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SESSION 1: RECONSTRUCTING THE PAST

**THE PROBLEM OF CONSTRUCTING LONG TIME SERIES IN
NEWLY ESTABLISHED COUNTRIES AND COUNTRIES IN TRANSITION -
THE CASE OF SLOVENIA**

Report submitted by the Statistical Office of the Republic of Slovenia *

I. PRESENTATION OF THE PROBLEM

1. Many new countries which have recently become independent are now cooperating in ECE (Economic Commission for Europe) at the UN within the framework of CES (Conference of European Statisticians). These countries are rapidly changing their economic and political order and adjusting their statistical laws. Prior to independence only few experts from these countries had contacts with statistical institutions and sources - mostly only indirectly through, for example, the federal or similar statistical office. In addition, some of these new countries are preparing for associated or full membership of the European Union and are establishing connections with other international institutions (OECD, etc.). One of these countries is the Republic of Slovenia. Users of the statistical services in these countries have difficulties because the National Statistical Institutions (NSI) are in transition to new macroeconomic aggregates and statistical

* Prepared by Mr. Toma Ž Banovec, Director of the Statistical Office of the Republic of Slovenia.

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methods and definitions. New and relatively short statistical time series, which they are not used to, are being built. Long, historical, old, non-comparable internationally and unlinkable time series are being abandoned.

2. If users are not acquainted with the methodological limitations in the contents of the time series in the past, they cannot understand the new ones completely; neither in context nor in methodological limitations and applicability. To have two parallel but methodologically different - though similar - statistical series for the same phenomenon is disturbing and expensive, although it can for some time be practical. In this paper we present some problems and solutions in the Slovenian context.

II. PRESENTATION OF THE PRESENT REPUBLIC OF SLOVENIA IN VARIOUS HISTORICAL POLITICAL ASSOCIATIONS

A. History of the state, its territories, and political, economic and statistical order

3. The idea of an independent Slovenian state was formed in the mid-19th century, when the Austro-Hungarian empire covered several countries with mixed or predominantly Slovenian population. The State then had good statistics and was an example of an administratively well organised State. It had good archives and some excellent registers (court registers, cadastre, land registers, etc.). All the rest concerning the administration was well organised, too. It also performed good censuses of population and, interestingly undertook land use surveys in the cadastral way.

4. In World War I (1914-1918) the Isonzo front ran on the Slovenian territory. When the Austro-Hungarian empire collapsed the Slovenian territory was divided. Most of it became part of the Yugoslav kingdom, which gave this territory and the Slovenian population a special territorial administration unit in the frame of similar administration units named after rivers. Slovenes gained a new state and with it new statistical legislation. Statistics did not improve much, and there was not enough time for its construction (1918-1941). Besides, the territorial, cultural and religious diversity of the kingdom was extraordinary, which can still be seen today.

5. During World War II (1941-1945) Slovenian territory was divided twice by three occupiers. From time to time free territories were formed. Statistics were typically war statistics, largely temporary and most of all undocumented and incoherent. Besides, the currency changed several times, which devaluated the little which could be measured statistically. After the war archives were researched, many things remained unexplained, undiscovered and are still today statistically arguable. 1/

B. 1945 - A new socialist Yugoslavia

6. According to the criteria of statistical changes which are connected with changes of political order, this period can be divided into three connected but nevertheless very different periods.

7. **Development in the 1945-1953 period:** In 1945 Slovenia became a republic of the new socialist Yugoslavia. Its territory was again extended somewhat. New migration after the war and other political effects thoroughly changed

the image of the new republic - statistically, too. Besides, on this independent non-convertible economic territory oriented mainly towards Yugoslavia a new **socialist system** was established. It quickly nationalised, confiscated or took over the property of industrial and other owners. State statistics passed over to the Material Product System (MPS) following the Soviet example. After the 1948 ideological split with the Soviet Union the statistical legislation changed.

8. **The 1953-1973 period:** 1953 is the year when central state statistics was organised into federal statistics and when some new statistics, which are characteristic for market economies, were introduced. Thus, still in the framework of MPS, independent monitoring of price indices (consumer price index - CPI, retail price index - RPI, etc.) was introduced. Tourism and transport were also defined as well as some services for **producers of social product**. The great share of government services and similar services for users of social product as well as for the so called **non-economy** 2/ were also defined. The latter was not a producer of new value but only its user.

9. **The 1973-1991 period:** The new federal constitution (1973) strengthened the federal system in the socialist order. A new statistical reform followed. In 1976 it had to consider a special version of the planned economy - socialist self management and collective social ownership which once again (for the third time) required changes in **economic and other classifications** and concrete forms and positions of enterprises. As the forms and functions of communities changed, certain economic and political powers over the social enterprises on their territories were introduced, as well as a special tax law and a specific communal system. For example, the social product of communities (MPS) was calculated - for 65 communities in Slovenia and for around 540 communities in Yugoslavia. 3/ All six republics and the two autonomous provinces strengthened their regional statistical offices. Calculation of statistical aggregates began, because the new rules were based on regional accounts, which were the basis for the federation helping the less developed federal units and other needs of the federation. The importance of state statistics increased and many interested subjects believed, irrespective of the one-party system, in its results and work and jointly controlled them. Incomparability with international statistical standards (SNA) remained. Slovenia shared the statistical destiny of this system; it, did however, develop statistical and other data infrastructures which did not fall within the competence of the federation.

10. **The 1991-1992-2000-20?? period:** In 1988, 1989 and 1990 new reforms began. The return to the market economy was predicted and it became clear that after mutual economic boycotts and misunderstanding the separation was inevitable. Slovenia separated from the rest of Yugoslavia relatively quickly and the process is well known. Other republics had, and still have, much greater difficulties. We were first invited to a CES meeting in 1992. We lacked methodological experiences with the new and open borders, the new currency; we were near the war which was raging in Croatia and Bosnia. The last major federal statistical task was the 1991 Census of Population, Households, Dwellings and Agricultural Holdings. Despite certain problems the

census was successful. However, we did not exchange the results with the republics and the federation.

C. The use of statistical data and time series

11. Just as the results of the census of population were used in the delimitation with new countries after World Wars I and II, so they were used again in the delimitation after the Dayton agreement. The calculation of social product is used as one of the bases for division of debt and wealth at the division of the state. Among the most important series which were and still are important are the data for evaluating nationalised and confiscated properties via CPI and other exchange rates for restitution of equivalent sums in money if restitution in kind is not possible.

12. So there is enough evidence to use - because of lack of other data - statistical data, irrespective of their applicability, historical context and reliability. I do not know whether the responsibility of statisticians for relatively old official data will continue to exist. We changed territory, economic, state and political order and we suffered wars, changed classifications and passed from capitalism to socialism and a special form of socialist self management and back again to open market economy, the statistical experience is important but **the time series are extremely problematic**. The elements of time series and some continuous series remained mostly unlinked. Nevertheless, the data from that time are still the basis for some very important political, economic and other decisions, and are used in arguments, for political debates and for other purposes; but the previous methods and limitations tend to be forgotten.

13. The **statistical practices have always served and adapted to domestic needs**. Until MPS was internationally recognised for a small group of countries with the centrally planned economy this was one of the recognised statistical practices. After the new state was born in the 1990s, long time series and historical series were no longer possible if they were only informative and their use limited. Even though it is sometimes pointless and unprofessional to use them, when there are no other data, every data, even indicative, can be used for the definition of rights and duties. The question is, whether statistical offices should, because of this danger, stop their work on connecting and harmonising these historical series completely, and how they should do it.

D. Classifications, contents and the period of transition

14. Essential for this historical time since the idea of a state to its realisation in 1991 is, beside the change of the territory, also the obligatory change of political order, functions, contents and definitions linked to that change, and also mostly unlinkable time component. Some series or parts of series are only partly linkable, however, their linking and harmonisation can be problematic. Before Slovenia adopted the Standard Classification of Activities in 1994, (NACE Rev.1) - three basic classifications of activities were used:

- 1947-1962 Temporary Classification of Activities
- 1962-1976 Nomenclature for classifying economic and other organisations and government bodies according to their activities
- 1977-1994 Unified Classification of Activities
- 1995-... Standard Classification of Activities (NACE Rev.1)

15. Users mainly do not know or understand the importance of these changes because the majority do not reflect in parts and in the analytical apparatus available. The data in time series are, of course, now only partly linkable, since the economic and political order changed at the same time as the classifications did. The problem of introducing services as producers of value-added caused further problems. Of course, the definitions of permanent and active population as well as some other definitions changed, too. However, at the rough aggregate statistical level all these problems can be solved, it is the **territorial, regional and time disaggregations** of these time series which are not possible and reasonable.

16. The definitions of some concepts and objects are still changing since the common declaration signed by Eurostat and ourselves in 1994 states that the Statistical Office of the Republic of Slovenia is responsible for the harmonisation of all its statistical apparatus with the European statistical system.

E. Dynamic changes and time series in the future

17. The seminar in Bologna (January 1996) tried to give answers to questions about the future of statistics. Vagueness or "intangibility" is the new future and problem. It means that with the lack of other more tangible data, users will have to be content with available data which are difficult to measure and with soft statistical series. These can be informative but the users themselves nevertheless define them as regulative and with that sometimes fatal. Thus with statistical aggregates many collective and individual destinies, which are the basis for various development policies and big decisions, are determined. The Maastricht use of six soft statistical aggregates obliges all - especially statistical offices and, of course, governments, which should enable impartial measuring in the field of finance. Distribution of territorial structural aid requires regional accounts. Even if they are not completely theoretically defined they are used for defining the structural aid. Users take the closest data available. It is not their problem if theoretical consideration has not been finished yet.

18. However, the **statistical paradox** is here defined with unclearness, intangibility and influence on old and new sectors. Where and how to set time series for things for which they have not been set yet and whose links have not been found and which have not been proven in our present aggregates and series. **The information paradox, the paradox of knowledge about knowledge,**

the statistical paradox and others warn against influences of new fields and sectors as science, technology, information infrastructure, development and environment and even financial statistics, which are also a great challenge. Everybody has problems with present or past connection with SNA and will continue to have them in future. In time series for Slovenia the situation is only worse because we did not acknowledge these things and neither did we link them as GDP producers. In time series this is already a problem.

19. Most countries in transition are fully aware of these challenges and we are discussing them at various meetings. We should solve them together in the framework of cooperation of European statisticians and with methodological and material help from the EU. We would however, prefer a faster progress, strategy or at least recommendations about our collective effort. Among the most important things are certain ideas, guidelines and procedures.

III. STATISTICAL TIME SERIES AND CONCRETE PROBLEMS

A. Slovenia - Statistical time series

20. **1800-1918:** On the basis of what has been mentioned, one can see that such time series were useless and indicative. The data (demographical) which were used were indicative, not transferable, and badly linkable with other periods. Investment in their correction and linking is mostly not worth the trouble, and the violence that would be done can only cause more damage.

21. **1918-1941:** There is still no need for great historical linking of series from this period with other series. Slovenia does not comprise the same territory, phenomena are differently defined, economic crises and other misunderstandings are implicitly included in available data.

22. **1941-1945:** World War II, three occupiers, total unlinkability, misunderstandings in definitions, territories and definitions.

23. **1945-1991:** This period should be divided into three shorter periods, i.e.:

1945-1953: Characteristic strict MPS taken over from the Soviet example, united functions and carrying out of records and statistics, records prevail, control function covers and supports centrally planned function, statistical methods and systems are a derived category, time series contain many register data which are unlinkable. There is little useful information for statistical purposes.

1954-1973: New statistical classifications, introduction of price indices, expansion of MPS against SNA, continuation of control and centrally planned economy, inconvertibility, state and social ownership, departures of workers abroad, rapid industrial growth and a lot of investment. Data are good but internationally hardly comparable. Strengthening of expert and execution role of republic and provincial statistical offices.

1973-1991: After the adoption of the constitutional amendments in 1973 a new classification of activities was adopted in 1976. Characteristic for this period are: socialist self management and social ownership, attempts of new reforms, final division of planning and statistical function, statistical data and classifications become the basis for organising institutions, separation in accounts, territorial accounts are the basis for political disputes, doubts in data of the other side, wishes for changing the system, and international statistical comparability. Time series become partly operative, some calculated backwards, their applicability and linking is today questionable.

1991-1992-2000... New Slovenian state, direct inclusion into global (UN) and European (Eurostat) statistical norms and standards. Slovenia is a country in transition and starts to build new statistical time series on the basis of new definitions. At the same time it satisfies the users with old statistics and time series for only similarly defined phenomena. Users are used to the old because they cannot or do not know how to adapt to new tools. Dual statistical system.

IV. NEW FORMAL OBLIGATIONS AT STATISTICAL SERIES AND THEIR FULFILMENT

A. Domestic needs for series for past and future (...-1953-1991-1992-...)

24. We do not expect bigger domestic needs for balance of statistical series for the very distant past; an exception are demographic data and social development connected with them. Some domestic strategies and development plans in Slovenia use old series too, but more as informative and not for building in models or for more concrete analytical planning. They mostly need data after independence, the rest is less important and is indicative. Historical series will not be stockpiled - most of all not too quickly and not in too great detail - unless it is ordered and paid by a dominant client or unless this task is taken over by a research group.

B. Obligations towards UN and international organisations (...-1992-...)

25. All new obligations concerning presentation in time series is understood as demonstrated in new aggregates and in the global and European statistical regulation and 1992 will be taken for the base year. We are aware that there is no balance year in statistics, but if it were possible to choose such a year, 1992 would be very suitable for Slovenia. These statistical series (and classifications) will later on also be recalculated for the past - for which we have all chances because of the register oriented statistical office and administrative environment. We know that limitations and use of such short time series are questionable for most macro analytical planning, but at the moment our Statistical Office cannot assume the responsibility for restoring these series for the past.

C. 4.2 Responsibilities and tasks regarding time series towards EU (...-1982-1992-...)

26. Linking, harmonisation and solving the problem of new special time series for European linking is being solved through the chosen year 1992. We do not know the tasks for recalculation for the past yet; they are not obligatory for the present Slovenian status in EU. If recalculation of the most important aggregates for 1982 becomes necessary at or before our joining the EU, we will solve this task at aggregate level. Linking and adaptation of classifications and definitions is under way. Formation of new communities (1994) can mean a relatively difficult problem; however, due to registers and good geocoding problems can be (and some have already been) solved.

V. ELEMENTS OF STRATEGY FOR THE FUTURE

27. Here I briefly describe the possibilities and strategies a developed information era can use for strategic building of combined administrative and statistical data model, which can better and strategically satisfy the needs for present and future time series, also if additional needs for their redefinition, expansion or re-engineering appear.

28. **Possibilities of subsequent inclusion** of data presently not included in existing time series. This task is strategically possible if we harmonise and organise in time those data that could subsequently be included, if we have strategic access and if we introduced tactical solutions which should enable linking through and with the help of suitable identifiers. The best are common identifiers from common national registers: Personal Identification Number (PIN), Business Identification Number (BIN) and geocode. We have a lot of experience with these. Beside maintaining common identifications (Nordic concept) care and harmonisation are also necessary as regards contents at defining common attributes.

29. **Break down and additional complete informatisation** of events important for statistics. At the time of informatisation and covering statistical reports on phenomena we can, beside statistical purposes, take care of full informatisation and dynamic recording of the administrative part of data collected for an event (transaction) which appears to be not interesting for designing the present statistical aggregate. Such events are informatised in customs documents, in full informatisation of tax returns and similar materials and transactions such as complete accounts for communal services, registration of cars, etc. This is, of course, connected to a corresponding normalisation of data between registers and statistics and making of suitable software. For this task a geocode centroid is very useful, i.e. real estate or post code, where such informatised events can be collected.

30. **Register orientation of statistical offices**, letting go of statistical requests and tools of state statistics for administrative registers. This request concerns organisation and contents as well as legal status solution of NSI's position. It is, of course, difficult to build in pure statistical

requirements, especially if they are settled according to SNA criteria, which are for most users at this level incomprehensible. However, this is the future for national statistical institutions if they want to - apart from SNA and ESA and similar European and global requirements - statistically help at home. Most laws at the national level cannot directly include the statistical requirements of SNA or ESA in their informatisation. They can, however, include certain parts of data useful also for this purpose.

31. **The kernel of integration and data model harmonised as regards time.** It is evident from the mentioned that it is necessary to build a kind of entity time model which should link collective and unified classifications of statistically monitored units which are also administratively monitored and informatised. Commercial accounts according to accounting standards, tax returns of enterprises and their assessment, informatised annual reports of commercial companies and their statistical reports can be linked every year or currently to the same identifier (BIN) even though we do not need all these data right now. However, a statistician-methodologist has to understand the methods and ways of non-statistical monitoring and measuring of the same phenomenon.

32. **Longitudinal linking** of events, their informatisation and possible additional treatment and inclusion of data. This is a very daring matter but wonderful from the expert point of view. In 1988 Slovenia linked statistical units - inhabitants from the Central Register of Population - with the Pension Insurance Register and Health Insurance Register. Through CRP we also obtained the address and through insurance companies the data on employer and all locations. Thus we now know (for statistical purpose) when a person worked and with whom, where they lived and much more. In this way the theses we stated is operatively proved. The initiative for this action was given by the NSI which is the keeper of this longitudinal multi-purpose statistical data base of persons employed in Slovenia. For a great deal of statistical surveys we can now make time series whenever we need them. Mr. Franchet and other speakers also spoke about the necessary longitudinality at several meetings dedicated to statistical future.

33. **Monitoring and the use of formalised and informatised non-statistical sources**, anticipation of future statistical needs through registers and other sources. This is a task derived from the previously mentioned suppositions and ideas. Anticipation means a new methodological task where it is necessary to presume - with certain amount of wisdom - future consensus of administrative data collectors and interests of state statistics. Part of that was predicted by Mr. Carlo Malaguerra in Bologna. I think that this is partly possible and necessary.

34. **Informatisation of laws**, statistical point of view and inclusion in laws and legal regulation. This aspect requires NSIs to actively participate in preparation of those parts of laws and regulations that concern various data collections for administrative purposes. In Slovenia this is possible and is legally regulated.

35. Harmonisation, adaptation and creation of new administrative sources. Sometimes passive waiting for some minister to propose the law under item 5.7 is difficult. **Therefore it is sometimes reasonable for the NSI to have the opportunity to propose legal regulation itself.** An example is the Law on the Business Register for Statistical and Administrative Purposes, as well as laws on censuses, national programs of statistical surveys, etc. Fundamental is the initiative on classifications which should cover international as well as domestic data model.

36. National data model, statistical model, links with international data model. The idea is obvious. It is, however, rather hard to describe it. Some statisticians - especially national accounts experts - have such model in their minds. We could call it a meta data base. It is necessary to discuss the phenomena we measure, functions we carry out and data needed. Explosive development of informatics enabled informatisation of everything and everywhere, but it did not increase the understanding of phenomena and their causal connections in time and space. The ideas of a data model are therefore only more difficult.

37. Constant thinking about future tasks of statisticians, openness for new things, surpassing narrow expert thinking, movement of experts inside collectives and between them, dialogue between collectives and with users, and corresponding actions are needed.

VI. CONCLUSION

38. Perhaps in this paper I somewhat digressed from time series as we understand them in statistics now, but I wanted to prove that with lack of adequate data or time series users use whatever is available from administrative and other sources. I can see no reason why this would not continue to happen in the future. Maybe not as radically as in Slovenia and other new countries in transition, but it is also possible. Therefore, we should think about connecting statistical data models with administrative models and statisticians should take over complete or partial co-ordination over them. We do not talk much about this. Maybe it is necessary to exchange opinions about it. The meeting in Bologna drew its conclusions, other seminars too. Registers, administrative sources, longitudinal efforts and anything new. Maybe some soft event cannot be understood today, but it can be softly informatised and linked to the model. When we can understand its significance and connection, we will start seeing it in the new light. The smallest problems are disk space and other computer capacities. Even if we cannot use satellite images we can still save them. Maybe in 2010 we will be defining land use for 1996 according to some new methodology and criteria. Linking the data to the real estate is a similar thing. Probably today nobody is interested in annual electricity consumption in a certain building, but this is already informatised and calculated. Why not take the data and save it for the statistical future?

ENDNOTES

- 1/ The whole of Yugoslavia statistically incorrectly classified the so called demographic losses - i.e. children unborn because of less marriages during the war - among the victims of war.
- 2/ It was possible to divide human activities into two extreme wholes only in MPS and with state or social ownership. However, the expressions economy and non-economy as statistical categories influenced all regulations through organising chambers, governments and ministries. After 1976 - for introduction of the third post-war classification of activities - such divisions became obligatory for register, tax and similar functions, for planning, regulation of wages and for other purposes. Such categories and treatment with shorter series are still necessary for domestic treatment.
- 3/ Methodological problems of such accounts were known. Now they are being solved in the framework of European expert efforts on seminars on regional accounts. The problems are similar, i.e. how to locate the value added or taxes paid of refineries and where do we locate them?