



**Economic and Social
Council**

Distr.
RESTRICTED

CES/1996/R.23
13 March 1996

ORIGINAL: ENGLISH

**STATISTICAL COMMISSION and ECONOMIC COMMISSION FOR EUROPE
CONFERENCE OF EUROPEAN STATISTICIANS**

Forty-fourth plenary session
(Paris, 11-13 June 1996)

**ESTONIAN LABOUR FORCE SURVEY 1995:
EXPERIENCE FROM RETROSPECTIVE DATA COLLECTION**

Submitted by the Estonian Interuniversity Population Research Centre¹

I. Survey Environment

1. As a consequence of statistical reorganisation brought about by democratisation and transition to market economy, countries of Central and Eastern Europe have started survey-based data collection on labour force during the past five years. Given the national circumstances, each country has taken its own route in this process. Czech Republic, Hungary, Poland, Russia and Slovenia responded more rapidly and launched their surveys already by 1992; other countries have taken longer time for preparations. Despite the short period that has passed, today many of these countries are running advanced surveys on a continuous basis.

2. Estonia started its survey preparations in the Fall of 1993 when the Governmental Commission for Population and Social Statistics discussed the plan for statistical reorganisation and suggested the labour force survey be included in the national programme as one of two periodical surveys [Katus, Kõre, Pavelson, Puur, Sakkeus 1993]. In order to provide understanding of the activities connected with Estonian labour force survey (ELFS), several

¹ Prepared by Rivo Noorkõiv and Allan Puur, Working Group for the Estonian Labour Force Survey.

features of the post-soviet statistical environment should be underlined [see Anderson, Katus, Silver 1994].

3. Out of three main sources of population and social statistics - the census, vital statistics and surveys, the latter was obviously underdeveloped. As the first characteristic of survey environment, this implied the absence of relevant sampling routines. Although a series of statistical surveys had been carried out in the former Soviet Union covering all republics [Darsky 1986], sampling plans were produced by the Central Statistical Office in Moscow. As a result, neither the sample frame nor the knowledge of sampling was developed in national statistical institutions. On the other hand, under Soviet statistical organisation, the scientific community had only restricted access to the data, and definitely no access to individual level data. Even with excellent theoretical knowledge of sampling procedures, that knowledge could not be applied for survey planning in practice. Thus, rather than being an application of existing routines, the development of the sample for nationwide representative surveys became an innovative process.

4. The second characteristic to be noted was the lack of professional interviewers' network. During the Soviet period the Statistical Office operated some prototype network to collect data on family expenditures. Lacking required professional training, however, it became non-competitive and was dissolved at the beginning of the transition period. Consequently, the newly established commercial survey agencies had several advantages in conducting nationwide social surveys. Despite being time-consuming, building up a new interviewers network at Statistical Office, was unavoidable to ensure the data quality in the long-run.

5. The third feature confronted in the planning and implementation of the survey was the absence of appropriate project-based funding practices. The Statistical Office, working under annual budgeting cycle, had never practiced project-planning for statistical undertakings longer than one year. The ELFS preparations, therefore, demanded a lot of clarification efforts with officials responsible for the budget preparation.

6. The fourth aspect was related to securing data comparability and quality. To achieve comparability, ELFS had to secure conceptual and definitional consistency with other sources that would allow for individual-level linkage. Further, the Statistical Office had no experience in processing survey data on personal computers by means of standard software packages; earlier, costly mainframe environment had been used for these purposes. To provide analysts with flexible access to datasets, relevant PC-based routines had to be developed.

7. Due to these characteristics of statistical environment, tasks faced in the preparation and implementation of the survey turned out to be more extensive than those normally covered in the framework of a particular data collection exercise. In this process, ELFS could in many aspects rely on the experience of the Estonian Family and Fertility survey which was the first major nationwide survey conducted in Estonia during the post-Soviet period

[Katus, Puur, Sakkeus 1995a]. Perhaps some of this experience may be relevant to other former Soviet Union countries sharing largely identical survey environment.

II. Management and Organisation

8. To prepare and implement the ELFS, a Working Group was established by the Governmental Commission on Population and Social Statistics in February 1994. Uniting researchers from academic institutions and various government agencies, it allowed for an efficient concentration of resources in the conditions of a small country and contributed to the consideration of needs of different data users. This setup was innovative considering the old practice where government institutions were not used to coordinating their activities and operated often isolatedly. Independent from the middle level administrative bureaucracy, the Working Group took responsibility for all stages of survey planning and implementation. Apart from substantive tasks, the Working Group also managed the financial resources allocated for the survey. At different stages of the project, immediate implementation functions were performed by the Central Statistical Office, regional statistical bureaux, Estonian Interuniversity Population Research Centre, Ministry of Social Affairs and Ministry of Education.

9. Through regular contacts with ILO Statistical Bureau, World Bank and other institutions, the Working Group secured international integration of the Project.

III. Survey Programme and Questionnaire

10. From the earliest phases of development, the survey aimed at meeting both current and long-term needs; this orientation had important implications on all aspects of the survey starting from questionnaire design and ending with data analysis. The discussions held in the Working Group brought about two basic reasons for the combined approach.

11. First, there was an extensive gap in the labour force information in Estonia: the most recent comprehensive individual-level data that were available dated back to the 1989 population census. As in other transition countries, the employment situation had undergone substantial change since that time and the national economy had experienced considerable dislocation of the labour force, emergence of unemployment and diversification of work patterns. Data from establishment surveys and labour exchange that were available could not reflect these developments adequately, leaving, thus, the perhaps most turbulent part of transition period uncovered by individual-level labour market information. Application of the conventional LFS approach would have provided a snapshot picture of the current situation, with no reference to its emergence and the course of transition processes in general.

12. Aside from substantive reasons, financial considerations also motivated the combination. As a substantial proportion of the Project's budget items (sampling, transportation, supervision, communication etc) was not directly dependent on the volume of collected information, extending a survey

programme had advantage in terms of cost-efficiency. Given that limited resources would not have allowed for separate surveys on special topics, the extension of data collection programme was practically the only possibility to consider the needs of the research community.

13. To allow for the reconstruction of labour market trends, an extensive retrospective section was added to the questionnaire. Methodologically, the section builds on the life course approach which has proved useful in integrating individual behaviours and macro-level trends in many population-related processes [Tuma, Hannan 1984; Blossfeld et al 1989]. The starting point of an observation was chosen as January 1989. On the one hand, in Estonia, the year 1989 was the last year of relative stability before the collapse of command economy, decline in production volumes, rapid inflation and emergence of the private sector. On the other hand, it refers to the date of the most recent population census which can provide the last comprehensive information on pre-transitional labour market.

14. Given the methodological approach, one can distinguish two basic parts in the questionnaire. In the retrospective part, information was collected on three basic states in the labour market: employment, unemployment and economic inactivity. For each state the starting and ending dates, modes of entry and exit and the basic characteristics of the state were recorded. The timing of all periods was measured with the precision to one month.

15. Regarding employment, the state-specific information included characteristics of employer (industry, ownership and size of enterprise, geographical location), occupation, socioeconomic status, usual working hours, underemployment, prevalence of second jobs, and the reason for termination if the job is terminated. Within the employment periods, special provisions were made with respect to temporary work interruptions, transitions between full- and part-time employment, changes in occupation and ownership of the enterprise.

16. Regarding unemployment, the specific information covered the methods of job-search, contacts with the Employment Office, sources of income, continuity of job-search, (sub)periods of unemployment compensation receipt, participation in public works and training. Information on economic inactivity was limited to reasons for inactivity and sources of income. Based on the experience derived from the pilot survey, information on second jobs was collected by means of a separate module; characteristics recorded on second jobs presented a subset of those available for main jobs. Although the retrospective approach could not incorporate the full detail of activity measurement framework applied to a short reference period, an attempt was made to secure this conceptual linkage as far as possible.

17. Information on respondents' current labour force status was collected through separate sections which built on the current activity framework. To avoid dubbing and to save interviewing time, selected characteristics of current employment were not repeatedly asked but obtained from the retrospective sections. Reference period for the measurement of current activity was the week preceding the interview.

18. To provide individual work histories in a dynamic context, retrospective event histories were recorded also on studies, changes in marital status, childbirth and geographical mobility. Regarding current situation, the amount of background information was extended with household characteristics and economic position of the respondents. A separate module addressed future plans with respect to economic activity.

IV. Sampling Procedures

19. The target population of the ELFS consisted of individuals born in 1920-1979 who were 15-74 years old in the beginning of 1995. Within that age range all permanent residents were eligible. The selection of cases was decided to be without geographical clustering, reflecting fully the social composition of population and including the institutionalised persons (e.g. conscripts, prisoners).

20. To draw the sample, the microdata from the 1989 population census were used as a sampling frame. Besides providing a list of individuals, census records provided respondents and non-respondents with diverse background information [Katus, Puur 1993]. The working Group preferred the census to the so-called population register which is being developed by the Government Computing Centre, which lacks any background characteristics except age and sex and is known to have deficient coverage [Inno 1995].

The limitation of the sampling frame was the absence of persons who had migrated into the country after the census. However, due to the negative migration balance and decline in turnover during the recent years, this was considered to have a relatively small influence on the results.

21. In ELFS the sampling unit was the individual. The selection of cases was proportional and an age-sex-region stratification was used. Given the statistical and financial considerations, the aim was set to around ten thousand completed questionnaires. As the first step of sample selection, 10121 cases were drawn from the microdata. Names of individuals not directly available from the datafiles were checked from census lists in the archive of Statistics Estonia. Current addresses for potential respondents were sought from the central and local address bureaux.

22. From the address bureaux, addresses were found for 8650 individuals. The remaining 1471 individuals fell into three categories: 539 had emigrated, 383 had died, and for 549 there was no information. At that stage, the dead and emigrants were excluded as over coverage of the sampling frame. To approach the target number of interviews, during the fieldwork non-respondents were replaced by new respondents from the separately drawn replacement sample. Replacement was done controlling for region, sex and five-year age group.

23. Together with replacements, 10955 cases were assigned to county statistical bureaux to be interviewed. Of those, 9608 (88.7 per cent) interviews were completed and 1347 (12.3 per cent) were not completed. Mostly, the non-response occurred due to 557 cases of non-location (5.1 per

cent), the total number of refusals was limited to 213 (1.9 per cent). The non-location reflects primarily the inaccuracy of residence registration, particularly the discrepancy between real and official addresses reported to the address bureaux. As some of the cases assigned to interviewers were later discovered to be deceased (102), too ill to participate (28), have emigrated or were temporarily out of the country (404), or were not contacted (43), the corrected response rate referring to persons who were at true risk of being interviewed was 92.6 per cent. On the whole, the distribution of respondents approximates closely to the target population.

V. Data Collection

24. The ELFS became one of the first major surveys performed by the newly established governmental interviewer network which organisationally builds on the county statistical bureaux. The inclusion of the retrospective section had several implications on interviewers: their work became more demanding both in terms of length and complexity of interviews. Taking into account the demands of the survey, the training of interviewers was considered of key importance to the quality of the data. In addition to general training, all interviewers had to go through a special 2-day training seminar on ELFS. To ensure the quality, all seminars were provided directly by the members of Working Group who had been involved in the development and testing of the questionnaire and other data collection instrument. The training seminars took place in 9 rounds in four different locations, separately for Estonian and Russian-speaking interviewers.

25. The seminars concentrated on substantive concepts and definitions on one hand and specific requirements concerning the collection of life-history data on the other hand. In the questionnaire, different event histories (employment, unemployment, non-activity, second jobs, studies, family transitions, migrations) were recorded in separate table-formatted parts of the questionnaire. To ensure the consistency between events, the interviewers were taught to fill in a summary life history chart, in parallel, at the end of the questionnaire. In this chart, each row corresponded to one month starting from January 1989 and ending with April 1995. For recording the different types of events, separate columns were foreseen. When recording a certain event in the questionnaire, the interviewer also put the mark on the chart. The chart provided an interviewer with a tool for quick verification; using the chart he/she could detect and correct potential inconsistencies before leaving the respondent.

26. At the end of the training seminar, each potential interviewer made an individual pretest, after which he/she was selected for the task. The pretest consisted of an interview where one of the trainers took the role of the respondent with specially prepared work history. The selection was based on the ability of the interviewer to solve borderline cases and detect inconsistencies in the responses.

27. As a compromise between quality requirements and funding available for transportation, 177 interviewers were trained to participate in the survey. On the average, each of them conducted 54 interviews. After the seminar, the

names and addresses of sampled respondents were distributed to interviewers according to their working region and language, available from census records. Estonians were generally interviewed by persons whose native language was Estonian, and Russians by persons whose native language was Russian. Respondents were sent contact letters to inform them about the aims of the survey and secure cooperation. Letters included a return card which was used to settle the time and place for interview. In each case when the interviewer considered that all means to secure an interview were exhausted, he/she filled in a special protocol which was sent to Statistical Office where the protocol was checked, and whenever necessary, returned to work with relevant instructions. In each case, the final decision to accept (or reject) the non-response was made by ELFS Working Group.

28. According to initial plan, the fieldwork was scheduled to take place in the Fall 1994, however due to disagreement between the Working Group and Statistical Office concerning the role and responsibility of local statistical bureaux, data collection was postponed until the beginning of 1995. As a result of discussions, bureaux became fully responsible for the fieldwork. From the total number of interviews, 3102 (32.3 per cent) were conducted in January, 3049 (31.7 per cent) in February, 2494 (26.0 per cent) in March and 963 (11.1 per cent) in April. Thus, due to moving reference period, the information collected under the current activity framework refers primarily to the first quarter of 1995.

29. The life-history format of the questionnaire and the amount of information to be recorded resulted in relatively long interviews; before conducting the fieldwork, concern about the length of an interview was expressed by foreign experts. In the process of questionnaire development, the duration of the interview was expected to be around one hour. In the survey, the mean duration of the interview accounted for 56.8 minutes. 623 (6.5 per cent) interviews took more than 1.5 hours and for 151 respondents it took more than two hours. The mean number of activity events over the period 1989-1994 was 2.38 per respondent, only 10 per cent of the respondents had undergone 5 or more events. Disaggregation of interviews by month reveals that increasing experience resulted in a substantial decline in the interview duration: the mean duration dropped from 61.1 minutes in January to 51.7 minutes in April. In addition, the interviewers who completed more than 100 questionnaires ended up with shorter interviews.

30. At the end, each interviewer was required to answer a question about how well the interview seemed to proceed. On the average, 34.9 per cent of the interviews proceeded very well, 46.0 per cent proceeded well, 15.9 per cent fairly, 2.7 with some difficulty and 0.4 per cent with great difficulty. While there is not much evidence in the scientific literature about the relation between the perceived and actual quality of the responses, presented characteristics of social interaction suggest that despite the complex and lengthy questionnaire, respondent burden was kept within acceptable limits. As was the case with duration, more experienced interviewers did a better job.

VI. Coding and Data Entry

31. To ensure the quality of the data, coding and data entry were performed centrally by a separate unit under the supervision of ELFS Working Group. Before entering the data, codes were inserted in the forms for industry, occupation, educational qualification, region, ethnicity and language. Coding of industry was based on the 3rd revision of ISIC, occupations on ISCO-88 and educational qualifications on ISCED. To maintain the consistency of time series over the transition period and to distinguish real change from the measurement impact, industry and occupation were double-coded according to both newly introduced international and former Soviet census classifications.

32. The procedures did not foresee manual pre-editing of the questionnaires: data were entered by means of Blaise-based software which took care of major inconsistencies in survey records. When inconsistencies were encountered they were either resolved by consulting related answers in the questionnaire or sent back to the interviewer for clarification. To reduce the error rate, first completed questionnaires were subjected to a thorough review to develop additional instructions for interviewers. Despite efforts taken, 24.3 per cent of the questionnaires needed clarification.

VII. Data Quality

33. Once all data were entered, the file was converted into SPSS-format and checked systematically; altogether the check programs covered several hundreds of potential inconsistencies, including those already incorporated in the data entry facility. Whenever problems were detected, the file record was compared to the questionnaire. In the overwhelming majority of cases, in doing so, it proved possible to correct the problem by combining the information from different questions. Most of the errors resulted from the interviewers inattentiveness. In the course of the editing process, all open-ended questions were checked, and whenever necessary, recoded.

34. Item-specific non-response varied for each question, although in most cases there was none or only a few cases with missing data. From the viewpoint of event-history analysis, the quality of date-specific information is the most critical. Analysis revealed extremely low proportions of respondents who could not tell the interviewer the dates when basic labour market events had occurred. Altogether, there were no cases where the respondent was unable to determine the year when some event of employment, unemployment or non-activity had started and only 13 cases (0.1 per cent) where the month of event was missing. Date-specific non-response rate was somewhat higher regarding the dates of ownership change of the enterprise with 30 respondents (0.3 per cent) who could not recall the month of the change. Low levels of non-response are consistent with the experience from the Estonian Family and Fertility Survey which collected detailed life histories of 5000 women since age 15: in major biographical modules of EFFS the year-specific non-response rate ranged between 0.0 and 0.4 per cent and

month-specific non-response between 0.5 and 0.9 per cent [Katus, Puur, Sakkeus, Silver 1995].

35. Low levels of item-specific non-response reflect the ability of respondents to answer the questionnaire, and perhaps also a positive interaction with the interviewer. To judge upon the accuracy, however, the answers must be verified against external sources. In the case of ELFS, the use of the 1989 census microdata for a sampling frame made it possible to match the survey records with characteristics recorded at the time of the census, January 1989. Considering the aims of the labour force survey, we concentrated on the consistency of records with respect to economic activity.

36. Altogether there were 830 (8.6 per cent) misclassified records. In 522 cases (5.4 per cent) the respondent was active according to the census but appeared non-active in the survey, 308 cases (3.2 per cent) were characterised by opposite situation. Reflecting a systematic bias, the census-based level of economic activity appeared 2.2 per cent higher than the survey-based. Explanation to the higher labour force participation observed in the census was sought from socio-demographic characteristics of misclassified respondents. The analysis revealed the bias being concentrated among women aged 20-39, particularly among young women in their twenties, and among rural residents around retirement age.

37. Higher census activity rates of young women reflect the discrepancy of definitions between the two sources rather than response error. In the 1989 Soviet census, women on partially paid maternity leave (up to 18 months) were classified as economically active [Puur 1995]. In the survey they were considered active only during the first four months i.e in the period when entitled to benefits equivalent to full salary.

38. Higher labour force participation rates among older rural workers have different explanation. Analysis of census records showed that a considerable part of these respondents had been engaged in so-called individual auxiliary farming (privately run small-scale agricultural production). Although the production of the auxiliary farm sector was included in the gross domestic product, such an activity was publicly not regarded as employment in the Soviet period. In official census tabulations, the respective category of population was not included in the number of economically active but presented separately. Those employed in auxiliary farms were classified into economically active only later, when, in the framework of the UN/ECE Dynamics of Population Ageing project, the census data were reconciled with international definitions [Katus, Puur, Sakkeus 1995c]. Perhaps reflecting the official attitude, some of the respondents engaged in auxiliary farm production classified themselves as economically passive in the survey.

39. Among other respondent categories, the misclassification in opposite directions was of approximately the same magnitude and cancelled out. Exclusion of women on maternity leave and rural workers not reporting activity in auxiliary farms revealed the same rate of labour force participation (69.1 per cent).

40. For comparative purposes, we calculated the mismatch between census and survey records also for some other characteristics. Thus, 348 respondents (3.6 per cent) had non-identical values for year of birth, 312 respondents (3.2 per cent) for ethnicity and 969 (10.1 per cent) for marital status. Being evidently caused by random errors at different stages of data collection, differences in birthdate did not display any systematic pattern. However regarding marital status, some systematic bias was evident. Compared to the survey, the census over-estimated the proportion of singles and underestimated the proportion of persons living in partnership by 0.7 per cent. Cross-classification of census and survey responses revealed a substantial number of cohabiting respondents classified as single in the survey. Most probably, the bias was introduced by different formulations of the question about marital status in two sources.

41. In our opinion, presented findings support the idea according to which errors in individual responses, caused by inaccurate recall or other reasons, do not necessarily bias aggregate results in a way that would violate the use of the data for statistical purposes. Perhaps not so common in the field of labour force, retrospectively collected data have been widely accepted in demographic surveys on fertility and reproductive behaviour, family formation and dissolution. Currently, this approach is being applied in more than 20 countries in the framework of the European Family and Fertility Survey, coordinated by Population Activities Unit, United Nations Economic Commission for Europe [UN/ECE 1992].

42. From the methodological point of view, apart from the possibility to estimate the accuracy of survey data, matched records allow for the evaluation of potential discontinuity which will inevitably be introduced into census time series due to the transfer from old Soviet to new international definitions.

VIII. Consistency of Labour Force Estimates

43. The ELFS survey programme implied two frameworks for the measurement of economic activity. Regarding the survey period, the standard version of current activity framework was applied. According to this framework, all persons who had worked for profit or pay for at least one hour during the reference week, or were temporarily absent from work were classified as employed. Unemployed were persons who had been without work, who had taken some steps to find a job and who could start the job within two weeks, or who had taken steps to establish one's own business. Details concerning the treatment of borderline categories will be available from Methodological Report [Katus, Noorkõiv, Puur 1996].

44. Current activity measurement framework has been designed to measure labour force status of the population at one point in time. Due to the difficulty of applying the situative criteria embedded in it beyond the present moment, retrospective measurement of economic activity requires separate approach. Instead of recording the status of respondents at predetermined time intervals, it built on the recording of events that mark status changes and their timing. Basic transitions between labour market

states included employment-to-employment, employment-to-unemployment, employment-to-nonactivity, unemployment-to-nonactivity, nonactivity-to-employment and nonactivity-to-unemployment transitions. Periods between these transitions correspond to periods of employment, unemployment and non-activity appearing in the questionnaire.

45. The definitions of employment, unemployment and non-activity were kept as consistent as possible between the two frameworks. Still, as a compromise between respondents' expected recall ability and measurement objectives, some modifications had to be introduced in the retrospective measurement of unemployment and second jobs. Thus, in the case of intermittent job search, it was considered hardly possible to receive answers about changes in the availability to work. It could have required splitting unemployment periods into several small parts implying unacceptable respondent burden. To account for the potential impact of this simplification, a separate question about the continuity of the job search was included in the unemployment section. Another modification concerned second jobs which in many cases tend to have an intermittent nature. To reduce respondent burden, information on temporary absences from such jobs was not attempted; regarding casual and temporary second jobs, information was limited to start- and end date of the job, and the number of months he/she had actually been working between these dates. Periods of temporary absence from main jobs exceeding one month were fully documented.

46. As the frameworks for retrospective and current activity measurement were operationalised in different sections of the questionnaire, it proved possible to evaluate their consistency. To do this we calculated the distributions of respondents into employed, unemployed and non-active independently from both sections. Based on the reference week and the end of the retrospective period, both distributions refer practically to the same time point and should be identical. In fact, according to the retrospective measurement framework, 60.0 percent of survey population was employed, 6.4 per cent was unemployed and 33.6 per cent non-active. The current activity framework resulted in 60.3 per cent employed, 5.8 per cent unemployed and 33.9 per cent non-active. Compared to the latter, the retrospective measurement seems to have somewhat overestimated unemployment against employment and non-activity. As the time reference for both distributions is the same, the discrepancy results from the frameworks. To provide an insight into its causes, the analysis of misclassified observations was performed.

47. Apart from the net difference, the analysis revealed several directions of misclassification. Regarding employment, 36 (0.4 per cent) retrospectively employed respondents were considered non-active according to the current activity framework. In most cases, it happened due to underreporting of temporary absence from employment in the retrospective section; where the duration of absence exceeded four weeks, persons were considered non-active (prolonged lack of work, lay-off, seasonality etc). On the other hand, 58 (0.6 per cent) retrospectively non-active respondents appeared as employed during the reference week. For the majority of them the misclassification resulted due to intermittent second jobs in which persons were engaged during the reference week. In processing the retrospective section, intermittent

second jobs were considered insufficient to classify persons into economically active on a permanent basis. Apart from the underreporting of temporary absences, this discrepancy reflects the decision not to split irregular second jobs into a series of short employment episodes. As the impact of irregular second jobs exceeds that of long absences, the current measurement framework produced slightly higher estimates of employment.

48. With respect to unemployment, 71 (0.7 per cent) respondents who were classified as unemployed at the end of retrospective section appeared non-active in the reference week. For these persons, the most common reasons of inactivity were illness, the need to take care of family members and discouragement. As a substantial proportion of mentioned inactivity seems to have a temporary nature, the misclassification in this direction would have been smaller if a reference period longer than one week had been applied to the job-search criterion. Misclassification due to unavailability to employment was lower than any of the above-mentioned reasons separately taken, suggesting that the non-application of the availability criterion in the retrospective measurement framework did not introduce any substantial incomparability. The latter is emphasised by the fact that the field period was extended to the Spring period when school-leavers start a job search. A few currently unemployed respondents were misclassified into inactive in the retrospective part; mostly these were discouraged workers who had resumed job searches lately.

49. Misclassification between unemployment and employment was relatively rare. Due to irregular second jobs, 11 retrospectively unemployed respondents (0.1 per cent) were classified as employed during the reference week. The proportion of misclassified cases appeared too small to produce any notable patterns by respondent characteristics.

50. As misclassification in opposite directions tends to cancel out and diminish the net difference, achieved comparability of the two measurement frameworks was considered acceptable, except for the underreporting of temporary absence from employment. The retrospective approach and the applied version of the survey instrument seem to have worked fairly well for characteristics that are relative stable at a particular job, and less well for more variable characteristics.

IX. Reconstructed Time Series of Basic Labour Market Indicators

51. Given the results of the consistency analysis, it was decided to use the retrospective data for the reconstruction of quarterly time series of basic labour market indicators for the period 1989-1995. The set of indicators included the levels of economic activity, employment, unemployment, distributions of employed persons by industry, occupation, status in employment, sector of ownership and job origin. In our calculations, each quarter was represented by the central month (for an illustration see Figures 1-6).

52. According to the results, over these years the level of economic activity has dropped from 85.9 per cent to 82.2 per cent for working-age

males and from 81.9 per cent to 74.8 per cent for working-age females in Estonia. Age-profiles of economic activity reveal the most significant decline in activity rate among the older workers while prime age groups have been influenced more by increased unemployment.

53. Consistent with economic statistics on the production volumes and structural change, the emergence of unemployment took place primarily during 1992-1993. Subsequently, the unemployment rate has stabilised around 9 per cent of economically active population, exceeding twice the level of job seekers registered at the Employment Office and more than four times the level of benefit receivers. Seasonal fluctuations in the numbers of beneficiaries derived from the survey showed quite a good consistency with respective statistics compiled by the Employment Office. Of the total unemployed, more than one third had been looking for a job more than 12 months at the end of 1994.

54. Reflecting the changes in demand and reorientation of trade flows, the distribution of employed persons by industry reveals a continuous decline in the primary sector, and increase in the tertiary sector, particularly in trade and services. By the end of 1994 almost half of the employed worked at private enterprises and this proportion continued to grow. Employees made up more than 90 per cent of the labour force. Compared to other aspects of employment, the occupational distribution has changed to a lesser extent.

55. In providing a picture of the economic activity of the population and monitoring trends in this activity over time, the presented application is traditional to the labour force surveys. Such series of snapshots reveal rich and varied pictures of the labour market conveying, among other things, information on the nature of employment, on the participation of particular subgroups of population, characteristics of unemployed and economically non-active population.

56. Compared to data collected on a continuous basis, retrospective measurement has an advantage of cost-efficiency which is particularly important for a small country living under strict financial limitations of a transition economy. To collect similar quarterly data on a continuous basis, one would have to conduct approximately 35 thousand interviews each year starting from 1989. From ELFS, we have been able to produce time series also on a monthly basis, equivalent to an even larger number of interviews per year. It must be noted that time series constructed from retrospective data are not influenced by potential biases introduced in the composition of sample population due to rotation.

57. Another advantage of the retrospectively collected data not addressed in this paper, is their capacity to produce estimates on labour force dynamics. In economies where labour markets are undergoing significant structural change, data on dynamics can provide an insight to the nature of labour mobility among the population and the operation of labour markets. With ELFS data, it is possible to produce estimates of transitions between labour market states, sectoral, occupational and other types of labour mobility. Methodologically, longitudinal work histories do not introduce

problems that are common to records-linkage from consecutive surveys, among them the possibility of non-representative sample, substantial upward biases in estimates of status changes and the censoring of information on the inter-survey period [Lemaitre 1994]. Indeed, the drawback of the retrospective approach is the difficulty in producing estimates on more variable situative characteristics. Indeed, the drawback of the retrospective approach is a considerable timelag between changes in the labour market and the moment when the information on them reaches users.

58. Currently, the Working Group for ELFS is discussing the possibilities to continue such approach in the next round to cover the changes that have occurred in Estonian labour market since the beginning of 1995. Preparations involve methodological analyses to improve the survey instrument and elaboration of employment, unemployment and non-activity definitions in the Estonian setting. Although the Working Groups for EFFE and ELFS have established a cooperation between the research community, Statistical Office and other government agencies, the principles of such cooperation have not yet been rooted. After the reorganisation of social and population statistics on a large scale has failed in Estonia, the willingness of the Statistical Office to cooperate with the scientific community has noticeably decreased [see Katus, Puur, Sakkeus 1995b]. Therefore, the continuity of the undertaking is not yet secured.

X. Concluding Remarks

59. Due to the characteristics of the statistical environment, the preparation and implementation of ELFS had in several aspects to go beyond an individual data collection exercise. Summarising the previous stages of the Project, several results related to the survey and statistical organisation in general should be mentioned. Perhaps some of them may be relevant to other countries of the former Soviet Union starting their labour force surveys relatively late.

60. With respect to survey contents, the inclusion of retrospective sections has allowed for the reconstruction of the trends in basic labour market indicators since the beginning of the transition period which otherwise would have been uncovered with relevant information. From a financial point of view, the addition of the retrospective supplement was considered cost-effective compared to collecting the same amount of information by means of a continuous survey over six years.

61. Analysis of the prevalence of recall problems and comparisons with external sources have shown that respondents have been able to provide information with reasonable accuracy. Errors in individual responses do not necessarily bias aggregate results in a way that would violate the use of the data for statistical purposes. Estimates based on retrospective measurement and current activity framework proved to be quite close, suggesting that the results of retrospective measurement can be used to monitor the trends in economic activity, employment, unemployment and non-activity as well as in sectoral, occupational and employment status distributions of the labour force. The applied survey instrument proved less suited to the retrospective

measurement of temporary absence from employment and other more variable characteristics.

62. In the further analyses, collected retrospective data are expected to provide evidence concerning the patterns of job mobility during the economic transition. Work histories of the respondents are expected to allow for an investigation into the determinants of different types of labour market transitions, identifying the groups of population who have been particularly hard-hit during the transition as well as the effects of the labour market policies and programs designed to help them. Longitudinal work histories allow to avoid methodological problems that are common to the approach based on the records-linkage from consecutive surveys, among them the possibility of non-representative sample, substantial upward biases in estimates of status changes and the censoring of information in the inter-survey period.

63. With respect to sampling procedures, ELFS showed the 1989 census microdata, despite their known discrepancies and relative outdatedness, could be used to support the survey as a sampling frame. Given the extensive background information available for both respondents and non-respondents, it allowed for the analysis of non-response and evaluation of data quality.

64. As to data collection, the implementation of the ELFS fieldwork underlines the exclusive attention that must be given to quality considerations. Intensive training and close supervision proved to be unavoidable to ensure the quality of the data. Exceeding to a significant extent the needs of a particular survey, these efforts contributed to the development of a governmental network of interviewers based on the county statistical bureaux.

65. From an organisational point of view, an integration between researchers and governmental officials was established. Independent of the middle level administrative bureaucracy, the Working Group was given the responsibility for all stages of the survey planning and implementation. Aside from the substantive aspects the Working Group also managed the financial resources allocated for the survey. In conditions of underdeveloped official structures, such a project organisation outside the regular programme proved to be efficient. Without these organisational arrangements it would hardly have been possible to carry out such a statistical exercise.

66. Even though the Working Groups for EFFS and ELFS have established a cooperation between research community, the Statistical Office and other government agencies, the principles of such cooperation have not yet been rooted. Therefore, the continuity of the similar undertakings is not yet secured.

References

Anderson, Barbara, Kalev Katus and Brian Silver (1994). Developments and Prospects for Population Statistics in Countries of the Former Soviet Union. **Population Index**, Vol.60, No.1, pp.4-20.

Blossfeld, Hans-Peter, Alfred Hamerle and Karl Ulrich Mayer (1989). **Event History Analysis. Statistical Theory and Application in the Social Sciences**. Hillsdale, New Jersey, Lawrence Erlbaum Associates Publishers.

Darsky, Leonid (1986). **Evolucija rozhdænosti v SSSR po dannym obshesojuznyh vyborochnyh obsledovanii**. Paper presented to Deuxième Séminaire Franco-Soviétique de Démographie. Suzdal.

Inno, Jaano (1995). Eesti Vabariigi rahvastikuarvestus. **Rahvastikustatistika teatmik**. No.2/95. Tallinn, Estonian Statistical Office. [Population Statistics in Estonia].

Lemaitre, George (1994). **Data on Labour Force Dynamics from Labour Force Surveys**. Paper presented to the OECD/Eurostat Workshop on Harmonised Labour Force Surveys in Central and Eastern European Countries. Budapest.

Katus, Kalev and Allan Puur (1993). **The 1989 Estonian Population and Housing Census: Data Description**. RU, Series A, No.33. Tallinn, EKDK.

Katus, Kalev, Allan Puur, Luule Sakkeus and Brian Silver (1995). **Estonian Family and Fertility Survey. Methodological Report**. RU, Series A, No.39. Tallinn, EKDK.

Katus, Kalev, Allan Puur and Luule Sakkeus (1995a). **Estonian Family and Fertility Survey. Standard tabulations**. RU, Series C, No.6. Tallinn, EKDK.

Katus, Kalev, Allan Puur and Luule Sakkeus (1995b). **Comparability of Population Data in Previous USSR: Case of Estonia**. Paper presented to the European Population Conference, Milan, September 4-8, 1995.

Katus, Kalev, Allan Puur and Luule Sakkeus (1995c). **Population Ageing in Estonia. Standard tabulations**. RU, Series C, No.7. Tallinn, EKDK.

Katus, Kalev, Rivo Noorkõiv and Allan Puur (1996). **Estonian Labour Force Survey. Methodological Report**. Forthcoming.

Katus, Kalev, Jüri Kõre, Marje Pavelson, Allan Puur and Luule Sakkeus (1993). **Isikustatistika ümberkorraldus Eestis**. [Reorganisation of Individual Statistics in Estonia]. Report for the Governmental Commission on Population and Social Statistics. Tallinn.

Puur, Allan (1995). Labour Force Participation Trends in the Baltic States 1959-1989. In: Christer Lundh (Ed). **Demography, Economy, Welfare**. Lund, Lund University Press. Pp.285-303.

Tuma, Nancy and Michael Hannan (1984). **Social Dynamics. Models and Methods**. New York, Academic Press.

UN/ECE (1992). **Family and Fertility Studies in the Countries of the ECE Region**. A Project Undertaken by the Population Activities Unit of the Economic Commission for Europe. Geneva, United Nations.

FIGURE 1. ACTIVITY RATE
 Estonia 1989-1995

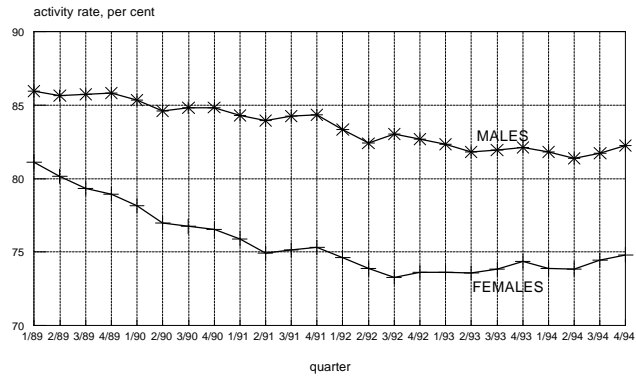


FIGURE 2. CHANGE IN AGE-SPECIFIC ACTIVITY RATES
 Estonia 1989-1994

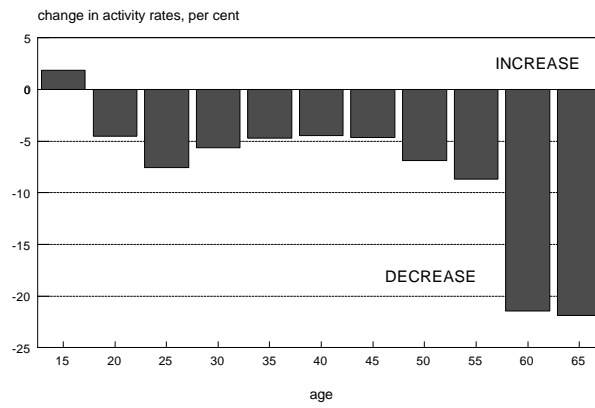


FIGURE 3. UNEMPLOYMENT RATE
Estonia 1989-1994

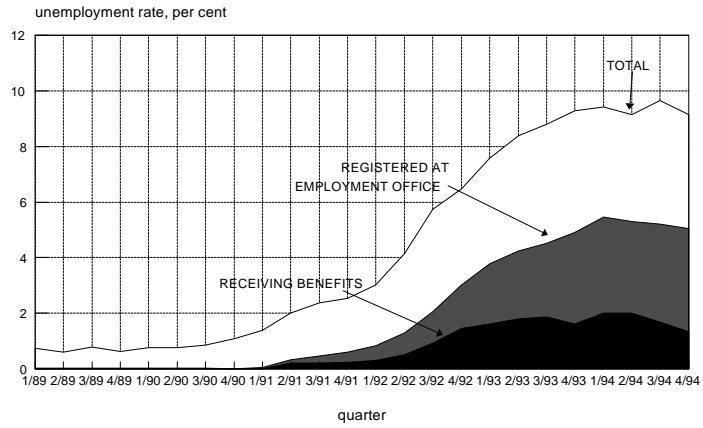


FIGURE 4. PROPORTION OF DISCOURAGED WORKERS
Estonia 1989-1994

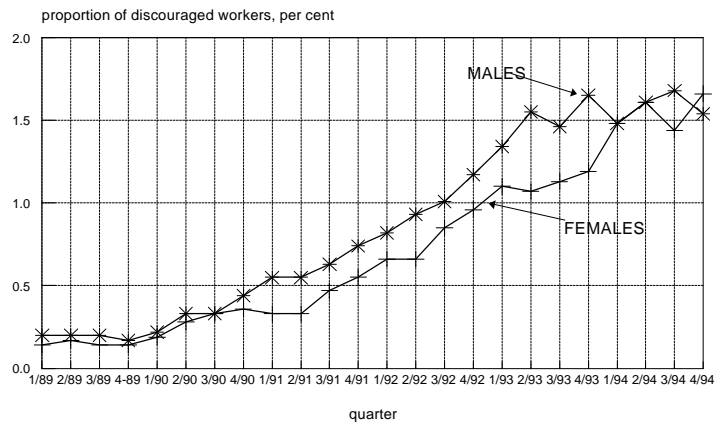


FIGURE 5. EMPLOYMENT BY ECONOMIC SECTORS
Estonia 1989-1994

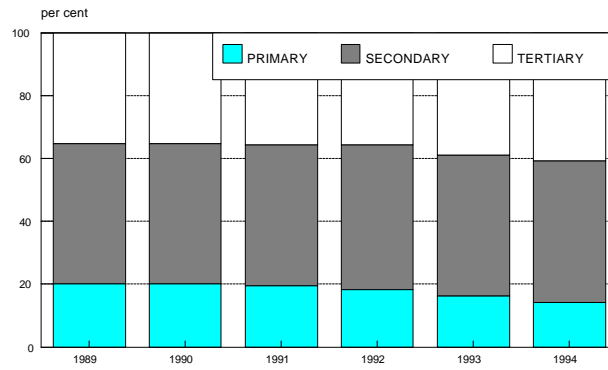


FIGURE 6. PROPORTION OF SELF-EMPLOYED
Estonia 1989-1994

