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National Accounts System: Source of Information in Macroeconomic Forecast

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Abstract *The national accounts represent a model for recording and analyzing macroeconomic. The emergence of national accounts was necessary to obtain information for making calculations and macroeconomic analysis. Thus, national accounts system has become the main tool for recording and analyzing macroeconomic used in international statistics, so consequently and in Romania. A statistical overview of the emergence of this system of macroeconomic evidence shows that from 1938 to agreed first system developed by Professor Richard Stone in England. Subsequently, the preoccupation to establish a filing system macroeconomic able to provide dynamic analysis while each country, but also ensure the possibility of a macroeconomic records internationally and expanded. Incidentally, it appeared Cambridge system describing the relationships established between the main economic homogeneous systems and between them and the rest of the world, a definite necessity to make a comparative analysis over time. Later Leontieff described the internal structure of the productive system as a highlight structural production of the national economy, highlighting the relationship between the branches of the national economy, as an important element in studying correlations are established at the macroeconomic level. Evolving over time, national accounts system resulted to be composed of a number of tables that highlight the production, distribution, consumption and accumulation of goods, categories of businesses and the overall national economy. In this context, plays an important role in economic circuit which is represented as a set of operations that stability economic flows between operators. In conclusion, the system of national accounts is presented in four important accounts respectively, production, consumption, accumulation and the world, which shows how to interpret each. In this context, the authors of this article said content relevant accounts, production, consumption, accumulation and the world trying to emphasize the correlation established between them. Going forward, the authors believe that the tried and largely succeeded, which have proposed have focused on content main indices calculation results of the national accounts. Thus refers to Global Product, Gross Domestic Product Gross Domestic Product Net national income, national disposable income and product available, synthesizing in this way, how these indicators are found behind any analyzed, especially regarding the need for forward-looking analysis to identify how the question of identifying macroeconomic development trend.*

Key words Economic flow, macroeconomic circuit, investment, production, economic agent

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1. Introduction

In this article, the authors sought to present the main correlations established between macroeconomic indicators and from them to identify correlations, correlation coefficients and thus to identify a trend of future development. Emphasis is put on studying national accounts that showed materialized and is now used by most countries in charge of calculation, analysis and interpretation can domestically and internationally. Further authors paid attention to content and calculation of key indicators for results of national accounts. Starting from the elements of the system bunk (economic or economic accounts, the accounts and account macro-economic sectors) have been identified which are specific elements which must be taken into account in the analysis macro. Thus, in addition to establishing precisely defining the main macroeconomic indicators and results (Global Product Gross Domestic Product Gross

Domestic Product Net national income, national disposable income and national income per capita) they have sought to correlated these indicators and on the other hand, have sought to emphasize is the correlation between these indicators and is able correlation and macroeconomic analysis. Seride content are presented in a correlational element which determines distance arguing possibility of development of national economy and especially the synthesis of these developments in content and the macroeconomic indicators calculated.

2. Literature review

Anghelache (2015) describes the concepts and tools used in macroeconomic. Aruoba and Diebold (2010) are concerned with real-time monitoring macroeconomic. Blanchard and Leigh (2013) have regard to possible errors in the prediction of growth. Anghelache (2007), Anghelache *et al*. (2006) concentrated the methodology of macroeconomic analysis. Giacomini and Rossi (2010) develop on comparisons of forecasts in terms of instability, Patton (2011) deals with a similar theme in his study. Anghelache and Anghel (2014) describe the role modeling studies and economic analyses; Anghelache (2009) is concerned utility models in macroeconomic forecasting. Anghelache *et al.* (2013) presents the System of National Accounts. Clark and Ravazzolo (2015) take into account macroeconomic performance under certain conditions. Öllera şi Teterukovsky (2007) study measuring the quality of macroeconomic variables. Wilms and Croux (2016) describe some aspects of the application of co-integration of the projections. Anghelache (2008), Anghelache and Capanu (2004) are references for macroeconomic statistical studies. d'Albis and Moosa (2015) develop on the national transfer accounts. Bos (2013) develops on the measurement of the data within the national accounts system. Tissot considers the impact of the residency-based approach of the national accounts on globalization and financial stability risks. Vandille (2015) describes the environmental and social satellite accounts associated to the NAS, as information sources able to provide additional indicators. Diewert and Fox (2014) evaluate the correlation between the price indexes for commercial property and the national accounts. Marini (2016) analyzes the use of quarterly-based indicators in the annual NA system. Zakharchuk and Pasynkov (2017) study a balance-type model of financial flows. Nakamura and Nakamura (2015) approach the NAS and comment on some alternative economic perspectives.

3. Research methodology of research

The accounts and the national accounts (SNA) is a system for recording and analyzing macroeconomic statistics used in countries with a market economy, statistics UNO and other international bodies. His appearance was necessary to obtain information for performing calculations and analyzes macroeconomic become the main tool for recording and analyzing global macroeconomic statistics used. The first national accounting system was developed by prof. Richard Stone in England in 1938. This led to the compilation of National Accounts of the United Nations Organization in 1952. Following the concerns to play a more accurate picture of the overall financial and economic activity have emerged various options for implementing showing interest Cambridge system that describes the relationships established between the main economic homogeneous systems and between them and rest of the world and Leontief system, describing the internal structure of the productive system. Leontief system seeks to highlight the productive structure of the national economy, unlike the Cambridge system that brings out the relationships between sectors, showing only the main aspects of economic activity.

SCN is composed dint of a number of tables that highlight the production, distribution, consumption and accumulation of goods, the categories of economic and overall. Annual economic cycle is represented as a set of economic operations or streams. Each economic operation highlights a transfer of funds between producer and consumer units. Whole SCN is presented in four national accounts: production, consumption, accumulation, Rest of the world (relations with other countries). The principle of double counting, each transaction is recorded in debit and credit account. Macroeconomic accounts are the result of multiple aggregation and synthesis of information contained in the accounts of businesses, economic sectors and industries.

Account "Production" shows production of goods on the one hand, on the whole and producers, on the other hand, the types of activities (branches). Take into consideration four types of producers units

producing goods, producers of government services, manufacturers of household services and non-profit institutions providing services to the population. Each transaction is recorded in debit and credit account. For example, the statement "Production" credit recorded in the sales of goods and exports, in gross income flow (value added) and import. Size and import gross income must be equal so the value of sales and exports; this shows that the value added is the sum of sales of consumer goods and investment relations corrected import-export balance.

Account "Production" is separated into two groups of sub-namely sub goods, which emphasizes material goods and immaterial nature of cargo, specifying the value of goods made available on categories of consumers (production units, population, gross capital formation, export) and sub-activities which highlights the industries producing goods sector;

Account "Consumption" on two separate all sub-groups: sub spending which highlights categories of expenditure (for purchases of goods for government services, for objectives of private organizations etc.) and sectors do (households government institutions etc.) and sub revenue, which highlights items of revenue in the sectors they have achieved, i.e. gross income or value added of various sectors on elements which determine the size;

Account "Accumulation" shows transactions of institutional sectors with capital or fixed assets; it is on the part of gross investments and financing inventories spending by various sectors, on the other hand, the financial capital used to fund purchases of land and intangible transfers and consumption of fixed capital;

Account "rest of the world" highlights current transactions related to imports and exports of goods and current transfers and capital transactions with foreign countries.

In SNA, diagrams or tables are prepared reflecting various streams, structures and relationships between distinguished economic picture overall picture Table or financial transactions and the input-output (input-output) or branches of the input.

4. Content and calculation of the main indices of the System of National Accounts

The SCN is calculated five major indices, namely the gross global product, GDP, net domestic product, gross national product and net national product; together they are more calculating national income, national disposable income and national disposable income per capita.

Gross global product is the value of goods produced and consumed in society over a period of time, usually one year. Use three ways of calculating it as follows:

- as the sum of the production value of global crude supplies in all domestic sectors, i.e. both those that occur on the market as commodities and those which are not freight: financial institutions, gross includes commissions earned by them for services rendered and the difference between interest and dividends received and paid; the insurance companies include remuneration for the production of the service required and not all insurance premiums received. Public institutions and private non-profit, gross includes the cost of production and intermediate consumption of goods and pay of the employees, consumption of fixed capital and indirect taxes paid. Goods and services produced for the market are valued at prices received and services produced by budget units are valued at cost level;

The production method used in the computation of the Gross Domestic Product involves the sum function to be applied to the Gross Value Added per branches, measured depending on the base prices, corrected to give the measurement in market prices:

$$GDP = \sum_{j} \left(GVA_j\right) + PT + CT - PES \quad (1)$$

Where:

GDP – Gross Domestic Product (market prices);

GVA_j– Gross Value Added for branch *j* (j = 1…i branches);

PT – taxation of products, including VAT;

CT – customs-related taxes;

PES – product and export-related subsidies.

The Gross Value Added is determined starting from the Global Gross Product, from which the intermediary value of consumption is deducted. The values are grouped by branches. The calculation formula is detailed below:

$$GVA_j = GP_j - ICj \quad (2)$$

Where:
GVA_j = Gross Value Added for branch *j*;
GP_j = Global Product, branch *j*;
ICj = Intermediary consumption *j.*

One of the main benefits of this method is the emphasis of the contribution of branches and agents to the results of manufacturing activities.

In computations at macroeconomic level, some valuation principles are applied:

– market transactions are valuated on the base of market prices;

– transactions not developed on the market should be measured on prices as close to the market levels as possible. An alternative solution for such prices would be to augment the production cost with a normal profit margin;

– some market services, not able to be directly valuated, such as financial services, are valuated as margin between selected incomes and expenses;

– financial flows: at the real costs of the transactions.

Market prices used in such valuations do not always include VAT, as it has been considered in precedent stages of the economic flow.

The market prices category includes: base, manufacturing and acquisition prices.

- as the sum of the intermediate input and the primary inputs. Intermediate inputs are the value used for the intermediate consumption goods. In branches of material production, intermediate consumption includes the consumption of raw materials, fuel, energy and water purchased, expenditure on research and product design, analysis, testing samples, advertising, commissions paid to organizations of foreign trade, payments for transportation services and telecommunications, municipal and housing, finance and bank charges, safety, travel of staff for work etc.; not included in intermediate consumption expenditure consumption that satisfy workers but not directly related to production, procurement of equipment, the nature of fixed capital expenditure on construction and real repairs to extend the operation or increasing production capacity etc. Financial institutions, intermediate consumption includes rent, general administrative expenses, the cost of minor repairs and maintenance costs of the premises; as well as insurance companies. Public institutions and private non-profit, intermediate consumption shows the production costs for goods and services consumed. Primary inputs are consumed in the consumption of fixed capital or depreciation of its workers' salaries, indirect taxes reduced by subsidies, operating surplus; all these are forms of added value;

The method based on final production output's usage, also known as the expenses method, involves the application of sum aggregate function to all items that are related to the usage of products and services in the final production output. The computation formula specific to this method is presented below:

$$GDPmp = PC + PBLC + GI + NEX \quad (3)$$

Equivalent to: $GDP = FC + GFFF + IVAR + (EX - IM)$,

In the previous formulas, the factors have the following significances:

GDPmp = Gross Domestic Product, at market prices;
PC = private consumption;
PBLC = public consumption;
GI = value of gross investments;

NEX = net exports;
FC = final consumption, which is the sum PC + PBLC;
GFFF = gross formation of fixed capital, which is a component of gross investments;
IVAR = variation of inventories, also a part of gross investments indicator;
EX = export;
IM = import, the difference between those two terms forms the net export.

- as the sum of final consumption value and the value of intermediate consumption. Final or final consumption expenditure shows the final destination of goods produced in the economy or public and private final consumption, gross capital formation that gross investments in fixed capital and inventories, import and export corrected.

This method of GDP calculation emphasizes the compensation of production factors that is the value of payments for those factors, payments made by the manufacturers:

$$GDP = W + GOS + PIT – SOI \quad (4)$$

where:
W – wages, remuneration for the labor force;
GOS – gross operational surplus;
PIT – taxation related to production and import;
SOI – subsidies related to operations and import.

GDP is the value of goods produced in society for one year and reached the final stage of the economic circuit. This was determined by sectors of national economy and the sums it. In principle, the level of national economy, GDP is equal to the difference between the gross global product and intermediate consumption; at branch level is the difference between its gross global output and intermediate consumption related. According revenue method that is most prevalent, GDP is calculated as the sum of costs that make up value added in all institutions producing country, i.e. indirect taxes net that indirect taxes paid minus subsidies received, consumption of fixed capital depreciation, wages of employees and operating surplus. Indirect taxes are amounts of money that they pay state units or international bodies and they include production costs (taxes on production, sale, purchase or use of goods and import duties). State subsidies granted by public and private enterprises to cover part of their costs. Consumption of fixed capital goods expresses the character of equipment consumed in production for a year as a result of normal wear and tear. Operating surplus is the difference between product or Gross, on the one hand, and intermediate consumption, indirect taxes net consumption of fixed capital and compensation of employees, on the other hand; in principle, it is profit.

According to the method of expenditure or end use gross domestic product is calculated by adding the final destinations of production i.e. final consumption of public (governmental), final consumption of households (households), final consumption of private institutions without profit, gross fixed capital, the change in net export stocks.

To determine public final consumption of gross output value of government providing services to third parties net of sales and gross capital formation for their own use. Final consumption of households includes consumption of goods and services purchased by them on the domestic market, plus direct purchases by residents abroad, minus direct purchases of goods and services made by non-domestic. Private non-profit institutions providing services to households (associations, trade unions, schools, hospitals, foundations, clubs) do not aim at making profit from the activity. Gross capital formation comprises net purchases of producers of goods and reproducible with a service life of at least one year. Gross capital formation includes increase in stocks of raw materials purchased by manufacturers for intermediate consumption, production in process manufacturing finished products intended for sale.

Net domestic product is calculated as the difference between the gross domestic product GVA and fixed capital consumption or depreciation; this equals the net equated. Its components according to the method for calculating GDP income are: net indirect taxes, employee wages, duties and operating surplus.

After final expenditure method of calculating GDP, the components of net domestic product, are: public and private final consumption, capital formation and net exports net.

Domestic products - gross and net - based national concept. It is the fact that there are businesses residents who work abroad, which have income and are spending and companies operating non-national territory, which have income and make expenditures.

The SCN is calculated disposable income and available product. Disposable income is calculated as follows: the amount of national expenditure to balance the balance of payments; the amount of private final consumption, public final consumption, gross capital formation and balance of payments balance. This indicator shows to what extent the revenues of national economic cover their expenses or whether it is necessary to resort to external resources (when the balance of payments is poor), or if internal resources beyond national needs and some of them can be made to other countries (when the balance of payments is in surplus). Disposable income corresponding product available which consists of goods and services for structure determination. The product available is equal to the gross domestic product plus minus export import.

5. Conclusions

From the above article presented a number of conclusions can be drawn theoretical certain practical applicability regarding the use of national accounts as a source of information in macroeconomic. In this respect, in addition to an insight into the emergence and development of this system of macroeconomic accounts perpetrators were stopped and made clarifications on the main four accounts of the System of National Accounts (production, consumption, accumulation and other countries) to identify the underlying macro-economic indicator calculation results, which may be calculated and then used in the assay systems. Content presentation and calculation of main macroeconomic indices of results, specific national accounts, the authors emphasized to highlight specific elements underlying the calculation of these indicators macroeconomic results. Of course, in this presentation authors have referred to the theory that, in full compliance with content indicators calculated on the basis of national accounts can provide a wide possibility of analyzing and interpreting the results of macroeconomic and making a forecast certain attesting trend development of national economy in a future period.

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