

## Methodological Issues of Macroeconomic Accounting (Review)

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**Abstract:** The paper presents three trends in the research of methodological issues of macroeconomic accounting. Emphasizing the need to harmonize indicators at micro and macro levels, the author undertakes a historical overview of macro statistical accounting. Special attention is given to the difference in the definition of the concept of income in the SNA and accounting. The author compares the international accounting standard for revenue with the methodology of the system of national accounts, systematizes the differences in the content and assessment of products, costs, profits, assets in accounts and in the national accounts. The author believes that the practical use of accounting data for the national accounts should be based on the harmonization of two accounting systems, treating each system as a separate one.

**Key words:** System of national accounts • Income • Macroeconomic accounting • Double entry

### INTRODUCTION

System of national accounts in the national Russian statistical practice presents difficulties when preparing source data for aggregation on the accounts. The necessity to set up the system of straight-through indicators (from micro to macro level) changes the role of enterprise statistics radically. It is necessary to work out a methodology to exploit accounting data to generate indicators of macroeconomic level. Therefore it is necessary to harmonize accounting indicators with national accounting to satisfy the needs of different data users. The interaction of accounting and macro statistical accounting has been the subject of scientific debate for over a hundred year. J. Richard, a French scholar, points out at macroeconomic accounting among a number of theories and practical methods saying that it serves national accounting. It is accounting in dynamics which emphasizes gross output and added value but not the production sold [1]. Compilation of papers allowed distinguishing three trends in macroeconomic aspect of accounting: firstly, application of double entry on the accounts and balance generalization in macro statistical accounting; secondly, theoretical adjustment of principles, concepts of financial accounting and system of national accounts (SNA); thirdly, practical use of

accounting data to generate national accounts. Therefore the objective of the research is to analyze and to compare methods of measure institutionalization in accounting with the requirements of SNA (standard of 2008) [2] and to find out methodological issues afterwards.

### MATERIALS AND METHODS

To discover the problems of harmonization of accounting and national accounts, some provisions of UNSNA (the 2008 revision), IAS 18-Revenue [3] were analyzed and synthesized, scientific papers materials were generalized.

### RESULTS AND DISCUSSION

In the frameworks of the first trend of macroeconomic accounting, SNA is undoubtedly the XX century outstanding invention which laid the foundations of independent section of modern economics and statistics. Relying on the macroeconomic theory, SNA reflects balance relations in economy and is a basis of macroeconomic modeling and the analysis [4, 5]. R. Stone, an English economist, J.Keynes follower, who formulated SNA principles and a well-known Russian

scholar V.V. Leontiev, the author of inter branch balance, were awarded the Nobel Prize for Economics. Ya.V.Sokolov, P.Studenskiy [6, 7] and *et al* systematized the notions of macro statistical accounting. As early as in 17 century, G. Ortes' based on W.Petty's economic principles and offered a system of national accounting indicators which was studied by A.Erba [8]. In the early 20<sup>th</sup> century in his short historical article "Bookkeeping" ("Schetovodstvo") I.G. Maksimov noted the importance of bookkeeping in the society and showed the significance and necessity of the latter for the state economy [9]. It should be noted that I.F.Valitskiy, a Russian accounting school representative and a scientist, in his "Bookkeeping theory when applying to economy with the enclosures of the state of accounts in Russia" (1877) made an attempt to use a double entry and a balance aggregation to show economic turnover, national wealth and interactions at the stages of reproduction process, distinguishing flows and reserves, classifying assets, liabilities and economic entities. He named the set of accounts as the ledger and generated accounts for 1875, estimating production factors (labor, capital, land, resources) according to branches and cross-section (state management, autonomy, stock companies and share societies, population's physical needs) which may be compared with modern notion of "economy sector" under some provisions [10]. I.F. Valitskiy posed goals of macro statistical accounting. His ideas that natural resources cost (lands, forests, animals, minerals) should be shown on the accounts deserve attention, including his opinion about the assessment of purchasing power parity, differentiation between main activity and capital investments, possibility of analytical comparisons.

The use of double entry and a balance aggregation in macro statistical accounting necessitated the research of the second trend of macro statistical aspect of accounting. Principles and methods of balancing the system of national accounts to evaluate national wealth were studied by I.M Bobukh [11]. Different theoretical problems linked to integrated national accounts were studied by R.Ya. Veitsman, S.G. Strumilin, V.S. Nemchinov *et al* and are shown in the research [12]. Being a theoretical heritage, these studies are not orientated at accounting records maintenance when generating SNA. Scientific knowledge in the theory of principles harmonization, notions of financial accounting and SNA in national Russian theory and practice are represented in the works by M.S. Abryutina, Yu.N. Ivanov [13-15] and

by some other researchers. The nature of accounting and macro statistical accounting [12, 16] makes accounting system aimed at current records, control over company's business operations and information management and its orientation at internal users. Moreover, accounting shows reproduction process at the micro level where economic theory prevails over juridical and financial ones and a minimal time lag of recording the fact of business operation is observed. Unlike accounting, SNA presents the results of the country's economy in general and possesses unlimited number of users, the subjects of national accounts are income and liabilities flows, here financial theory prevails and a maximum time lag of organizing information is observed.

Yu.N. Ivanov, K. Utsunomiya [15, 17] points to a serious difference in the definition of income in SNA and accounting. In accounting income is defined in fiscal terms and it is closely connected with tax legislation. The principle of historical cost in accounting of the income can lead to a distortion of the market cost of financial flows [18], which is used in SNA. In SNA the definition of income is based on J.Hicks' politic and economic concepts described in his "Cost and capital" saying that income is a maximum amount of money which may be spent for private consumption and one will not become poorer by the period end. It means that income is not any amount of money received (for example, money received from selling a house is not income but just a change in the form of assets). In SNA the proceeds from selling property are considered as a change in the form of assets. That is why in SNA there is a clear distinction between operations with income and financial instruments, between current and nonrecurrent receipts, between income from goods and services and income which is received as a result of reallocation. In SNA main flow of indicators and income indicators in particular, are estimated on the accrual basis, whereas in accounting cash method of assessment is frequently used. Hence, a cornerstone of SNA is the problem of assessing economic data. The researches [19, 20] note that confrontation of different information sources results in different data because of insufficient integration of notions, especially in assessing capital assets [20] when calculating its share in the productive activity for industrial purposes. Let us look at accounting where incomes are considered together with the expenditures (from main and other activity) without clear distinguishing between production, distributive, redistributive operations. According to IAS 18-Revenue, incomes

are any receipts which increase owner's equity (except shareholders' contributions) during regular operations (revenue) and other proceeds. Income includes sale proceeds and other payment received for the goods sold; advance income; revenue received for the goods not supplied to the buyer and services not rendered; other non-operating income and expenditure (finance from property sale, yields, income from rentals etc.). According to ISA proceeds is income that a company receives from its normal business activities resulting in increase of owner's equity (except for shareholders' contributions). Fair value is an amount of cash which is enough to acquire an asset (to meet liabilities) when making a deal with independent and well-informed parties. Revenue is assessed on a fair-value basis which is usually seen as a contract price including all discounts. Exchange of goods (services) of the same type (or similar ones) does not make up revenue.

Exchange of goods (services) of different types makes up the revenue which is equivalent to fair value of the goods received or services rendered. If the cost of the goods received (or services rendered) cannot be estimated reliably, revenue is equivalent to the cost of the goods delivered (services rendered).

In SNA income limits are wider than in accounting. On the assumption of the fact that SNA does not consider a part of revenue as income which has to be spent to compensate expenses incurred to purchase means of production, SNA requires to clearly distinguish between operations with income and financial instruments, between current and nonrecurrent receipts, between income from goods and services and income which is received as a result of reallocation. As a result, differences in SNA income conception and in accounting make up a confrontation in the nature and estimation of economic indicators at micro and macro level (Table 1).

Table 1: The comparative characteristic of indicators in accounting and SNA

Index category	Index		Estimate	
	Accounting	SNA	Accounting	SNA
Output	Output, revenue from sale, finished goods	Gross output, added value	Estimate of output based on production cost and revenue-on prices of actual market	Output estimate in base prices, or in producers' prices
Expenses	Cost classification according to items and elements	Intermediate consumption, primary outlays	Expenses are estimated on the basis of prices for buying goods. Consumption of fixed capital is estimated according to primary cost or replacement cost	Estimation in effective prices for the moment of productive consumption. Consumption of fixed capital is estimated according to replacement cost. Repairs are included into gross fixed capital formation
Profit	Gross profit, sales profit, pre-tax earnings, net profit	Gross profit, net profit	Net profit is the final results of company's activity after paying all taxes	Net profit is gross profit less consumption of fixed capital
Investment	Investment into capital assets, stocks including in-process inventory, financial investment	Gross fixed capital formation, changes in inventories, net purchase of resources (stocks), net lending	The estimation of assets by the purchase prices at times of inflation contains holding gains	Estimation is carried without holding gains
prices	Price of production, selling price	Basis price, producer's price, buyer's price	Price of production is the amount of costs and average profit for contributed capital. Selling price is the amount to be received by producer from a buyer for the manufactured product, including tax on products and trade and transport margins	Basis price does not include materials tax, but includes subsidies on products. Producer's price includes taxes less subsidies on products. Buyer's price includes trade and transport margins, taxes on products and imports and does not include subsidies on products and imports
Taxes	Income tax, individual income tax and other taxes, indirect taxes	Current direct taxes on income and property, taxes on products and import, taxes on production and imports	According to tax rates in proportion to tax base	According to tax rates in proportion to tax base

As it is seen from Table 1, in SNA operations results are assessed on gross basis separating expenses into one's own and other person's labor. In accounting most of the attention is paid to the final results of operation such as net profit and fiscal (tax) purposes. One of the most significant confrontations is in the estimation of output. If an accountant can assume with difficulty that products which are not sold yet will be assessed by current market prices, a national bookkeeper will have to assess output exactly this way in order to provide uniformity of his or her calculations.

Approaches to practical application of accounting data to generate national accounts are shown in [13, 14, 21] and suggest accounting models of an enterprise which is aimed at calculations of gross output and added value, thus, proving macroeconomic nature of accounting. The advantage of this approach is that, firstly, added value as an index demonstrating formation and distribution of wealth is more appropriate (relevant) to measure the efficiency of economic activity not only of the nation, but also of an enterprise; secondly, showing added value in the accounts increases information credibility. Along with it, the development of knowledge economy and information technology determines the change in the nature of capital and requires to maintain intellectual property accounting and to record economic profitability of networking in order to later show them in the national accounts [22, 23]. At the same time we consider that differences in goals of the two systems determine their independence and that is why it is reasonable to maintain each system's specific features according to their original postulates.

### CONCLUSION

Following certain assessment principles and methodological peculiarities which allow to generalize accounting data with the aim to receive necessary macroeconomic values shifts emphasis from sales accountancy to gross output accountancy, from costs accounting to value added accounting. Nowadays researches are concentrated around two approaches to interaction of accounting and SNA: a closer harmonization of these accounting systems by way of reforming accounting at the enterprise or introduction increasingly more number of qualified opinions and methods into SNA. We believe that it is more viable to harmonize two systems of accounting in terms of

treatment and classification of individual items in incomes, expenses, assets and others by way of harmonization of international standards of national accounts and international standards of financial accounting. Determining produced-and-realized added value in accounting will make it possible to determine not only country's economic efficiency, but also individual enterprise's efficiency on the basis of income concept.

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