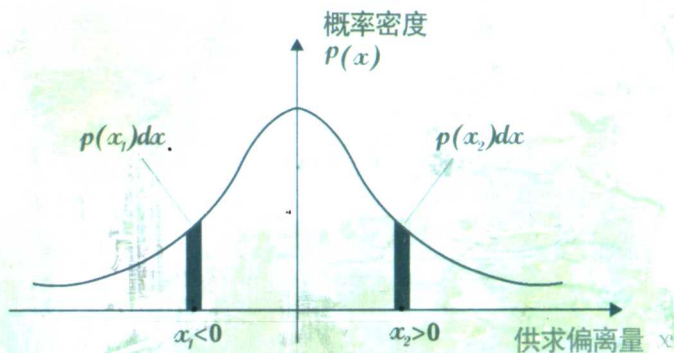


国民产品的 价格模型方法

National Product System's
Price Models & Methods



$$W_i^{k+1} = \sum_j (a_{ji} + c_{ji}) W_j^k + (G - L^k) V^k V_i^k$$

$$P_i^{t+1} = \sum_j (a_{ji} + c_{ji}) P_j^t + (G - K^t) F^t F_i^t$$

$i=1, 2, \dots, n; k, t=0, 1, 2, \dots, N$



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王志国/著

Wang zhiguo



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11月出生，中共党员，湖北黄梅人，研究生学历。1986年开始从事政府经济政策研究，现任江西省人民政府发展研究中心副巡视员、研究员。兼任江西省人大财经委咨询专家，南昌大学、江西师范大学、江西财经大学客座教授等，为江西省中青年跨世纪主要学科（社会科学）学术带头人。主要研究方向：宏观经济、区域经济、产业经济、数量经济等。参与省委、省政府一些重要文件的调研起草，主持了20余项省级重点课题，先后发表政研报告、学术论文200余篇，出版著作多部，共200余万字，6次获国家部委二、三等奖，10多次获省级社会科学优秀成果一、二等奖。



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中国经济前沿问题学术论丛

国民产品的
价格模型方法

National Product System's
Price Models & Methods 王中梅 著



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总 提 要

本书是江西省主要学科社会科学跨世纪学术与技术带头人项目的核心成果。

全书以马克思价值价格理论为基础,运用系统科学方法和数理分析方法,吸收当代各类价格模型理论,提出了一系列有关价格问题的原理模型和应用模型,力图解决马克思主义经济学、国际比较、价格改革以及宏观经济运行与价格监测调控中的一些重大理论问题和实践问题,是一部经济数学方法的原创性著作。

全书共分为 10 章,还有一个○章和两个附录。○章给出了贯穿全书的若干基本方法,其思想方法在本书中有重要地位和作用。第一章简要回顾了古典经济学产生以来的价值和价格理论,把 19 世纪后半叶以来的主要价格理论模型和可计算模型,归纳为 3 类 7 种模型,作为本书基础模型的对比和借鉴。第二、三章从国民产品的系统结构出发,提出了一种计算国民产品理论价格体系的数学迭代模型 GI-PM。这个模型不同于已有的均衡价格模型、影子价格模型、投入产出价格模型和斯拉法价格模型,它把商品的利润表达为按总利润对各分配要素比率分配的通用形式,运用数值逼近方法实现平均化,分别给出了成本利润型价格、工资利润型价格价值型价格、资金利润型价格生产价格模型。这些价格模型克服了投入产出价格模型的利润率经济学机理不清晰,高阶矩阵求逆、求特征根不易实现的困难,是全书的基础模型。

第四、五章着重探讨马克思主义经济学的一些重大理论问题。其中,第四章对马克思劳动价值论中社会必要劳动时间与商品价值量的关系进行了公理化和数学形式化尝试。把马克思劳动价值论主要原理区分为质和量的规定性,运用集合论、概率与数理统计方法对劳动价值论体系中的主要定义、定理和条件进行公理化、数学形式化推导,运用价值型价格模型给出了综合考虑第一、二种社会必要劳动时间的商品价值量计算模型。这在相当程度上可以克服劳动价值论论战中一些纠缠不清的分歧,澄清关于马克思劳动价值论与当代科技进步、社会发展现实相矛盾的一些误解。这是对马克思劳动价值论研究的一种大胆的探索与尝试。

第五章以价值型价格和生产价格模型为基础模型,提出了马克思劳动价值论中论战百年的“价值转形”科学难题的一种新解法。这种解法被称为对称不变性解法 SCS,不同于先后 100 多年来德国统计学家鲍尔特基维茨开创的比例系数法、

英国经济学家塞顿开创的共线性法、日籍经济学家森岛通夫开创的马尔科夫链调整法,是通过建立价值与生产价格两套独立体系,分别迭代、联立求解,并使用计算机技术对马克思《资本论》第三卷的转形表示例进行了正确性验证。不仅从数理逻辑上证明、而且从计算机实验上验证了马克思价值转形“两总量命题”在相当一般条件下同时成立;找到了使其成立的一组表示无穷生产结构的充分必要条件及其通解;同时还揭示了价值体系和生产价格体系在这组条件下具有对称性,可以互相转换;证明了长期以来西方经济学家若干解法的条件是特殊条件而不是一般条件,或者说,不是充分必要条件。这种方法开创了“价值转形”问题的一种新的研究方法,并于2004年获中国第三届“薛暮桥价格研究奖”。

第六章提出了用生产价格和比价体系进行国际比较的两种模型方法。其中用比价体系法CPS进行国际比较的方法,发现了国际比价体系具有同构性、无技术差别性、无货币量纲性,以及开放性条件下具有趋同性。提出了不同于购买力平价法指标含义的新比较指标体系和计算方法,获得了具有国际通比意义的具有实物量纲和价格量纲的总产品物量和国际比较价格,可以计算各国比较总产出和货币交换率。这种方法为联合国、有关国际组织和国家进行国际比较提供了一个具有很强比较功能和应用前景的新的国际比较原理和模型方法。

从第七章开始,作者把触角延伸到我国现实经济体制改革和经济运行。其中第七章研究在具有价格、财政、税收、货币金融多种调节因素的多维经济系统里,保持经济稳定运行的价格变化条件与其他调节因素变化的数量关系。证明了价格体系在线性变化、非线性变化条件下,依靠财政、税收、利率、汇率的相应变化作为调节手段,可以保持经济系统稳定运行;找到了经济系统在原稳定态、新稳定态和非稳定态三种情况下运行价格变化的条件。这一研究为价格改革、经济运行机制建立和宏观调控提供了重要理论依据和数量依据。

第八章对通货膨胀、通货紧缩条件下居民收支的变化和影响进行了定量和实证研究。以价格为自变量构造了通货膨胀、通货紧缩与一般居民家庭收入、支出、消费、储蓄和投资、借贷行为关系的一组方程体系,分析在通货价值改变条件下,家庭收入、支出项目与通货膨胀率之间的数量变动关系。运用20世纪90年代中国城镇居民家庭收入、支出资料,分析了不同收入类型家庭在通货膨胀和通货紧缩两种情况下收入变动规律、分类消费特征。这项研究对制定通货膨胀时期居民收入和消费政策有重要意义。

第九章以价格市场化为线索,对我国改革开放、经济转轨以来的物价上涨运动的基本轨迹与变动特点进行了总结探讨。指出价格市场化之前,物价上涨主要是价格机制成长、经济高速增长,市场主体行为中的一些正常的和不规范因素形成

的;而价格市场化之后,由于体制基础、市场格局、政府和企业行为发生了转变,价格上涨、转导机制和调控方法均发生了重大变化,呈现出一系列新特点。提出了深化价格改革、加快社会主义市场经济转轨进程的几点意见。

最后一章提出,以基础价格模型和现有投入产出表编制、价格成本调查网络为技术手段,创建一套社会主义市场经济的宏观价格监测调控的新参照系。本章分析了创建新参照系的必要性,提出了具体的创建办法。

Abstract

This book is the major achievement of Trans-century Academic and Technology Leader Project of Main Subjects (Social Science) in Jiangxi province.

The book is based on the Marx's Value and Price Theory. By using system theory and numerical analysis methods, absorbing contemporary price model theories, it has brought up a series of principle and application models on price. Then, it wants to solve Marxist Economics, International Comparison, Price Reform and some important theoretical and practical issues in macroeconomic running and price monitoring. It is an original work on economic mathematical methodology.

The book is divided into ten chapters, chapter 0 and two Appendices. In chapter 0, it gives some basic methods of this book. It has briefly reviewed the value and price theory since Classical Economics in chapter 1. It induces the main theoretical models and calculability models since the second half of the 19th century to three categories seven kinds, as comparison and reference of this book's basic model. Chapter 2 and 3, it builds a General Iteration Price Model (GIPM) of theoretical price system to calculate the gross national product from the national products system structure, which is different from the Equilibrium Price Model, Shadow Price Model, Input-output Price Model and Sraffa Price Model. This model puts commodities profits in a general form and realizes average by digital approximation, which distributes profits by the ratio of total profits to production factors, such as Cost-profit Price, Wage-profit Price and Capital-profit Price. These overcome the unclear of profit rate's Economics mechanisms of Input-output Price Model and the difficulty of the inversion of high matrix and attaining the latent root. They are this book's basic models.

Chapter 4 and 5, it focuses on some major theoretical issues in Marxist Economics. And, it attempts to process the relationship between Social Necessary Labor Time and Commodity Value to axiomatization and mathematical formalization in chapter 4. Then, it divides Marx's Labor Theory of Value into qualitative and quantitative prescription, and deduces the main definitions, theorems and conditions of Labor Theory of Value to axiomatization and mathematical formalization by set theory, probability

and statistical methods. Considering the first and second Social Necessary Labor Time together, it gives a Commodity Value Measurable Model by Wage-profit Price. This can overcome some divarications in argument of Labor Theory of Value and clarify some misunderstandings on Marx's Labor Theory of Value and contemporary technological progress and social development in a considerable extent. This is a courageous exploration and experiment of Marx's Labor Theory of Value study.

Chapter 5, it gives a new solution to *Value Transformation* of Marx's Labor Theory of Value based on Wage-profit Price Model and Capital-profit Price Model, as an argued puzzle, which has lasted more 100 years. This method, named Symmetrical and Constant Solution (SCS), is different from the Proportion-ratio Method of German statistician L. Von Bortkiewicz, the Collinearity Method of England economist F. Seton and the Markov Chains Adjustment Method of Michio Mdrishima who came from Japan in last century. Through establishing two independent systems of value and production price, we use iteration simultaneous solution and computer technology to prove the example about Value Transformation Table in the Volume III Marx's *Das Kapital*. It is not only on mathematical logic but also in computer experiment demonstrating that *two Total Quantity Propositions* in Marx's *Value Transformation* are simultaneously true in a fairly general condition. We find a series of the necessary and sufficient conditions and common solutions, bring out that the Value System and the Production Price System have symmetry in these conditions, and they can convert into each other. It proves that the conditions of solution which, for a long time, some Western economists have given are special, not common, so to say, they are not a necessary and sufficient condition. This approach gives a new research methodology to *Value Transformation*. And it got the third China's *Xuemuqiao Price Research Prize* in 2004.

Chapter 6, it gives two models of international comparison based on production price and Comparing Price System. And, in the Comparing Price System Model (CPS), we find that the International Comparing Price System has similarity of structure, indifferent of technology, non-dimension of currency and similar tendency under open condition. Then, it gives new comparative indicator system and algorithmic method, which is different from PPP, and gains physical quantity of total products and international comparative price in international comparison, which have physical and price dimensions. This method gives a new useful international comparison theory and model for the United Nations, relevant international organizations and countries.

From chapter 7, the author starts studying the reform of the economic structure

and economy running of our country. Chapter 7, we find the quantitative relation between the price condition of keeping economy running stably and other adjusting factors changing in a Multi-dimension Economic System including Price, Finance, Tax, Monetary and Financial factors etc. If price system is linear or un-linear, it can keep economy stable by adjusting Finance, Tax, Exchange Rate and Interest Rate. The condition of price variety has been found when economic system is running in stable situation, new stable situation or unstable situation. This result gives important theoretic and quantity base to price reforming, building economic operating mechanism and Macro-control.

Chapter 8, it has some quantitative and empirical studies on the impact of the inflation or deflation on household's income and expenditure. Regarding the price as an independent variable, we can build a system of equations depicting the relationship between inflation, deflation and common households' income, expenditure, consumption, deposit, investment and loan, and analyze the relationship between income, expenditure and the Rate of Inflation and Deflation, when currency value changes. Besides, with income and expenditure of China's urban household in the 1990s, we also study the variety law of income and consumption of different income-type households under the inflation or deflation. This study is significance for making income and consumption policies during the inflation and deflation periods.

Chapter 9, the author discusses the basic route and feature of price increasing through the marketilization since price transition and China's Reform and Open. Before the Price Marketilization in China, the reason of price increasing was mainly the price mechanism transform, rapid economic growth and some normal or irregular behaviors of market subject. But, because of the change of system foundation and market situation, transferring of government and enterprise functions, price increasing and transmission mechanism have a series of new features after Price Marketilization. Some suggests are given to deepening price reforming and promoting Socialism Market Economy.

In the final, the author establishes a set of new Macro-price Monitoring Reference Frame in Socialism Market Economy based on the basic price model, the existing Input-output Table and price-cost investigating nets. Then the author analyzes the necessity of building this Reference Frame and gives the concrete measures.

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