

Preface

Every day before leaving the comfort of our home we wonder what the weather is like. The weather forecast helps people feel more comfortable and prepared when heading outside. Numerous media sources report a wide range of weather characteristics such as precipitation, wind strength, direction, speed, temperature, humidity, atmospheric pressure, cloudiness, visibility, atmospheric phenomena that include fog, blizzards, storms, and other meteorological occurrences.

The weather undergoes continuous changes that can be very noticeable from one day to the next and sometimes even from one minute to the next. Depending on the forecast a person chooses protective clothing and items such as raincoats, umbrellas, and glasses.

For transportation on land, water, and in the air meteorological factors such as precipitation, ice, wind strength, and direction are crucial. In aviation for instance, it would be important to note a sharp increase in wind and turbulence.

The weather has always existed, and modern man still has almost no control over the weather. Unlike the weather, economy was created by man. The word “economy” itself was introduced by a great scholar of ancient times, Aristotle. It was formed by combining two words: “oikos”—“household” and “nomos,” from “nemein”—“management.” Modern scholars have given the following interpretation of this concept: the economy is a life support system that is consciously built and utilized by people in all spheres of human activities.

Many people take part in daily economic activities, live in a shared economic environment and sometimes use economic terms such as “money,” “prices,” “inflation,” “wages,” “taxes,” “income,” “costs,” “volumes of production,” “exchange rate,” “unemployment,” or “the market.”

Economic information reveals the pros and cons of different economic systems and public choice options, the difficult choice between equality and efficiency, electoral process, activities of firms and industrial organization, marketing and management, labor market, capital and money markets, family economics, consumer behavior, and national and global economy.

The fall of the Berlin Wall, the collapse of the communist empire in Eastern Europe in the early 1990s led to significant changes in the economies of the newly formed countries. It also created new interactions and greater influence between the “open market” and the “transition” economies.

This book is written on the basis of the experience of the authors and their colleagues in mathematical modeling of many transition economies’ characteristics. The main conclusion reached by this book’s authors is that the concept of a transition economy opened many avenues for further studies of both open and transition economies. Mathematical modeling of weather phenomena merely allows us to forecast certain essential weather parameters without any possibility of changing them. In contrast, modeling of transition economies gives us the freedom to not only predict changes in important indexes of all economy types but also influence them more effectively in the desired direction. In other words, any economy including a transitional one can be controlled by humans.

This book is useful to anyone who wants to increase profits within their business and improve the quality of their family life and the economic area they live in. Professional economists will greatly benefit from new interdependencies between the well-known micro- and macroeconomic parameter behaviors. Moreover, they will appreciate the new possibilities in steering and changing both transitional and open market economies. Mathematicians will be introduced to new mathematical models as well as efficient methods of finding either feasible or optimal solutions for those models. Employees of state planning and statistical organizations will be able to use the proposed models and solutions for improving existing information technologies and operational abilities of their departments. This book is also beneficial for undergraduate and graduate students specializing in the fields of Economic Informatics, Economic Cybernetics, Applied Mathematics, and Large Information Systems.

The roots of this book arose from pioneering publications, many organizational efforts, and the critical view of our colleague and former director of Glushkov Institute of Cybernetics, Vladimir S. Mikhalevich. Many of our colleagues worldwide have read, discussed, and commented on some of the book’s ideas as well as the book in its entirety. We express our deepest gratitude to Yu.M. Ermol’ev and N.Z. Shor for laying the foundation that allowed the final version of this book to be fully realized.

The financial support from the Glushkov Institute of Cybernetics, National Academy of Sciences of Ukraine is greatly appreciated.

Kiev, Ukraine
May 2014

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Optimization Models in a Transition Economy

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2014, VIII, 334 p. 33 illus., Hardcover

ISBN: 978-1-4899-7543-0