THE MAIN ASPECTS OF THE PRICE STATISTICAL SYSTEM

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Abstract

National accounts represent the macroeconomic record system at the level of a country. Romania has adopted this system since 1990. Until then, Romania used the system of material production, and the data by macroeconomic statistical indicators, but also by structure on aggregates were related to international institutions, which based on compensation tables, correlation, provided transforming indicators from one system to another, thus ensuring international comparability.

The problem of expressing the national accounts, the nine that are calculated at macroeconomic level, is made in the current prices of the period in which it is calculated. However, based on the value structure of production volume and price, international comparability must be ensured by transforming these indicators into comparable real quantities. This is done by deflation, which is nothing more than the transposition of the results of several periods considered at the prices of a period taken as the base period. Or it is the national accounts that contain these elements on the basis of which prices can be determined, price indices can be calculated and finally the deflation process can be ensured, which will ensure bringing the data to a level of comparability over time for a country in the territory, but more chosen in international comparisons.

These deflations are necessary and they are also taken into account by Eurostat when transforming the indicators of a country from one system to another. In this context, Romania reports to Eurostat based on the same methodology used by this European institution the results obtained over a period of time.

Keywords: national accounts, accounting systems, prices, production, indicators, domestic and international comparability.

JEL classification: F43, F45

Introduction

In the paper *The main aspects regarding the statistical price system*, the author made a more detailed presentation of the national accounts specifying the content of each of these accounts, taking into account the economic circuits. At the same time, the presentation of the aggregate elements in the national

accounts also shows the correlation that is established in one direction in a series of macroeconomic aggregates.

Prices in reality by changing them express the inflation that takes place in a country in a given period of time. Price indices, those calculated for each branch of the national economy or whether we are talking about the consumer price index or the harmonized price index are possible to obtain from national accounts and they are used in the process of statistical-econometric analysis, in order to highlights the deflated data in real terms, so as to ensure the comparability of the macroeconomic indicators we have in mind.

It should be noted that in the situation of countries such as Romania, which is not a member of the monetary union often the results obtained and transformed into the single comparability currency within the European Union (euro) is unfavourable, because the exchange rate must be taken into account exchange rate, which changes from time to time between the national currency and the euro.

This article presents the main prices used, how they flow from macroeconomic accounts and the possibility of using them in international comparisons.

Literature review

The problem of the statistical price system is important from the point of view of economic analysis. For the analysis over time it is necessary to bring the statistical indicators to a level of comparability. Over time, a number of economists and researchers have analysed and disseminated consistent material on key aspects of the pricing system. Thus, Anghelache C. (2008) published a chapter on this topic in the Treatise on Statistics. In 2016, Anghelache C., Anghel, M.G. performed a careful analysis of the statistical system of prices in the paper The basics of economic statistics - theoretical concepts and case studies, and Anghelache C. and Capanu I. (2000), in the paper on economic indicators for micro and macroeconomic analysis made extensive references to price statistical system. Anghelache C., Mitruț C., Voineagu V. (2013) have allocated a chapter to the problems of the price system in the extensive work on macroeconomic statistics. The system of national accounts. Also, Anghel M.G., Anghelache C., Samson T. (2017) published a study on methodological elements regarding the comparability of result indicators, and Anghel M.G. (2014) in an article referred to the statistical system of prices. Romer C., Romer D. (2010) in the study on the macroeconomic effects of changing the tax system, also addresses issues related to the statistical price system.

Methodology, data, results and discussions

The system of accounts or national accounting (SNA) is a combinatorial algorithm of accounting, statistics and macroeconomic analysis used in the economic syntheses of market economy countries, in the UN statistics and other international bodies. National accounting consists of a coherent and complete set of macroeconomic accounts and tables / tables based on a number of internationally accepted accounting concepts, definitions, classifications and rules. National accounting systems are relatively recent, their needs were reflected in the publication in 1936 of Keynes's ideas applied as models of economic recovery after the crisis of 1929-1933 and were internationally standardized and developed only after World War II. .

The design, organization and operation of national accounting systems in most countries are now under the auspices of the United Nations System of National Accounts (SNA), which is in place with its 2008 version, which replaced the 1993 version. European Union member states have gradually adopted and now comply with the directives of the European System of Accounts (ESA), whose version in 2010 replaced that of 1995. Starting from basic statistics - industrial statistics, labour market, trade exterior, etc. - the national accounting technicians of each country estimate, calculate, analyse the economic flows that make up the entire national system. The problem is very complex due to the frequent inconsistencies of the results of basic statistics and information gaps in some sectors, generated by insufficient performance in leading all segments of accounting of legal entities in certain countries (such as accounting of public institutions in our country, or personal accounting, especially in less developed countries). This is also the reason why, after the year 2000, the specialized bodies of the O.N.U. and the European Union have worked continuously to improve the system and expand its use.

In the European Union, part of the financial contribution of each member (the EU's fourth own resource) is estimated taking into account the results of national accounts. That is why the ESA must ensure that all members perform exactly the same measurements. As the capitalization of certain initiatives is sometimes subject to different interpretations, the ESA must try to clarify and refine the techniques for quantifying and capitalizing on economic variables.

Its appearance was also imposed by the need to provide correlated information for performing macroeconomic calculations and analyses, becoming the main tool of macroeconomic research used in world statistics. Its object is to represent quantitatively-value the economic reality in a period of time or at a given moment. Economic activity results in goods and services which are in the nature of goods and which are realized through the market, as

well as products and services which are not in the nature of goods and, as such, are not subject to the market. The flows of goods are called material flows. Their evidence is necessary in order to obtain, through aggregation, indicators that allow the analysis of the dimensions and results obtained, considered as use values necessary for: meeting the needs of the population, production of new goods, accumulation of goods, establishing export possibilities and needs of import. In the process of achieving the use values, the income or financial flows must also be highlighted.

Highlighting material and financial flows responds to different needs for information and economic analysis. The material and financial flows, grouped by categories of products and services, respectively of incomes and expenses, are highlighted in accounts compiled according to the principle of double registration. The economic categories used in the concept of SNA are based on the general theory on which the market economy mechanisms are based, but also the fact that each productive-commercial entity, of benefits and services, institutions and organizations, everything that means legal person of any size, leads a accounting system built according to unitary norms, rules and standards, aligned at the level of the European Union as a component of the acquits communautaire, which ensures the unity of content and implicitly the guarantee of obtaining certain information, comparable and compatible with the objectives of each country but also the common bodies (IMF, European Bank, United Nations, etc.).

The system of national accounts represents the central system of aggregate values related to operations with goods and services, which makes this system of great interest from an economic point of view. The main price and volume indices include those aggregate values of the national accounts system, which represent the main flows of goods and services. If the price indices do not fully cover the aggregate measured in the national accounts, then they should be compatible and certainly closely linked to the components of these aggregates.

This chapter presents the positioning of the four most important price indices in the national accounts and the logical correlation between them.

The National Accounts System fulfils the following functions: it allows the elaboration of national macroeconomic policies, based on the indicators resulting from the elaboration of the national accounts and of the overall economic picture; provides data and a system of rules common to several partners; ensures the harmonization of the economy and state activity and systematically describes the macroeconomic interdependencies.

The object of statistics is the study of the quantitative aspects of the qualitative determinations of mass phenomena, phenomena that are subject

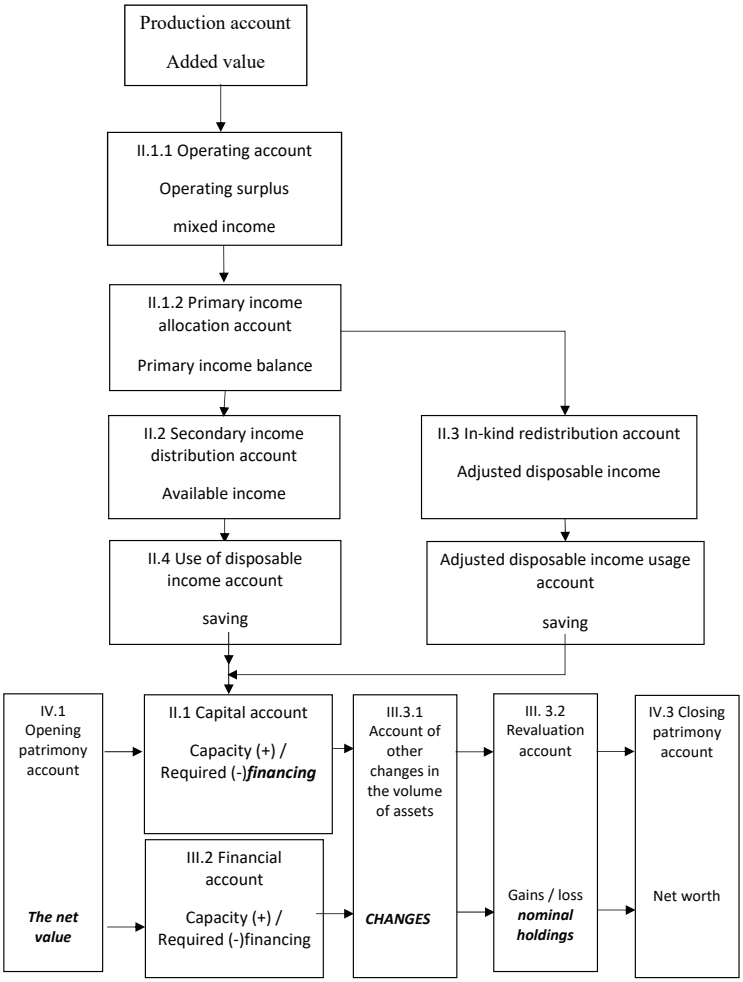
to the actions of statistical laws that are manifested in concrete conditions, variable in time, space and socio-economic organization.

The System of National Accounts is a standard set of recommendations, agreed at international level, on how to measure economic activity in accordance with strict accounting conventions based on economic principles. The recommendations are expressed in terms of a set of concepts, definitions, classifications and accounting rules / norms that include standards for measuring items such as gross domestic product (GDP), one of the most cited indicators of economic performance. The accounting framework of the SNA allows economic data to be calculated and presented in a format designed to substantiate economic analysis, decision-making and economic policy making. The accounts present, in a condensed way, a large mass of detailed information, organized according to the principles and perceptions on how the economy works. They provide a detailed and comprehensive record of economic activities taking place in the territory of a state and the links between various economic agents, or groups of agents, that take place in a market or in any economic environment.

The following diagram shows schematically the sequences and material-financial, logical connections, which are established in the national system of accounts.

Logical sequence diagram of the accounts

Figure 1



Source: SEC2010

The SCN architecture provides: complete accounts (in the sense that all activities are covered and consequently all existing operators in the economy); consistent (because identical values are used to determine the consequences of a single action on all parties involved, using the same accounting rules) and integrated (in the sense that all consequences of a single action of an agent are necessarily reflected in the accounting results, including inclusion in the balance sheets accounting of the impact on the measurement of wealth).

The accounts cover the main economic activities that take place in an economy, such as: production, consumption, financing and accumulation of capital goods. Certain flows of the economy, such as income, savings, loans or borrowings, are not related to goods and services and are therefore not divided into price and quantity components.

Also, the latest version of the SCN contains a complete framework, the resource-use table, which establishes and displays the links between all the main flows of goods and services that take place in an economy. The flows included in this table and their contents are defined, classified and measured in a consistent manner from a conceptual point of view. In this table are presented in a simple and direct way the existing links between production, consumption, distribution, import and export of goods and services. Therefore, it can be considered that this table is an appropriate framework for establishing and compiling a consistent statistical system of prices internally, which refers to a set of economically interdependent flows of goods and services.

It is considered goods produced only those that have the character of goods passing from one economic subject to another through market transactions. This principle, which delimits the concept of market production, based on conventionalisms, is violated several times.

In this sense, we exemplify that the prices of the factors of production, compared to market prices, do not include net indirect taxes (indirect taxes minus operating subsidies); public services are included in the results of the production activity, although they are not carried out through market transactions; the capital goods from own production and the modifications of the stocks coming from the production of the period for which the calculation is made are included in the production activity although they were not realized through the market; self-consumption from own production is considered a production activity based on the hypothesis that if they were not produced in their own regime they should have been bought or rented housing is included in productive activities, and for homes occupied by their owners although there is no effective process of rent is hypothetically assumed a rental process is thus included in the calculation of indicators that express the results of production activity and hypothetical rent.

Intermediate production or intermediate consumption is the result of the production activity of a period of time that can be used in the same period to produce new economic goods; the final production representing the part that is not used in the realization of new products. If the production in the economy would include the value of the goods produced by all economic subjects, an indicator would be obtained that includes repeated calculations and this indicator would not express the size of the real result but the value

of the gross production. So, the gross global product includes both the value of the goods included in a period and those consumed to manufacture new products.

For reasons related to the nature of statistical data sources, in the public sector and in private non-profit organizations, intermediate consumption is quantified on the basis of purchases of goods and services made by public institutions. The final production includes all goods that do not represent intermediate production even if they are consumed in the production of companies (for example, the use of roads, streets, training and research expenses initiated by the state initiative, etc.). A gap in the practice is represented by the inclusion in the final production of the state of some goods from the state production used for intermediate consumption (gap generated by the possibilities of statistical measurement). This has a certain negative influence on the size of the macroeconomic aggregates that underlie the analysis of the results in the national economy.

In the macroeconomic calculations performed in the SNA, the national economy cannot be seen as a simple geographical delimitation, because within the geographical borders foreign persons and / or institutions act on the one hand, and on the other hand, outside the country's borders the economic agents of that country.

In macroeconomic calculations, the national economy is delimited on the basis of two criteria: one is valid for the persons belonging to the respective country and the other refers to institutions. The national economy represents a) the totality of the institutions - institutional units or b) the totality of the persons who have the centre of interest on the economic territory. Based on the two criteria, distinct macroeconomic results are obtained. For example, the incomes obtained by a foreign company in Romania are included in the macroeconomic calculations in Romania which correspond to the concept of internal. If we consider the second criterion, these incomes are registered as personal incomes in the calculations of the country to which the owner of the company belongs, the macroeconomic calculations corresponding to the concept of national.

The results of economic activities are valued at market prices. Because in practical activity an economic good can be sold on the market at different prices, in order to be valued, the market price of this good is determined as the average of the actual prices. Not all goods are made through the market, their valuation being made at the cost of indirect taxes related to those goods. Similarly, macroeconomic performance indicators are assessed in both market prices and factor prices. In macroeconomic analyses regarding the evolution over time, it is necessary to express the macroeconomic aggregates of results

not only in the current prices of each period but also in comparable prices. For the latter, the macroeconomic aggregate of results provides a real picture of the value. The real indicator is determined by excluding, from the quantity expressed in current prices, the influence of price changes during the study period.

In order to determine the macroeconomic indicators of results, the delimitations between gross investments, final consumption and depreciation are essential.

Final consumption consists of the value of purchases made by private households and the results of public sector activity that do not represent changes in the size of the material assets of the sector. Private consumption includes all purchases made by the population and private non-profit organizations because for private households there is no evidence of accumulation and therefore patrimony of goods. Purchases of durable goods (capital) are assimilated to private consumption, except for the construction of houses, construction materials, goods processed in households, products used for sowing, etc., which represent intermediate consumption.

State consumption is determined by decreasing the value of public sector production with revenues from the sale of public services and investments from its own activity. The value of public sector production is represented by current expenditures with its employees, depreciation of capital goods and intermediate consumption. In the public sector, depreciation is calculated only for construction, machinery and machinery.

Gross investments constitute the total investments made in the national economy, respectively in branches, activity sectors, units or socio-economic institutions. We can highlight them as investments materialized in the modification of material stocks and as investments of capital goods. Investments also include replacement investments, reproduction of decommissioned capital goods and investments for development or net investment. Capital investments include increases in sustainable and reproducible means excluding the expenditure on durable goods of households that has been included in private consumption.

The change in inventories is determined as the difference between the size of inventories at the end of the period and that at the beginning of the period. Stocks include raw materials, semi-finished materials and finished products. In the National Accounts System, changes in inventories are valued at average annual prices.

Economic circuits or flows of economic activity that occur over a period at the macroeconomic level are reflected in the SNA in a system of accounts.

The macroeconomic accounts are determined by multiple aggregations and syntheses of the information contained in the accounts made up of economic subjects, economic sectors and branches at the level of the entire national economy. With the help of the data provided by SNA, macroeconomic or aggregate indicators can be determined at macro level with the role of presenting and quantitatively explaining the performances of the economy as a unitary whole. The analysis of the indicators allows highlighting the evolution of the results at macroeconomic level, as well as the evaluation, through various methods, especially those specific to statistics and econometrics, of the causes that determined certain dynamics. Analysis tools also allow predictions to be made.

The macroeconomic accounts are the result of multiple aggregations and syntheses of the information contained in the accounts made up on economic topics, economic sectors and branches of activity. They are used for macroeconomic calculations and for providing the necessary information on: the production of goods on the national economy, its structure and use, the formation and distribution of income in society, the use of society income, etc. The table of integrated economic accounts is made annually, in current prices, for the 6 institutional sectors.

Conclusions

The data in this article based on the studies conducted by the author highlights the fact that in ensuring the representation of macroeconomic indicators in real figures we need to take into account the prices used. That is why it is found that the use of the consumer price index or the harmonized index of consumer prices ensures the possibility of deflating macroeconomic aggregates of results, so that they are brought to a level of comparability in dynamics domestically, but also internationally.

In fact, the data reported by Romania to Eurostat are the current prices, but also deflated in order to be brought to international comparability. This system is implemented at the level of the European Union, of the 27 member countries, the methodology used by each National Statistical Institution in each country and Eurostat, being identical.

There is also the problem that in the recalculation of some indicators of international comparability it must always be taken into account when we transform the macroeconomic indicators of results from the expression in the national currency of Romania into the euro by the exchange rate established between the two currencies.

Certainly, as in the case of Romania, from one period of time to another there is a depreciation of the national currency in relation to the European

currency. Under these conditions, a recalculation of the indicators expressed in prices in the national currency shows depreciation and on this background sometimes even in comparisons, Romania's position is slightly affected.

References

1. Anghelache C. (2008). *Tratat de statistică teoretică și economică*, Editura Economică, București.
2. Anghelache C., Anghel M.G. (2016). *Bazele statisticii economice*. Concepte teoretice și studii de caz, Editura Economică, București.
3. Anghelache C., Capanu I. (2000). *Indicatori economici pentru analiza micro și macroeconomică*, Editura Economică, București.
4. Anghelache C., Mitruţ C., Voineagu V. (2013). *Statistică macroeconomică. Sistemul Conturilor Naționale*, Editura Economică, București.
5. Anghel M.G., Anghelache C., Samson T. (2017). „*The Main Methodological Elements Regarding the Comparability of the Result Indicators*", Romanian Statistical Review, Supplement, 7, 45-59.
6. Anghel M.G. (2014), „*The System of Financial Analysis Indicators Applying to the Activity run by an Economic Agent*", Romanian Statistical Review Supplement, no. 7, 75-83
7. Romer C. and Romer D. (2010). „*The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks*", American Economic Review, no. 100 (3), 763–801.