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**PECULIARITIES OF STATISTICAL METHODOLOGY
OF INTERNATIONAL COMPARISONS ON MAKROLEVEL**

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The article reveals the main principles and the essence of cross-country comparison of statistical indicators. It considers the necessity of multilateral comparisons in connection with the requirements of States, as well as statistical estimation of their competitive abilities in different spheres. Methodology of the given indexes makes the informational base necessary for taking correct managerial decisions.

Key words: bilateral cross-country comparisons of statistical indicators, multilateral comparisons, International Comparison Program (ICP), parities of currencies buying (PCBP), “transitive key” system.

The problem to be considered. As a science, statistics deals with objective regularities and patterns of social phenomena development, and, therefore statistical methodology is used actually in all areas of social life featured by mass nature of the phenomena and. Almost in all cases of comparison of published data from different countries and in the analysis of methodological explanations to same we can see similarities and differences in the concept of statistical units, methods of primary data collection and processing, in changes of the territory or region and population size, in periods or times of statistical observation as in units of measurement, in price-level, purchasing power of currencies and in other features affecting the value of cost and physical parameters under comparison. That’s why the use of unified statistical methodology is very actual today.

The analysis of the latest researches and publications. A number of the Ukrainian economists study and describe cross-country comparisons in their works: Danchenok L.A., Golovach A.V., Grynenko V.V., Honcharenko N.I., Kovalevskiy G.V., Parfinenko A.J., Rozhdestvenskaya L.G., Sidorov V.I., Schelkunova M.S., Vishnevskaya O.O., Vishnevetskaya L.I., Zachozhaj V.B. et al. They refer cross-country comparisons of indicators to territorial comparisons. Such comparisons are most widely used in connection with the varied development requirements of foreign trade and other economical and cultural ties the Ukrainian conclusion of cross-country agreements, etc. [1; 2; 4].

The main subject of the article is to reveal the peculiarities of statistical methodology of multilateral comparisons on macrolevel.

The basic part. In order to resolve these emerging problems and to be actually able to compare parameters the “transitive key” system is used [3]. When comparing parameters of production volumes in physical units of the Ukrainian and foreign countries, the parameters of other countries are converted into metric units and made subject to some corrections in case there is difference in quality of compared goods and services. Besides, not only general values are compared but values per capita as well which actually better achieve the comparability of social and economic phenomena.

Special indices of real buying power of currencies are applied to other economic indicators for their comparisons in the recent 30-40 years, considering the price ratios of the home markets in each country. Therewith the researchers proceed from the assumption that all cost indicators consist

of the following key elements: price (P) and quantity of goods or service (Q). Owing to such factors the elementary comparison requires to obtain the following ratios:

$$\frac{P_1 Q_1}{P_2 Q_2}, \text{ when } \frac{P_1 Q_2}{P_2 Q_1} \text{ and } \frac{P_2 Q_{21}}{P_1 Q_2}.$$

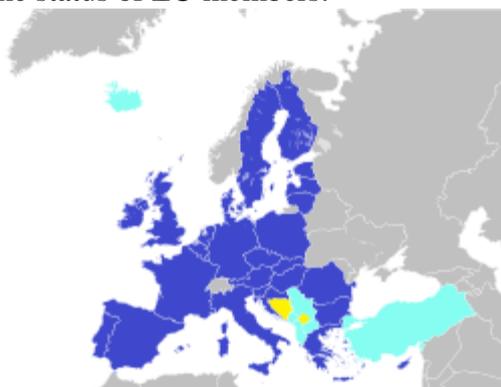
Thereby, the obtained ratios determine the values of the currency buying power indices of a country in relation to the buying power of currency of another country. Calculations of the values of such indices are performed with the of representative goods, proceeding from the structure of the elements in the compared indicators.

Bilateral cross-country comparisons are performed most often for identifying ratios of the scale of social and economic development of the Ukrainian vis its partners under the existing or to be concluded cross-country agreements, which have become substantially important for the recent decade.

Statistics has designed special methods for resolving the problems arising in connection with achieving the comparability of the required parameters: identifying similarities and distinctions, “transitive keys”, recalculation of the cost of parameters into monetary units of the compared countries under special “parities of buying power” (PBP), and a number of other methods applicable alongside with the traditional methods of statistics [3].

Multilateral comparisons of indicators, both natural and cost indicators, are often used by statistical bodies of countries for identifying the levels and regularities in development of certain phenomena in the Ukrainian with such development appropriate levels indentified in a group of other countries, for example, in EU states. In such instances the composition of indicators of those countries should be brought to comparability with the indicators in the Ukrainian or on the contrary, with the composition of EU states. The efficiency of economic development of the EU countries can be defined by integral indicator of economic development (IED) [4, p. 75-81].

The European Union has its goal in integration of European countries. The countries, members of the EU, have common economic market, one common currency and no passport-visa control. Any country which corresponds to Kopenhagen criteria can become a member of EU. In 2014 28 European states had the status of EU members.



■ Countries-members ■ States, candidates to EU are the following: Island, Makedoniya, Serbiya, Turkey and Chernogoriya ■ Albania sent its claim to join EU ■ Bosnia, Hertzogovina and Kosovo are regarded as potencial EU state-members

Pic. 1. Countries-members and candidates of the European Union [8]

Once comparability of values in compared indicators of a group of countries is achieved, the methods of correlation analysis become particularly important, especially for analysis of aggregated economic indicators [1, p. 125-148].

As to the natural indicators, no special complexities arise in comparisons, except for conversion of data of such foreign countries into metrical units of measurement or into other standard international measurement units. In particular, comparisons of indicators of living standards of population, consumption of the key food products and nonfood items, and also housing supply of the population, etc. have become highly relevant.

Since 1968, under the aegis of the United Nations Organization, the ICP – International Comparison Program was established for calculation of the values of “parities of currencies buying” (PCBP) for various countries [5, p. 46]. It’s one of most complicated international statistical projects, which realizes the harmony of national methodologies, concepts and terms as to the choice of commodities-representatives and price comparison.

Beginning from the year of 1996 the results of this Program of international comparison (ICP) are being published once in 3 years. The program acquired global character: in 2005 the number of states-participants achieved 146 (while in 2002 there were only 42). For the first time ever the ICP defined the volume of global GNP and the major indicators for the world economy. National indicators are being compared not only with the USA level, as earlier, but also with the average value of the world as a whole. Data, published regularly by the ICP, enable to compare GNP of different countries as a whole or its separate components [7].

The key task of PIC is to obtain PCBP values for gross national product values, both for its total amount, and for its components, and also other parameters, so that indicators of various countries could be recalculated into a common currency, which is USD, and to achieve the direct comparability of such indicators for direct mutual measurements.

The methodology of PCBP is as follows:

- first, the values of the parity of currencies buying power is to be calculate for homogeneous “primary groups” (PG) according to their representative goods countries-partners. Within the frames of Global round ICP picked out 155 primary groups, CIS – 183, OECD – 202, Eurostat – 224 primary groups. It should be noted that the number of primary groups became smaller, earlier 280 were picked out. The reason for reduction lies in the growth of geterogennostj of the countries’ development and their statistical potentialities [7];

- .then PCBP values are calculated to obtain the aggregated parameters of GNP indicators as average weight values obtainable from PCBP primary groups, which are included into a specific aggregated value.

The representative goods are selected in each particular instance in such a way that they meet specified requirements:

- comparability, i.e., they should be identical in all countries;
- representation ability, i.e., they should be specific for each RG in each country and should have a significant weight in the structure of an indicator.

When aggregated, the results of calculated PCBP and comparisons should meet the following requirements of analytical nature:

- invariance, i.e., results of PCBP calculations should not depend on the selected base of comparison (the base country, specific weights of components of its GNP etc.);

- transitivity, i.e., when direct pair comparisons of PCBP should produce the same results as the indirect comparisons made through the third countries. The demands of tranzitivnostj can be written down the following way:

$$I_{A/B} = I_{A/D} / I_{B/D},$$

where $I_{A/B}$ – indicator of direct comparison of indexes of A and B countries,

$I_{A/D}$ – indicator of direct comparison of indexes of A and D countries,

$I_{B/D}$ – indicators of direct comparison of indexes of B and D countries;

- additivity, i. e., addition of the results of pair comparisons should yield the same results as the indirect comparisons made through the third countries;

- all results should possess typicalness of the system of weights for structures of GNP values and GNP structures of all participating countries [7].

Conclusions. Multilateral comparisons of statistics substantially expand analytical possibilities for identifying common trends in social-economic development of both groups of countries and the global community. Results of such comparisons help to identify the levels and regularities in development of various countries through comparisons of the systems of comparable parameters.

Multilateral comparisons performed on a comparable basis create the initial basis for expansion and improvement of economic analysis, which is important for resolving many existing many existing problems of the market-driven economy and entering the global economic relationships.

Macromarketing becomes especially important today, when marketing of the country and its society makes its primary goal the utmost satisfaction of its people's needs and demands [2, p. 312]. Multilateral comparisons on macrolevel enable to make branding of territory, that is purposeful formation of image of a given country, city, region in the minds of citizens and world public opinion [2, p. 339]. Global connections and local roots acquire special importance in modern world.

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ОСОБЕННОСТИ СТАТИСТИЧЕСКОЙ МЕТОДОЛОГИИ МЕЖДУНАРОДНЫХ СОПОСТАВЛЕНИЙ НА МАКРОУРОВНЕ

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В статье раскрыты основополагающие принципы и сущность международных сопоставлений статистических показателей. Детально рассмотрена необходимость таких территориальных сравнений в связи с самыми различными потребностями государств, а также для статистической оценки их конкурентоспособности на различных уровнях. Методология представленных показателей является фундаментом информационной базы, необходимой для принятия управленческих решений.

Ключевые слова: двухсторонние международные сопоставления статистических показателей, многосторонние сопоставления, Программа международных сопоставлений (ПМС), паритет покупательной способности, система «переходных ключей».

ОСОБЛИВОСТІ СТАТИСТИЧНОЇ МЕТОДОЛОГІЇ МІЖНАРОДНИХ
СПІВСТАВЛЕНЬ НА МАКРОРІВНІ

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У статті розкрито основоположні принципи та сутність міжнародних співвідношень статистичних показників. Детально розглянуто необхідність таких територіальних зрівнянь у зв'язку з самими різними потребами держав, а також для статистичної оцінки їх конкурентоспроможності на різних рівнях. Методологія представлених показників є фундаментом інформаційної бази, яка необхідна щодо прийняття управлінських рішень.

Ключові слова: двохсторонні міжнародні співставлення статистичних показників, багатосторонні співставлення, Програма міжнародних співставлень (ПМС), паритет купівельної спроможності, система «перехідних ключів».

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