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SESSION 1: RECONSTRUCTING THE PAST

TRANSITION AND THE CONTINUITY OF YUGOSLAV STATISTICS

Report submitted by the Federal Statistical Office of Yugoslavia */

Reasons for Transition

1. Although Yugoslav statistics had rather early (in the forties and the fifties) taken steps towards developing a modern methodological approach and, acquired the reputation of being a developed statistical system, despite the inherent limitations in the existing social and political structure. Nonetheless, in the late eighties and early nineties Yugoslav statistics found itself joining those statistical offices which are considered to be undergoing transition. This predominantly is the case for economic statistics. Social statistics come into that context only in the field of Labour force statistics and Employment. In an economy characterised by a specific form of social ownership and mainly well performing market functions (i.e. goods and labour force, while capital market to a lesser extent), statistics were able to meet the requirements of the society and also the needs of the international community in a manner that respected to the highest extent the international standards

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and development of methodologies for data collection and compilation. Until the mid-sixties the quality of Yugoslav statistics and relevancy of data sources were exemplary, and as such, did not feel obliged to care about data sources and their quality. 1/ In view of the accuracy and the accessibility of data, Yugoslav statistics displayed some advantages even in comparison with the developed statistics. Legal regulations and the

system of reporting in enterprises (economic subjects) and institutions were comprehensive and coherent. Authority of the state was omnipotent both in social activities and in the economic sphere. Besides significant elements of the liberal economy, economic subjects were largely dependent upon the state and management was mainly based on party (state) nomenclature. In the mid-sixties the former Yugoslav republics acquired (through constitutional changes) larger competencies in so-called social activities which resulted in coordination problems. These, however were overcome in time. The two main reasons of the transitive position of the Yugoslav statistics were:

- (a) Some basic classifications and nomenclatures have to be harmonised (or replaced) by standards used by the European Union (that is, European Economic Community);
- (b) Transition of the economy, which implies a dynamic change of ownership (development of private ownership and a so-called privatisation process) necessitates changes to data collection methodologies. Statistical reports and full coverage of enterprises or craft shops are not efficient where a large number of small (private) enterprises spring up and perform a significant economic activity, often without being recorded in the current fiscal year. In this transition process, which is not followed by a synchronised development of the economy system (institution of a market, efficient legal regulations, etc.), the boom of the hidden economy is also connected with the economic activities of the newly constituted firms. The total number of enterprises expanded from some 10,000 in 1991 (according to the register of enterprises and institutions) to over 250,000 in 1995.

Major changes

2. In the domain of standards (nomenclatures and classifications) Yugoslav statistics has used national classifications and nomenclatures which were either coordinated with international ones or could be made comparable to them.

3. The uniform classification of activities is a general social standard in use since 1977. This most important standard for collection and presentation of statistical data (but also for current economic policy-making, issuing fiscal measures for customs and non--customs protection, etc.) is not identical to any international classification or any other country's classification for that matter, but it is harmonised with NACE from 1970 (on a two-digit level). Yugoslav statistics has decided to use the European Union's classification of activities NACE Rev.1. It was also decided to use the PRODCOM nomenclature of the European Union for monitoring industrial production. Data on foreign exchange are gathered

according to the customs nomenclature (7,000 products) which is based on a so-called "harmonised system" used on the most comprehensive level. Many other classifications and nomenclatures linked to these are liable to be revised.

4. Application of the new classification of activities has also laid the foundation for the introduction of the UN System of National Accounts (SNA). This does not imply immediate abandonment of the system of economic balances (MPS) due to the sensitive question of discontinuity in the series of accounted macroeconomic aggregates. Macroeconomic analysts and statisticians recommend parallel application of both accounting systems for a period of minimum 5 years. The reasons for suggesting that can be classified into three groups:

- (1) Implementation and establishment of the system of national accounts under the given economic and statistical system is accomplishable over a certain period of time;
- (2) Users can adopt and implement the categories of the system of national accounts provided that they are able to establish certain relations between the two systems. In the commencing application period of the SNA, its basic accounting categories can be resolved only through a certain transparent relation to the corresponding categories in the system of economic balances (MPS) 2/
- (3) Multi-decennial parallel existence of two systems of national accounts was based on the existing ideology in former socialist countries and the corresponding methods for management of social and economic development. There have existed, and still exist, some other important reasons for preferring the system of material production. They are, first of all, the low level of economic development of the former socialist countries which Yugoslavia has significantly exceeded, but, still facing the same developmental problems and problems of improving the economic efficiency. It was necessary, and it still is, to preserve strong distributional proportions between the so-called productive and non-productive activities as the control over accumulation and amortisation is to a great extent in the hands of the state. It happens therefore, rather easily that the already meagre accumulation is redistributed in favour of the state and social activities.

5. More important than the consequences of implementing the new classification of activities and the System of national accounts, Yugoslav statistics face an urgent need to change the previous data collection methodology with all the consequences arising from such a change.

6. In the area of economic statistics, labour force statistics and statistics of income, the prevailing practice was the full coverage of observation units, both in "long-term" investigations, medium-term investigations (annual and semi-annual) and statistics covering market conditions (industry, circulation of goods, income, employment, etc.).

7. In the social system and circumstances under which the Yugoslav statistics was functioning, it was easy to obtain (by law) the abundance of data on economic trends for any desired (defined) period of time. The majority of economic activities was performed by a small number of economic subjects in the dominant sector of a so-called social (state) ownership (irrespective of the agricultural private sector - individual agricultural households). Economic subjects, as well as social (state-owned) institutions, were obliged to submit statistical reports (fill statistical forms) and deliver them to statistical offices. Not covered by this regime of data collection was the so-called craft shops (belonging mainly to private sector) which perform activities in the domain of services and trade. Statistical monitoring of this sector of economic activities was ensured by full coverage obtained through periodic surveys (survey of a so-called small economy) and on the basis of tax evidence.

8. Liberalisation (transition of the social and economic system) has introduced major changes in view of organising economic activities and ownership relations. A very large number of private enterprises and other subjects have come into existence. Hundreds of thousands of new subjects make up the economic scene nowadays. Collection and compilation of data by the already established means are not possible any more. The problem of insufficient coverage in market and periodical surveys is becoming more evident by the day. With respect to the coverage of employment and labour force, the problem was partly solved by the introduction of Labour force surveys (which are presently carried out bi-annually on the minimal sample of 4,500 households). This survey has caused some confusion as regards the employment data (total and by sectors) and raised the question of maintaining the coherency of the series of data in this domain. For instance the survey sometimes displays drastically higher values (total number of the employed and number of the employed in industry) compared to the data on full time employment based on reports submitted by the enterprises and institutions.

9. With respect to the sales (trade), industrial production, services, etc., the problem of coverage became apparent in the sector of private ownership, better yet, the part of the private sector consisting of enterprises which were established as private (not within privatisation process).

10. The strategy for overcoming the situation in the area of data collection carries a methodological shift where data collection on small sample (instead of full coverage and submitting reports by economic

subjects) becomes one of the possibilities for current (monthly, quarterly, semi-annual and annual) surveys. Other important characteristics of this strategy is abandonment of the lower levels of result presentation, both as regards detailed classifications and small territories such as communes. This predominantly refers to semi-annual, annual and multiannual surveys which, previously, were subject to full coverage and a very detailed questionnaire contents (report).

11. Detailed information (as infrastructural basis) can be gathered and presented on all levels only through periodical (quinquennial and decennial) censuses on certain activities, resources or sectors of economic activity.

12. In addition to the register of economic subjects and institutions, which provides the broadest possible frame with its content of the most precise and accurate identification, an income statement (or periodical income statement) submitted by enterprises and institutions makes a specially useful instrument in designing and drawing of samples of Yugoslav conditions. The social auditing accounting service, which is presently under the management of the Central bank, unites annual and periodical income statements as unified evidence which Yugoslav statistics has at its disposal. Annual income statement, which contains balance of state and balance of success, incorporates important information (relevant for the business activities of enterprises in the preceding period. This information, being supplementary in the design and realisation of sample surveys has a double role:

- (1) they serve for the definition of sample frame and probability of selection and,
- (2) they enable significant improvement of precision of the estimates (by application of estimation models) and also enable a reduction of the sample frame (to several hundred units).

13. The current strategy in the area of data collection takes a combined approach: in case of large enterprises (belonging to the public sector, sector of mixed ownership or, rarely the private sector), which submit reports regularly, the approach (reporting method) remains unchanged. In case of small enterprises which, in most cases, were established as private ones, and of which there is a much larger number, sample design and survey method are organised by statistical service. Owing to the evidence obtained from income statements, the sample frame is drastically reduced (compared to all registered enterprises or institutions) to such firms that in the preceding period performed some activities and submitted an income statement. Thanks to the same evidence it is possible to design small samples, where probabilities of selection favour larger subjects.

14. As this strategy advances it will also be possible, in case of some (market) surveys, to replace full coverage of big enterprises by a sample.

Small samples facilitate further rationalisation of the data collection process. In such circumstances the use of telephone, telex and computer network becomes a very realistic possibility. Such direction of development concerns to a great extent both the organisational aspect of a statistical service and the statistical system as a whole.

Changes and the issue of time series continuity

15. Two main reasons could be the cause of discontinuity in the series of data that were produced and still are produced by the statistical service of former Yugoslavia, that is, Federal Republic of Yugoslavia.

- (1) Changed definition of the data as a result of changed standards, nomenclatures, classifications, definitions, accounting category, etc.:
- (2) Changed coverage of the base set as a result of changed approach to data collection (source of data, observation units, reporting unit, etc.) Or change in the current methodology for data collection.

16. An illustrative example of the first case could be a series of data on "social product" which has to be abandoned after the introduction of SNA concepts since it operates with the value "gross domestic product". In the period of transition it is necessary to perform two parallel counts (by MPS concept and SNA concept). Permanent maintenance of series of data on social product is not possible. There remains, of course, the possibility to derive (estimate) the GDP value in the historic period. Methods for assessment of the volume of GDP are faced with the problem of comparison between the purchasing power of the national currency, that is, the translation of the GDP to the internationally comparative expression $\frac{3}{}$. In the domain of economic statistics the greatest changes are caused by the altered classification of activities. Yugoslav statistics, in its (post- II World war) development made the greatest efforts to preserve the long-term statistical series processed according the classification of activities as a general standard that kept changing. This experience is connected with the change of this standard that took place in 1976. Namely, until 1976 inclusive, "Nomenclature for disposition by activities" was in force, together with the accompanying "Nomenclature for ranking products and sections" and other accessory standards among which the most important one was definition of productive and non-productive activities. The experience pointed to the need to merge and unify these standards. Therefore in 1976 the so-called Unified classification of activities was legally introduced again as a general (not only statistical) standard and the concept of economic and social activities was retained together with the classification to fields, branches, groups and subgroups. Instead of the previous 10 fields, the classification was extended to 14 fields, out of which the first 11 fields

cover the so-called economic activities and 12th, 13th and 14th cover the non-economic activities. In the assessment of macroeconomic aggregates (social product, etc.) A dichotomic classification was used, which differentiates productive and non-productive activities and does not coincide with the classification to economic and social activities.

17. Linking of the different categories of previous nomenclatures with the categories of classification of activities was performed on the second hierarchical level (level of the so-called branches of activities). Therefore the series thus processed and published on the branch level could be recalculated by branches of activity of the new classification.

18. The work involving recalculation of data in series demanded formation of aggregates for certain branches on the basis of (historical) individual data. This way it was possible to obtain long enough series according to the categories of the new classification.

19. The new classification of activities, being introduced by the Yugoslav statistics, is based on the international standard classification of activities (ISIC-rev.3) and EU's classification of activities (NACE-rev.1), harmonises and unifies the Yugoslav statistics at the highest achieved international level. Division into economic and non-economic and productive and non-productive activities has been given up and consequently, the concept of material production (MPS) was abandoned in the national macroeconomic accounting. Recalculation of time series is considered here as a crucial statistical task that demands a certain time. Such changes point to a paramount importance of putting in order and keeping individual statistical data. As time passes, all available facilities tend to become insufficient and, regardless of the quality and organisation of data the access to them becomes complicated. In the Yugoslav central statistical office integrated data bases have been established, however, the problem of storage (of historical replications) has not been solved. The problem becomes increasingly acute in the long time perspective (multidecennial). Efficient storage of data in statistics may be solved with the introduction of new media (CD for instance).

20. Change of methodology of data collection (in sense of massive practice to collect survey data on small samples) has two major characteristics:

- (1) sampling (vs. full coverage) burdens data with sampling error;
- (2) surveying (vs. submitting forms filled by the companies' personnel) brings a different quality of the response (response errors). Continuity of the series is jeopardised from two directions:

- (a) Data collected on a relatively small sample do not allow detailed cross-classifications or aggregation on small territorial segments (e.g. Yugoslav communes), which was possible and performed on the basis of full coverage (or large enough sample);
- (b) Relative and absolute variables obtained by application of one or the other method of data collection are burdened with different level of the components of total error. Biasing differently components as well as the components of overall variability, depending of the method and procedure applied in the operation on data collection. In this respect, a very illustrative example characteristic of Yugoslavia is the Labour force survey. As mentioned before, aggregates on the number of the employed according to the survey differ significantly from the number of these obtained through the reports submitted by enterprises and institutions. Differences in view of coverage and the level of bias or variance are necessarily implied by the application of a different method of data collection. In this way the continuity of series is jeopardised, that is, the dynamic monitoring of the phenomena at one (point in time). This problem can only be solved at the level of the methodological instrument. The procedure of recalculation or any other transformation for that mater of data from the past is simply not possible.
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ENDNOTES

1/ Elements of the liberal economy (market) caused as early as in the fifties the change of the system of evidence in the economy. The state covers financial evidences while statistics has to introduce its own forms, methodology and standards, and to take on the responsibility for data quality.

2/ Yugoslavia (Federal Statistical Office) has, as early as in 1960, started to recalculate the social product by activities and basic forms of final consumption according to SNA methodology. Recalculation was performed for OECD, which needed these data for heir yearly report on the economic situation in Yugoslavia and for the National accounts yearbook. These data were not presented in the national statistical publications due tot he confusion that would certainly arise among the users in the country. (Differences between the values of the corresponding aggregates according to different systems were at the level of 20%. Detailed results of the compared methods were announced publicly for the first time in 1985. This was done within the cooperation between the Federal Statistical Office and Eurostat.

3/ In this country the social product is sometimes expressed in US \$ by simple conversion of the national currency on the basis of the commercial rate of US \$. High demand for foreign currency implies, it may be noted, an overestimated rate.