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4. CHANGES IN THE LABOUR FORCE SURVEY 2012

General

In January 2012, the Central Bureau of Statistics (CBS) completed a transition from a quarterly system of measuring labour force characteristics to a new and improved monthly system, in accordance with the latest international recommendations on employment and unemployment. In addition, labour force characteristics were updated from characteristics of the civilian labour force to characteristics of the total labour force. The main changes were: adjusting the definition of the population, significantly increasing the monthly samples, expansion of the geographic distribution, and use of more advanced statistical methods in sampling, in the interviewing model and in estimation of the data (see Table 4/a below). These changes, which are based on statistical considerations, led to logistical and operational changes, such as improved technological systems, expansion of the work teams, changes in interview methodology, work procedures, and more.

Table 4/a.- Main Changes in the Monthly Survey Compared with the Quarterly Survey

Subject	Quarterly Survey	Monthly Survey
Definitions of labour force characteristics	Characteristics of the civilian labour force	Characteristics of the total labour force (including those in military service – compulsory service or permanent army)
Mode of investigation	Each dwelling was investigated four times: two consecutive quarters, a break of two quarters, and two more consecutive quarters	Each dwelling is investigated eight times. Four consecutive months, a break of eight months, and four more consecutive months
Current sample size	Approximately 22,500 persons a quarter on an ongoing basis	Approximately 21,500 persons a month on an ongoing basis
"Permanent" samples	Sub-sample of approximately 3,900 persons from the sample census file (socio-economic data) of the 1995 Population and Housing Census	Approximately 26,000 persons from the sample census file (socio-economic data) of the 2008 Population Census
Main sampling frame	Municipal tax files	Dwellings and Buildings Register, after geocoding of dwellings to statistical areas

Subject	Quarterly Survey	Monthly Survey
Use of spatial information for drawing the main dwelling sample	Files sorted by geographical information from the municipal tax files	Integration of the statistical area obtained from geocoding of dwellings, with the geographical information in the municipal tax files
Number of sample localities	Approximately 370 localities a quarter	Approximately 470 localities a month
Investigation period per sampling unit	The determinant week and three more weeks	The determinant week and one more week
The estimation method	No use of information on labour force characteristics from previous stages of the survey	Using a **composite estimator** based, among other things, on information about labour force characteristics from a previous stage of the survey. Changing the weighting strata (such as eliminating a separate weighting stratum for immigrants)

The transition to the new system led to a "break in the series". As a result, extreme care must be taken in comparison of past and present data. With the transition to the monthly survey, there were changes in the indices of participants in the labour force, employed persons, and unemployed persons in comparison with the past. For the most part, the break in the series could be attributed to the above-mentioned reasons. That is, the changes were the result of a revolutionary change in measurement, and not the result of economic developments in Israel at that time.

Notwithstanding the revolutionary change in measurement, the trend revealed in the monthly survey remained the same as the trend revealed in the previous quarterly survey. Strange as it may seem, from a statistical point of view it is possible that there is no difference between the numbers of the past and the present numbers. Sampling errors deriving from the use of different samples to measure the same phenomenon at the same time of the calendar year can cause the official numbers to move up or down by approximately 0.5%. Additionally, there are many different psychological influences related to the work methods of the survey, both from the perspective of the interviewers and from the perspective of the respondents. This highlights the importance of examining trends over time in official statistics, because it is necessary to exercise extreme caution in using absolute data and the rates derived from those data.

To enable cautious comparison for the purpose of continuous trend analyses, special coefficients were calculated (see "Chaining Coefficients between the Quarterly and Monthly Labour Force Survey Data" below). The coefficients were calculated on the basis of the 4th quarter of 2011, when two full surveys (quarterly and monthly) were conducted simultaneously. However, it is important to bear in mind that the use of chaining coefficients for other periods is based on the assumption that the behavior of persons in the labour force during those periods was similar to their behavior in the 4th quarter of 2011.

It should be noted that the new data do not detract from the validity, reliability, or quality of the quarterly data obtained in the past, which were based on the best methods available at the time. Both the current and past data are official data for the State of Israel.

Reasons for the Transition from a Quarterly to a Monthly Labour Force Survey

The quarterly survey is a survey in which the countrywide coverage of the sample is completed every quarter, whereas the sample coverage in the monthly survey is completed every month. Until December 2011, the CBS published monthly data from the quarterly survey. This method did not provide a basis for ascertaining whether changes in the monthly data during a quarter occurred because the sample coverage was partial, or whether there was a real change in employment and unemployment rates. The decision to change the survey was made in order to improve the data that are published, and in order to provide a better database for decision-makers and other users. A monthly survey requires a larger sample (about three times larger) and covers more localities. As such, it appears that the results of the monthly survey provide a better reflection of the situation of the market than the results of the quarterly survey.

Another factor that led to the decision to update the Labour Survey was Convention 160 of the International Labour Organization (ILO) from the mid-1980s,[1] which deals with the process of reporting labour market statistics data. In the Convention, it was recommended that statistics bureaus change the method of measurement and adopt the approach of measuring the total labour force. On 23 December 2009, Israel ratified this Convention.[2] Concomitantly, Israel began the process of joining the

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1   International Labour Organization (1985, June). *Labour Statistics Convention.* 1985 (No. 160). Adopted by the Seventy-first ILC session Geneva. Retrieved from: www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100::NO::P12100_INSTRUMENT_ID:312305

2   *Ratification of the Labour Statistics Convention.* 1985 (No. 160) of the ILO. Retrieved from: http://www.pmo.gov.il/Secretary/GovDecisions/2009/Pages des1105.aspx

OECD. As a result of that process, work procedures were examined by international experts. These experts, together with experts from various organizations in Israel who advise on official statistics, recommended that the CBS adopt the approach of **measuring the total labour force** and recommended the **transition to the monthly labour force survey** instead of the quarterly labour force survey that had been conducted until that time. The processes of planning, methodological development, and adaptation of computer systems took about six years. The process of transition to the monthly survey took place with the ongoing advice and supervision of the Public Council for Statistics, and the method was presented to experts and representatives of the public. In April 2011, the CBS began the transition process, which took about six months, and in the last quarter of 2011 the two surveys were conducted concurrently.

Differences between the Monthly and Quarterly Surveys

1. **Differences relating to the sample:** The planning of the survey sample (including the rotation method); sample size; geographic distribution of the sample; distribution of the sample within the localities; the use of additional variables in the sampling process; changing of the permanent samples in the survey (institutions and those living outside of localities), etc.

2. **Differences relating to the data collection process:** Data collection in face-to-face interviews versus phone interviews; increase in the number of interviewers; change in the profile of the interviewers; logistical changes, including a change in the structure of the unit dealing with data collection; addition of new modules for computerized management of the survey; reducing the investigation period in questionnaires; changes in the interview quota for interviewers; changes in the method of questioning about the respondents' workplace and profession in repeated interviews; imputations from previous stages of interviewing for demographic data, data on education, etc.

3. **Differences relating to the data cleaning process (checks and editing):** Designing new computerized systems; addition of checks for demographic variables versus Population Register data; addition of logical checks to test for correspondence of reports at different stages of interviewing; use of an automatic coding system for data on industry and occupation, etc.

4. **Differences relating to the system of calculating weighting coefficients:** Changes in the weighting method; changes in calculating population estimates in order to calculate the weighting coefficient; changes in the weighting cells, etc.

5. **Differences relating to changes in the definition of labour force characteristics:** Transition to measuring the characteristics of the total labour force instead of the civilian labour force; addition of persons serving in the military (compulsory military service or permanent army) to the labour force as full-time employed persons.

6. **Differences related to seasonal adjustment and trend calculation:** Transition to seasonal adjustment of monthly series; use of monthly data from the quarterly survey, etc.

As can be seen, there are many differences which make it difficult to compare the findings from the two surveys. Nevertheless, there are several factors that explain the gaps between the series:

1. **The transition from the civilian labour force to the total labour force** (i.e., including persons serving in the military), in order to make better comparisons with the data published in other countries. In order to avoid publishing data on the size of the military, transparency is somewhat compromised with regard to the size of the sub-populations and data relating to industries.

2. **In the monthly survey, the population was updated according to the results of the latest Population Census, so that the size and characteristics of the population are different in the two surveys.** For example, examination of the civilian labour force data in the two surveys reveals an increase in the number of employed persons as well as in the number of persons who sought work, although the increase in the number of work seekers was greater.

3. **The monthly survey includes more localities on the periphery than the quarterly survey.** This may have caused a difference between the two surveys in the findings due to different employment and unemployment rates.

4. **The ratio of those who responded by phone to those who responded in face-to-face interviews changed between the two surveys**. The difference between responses obtained in the telephone survey and the responses obtained in face-to-face interviews might influence the results of the survey. People tend to respond differently in face-to-face interviews than they do in telephone surveys, which allow for a certain degree of anonymity.

There are other possible explanations regarding the causes of the differences in the results of the two surveys, but they are not as plausible. In the analyses of survey data, an attempt will be made to conduct a better analysis of these causes, and to quantify the extent of the differences more precisely, not only at the beginning stage but also over time.

Notwithstanding the above, the trend of employment and unemployment is the same in both surveys, and the main difference is in the base point (i.e., absolute numbers or levels derived in terms of percentages), which are used to calculate the trend. Therefore, the findings obtained to date enable us to assume that the difference in the surveys lies in the base point and not in changes over time.

Differences in Measurement of Labour Force Characteristics in Other Countries versus Israel

Measurement of labour force characteristics is conducted throughout the world according to the recommendations of the International Labour Organization (ILO), including OECD countries (there is no separate method of measurement in OECD countries).

In the ILO, there are two methods of measuring labour force characteristics: one is measurement of the civilian labour force, and the other is measurement of the total labour force (including those serving in the military – compulsory service or permanent army). In Israel, from the beginning of the survey in the 1950s and 1960s until the end of 2011, it was decided to measure the civilian labour force.

Examination of the databases of the ILO shows that in Australia, there was a similar process of transition from a quarterly survey to a monthly survey in 1977-1978. The quarterly survey was conducted simultaneously with the monthly survey for one month. The results revealed that the unemployment rate in the last quarter of 1977 was 5.5%, and the unemployment rate in February 1978 was 7.5%.

Chaining Coefficients between Quarterly and Monthly Labour Force Survey Data

With the transition to a monthly Labour Force Survey, there was a "break" in the data series due to changes in the methodology of the survey and in the definitions of labour force characteristics.

By conducting two parallel surveys in the 4th quarter of 2011, it was possible to calculate chaining coefficients for comparison of the data from the monthly survey with the data obtained in the past from the quarterly survey. Table D in the Introduction Tables displays the chaining coefficients for quarterly series, which appear in the Labour Force Surveys Quarterly (only on the CBS website). To obtain an estimate adjusted to the definitions of the monthly survey, the corresponding estimate that was obtained in the 4th quarter (in the quarterly survey format) should be multiplied by the corresponding chaining coefficient, as in Table D in the Introduction Tables.

The percentage of change between the estimate obtained in January 2012 (based on the monthly Labour Force Survey) and the adjusted estimate of the 4th quarter of 2011 (obtained after multiplying by the chaining coefficient) is calculated as the difference between the two, divided by the 4th quarter estimate (after multiplying by the chaining coefficient).

For example:

The estimate of the number of participants in the civilian labour force in the 4th quarter of 2011 amounted to 3,216.2 thousand. To obtain an estimate of the participants in the labour force in the 4th quarter of 2011 that corresponds to the definitions of the monthly survey, this number should be multiplied by the chaining coefficient that corresponds to this estimate in the Table (1.091). The result is 3,508.8 thousand.

In January 2012, the number of participants in the labour force was 3,523.4 thousand.

The following is the percentage of change between the quarterly estimate, adjusted to the estimate obtained in January by means of the chaining coefficient:

$$\frac{3,523.4 - 3,508.8}{3,508.8} * 100 = 0.42\%$$

Thus, in January 2012 there was an increase of 0.4% in the labour force, compared with the 4th quarter of 2011 (an increase of approximately 15,000 persons).

It should be noted that chaining coefficients can be used in seasonally adjusted data series and in trend data. To calculate relative indices based on chained data, it is necessary to first calculate the chained data in each of the series (for which the ratios are being measured). These data are then used to calculate the relative index. For example, to calculate the chained percentage of unemployed persons, it is necessary to calculate chained data for the series of participants in the labour force (using the chaining coefficients of the series) as well as for the series of unemployed persons (using the chaining coefficients of the series), and only then to calculate the percentage of unemployed persons out of the labour force using the chained data.