methods, theory, and applications.

In the method section there are two parts: mathematical programming and computation of co-integrating vectors, which are widely used in econometric analysis. Both these parts are important to analyze and develop policies in any analytical model. Berjkholt has reviewed the history of development of mathematical programming and its impacts in economic modeling. In the process, he has drawn our attention to some methods, first developed by Ragner Frisch, which can provide solution where the standard Simplex method may fail. Frisch has developed these methods while working on the Second Five Year’s Plan for India and has developed a method, which is similar to that of Karmarkar.

Lazaridis presents a completely new method to compute co-integration vectors, widely used in econometric analysis, by applying singular value decomposition. With this method, one can easily accommodate in the co-integrating vectors any deterministic factors, such as dummies, apart from the constant term and the trend. In addition, a comparatively simple procedure is developed for determining the order of integration of a different stationary series. Besides, with this procedure one can directly detect whether the differencing process produces a stationary series or not, since it seems to be a common belief that differencing a variable (one or more times) we will always get a stationary series, although this is not necessarily the case.

Basu and Lazaridis have proposed a new method of estimation and solution of an econometric model with parameters moving over time. This

type of model is very realistic for economies, which are in transitional phases. The model was applied for the Indian economy to derive monetary-fiscal policy structure that would respond to the changing environments of the economy. The authors provide analysis to show that the response of the economy would be variable i.e., not at all fixed over time.

In the macroeconomic theory section Hughes-Hallet has examined the impacts of fiscal policy in a regime with independent monetary authority and how to co-ordinate public policies in such a regime. Independence of the central bank is a crucial issue for both developed and developing country. In this theoretical model, the author has discovered some important conclusions that fiscal leadership leads to improved outcomes because it implies a degree of co-ordination and reduced conflicts between institutions, without the central bank having to lose its ability to act independently.

Deissenberg and Pavel consider a dynamic model of environmental taxation that exhibits time inconsistency. There are two categories of firms, believers (who take the non-binding tax announcements made by the regulator at face value), and non-believers (who make rational but costly predictions of the true regulator's decisions). The proportion of believers and non-believers changes over time depending on the relative profits of both groups. If the regulator is sufficiently patient and if the firms react sufficiently fast to the profit differences, multiple equilibria can arise. Depending on the initial number of believers, the regulator will use cheap-talk together with actual taxes to steer the economy either to the standard, perfect prediction solution suggested in the literature, or to equilibrium with a mixed population of believers and non-believers who both make prediction errors. This model can be very useful in the analysis of environmental economics.

In the section on theory of business organization, Victoria Miroshnik has formulated a model of Japanese organization and how the superior corporate performances in the Japanese multi-national companies are the result of a multi-layer structure of cultures, national, personal, organizational. The model goes deep into the analysis of fundamental ingredient of Japanese organizational culture and human resource management system and how these contribute to corporate performance. The model produces a novel scheme, how to estimate phenomena which are seemingly unobserved psychological and sociological characteristics.

Mihiotis *et al.*, discussed enterprise modeling and integration challenges, and rationale as well as current tools and methodology for deeper analysis. Over the last decades, much has been written and a lot of research has been undertaken on the issue of enterprise modeling and integration. The purpose of this discussion is to provide an overview and understanding

of the key concepts. The authors have outlined a framework for advancing enterprise integration modeling based on the state-of-the art techniques.

Anna Maria Mauza in a path breaking research presents a model suitable for an efficient budget management of a health service unit, by applying goal programming. She analyzes all the details needed to formulate the proper model, in order to successfully apply goal programming, in an attempt to satisfy the expectations of the decision maker in the best possible way, providing at the same time alternative scenarios considering various socio-economic factors.

In the section for policy analysis, Iacone and Orsi applied a small macro-econometric model to ascertain if the inflation dynamics and controls for Poland, Czech Republic, and Slovenia, are compatible with the remaining EU member countries. They found that the real exchange rate is the most effective instrument to stabilize inflation whereas direct inflation control mechanisms may be ineffective in certain cases. These experiments are very useful to design anti-inflation policies in open economies.

Athanasios Athanasenas investigated the co-integration dynamics of the credit–income nexus, within the economic growth process of the post-war US economy, over the period from 1957 up to 2007. Given the existing empirical research on the credit-lending channel and the established relationship between financial intermediation and economic growth in general, the main purpose is to analyze in detail the causal relationship between finance and growth by focusing on bank credit and income GNP, in the post-war US economy. This is a new application of an innovative technique of co-integration analysis with emphasis on system stability analysis. The results show that there is no short-run effect of credit changes on income changes, but only in the long-run, credit affects money income.

The book covers most of the important areas of economics with the basic analytical framework to formulate a logical structure and then suggest and implement methods to quantify the structure to derive applicable policies. We hope the book would be a source of joy for anyone interested to make economics a useful discipline to enhance human welfare rather than being a sterile discourse devoid of reality.