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国民核算新论

A NEW FRAMEWORK OF NATIONAL ACCOUNTING FOR SUSTAINABLE DEVELOPMENT IN ECONOMY

徐映梅 著

中国财政经济出版社

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总　序

一个没有思想活动和缺乏学术氛围的大学校园，哪怕它在物质上再美丽、再现代，在精神上也是荒凉、冷清和贫瘠的。欧洲历史上最早的大学就是源于学术。大学与学术的关联不仅体现在字面上，更重要的是，思想与学术，可谓大学的生命力与活力之源。

我校是一所学术气氛浓郁的财经政法高等学府。范文澜、嵇文甫、潘梓年、马哲民等一代学术宗师播撒的学术火种，五十多年来一代代薪火相传。因此，在世纪之交，在合并组建新校而揭开学校发展新的历史篇章的时候，学校确立“学术兴校，科研强校”的发展战略。这不仅是对学校五十多年学术文化与学术传统的历史性传承，而且将成为谱写新世纪学校发展新篇章的战略性手笔。

“学术兴校，科研强校”的“兴”与“强”，是奋斗目标，更是奋斗过程。我们是目的论与过程论的统一论者。我们将对宏伟目标的追求过程寓于脚踏实地的奋斗过程之中。由学校斥资资助出版《中南财经政法大学学术文库》，就是学校采取的具体举措之一。

本文库的指导思想或学术旨趣，首先在于推出学术精品。通过资助出版学术精品，形成精品学术成果的园地，培育精品意识和精品氛围，提高学术成果的质量和水平，为繁荣国家财经、政法、管理以及人文科学研究，解决党和国家面临的重大经济、社会问题，作出我校应有的贡献。其次，培养学术队伍，特别是通过对一批处在“成长期”的中青年学术骨干的成果予以资助推出，促进学术梯队的建设，提高学术队伍的实力与水平。第三，培育学术特色。通过资助在学术思想、学术方法以及学术见解等方面有独到和创新之处的成果，培育科研特色，力争通过努力，形成有我校特色的学术流派与学术思想体系。因此，本文库重点面向中青年，重点面向精品，重点面向原创性学术专著。

春华秋实。让我们共同来精心耕种文库这块学术园地，让学术果实挂满枝头，让思想之花满园飘香。

2001 年 11 月 28 日

A New Framework of National Accounting for Sustainable Development in Economy (Abstract)

The discussion of environmentally sound and sustainable social – economic development has received increasing attention from the international community, stimulated in particular by the report "our common future" of the World Commission on Environment and Development. Environmentally sound and sustainable development become also the basic theme of the United Nations Conference on Environment and Development, held at Rio de Janeiro in June 1992.

Sustainable development is defined "meets present needs on the condition of not reducing or sacrificing need ability of descendants". It is a new development view that the big comprehensive system of ecology – society – economy harmoniously develops around human beings. It is integration of sustainable development in society, economy and ecology.

People have realized that the gross domestic product (GDP), the most important indicator of the conventional system SNA, inadequately measures the sustainable development in economy. Because increasing GDP through plundering of natural resources, destruction and degrada-

tion of ecological environment, less improvement of human living quality, etc. Our research does not intend to replace the existing data system (SNA), but rather to incorporate some important elements as far as possible in order to establish a comprehensive data system. Therefore, it is necessary for rational evaluation of sustainable development of a country's economy to incorporate the environmental, human capital and intellectual capital into the conventional SNA, which is called the extended SNA (ESNA).

This book consists of 6 chapters: (1) The defects and its extension of the conventional SNA; (2) Integrated environmental and economic Accounting; (3) Integrated human resource and economic Accounting; (4) knowledge and economic Accounting; (5) Comprehensive accounting; (6) a new system of statistic information management for the extended SNA.

In chapter one, Consider on the sustainable development of one economy, the main defects of the conventional system SNA are as follows: first, non-financial assets accounting is imperfect. Assets are defined as "the materials that person or unit has its property and brings revenue in using". It means that the natural resources which not being controlled or having not market value are not included. So the sound ecological assets, the quality of air, human capital in using and intellectual capital in economic procession have not described. Second, the scope of production needs extending. "Production" is defined as "a material procession controlled or managed by an institutional unit". It does not consider these activities: non-payment household production and household investment in human capital and production of knowledge. So the costs relative to those activities should be included in the

intermediate consumption, rather than the final consumption. Third, measurement of inputs and outputs is not imperfect. Inputs of a typical production include factors of labor and capital. The capital should comprise man – made goods, natural resources, knowledge resource and human capital. The latter two kinds of capital need to be segregated and added. Outputs of typical production include expected outputs and unexpected outputs. The former has knowledge, human capital and other products, but they are not measured in outputs. The latter includes residuals, that is, wastes, wasted water, wasted gas, which affects the environment. So the unexpected outputs need measured separately. Forth, keep the national wealth perfect. The concept "Wealth" in the conventional SNA comes from the definition of Adam Smith's wealth. It means that people produce goods and services in a given time. Today, this scope of the national wealth is inadequate measurement. Because it does not measure the human capital, sound natural wealth and knowledge resources from man – made assets, which are applied all the time in economic activities.

So extended SNA needs to incorporate those elements into the conventional SNA for reflecting the characteristics of sustainable development in economy of a country.

In chapter 2, Integrated environmental and economic accounting involves two aspects: one is about the natural resources or assets, which are used in human being's economic activities; the other is about the economic activities which affecting the natural environment and the affections influence humankind health and welfare. The natural environment is the totality of natural, matter and energy. It influences people's life and activities of production directly or indirectly. The natural resources

are limited and scarcity and natural environmental assets are directly or indirectly, actually or potentially affected by human activities.

The use of natural assets can affect their temporary or permanent depletion (quantitative use) or leave nature unchanged quantitatively but possibly affect the quality of the environment (qualitative use). So, it is necessary that integrate environmental and natural assets to economic accounting. This part three problems are discussed: one problem is how to value the natural assets, many methods can be chosen. Other problem is how to disaggregate Environmental – related from the conventional SNA. The other problem is how to measure Environmental – related by both mcnetary and physical units. A new concept of imputed environmental costs is introduced and the environmentally adjusted domestic product, for short, the eco domestic product (EDP) can be acquired.

For more adequately, more detailed analysis of the influence of environmental – economic interrelations, household boundary of production needs to be extended. In addition, externalization of internal environmental protective activities is beneficial of describing soundly inputs and outputs of environmental protection activities. The symmetric input output table can analyze and describe the interaction between environment and economy, and which is special important.

In chapter 3: Human resources are as production condition in the conventional SNA. After introducing the concept of human capital, human resource can be integrated into economic circuit, which can be described the relationships of the development of human and sustainable development of economy. We are distinguished several concepts about human resources that can be described human resources in one country.

They are human resources, human assets and human capital.

We have studied three problems: first how to form of the human capital? They are of five aspects: education; medical treatment and health protection; training; migration and learning to do. Second, how to account the human resources by physical and monetary items? Physical accounting of human resources comprise both quantity and quality of human resources, and its changes of flow and stock, Which is shown by the tables of physical accounting of human resources in reserve, in use and in exhaustion. Third, what will be changed introduction of human capital? The changes of the conventional SNA after introduction of human capital are First the scope of assets needs extension, Second the concept of household production needs extension further, third the use and supplement of human resources needs disaggregate, Forth, adjusting the classifications of output, products, individual consumption and governmental function in the conventional SNA.

In chapter 4: The physical capital accounting is the core of the conventional SNA, and knowledge accounting is not intact and perfect. So it is necessary and important to describe the economic valuation of knowledge and disaggregate the items of involving knowledge. We discuss the definition, classification and characteristics of knowledge and Intellectual capital.

We also distinguish the Intellectual capital and human capital. Intellectual capital has three kinds: one of them is tacit knowledge shown by human capital; another of them is also tacit knowledge which hidden in fixed assets that are equipment, machine, etc. Shown by physical capital. The other is also editorial knowledge but which is shown by intangible capital. The first type is viewed as human capital. The latter of

two types is viewed as knowledge capital and incorporating to ESNA. The accumulation of knowledge capital is the important basis of human capital development. Higher accumulated human capital, more creative Intellectual capital. Therefore the characteristics of knowledge – based economy, on the one hand are shown by human capital, on the other hand shown by input – output of knowledge in economic activities. Knowledge production has two fashions: one is hidden in physical products process; the other is obtained by R&D process.

Knowledge production differs from general production. Its input has additional human capital and knowledge capital, which shown by input accounts. Its output has also additional human capital and knowledge products or half – products, work in progress which shown by indicators of rate of profits, gross output patent and the quantities and qualities of those. Outputs that enter marketing estimate at market value but those do not enter marketing estimate at physical items.

Though measurement of knowledge is difficult, some stocks of knowledge that is very important in economic activities. How to acquire the main indicators, that is, stock of R&D, stock of persons who perform in R&D, stock of patent, and so on are discussed.

Flow of knowledge is a ratio of stocks of knowledge that enters economic system. Flow of knowledge materialized can be described as these indicators: total costs of purchasing patent techniques; flows of techniques trading in international countries; structure of techniques flows among industries; and scope of spread of knowledge materialized.

Un – materialized knowledge is also important in knowledge society. Its flows can be measured by quotes: index of scientific quotations; patent quotes and transmitting and spreading of knowledge among in-

dustry, school and institution of scientific research.

After introducing knowledge resource into economic accounting, it is necessary to disaggregate the valuation of knowledge products, to disaggregate the Intellectual capital, to re – classify industry and products by knowledge – concentrated. Then ESNA can embody adequately the characteristics of knowledge – based economy.

In chapter5: Basis on previous contents, comprehensive accounting describes the relationships among human development, perpetual use of natural resource, maintaining the ecological environment sound, creating of knowledge and sustainable development in economy by a matrix table and indicators.

Compared with the conventional SNA, the ESNA has perfect, more plentiful content. They are Extension of production boundary: Production comprises not only man – made materials and relative services, but also human capital and knowledge products. Input and output accounting perfectly: Input factors are labor and capital, capitals are divided further by natural capital man – made physical capital, human capital and knowledge capital. Outputs are expected and unexpected products. The former includes physical products and services, increment of human capital, knowledge products (measurable and unmeasured); the latter includes all kinds of residuals (perfectly record and disaggregate). Assets accounting perfectly: Assets comprise natural assets, man – made physical assets, human assets and Intellectual assets.

The extended contents in comprehensive accounting embody relative items in proper order based on accounts system of conventional SNA. The main accounts are comprehensive production accounts, income allocation and use accounts, capital accounts, other volume change of as-

sets accounts, revaluation accounts, assets liability accounts and national wealth balance.

Integrated the accumulation and use of natural capital, human capital and knowledge capital into the economic circuit are described by a comprehensive accounting valuation matrix and can form the basis indicators for evaluating sustainable development of economy. They are sustainable gross domestic production, sustainable national income; amounts of circulation about human resource, man – made products (natural products), capital, knowledge, residual, etc; economic welfare; national wealth.

In chapter 6: Construction statistic information management system suit to the extended SNA.

The extended SNA requests changes of accounting contents, accounting approuches and fashions about Macro or micro statistical information management systems. Compared ESNA with the conventional SNA and SSDS, these indicators are improved further and newly added. They are in environmental – economy: Stocks of natural assets, physical and Monetary units of natural assets; flows of natural assets; physical amount and monetary valuation of residual; environmental costs (at market value and contingent value); environmental costs at maintenance value; repercussions costs at contingent value. In human resource – economy: The quality of human resource; human capital; valuation of human resource; allocation of human capital in industries; time allocation accounting of household. In knowledge – economy: Knowledge products (including scientific and techniques products); spread and transmitting of knowledge; the production and accumulation of knowledge; Intellectual capital; flow and stock of knowledge; knowledge –

based industries; input and output of knowledge.

Those indicators extend the contents of macro economic statistical information management system further. Proper methods of accounting are requested. Developments of methods are maintenance approach, contingent approach and other indirect valuation approach.

Micro statistical information management system comprises two aspects: enterprise statistic accounting and household accounting. Enterprise statistics accounting focuses on additional involving in environmental – economy, which are not or not perfect accounting, but very important to existence and development of enterprise at presents. Household accounting becomes more important, Those focus on household production boundary; involving input, output, consumption, costs borne, etc.

目 录