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POPULATION DATA AND REORGANISATION OF STATISTICAL SYSTEM: CASE OF ESTONIA

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Abstract: This paper examines the recent developments and prospects for population statistics and statistical system in Estonia. Addressing the issue, the paper starts from the discussion of the features characteristic of the Soviet statistical system which prevailed in Estonia from the Second World War to the early 1990s. The second part of the paper focuses on recent changes in the 1990s and the attempts to overcome the historical heritage. Specific consideration is given to the necessity of statistical reform and lessons which can be drawn from its failure. For the common organisation in the past and relatively more rapid pace of societal reforms, the case of Estonia could offer an interesting example and provide valuable experience for other former republics of the Soviet Union which are developing their own national statistical systems.

Apart from natural and many social sciences, population science draws its evidence primarily from statistical data. The information sources of demographic research have traditionally included population census and vital registration, the postwar period has added to the latter sample surveys. In other words, the analytical possibilities are to a large extent predetermined by the preceding stages of the general information chain, which starts from the collection of the data, proceeds through coding and processing, and ends in dissemination. Reliance on earlier stages makes the development of statistical systems a vital interest and constant concern for the demographic community, both on national and international level. To understand or advance the population research in a specific country, it is therefore reasonable to start from the observation of existing statistical system. As such, the present paper serves for an appropriate introduction for specific analyses included in this volume.

Addressing the development of statistical system in Estonia, the paper gives consideration to two main perspectives. First, as the appropriate time unit to characterise population change is a generation, attention is paid not only to the current situation but to the development of statistical system in a broader time-

frame. In particular, this involves the discussion of the features characteristic of the Soviet statistical system, which prevailed in Estonia from the Second World War to the early 1990s. The second perspective involves recent changes in the 1990s and the attempts to overcome the historical heritage. Specific consideration is given to the necessity of statistical reform and lessons which can be drawn from its failure. In many respects the two perspectives appear interrelated, as the reason for the currently observed difficulties stems from the persistence of the past.

Due to the similar system of population accounting across the countries of the former Soviet Union, the situation and the problems of population statistics are not unique for Estonia. For the common organisation in the past decades and relatively more rapid pace of societal reforms, the case of Estonia could offer an interesting example and provide valuable experience for other former republics of the Soviet Union which are developing their own national statistical systems.

1. General features of population data availability and comparability: Estonia during the Soviet statistical system

In the course of the sovietisation, Estonian national institutions were dissolved and replaced by the administration building on the unified Soviet model. This holds true also for the Central Statistical Bureau which was abolished in 1940, the responsibility for statistics was delegated to the subunit of the State Planning Committee. Quite rapidly, the function of statistical institution was changed from data dissemination to the monitoring of restrictions on the availability of statistical information. As it is widely known, this policy resulted in two parallel series of statistical data, one for public use and the other for official use only, i.e. restricted for public dissemination and scientific analysis. Among Western scholars such conditions supported the genesis of a widely spread impression that the Soviet authorities had more or less complete population statistics of relatively good quality, particularly to cover the needs of central planning. Despite some aspects of the deficiencies of the Soviet population statistics (both the public and the classified statistics) being discussed by some Western scholars (Anderson and Silver 1985a, 1989, Blum, Chesnais 1986, Feshbach and Friendly 1992, Kingkade 1985, 1989), it was believed that the major problem was related to data access.

Due to political transformation, restrictions concerning the access to population data vanished more or less in an instant. Following the cessation of restrictions in 1991, it became apparent that the population statistics in Statistics Estonia are heavily deficient, and under existing conditions, almost worthless for demographic analysis.

To a considerable extent, this reflects the overcentralisation of statistical system in the former Soviet Union. In Estonia, like in other republics, the responsibility of statistical offices was limited to carrying out Moscow's decisions about data collection with very little local input. The staff was trained to carry out instructions from the center, and their own initiative was unwelcome. Usually, the

Central Statistical Office in Moscow provided little information about the methodology employed in their calculations. For many decades, republic statistical offices were not responsible for even the simple demographic indicators. For example, in Estonia a life table was calculated only once during the Soviet period, for the 1959 census year. Among the statistical institutions of successor states of the former Soviet Union, only Statistics Russia seems to be relatively better off because of its earlier responsibility for maintaining the statistical system for the whole Soviet Union, which meant the coordination and supervision of different governmental authorities and making statistical calculations for all the former republics. Statistics Russia has obviously benefitted from the Research Institute at the Office which served as a regular basis for cooperation between statisticians and population scientists.

From the scientific point of view, the poor quality of the existing population statistics means primarily the lack of comparability. Being a complex issue, the lack of data comparability involves at least three relatively separate aspects which are considered below. Though discussed from the Estonian viewpoint, these dimensions are common to other countries with similar statistical context.

1.1. Limited comparability with international concepts, definitions and classifications

Whatever the system or source of population statistics, data collection methodology addresses the definition of demographic event or population characteristic. Statistics collected in Estonia during the Soviet period were not an exception to this rule, however, the concepts and definitions, and particularly the data collection procedures have been different from those recommended by international organisations and used elsewhere in the world. Although peculiar features can be found across the entire definitional spectrum, the specificity of the Soviet statistics has been obvious only in few cases like the concepts of social structure and household/family. More often the differences in definitions have been less apparent, and under deficient documentation they could easily be thought to be consistent with internationally recommended practices. Such situations involve hidden incomparability that creates many more misinterpretations than outright discrepancies could do.

Concerning the number of population, the denominator of most demographic and other population-based indicators usually refers to the permanent population. In its coverage, the permanent population is close to *de jure* concept, however, having specific modulations in the Soviet application (Anderson and Silver 1985b). On the procedural level, the definition of the permanent population relies on the system of *propiska*: permissions issued by authorities providing a citizen with legal rights to live at a specified address (dwelling). Apart from regular procedures, there was a temporary *propiska* and a special *propiska* for some categories of population, particularly military personnel, which could make a remarkable difference between the permanent and *de jure* population for smaller regions. As an example, in Estonia the army recruits in frontier forces (operating

under KGB command) were included in the permanent population by place of service, while recruits serving in regular army units were counted during a census by their residence prior to service (Katus and Puur 1993). Besides having the implications on age-sex structures of small regions, the principles of recording military personnel must also be considered in case of other statistics. For instance, against the background of very small numbers of international migration during the Soviet period, Estonia was characterised by a considerable international migration exchange with Mongolia (Sakkeus 1994). The explanation to this peculiar pattern comes from the inclusion of the moves of military personnel into civil migration statistics.

Regarding live births and infant deaths, the definitions as well as the reporting procedures did not follow the World Health Organization's (WHO) recommendations. Whereas its impact on fertility statistics has been minor, the level of infant mortality has been considerably underestimated (Anderson and Silver 1986, Dmitrieva and Andreev 1987). In Estonia parallel calculations for the years 1992–93, according to the Soviet and WHO definitions, revealed that infant mortality was 16.6% lower and stillbirth rates were 25.6% lower according to the Soviet definition (EKDK 1994d). In cause-specific mortality statistics, the causes of death were aggregated to an extent which restricts the comparability to the level of broad groups of International Statistical Classification of Diseases and Related Health Problems (ICD).

Compared to births and deaths, the comparability of marriage and divorce records is more complex. In Estonia, the prevalence of non-marital cohabitations are close to Scandinavian levels (Vikat 1994). However, neither the census nor the vital statistics have paid the necessary attention to this phenomenon resulting in distorted estimates of the marital status composition of the population. The biases became evident when matching individual level records from the census and the Estonian Family and Fertility Survey (Katus et al. 1995). Divorces were recorded in statistics with the time reference not to the legal dissolution by court, but to their later registration at the Civil Registration Office. Often these registrations took place significantly later than the official dissolution, and in a considerable number of cases at least one of the divorcees did not visit the Civil Registration Office at all. These procedures have obstructed the comparability of divorce and family statistics, but also the consistency between census and vital registration.

In Estonia as in the Soviet Union, the concept of household has not been applied. However, the definition of the family combined some aspects of household. For example, a special category *family member living apart* was introduced in censuses. This category has no parallels in international statistics. Several other specific features of Soviet family concept should also be considered (Anderson 1986, Bondarskaya and Darsky 1990, Volkov 1986, 1991).

As to migration, the registration of moves was carried out in the Soviet Union by applying rather peculiar procedures (discussed briefly above), and correspondingly, the migration data should be regarded with special care.

However, it must be noted that in general there is considerably less comparability in migration statistics between countries than in other fields of population statistics. For internal migration even no international recommendations exist. In these circumstances the issues of comparability of Soviet migration statistics have not been extensively discussed in demographic literature. Due to its impact on population numbers, family/household composition and other characteristics of population, comparability of migration statistics should not be disregarded.

The individual characteristics recorded in connection with a vital event create more problems of data comparability than the definitions of the events themselves. These problems stem mainly from the development of specific classifications that did not aim at international comparability at all. For example, the official social structure was classified into three main categories – workers, collective farmers, and the intelligentsia – which was useless not only for international comparison but also for any scientific analysis. Several important characteristics like place of birth (everybody was born in the Soviet Union) or religion (everybody had to be an atheist) were fully omitted from the official statistics. Occupation and industry were not recorded in vital statistics; classifications of occupations applied in the census cannot be mapped into International Standard Classification of Occupations (ISCO). One must also be cautious when using data on ethnicity, particularly on ethnic minorities, because ethnic characteristics obtained political meaning, and people have been subjugated upon these characteristics.

1.2. Lack of consistent time series of demographic indicators

Another aspect of poor data quality is related to temporal dimension of population statistics. Following the time horizon of central planning, statistical institutions like other institutions were oriented to work with one-year or maximum five-year perspective. When receiving an order from the Communist Party or the Council of Ministers to prepare specific materials, usually short deadlines were considered to accomplish the task. Those requesting the data were interested in quick and clear answers and had little understanding or concern for data quality.

Data on more distant periods was usually considered as “old” and of little interest. Under such circumstances statistics were compiled according to the concepts, definitions and methods valid at the moment, with no effort to achieve the comparability over time. Focus on data quality by the statistical institutions, including comparability over time, could only cause trouble for the statisticians themselves. When the access to data was provided at the end of the 1980s, the poor comparability of the population statistics over time was to some extent a surprise even to local researchers.

Violation of consistency principles started from the most basic demographic indicators and affected the entire system. Thus, up to the 1979 census, the post-censal population estimates were based on the present (*de facto*) population. Later

on they were based on the permanent population. From the methodological point of view, updating census counts of present population with vital events of the permanent population is inconsistent. On the level of crude rates for the whole country such an inconsistency rises minor differences. However, for more sophisticated indicators the differences could be statistically significant, particularly in regard to the republics and smaller regions.

Although the population estimates on republic level were recalculated after each census, the time series of demographic indicators were not updated. From the comparability perspective, the undoubtedly progressive introduction of new analytical methods and techniques should be accompanied by careful evaluation of the effects on consistency in time series. In Soviet official statistics such evaluations were hardly done and the extent of potential problems remains to a large extent unknown (Andreev et al. 1993, Mesle et al. 1992). Recent recalculation of Estonian life tables using primary data and the same method for all census years revealed that the methods used by the Central Statistical Office in Moscow to compute the official life tables in different years, affected the results. Life table indicators for the 1970 census year deviated considerably more than the corresponding indicators for other census years (Katus and Puur 1991).

Concerning the statistics of illegitimate births, marriage and divorce, considerable discontinuity occurred in 1968 when changes in recording practices were introduced by the new Marriage Law. Again, no efforts were taken to secure consistency with earlier years. Migration statistics had undergone repeated changes, therefore without recalculation no migration indices can be compared over time (Katus 1989, Sakkeus 1993).

On the whole, the stability of census methodology, though not always fully consistent with international recommendations, has secured better comparability of census data over time than that of the vital statistics. The purpose of the present short overview of the problems connected with comparability over time is by no means to give the negative evaluation to the introduction of concepts, definitions and calculation methods applied in population statistics during the Soviet period. Problems related to the calculation methods arise from the overcentralisation phenomenon described above. Only in a few cases the selection of calculation methods may have been dictated primarily by manipulation interests.

Depending on the good will of the Statistical Office on access to data and documentation (if available), it was hard if not impossible for the scientific community to evaluate all the mentioned violations of data comparability. At best there have been some conferences to discuss the concepts and definitions applied at censuses (TsSU USSR 1958, 1969, 1979). The practice, however, did not spread to republics. In short, the described practice suggests that it is naive, if not impossible to expect good quality data in the circumstances of restricted access. It is even harder to discover simple mistakes once they have been made. For example, it has recently been discovered that the Estonian population figures of the 1970 census by the concept of permanent population, available in local

publications, proved to be incorrect (TsSU ESSR 1975). Once taken from an irrelevant table and published, they circulated from one publication to another. Only more than 20 years later, after comparing the total numbers, archived age structures and documentation, the mistake was recovered (EKDK 1994b).

While consistency with international definitions seems to be generally improving in recent years, the case with comparability over time appears more complex. Paradoxically, the harmonisation of statistical definitions with international recommendations may bring about new discontinuity in time series, and the comparability in time may even decrease. Therefore the innovations must certainly consider the need to maintain comparable time series.

1.3. Poor and often incomparable regional population data

The third feature of postwar population statistics in Estonia is related to the limited availability and comparability of regional-level information. Under the Soviet statistical system little, if any, statistics were produced for smaller administrative units compared to larger ones. Only the total number of major demographic events without sex/age distribution, and respectively only crude rates are available below oblast level. In Estonia, similarly to other smaller republics of the former Soviet Union, this resulted practically in the absence of regional vital statistics. Consequently, research on regional heterogeneity/homogeneity of demographic processes was virtually impossible. Two main reasons for that feature can be outlined.

First, under the Soviet regime the statistical information was not meant to support decision-making which was based mostly on ideological grounds and preferences of Communist Party leaders. Decisions were made primarily on top level, and no disaggregated data on regions below the republic level was necessary. Naturally it was not produced in the framework of usual routines of statistical calculations.

Second, the traditions of working with individual level data were poor, statistical institutions were used to operate with aggregated data. This split dates back to the period when data processing on mainframe computers began, and when computing centres were formed as separate units within statistical institutions. According to the division of functions, the statistical staff ordered the computing centres to perform the processing, and supervised the results. This resulted in a non-interest in data processing and the lack of technical skills among the statistical staff. For example, as late as in 1991 the Estonian Statistical Office showed no initiative to start working with the individual-level census files because they had the tabulations produced in Moscow. When introducing the new birth registration system in 1992, the Estonian Statistical Office expressed a view that individual records were not statistics, as statistics begins at the level of aggregated tabulations.

In addition to very limited availability of population statistics on regional level, even the existing data were restricted by methodological inconsistencies. For

example, additional problems were introduced with the pattern of producing population estimates for the previous intercensal period after a new census was taken. When the numbers and age structure of the republic were recalculated, numbers for smaller units like *raions* and *selsovets* were not. This kind of approach eliminated the possibility of matching the total numbers of regional units at the higher hierarchical level with lower ones, actually comprising these regions. For Estonia, the population numbers and particularly the age structure, when recalculated at the regional level and balanced with national figures, differ considerably from old official figures proceeding from the national level only (EKDK 1994a, 1994b, 1996a, 1996b, 1996c, ESA 1990).

Besides poor data availability at regional level, the applied system was quite vulnerable to consistency violations. By the existing routines the results, whatever the indicators, were first produced for the whole country, and only later for the regions. Often the summary of the data on individual regions did not sum up to the numbers produced directly for the higher hierarchical level. In case inconsistencies were detected, the regional data were "adjusted", usually introducing inaccuracies. For example, using this kind of procedure, in the 1959 census the number of population of one small Estonian town, Loksa, was estimated at ca 200% of its real number (TsSU ESSR 1960). Even as late as in the 1989 census, the number of population for the whole Estonia was adjusted by adding 7,000 individuals to the permanent population. The Central Statistical Office in Moscow motivated it with a claim that a certain number of permanent residents of Estonia were counted in other territories. However, actually 7,000 temporary residents, enumerated at the time of census in Estonia, were recoded into permanent, supposingly to match present and permanent population estimates for the Soviet Union as a whole. The same kind of adjustments were usual in compiling the vital statistics.

The comparability of regional data is further complicated by continuous administrative transfers and boundary changes. Lacking any autonomy in decision-making, the boundaries of smaller administrative units were repeatedly redrawn without any real need. Therefore, the smaller the regional unit, the stronger efforts are needed to build comparable time series for demographic indicators.

2. Reorganisation plan of population and social statistics in Estonia

After the disappearance of the last Soviet regulations limiting the availability and publication of population and social statistics, it became possible for the scientific community and other interested organisations to make a comprehensive review and evaluation of the existing data. Reports covering different domains of population and social statistics were prepared and repeatedly discussed at the sessions of the Estonian Demographic Association (EDA) (Katus et al. 1992).

As a result of these investigations and meetings, a unanimous understanding emerged that Estonian population data available for the Soviet period is of unsatisfactory quality, particularly with respect to the comparability issues discussed above. For the same reason, it was concluded that most of the social and population statistics in existing quality are not consistent for making valid scientific conclusions. Besides research, the current state of the data was regarded a hindrance for qualified decision-making, especially when heterogeneity aspects and behavioural mechanisms were concerned. Recalculation of the population data from the Soviet period, initiated already in the 1980s by the EDA and EKDK, was organised into the long-term programme to achieve time- and region-consistent series of basic demographic indicators for Estonia. Some accomplishments of the programme are discussed in the third section of the present article.

The scientific community concluded that the incomparability and low quality of statistics about the present and future population does not result from a few specific reasons, but rather from the entire statistical system where the overall responsibility and interest in data integrity are lacking. Under the Soviet system, the population data, particularly the vital events, were registered by different authorities. The following stages of the statistical system, namely data coding, entry, cleaning and documentation, production of standard tabulations, computation of basic indicators, archiving, etc., involved numerous additional institutions into the system. According to the Soviet practice separate institutions were set up for nearly each function. Such a disaggregation also served the aims of a totalitarian society in controlling the information. To overcome the deficiencies imposed by such a system, attention had to be focused on the redefinition of responsibilities and cooperation of governmental authorities involved in data collection, processing, analysis and dissemination, not just improving the performance of existing structures. In other words, it became clear that the task which at first glance was supposed to address specific problems, turned out to be an extensive reorganisation of the entire statistical system, comparable with the currency reform in the economy. Apart from general problems resulting from the Soviet-type statistical context, in case of Estonia, the reorganisation had to overcome the non-existent country-level coordination, which earlier had been performed on the level of central authorities in Moscow.

Based on the initiative of the EDA, the Governmental Commission on Social and Population Statistics was established in 1993 to reorganise the statistical system. The principal aim of the Commission was to integrate all stages of statistical system, from data collection up to dissemination and archiving, into the system where the institutions responsible for different stages would be coordinated and supporting the activities of each other. Thus the purpose was to overcome the Soviet practice under which these interrelated functions were only loosely integrated with some of them significantly underdeveloped. In operational terms, all relevant governmental and non-governmental agencies (more than 30 altogether) as well as scientific institutions were involved in the work of the

Commission. At the executive level the relevant Ministers were nominated to the Commission.

As a result of the systematic review and negotiations, a plan of statistical reorganisation was prepared and presented to the Government for adoption (Katus, et al. 1993). The plan covered all stages of statistical system and it was secured with cooperative agreements between agencies as well as with finances. The plan was evaluated by international experts and coordinated with the statistical authorities in neighbouring Latvia and Lithuania (Training Seminar of Baltic Population Statisticians, Laulasmaa, 27 July–1 August 1993). Contrary to expectations, the plan was not implemented. Despite the goal of the undertaking remaining unachieved, the work in the Commission clearly augmented the challenges and opportunities of the post-Soviet statistical environment.

On the positive side, the excessive majority of governmental and non-governmental institutions in Estonia proved to be cooperative and supportive to the reorganisation of social and population statistics. For the first time in postwar history, different Estonian institutions were prepared to spend their time to discuss systematically the issues of statistical organisation. For most of these organisations the data collection and/or participation at other stages of statistical system was not the main task, however, they willingly agreed to be a part of the reorganisation to improve the performance of their role in data management. It must be underlined in particular because most of these institutions had until recently worked under separate regulations (mediated only by central authorities in Moscow), and had little, if any, direct contacts between themselves.

On the negative side, one group of administrators systematically hindered the reorganisation plan, and finally managed to prevent its implementation. In a transitional society, one could indeed expect some social groups to oppose new developments, however, in case of reorganisation of social and population statistics in Estonia it happened to be a rather special case that deserves explanation.

In Estonia, the opposition to the reorganisation was formed by the computing staff as a professional interest group. All over the Soviet Union the computing staff was overproduced during the mainframe era, and huge computing centres were established. Being part of the official structures, these centres achieved the status of monopoly in data processing, maintained their commanding position in statistical system and survived until the beginning of transitional period. Under new circumstances, computing centres developed their for-profit orientation while technological innovations made their existence redundant. To survive, taking advantage of their old privileged position and connections, computing staff is trying to maintain their status, which in Estonia has resulted in the claims for the central role in the statistical system. However, lacking the interest in ensuring the integrity of the system, stretching from data collection to dissemination, computing staff mainly concentrates on increasing the volume of data processing. Proceeding from the narrow technological perspective, they neglect international

concepts and definitions and underestimate the harmonisation of data collection procedures. Being mainly for-profit oriented, the dissemination stage and making the data publicly available is not in their interest. In such circumstances, the reorganisation of statistical system would have clearly harmed their position: computing staff would have lost their commanding role or it would have given them much more responsibility than now.

Although the reorganisation failed because of strong opposition of computing personnel, important contributing factors need to be mentioned. Most importantly, such a result would not have been possible in a society striving towards democracy without the support of the Statistical Office. The present leadership of Statistical Office belongs to the same interest group, having the computing rather than the statistical background. The relatively poor understanding of the importance of information for decision-making process and data quality issues among the members of the Government was another feature contributing to the failure of the reorganisation.

The failure of statistical reorganisation has resulted in increasing discrepancy between the inputs and the outcome of statistical system. Despite the fact that Estonia is allocating relatively large resources in data management (computing and communication facilities, etc.), giving the funds to institutions that are neither responsible nor interested in the comparability of concepts and definitions, data accuracy and availability produces overall results which are nothing but disappointing. The data quality, including comparability in time and space, in spheres like migration, marriages and divorces, calculation of population indices, etc., has become even worse compared to the Soviet period.

Regarding vital statistics, the most serious concern is related to migration statistics. The upsurge in under-registration is most visible in internal migration where the number of registered moves has decreased 5–6 times compared to earlier decades. The reason for such deterioration stems from the continued reliance on old definition and registration and procedures: although the *propiska* system was officially abolished in 1992, migration statistics still draws on the principles inherited from the Soviet rule. To avoid the responsibility, Statistical Office has fully withdrawn from the collection of migration and prefers to transform the increasing criticism onto the Ministry of Interior. With respect to external migration, the situation was further complicated by the opening of formerly closed military territories. In the early 1990s, movement from these territories, mostly the return of Soviet army and related personnel were included in migration balance. As the entry of respective population into Estonia had never been recorded, this has probably resulted in over-reduction of population estimates. Needless to say that in turn, inaccurate population figures affect virtually all demographic and population-related indicators. The Statistical Office has recently accepted the problem and prepared alternative population estimates which show the error from collapsed migration registration having reached five per cent of total population (ESA 1997).

As a response to the increasing inaccuracy of centrally reported figures, local governments have started to compile their own statistics (for example, Valgamaa 1994, Lääne-Virumaa 1995, Viljandimaa 1995). Despite being usually of better quality and satisfying the need of administration, this approach cannot be regarded as a solution, because the activities of local governments are not methodologically coordinated and therefore do not add up to comparable national estimates. Statistical Office has continued to neglect the data needs of local governments, reflected for example, in the dismissal of most of its branch offices in the counties since 1995.

The preparations for the new 2000 census round have not produced significantly better results. So far the preparations have concentrated on the (computer-)technical aspects of the census with very little emphasis on methodology, data content and definitions. As the previous censuses have used different approaches where the methodological work required to secure the consistency with both internationally recommended definitions and earlier censuses is rather extensive. In fact, the possibilities for such methodological work are rather good in Estonia due to the availability of microdata from the two most recent Soviet censuses and several surveys which have drawn their samples on the 1989 census. However, the Statistical Office considers such activities basically unnecessary and has rejected the unanimous readiness of scientific community to contribute to the preparations of the forthcoming census.

The list of the problematic areas could be continued. In Estonia, after seven years of free access to data, there is still no complete overview of existing sources of population data for the Soviet period. The Statistical Office considers itself to be responsible primarily for the statistics on the present moment and is, respectively, very little or not at all interested in bringing the materials for the past decades into systematic order. From this position even the latest census data has been regarded as "old" and without serious interest. Due to that kind of neglect, some archive materials have been recently destroyed at the Statistical Office, the confusion has grown due to periodical restructuring of the Office, and the corresponding re-distribution of archives between departments. As a result, the statistical materials deposited in central archives (census tabulations, annual reports on vital statistics of earlier years, etc.) have been preserved and are now in relatively better condition than those kept at the Statistical Office. Alarming tendencies can be found also in respect of recently started national surveys etc.

To sum up, in some ways the Estonian Statistical Office seems to be approaching the reality of which Frans Willekens has warned in connection with the development of computer technology: just as much helping to produce a lot of sense, it could be used to produce a lot of nonsense (see also Willekens 1992).

3. Reorganisation failed. What can still be done?

In spite of being unable to reform the statistical system, the scientific community and other institutions/persons interested in population data availability and quality are continuing the efforts to achieve their aims. Over the recent period, the advancement has been possible in three directions.

First, in contrast to the deterioration of vital statistics the improvement in the infrastructure of survey-based data collection has been noticeable. In 1993 the Governmental Commission on Social and Population Statistics adopted the plan of nationwide surveys to be launched in Estonia up to the next census. Altogether the plan included eight surveys. In 1994–95 two of these large-scale sample surveys, female part of Estonian Family and Fertility Survey (FFS) and the Labour Force Survey (LFS) have been conducted. These were the first surveys based on nationwide probability samples in Estonia (Katus et al. 1997, Katus et al. 1995).

Characteristic of the Soviet-type statistical system, surveys were obviously underdeveloped in Estonia compared to other sources of population data, the census and the vital statistics. As an organisational innovation, Working Groups as project-based bodies outside the regular administrative structures were established to carry out these surveys. The Working Groups were made responsible for the survey starting from planning and instrument development up to data release and scientific analyses. Such solution proved to be an efficient way to unite relevant experts from scientific institutions as well as represent the interests of governmental institutions. Because of opposition from the Statistical Office and the computing staff to the new arrangements, Working Groups for both surveys were registered at the Governmental Commission.

In Estonia, given the lack of experienced personnel and skills within Statistical Office, the newly established commercial survey agencies had received certain competitive advantages in conducting nationwide social surveys. For that reason, the procedures for a large-scale social survey were elaborated and tested by the FFS Working Group. On the basis of that experience, the LFS Working Group managed to establish a regular interviewer network based on the infrastructure of county statistical bureaus, which showed already good performance compared to the commercial ones. Both surveys relied on the only available sampling frame with nationwide coverage, the individual-level data of the 1989 census, which proved not only to support the strategies but also individual-level linkages with surveys for the first time in Estonia.

However, in the development of the interviewer network the Statistical Office has not emphasised the data quality and integration with other data sources as ultimate goals. Despite the advice provided by the scientific community, the network has not established a core of permanent full-time interviewers, and is preferring greater number of less experienced interviewers instead. Another serious deficiency relates to the working language of the interviewers: too small

number of Russian-speaking interviewers threatens the principle according to which respondents should be entitled to the interviewer sharing their mother tongue. These circumstances are placing considerable threat on the quality of the results and timely completion of the two ongoing surveys: male part of FFS and the Survey on National Minorities.

The two surveys, FFS and LFS, are contributing to the introduction of internationally comparable concepts and definitions of demographic events and statuses. As part of the analysis of the two mentioned survey data, the definitions of household, place of residence, economic activity, etc., were elaborated to be introduced into official statistics. The introduction of these concepts depends, of course, on the statistical institutions, and, in the case of Estonia, on the understanding of such need by the computing staff in charge of it.

In budgeting terms, the Statistical Office is used to working under yearly cycle and had never practiced project-type planning for statistical undertakings longer than one year. However, the surveys of this scale usually require several years to prepare and implement, and even more if to include the analysis stage in the project. Therefore the budget arrangements became an important part of the Working Group activities. As yet, the Estonian Statistical Office is still opposing this type of financing, in principle opposing the cost-efficiency inherent in the proposed scheme. Although the Working Groups were able to introduce the elements of project-based financing by securing funds on multilateral basis, the principles of such kind of funding have not yet been rooted. Therefore, the continuity of similar undertakings is not secured.

Besides conducting research, the Working Groups for FFS and LFS have also committed themselves to providing data for decision-making. Volumes of standard tabulations, in close cooperation with interested governmental agencies are published or planned to be published (EKDK 1995a, EKDK 1997). Relevant training sessions have been organised for administrators, first of all addressing Parliamentarians as the main body of decision-makers. In short, the FFS and LFS Working Groups aim at building the infrastructure for large-scale national surveys, starting from budgeting routines to applications in public administration.

Second, compared to other official structures, the Medical Statistics Bureau operating as a separate unit under the Ministry of Social Affairs has been responsive, much more cooperative with the scientific community, and achieving better results in its field of responsibility. As an example, in 1992 the WHO definition of live births was introduced together with starting the Medical Birth Registry. Together with the characteristics on the medical details of delivery, social characteristics of mother and father were included in this registry in a way comparable to these characteristics in the civil birth certificate. The parallel medical and civil registration systems provide a unique basis for evaluation of the quality of birth registration, particularly the recording of personal characteristics. Since 1994, Medical Statistics also runs the Abortion Registry. The Institute of Experimental and Clinical Medicine together with Medical Statistics Bureau have

introduced international classifications in morbidity and mortality statistics ICD-10 (Bogovski and Laan 1994).

The third direction of activity worth mentioning is the recalculation of the retrospective population data. Actually, this is the realisation of an initiative of EKDK and the Demographic Association already from the middle of the 1980s. Although it was quite obvious by that time that in its existing quality the population data could not support valid scientific conclusions, the initial task has expanded tremendously after gaining full access to population data. Until now the funds have been very scarce, limiting the publication possibilities to just a few volumes of statistical recalculations (EKDK 1994a, 1994b, 1994c, 1994d). The recalculation plan proceeds with the series of new tabulations from 1979 and 1989 censuses at municipality level, and provides recalculated vital rates on the basis of recalculated age structures. Three separate volumes concentrating on the period 1965–90 have recently been published (EKDK 1996a, 1996b, 1996c) and two more are under preparation. The retrospective computerisation of birth records from the 1960s started in 1995. In the framework of activities, concentrated into the *Programme for Estonian Population Data Comparability*, historical demographers have compiled the overview older sources on Estonian population (Palli 1995) and started the computerisation of microdata for the 1897 census records for Tartu (Berendsen and Maiste 1997).

The above-mentioned direction foresees the documenting and rearranging of existing population databases, in order to bring them into scientific circulation. The major individual-level data set that has been documented until now is the 1989 census microdata (Katus and Puur 1993, Puur 1994). The data from the 1989 census has been already used for drawing the database on the elderly for the Dynamics of Population Aging Project, coordinated by UN ECE PAU, as well as for FFS and LFS sampling (EKDK 1995a, EKDK 1995b, EKDK 1997). Similar work is going on with the data of the 1979 census and the 1985 microcensus. The aggregated population data has been organised into the Estonian Population Database, managed by EKDK (Katus and Puur 1992, Katus 1992); all of the recalculated data are gradually added to this database.

Rearrangement and documentation of databases goes in parallel with seeking possibilities to make data available. In addition to traditional means of data dissemination, the Internet is under consideration. In that sense, the Consortium of International Earth Science Information Network (CIESIN) country node which attempts to mediate the main Estonian databases into international circulation may be one of the ways (Human Dimensions Quarterly 1994).

4. Conclusion

After the reform of social and population statistics failed in Estonia, the development of statistical system has been characterised by controversial tendencies. On the one hand, there have been indeed positive changes like the

introduction of survey-based data collection, launching the recalculation programme to make the population data from different periods consistent and comparable and integration into international projects. On a more broader scale, however, the achievements have been small and in several respects the quality of the collected statistics has become worse even compared to the Soviet period.

Although the manifestations of such situation are diverse and situation may be somewhat better in some areas than others, the main reason for the downgrading has been the approach of the national Statistical Office. Instead of taking the responsibility for all stages and segments of statistical system, it has limited the attention to the activities performed in the Office itself. Making indeed the daily work much simpler, this has left the statistical work which involves tens of institutions from various societal fields without any meaningful coordination and supervision. On the one hand, the lack of methodological coordination has resulted in loss of control over the quality of the information reported. On the other hand, the same attitude has driven several stages of statistical system to almost complete neglect, the latter is particularly true about analysis and research which under old regime had been administratively and institutionally separate activities. Statistical office tries to maintain this division also under new conditions, mostly in order to maintain distance and have room to avoid the criticism. Unfortunately, this leaves the statistical system in Estonia without important feedback and methodological contribution that science could provide through its analytical efforts.

The experience gained in Estonia during the past few years suggests that any major improvement of post-Soviet population and social statistics cannot be reached without a profound change of the entire statistical system. This implies that to improve the situation, the main attention has to be focused on the redefinition of responsibilities and advancement of cooperation between governmental authorities involved in data collection, processing, analysis, and dissemination, not just on improving the performance of existing structures. The accomplishment of the mentioned tasks cannot be solved on the ministerial or lower administrative level but requires more decisive attitudes from the Government. So far the statistical system has been of rather low priority with some ministers even favouring the reversal of achieved progress. Hopefully this attitude will change in future due to the forthcoming affiliation with European Union, relevant evaluation of Estonia's preparedness has already pointed to the weakness of existing statistical system and the need to improve it.

From the perspective of international cooperation and particularly assistance programmes, this involves quite a delicate situation. The assistance programmes for East European countries that normally operate through official structures may unwillingly find themselves in the position of working with conservative Soviet-type structures. It might mean an inefficient use of resources, or worse, it may result in the strengthening of these structures, i.e. decreasing the data quality and comparability. For Estonia, it has meant that assistance programmes have

provided the Statistical Office with excuses to ignore the local scientific community and reject its willingness to cooperate. Accordingly, the most important criteria of the adequacy of statistical institutions in the countries of the former Soviet Union could be regarded their degree of integration with research institutions and scientific community. This can be considered an indicator of the extent to which the statistical institutions have managed to overcome their specific role of the Soviet period and started serving the needs of the society in providing accurate information.

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