The Labour Force Survey is carried out since 1981. Up to 1997 the survey was producing results only once a year and was carried out during the second quarter of the year. From 1998 onwards the survey is conducted throughout the year producing quarterly results. The main target of the survey is to estimate the distribution of the working age population (15 years and above) into three mutually exclusive and exhaustive groups: the employed, the unemployed and the economically inactive. Moreover, information is collected on demographic characteristics, on main job, existence and characteristics of second job, on educational attainment, on participation in education, on previous working experience and job search.

Since January 2007, ELSTAT announces monthly estimates of the number of employed, unemployed and the unemployment rate. These estimates are produced on the basis of data collected in the quarterly survey.

The quarterly Labour Force Survey collects information from a sample of approximately 27,000 households per quarter. These households are selected through a process called two-stage stratified sampling. This process, in brief, is as follows:

- All the settlements of Greece are divided into three degrees of urbanization: Settlements with a population of 10,000 or more inhabitants, settlements with a population of 2,000-9,999 inhabitants, and settlements with a population up to 1,999 inhabitants.
- Thereafter, each prefecture of the country is divided into 2 or 3 strata, each one consisting of settlements having the same degree of urbanization. Exceptions are urban complexes of Athens and Thessaloniki, which are divided into 31 and 9 strata, respectively.
- At the end, total country is divided into 182 strata. A sample of dwellings is selected within each stratum by means of two-stage sampling. The sample is selected so as all country regions to be represented with respect to their populations.
- First sampling stage comprises of selecting primary sampling units, that is small geographical areas with a population of 70-250 households, and the second stage of sampling selected a sample of households in each unit area. At the second stage, a random (systematic) sample of dwelling is selected within every primary sampling unit.

It is important to note that the Labour Force Survey reflects the employment status of the surveyed people (i.e., whether they are employed, unemployed or inactive) for a certain period: specifically, the respondents are asked to say whether they have worked (even for an hour) during a certain seven day period or if they have been seeking for employment during the same period or the previous three weeks.

This seven day period is called reference week. Reference weeks run from Monday to Sunday and they are specified in a common way for all EU countries. We note that each quarter consists of 13 reference weeks whereas each year of 52 (or 14 and respectively 53 in rare cases).

Reference weeks are assigned to months based on the so called Thursday rule - ie, a reference week is assigned to the month that contains the Thursday of the week. For example, the first reference week of the second quarter of 2015 (Monday, March

30, 2015 - Sunday, April 5, 2015), which includes both March as April days, is finally assigned to April as Thursday of that week is an April day.

Therefore, there is no absolute correspondence between calendar month and Labour Force Survey month. For example, at the following table presenting the 2015 reference weeks of the second quarter 2015, we can see that April includes two days of March and three days of May.

Table 1: 2nd quarter 2015 reference weeks

30/3/2015 -5/4/2015	APRIL	1st
6/4/2015 -12/4/2015	APRIL	2nd
13/4/2015 -19/4/2015	APRIL	3d
20/4/2015 -26/4/2015	APRIL	4th
27/4/2015 -3/5/2015	APRIL	5th
4/5/2015 -10/5/2015	MAY	6th
11/5/2015 -17/5/2015	MAY	7th
18/5/2015 -24/5/2015	MAY	8th
25/5/2015 -31/5/2015	MAY	9th
1/6/2015 -7/6/2015	JUNE	10th
8/6/2015 -14/6/2015	JUNE	11th
15/6/2015 -21/6/2015	JUNE	12th
22/6/2015 -28/6/2015	JUNE	13th

The sample of Labour Force Survey is allocated in such a way so as all regions of the country be represented. Specifically, the following basic rules apply to the sample allocation:

a) Areas with larger population have larger sample (for example, in Larissa prefecture 350 households are surveyed in urban areas while 170 in rural).

b) The sample size in each prefecture is determined taking into account the desired precision (standard error) of estimates. For this reason, the sampling fraction (ie, the percentage of households surveyed as to the total population) is higher in prefectures with small populations.

There is also provision in the survey design to allocate the sample uniformly along time. More specifically, each primary sampling unit is assigned to a specific reference week (and persons residing in this primary sampling unit are asked when surveyed to provide information about employment status for this particular week). When assigning primary sampling units to reference weeks, the target is to have “weekly” samples that are, sample as much as possible, miniatures of the total quarterly sample (e.g., if quarterly sample in Eastern Macedonia region is 3000 households, then weekly sample should be about 3000/13 = 230 households).

Quarterly estimates in Labour Force Survey

Estimates of Labour Force Survey are produced by the reduction of survey results in the total population in private households. This reduction is achieved with the appropriate weighting of survey results.

For each person surveyed a weighting factor is estimated at three stages:

At the first stage, each person is assigned a weighting factor calculated as the inverse probability of selecting the household, where that person belongs, within its corresponding sampling unit.

At the second stage, the above-described weighting factors, of persons within a sampling unit, are modified so as to correct for non-response in the survey. Thus, a non-response correction factor is applied at sampling unit level.

At the third stage, the weighted, at the two previous stages, survey data are adjusted so as to come to certain population totals for the corresponding quarter. These population totals refer to estimates for males/females in five-year age groups for each region (NUTS 3). Each year, these estimates are derived starting from the 2001 census population, also taking into account births and deaths and legal immigration in the meantime.

Monthly estimates in Labour Force Survey

At a first step, monthly LFS estimates are produced with exactly the same way as the quarterly ones, using those sampling units that they are allocated in weeks belonging to that particular month. Thus monthly estimates of certain key figures are produced.

At a second step, the derived monthly estimates are appended to those of the previous months and the resulting time series are seasonally adjusted.

Seasonal adjustment is a statistical technique that removes the seasonal component of a time series, making more visible the underlying trend in the change of a characteristic. The seasonal adjustment of monthly LFS estimates was implemented using Demetra 2.0 software, which has been developed by Eurostat, whereas the derivation of the adjusted time series was made by means of TRAMO & SEATS algorithm.

Key differences between monthly and quarterly estimates

A) The consecutive quarterly samples of Labour Force Survey overlap by 5/6. That is, each quarter 5/6 of the sample surface are units that have been surveyed in previous quarters (from 1 to 5 times), and only 1/6 of units comprises households that have not been previously surveyed. Thus, more accurate assessment of changes observed from quarter to quarter is ensured. In contrast, monthly samples are completely independent - for example, households surveyed in February are all different from households surveyed in January. Therefore, changes that occur between the estimates of two successive months, include large component of random variability due to different sample.

B) The quarterly results are reviewed only when new population estimates are produced based on census results- that is, once every 10 years. That is not the case with monthly results, which are continually reviewed for the following reasons:

- Each time monthly estimates are appended to those of the previous months, the whole time series is recalculated. This recalculation often leads to revisions of estimates for the previous months.
- After the dissemination of the quarterly estimates, their corresponding monthly estimates are modified so that their averages be equal to the quarterly ones.

C) The quarterly Labour Force Survey results are recorded in a database which allows the production of combined results for all characteristics measured by the survey: e.g. estimate of the number of people working part-time by sex, age and region. By contrast, monthly results are a set of specific characteristics for which time series are calculated. Specifically, ELSTAT produces time series (and therefore monthly estimates) for the following characteristics:

- Number of employed males aged 15 – 24
- Number of employed males aged 25 – 74
- Number of employed females aged 15 – 24
- Number of employed females aged 25 – 74

- Number of unemployed males aged 15 – 24
- Number of unemployed males aged 25 – 74
- Number of unemployed females aged 15 – 24
- Number of unemployed females aged 25 – 74

- Number of employed aged 15 – 24
- Number of employed aged 25 – 34
- Number of employed aged 35 – 44
- Number of employed aged 45 – 54
- Number of employed aged 55 – 64
- Number of employed aged 65 – 74

- Number of unemployed aged 15 – 24
- Number of unemployed aged 25 – 34
- Number of unemployed aged 35 – 44
- Number of unemployed aged 45 – 54
- Number of unemployed aged 55 – 64
- Number of unemployed aged 65 – 74

- Number of employed in Decentralized Administration of Macedonia - Thrace
- Number of employed in Decentralized Administration of Epirus - Western Macedonia
- Number of employed in Decentralized Administration of Thessaly – Sterea Ellada
- Number of employed in Decentralized Administration of Peloponissos, Western Greece and Ionian Islands
- Number of employed in Decentralized Administration of Attica
- Number of employed in Decentralized Administration of the Aegean

- Number of employed in Decentralized Administration of Crete

- Number of unemployed in Decentralized Administration of Macedonia - Thrace
- Number of unemployed in Decentralized Administration of Epirus - Western Macedonia
- Number of unemployed in Decentralized Administration of Thessaly – Sterea Ellada
- Number of unemployed in Decentralized Administration of Peloponissos, Western Greece and Ionian Islands
- Number of unemployed in Decentralized Administration of Attica
- Number of unemployed in Decentralized Administration of the Aegean
- Number of unemployed in Decentralized Administration of Crete

Thus, for example, estimation of total number of employed is derived as the sum of the four separate estimations for employed (males 15-24, males 25-74, females 15-24, females 25-74).

Estimations for unemployment rate by gender, age or Decentralized Administration can be also produced from the above time series. However, it is not possible to obtain estimations for other characteristics not covered by these series, e.g. employed males by Decentralized Administration or unemployment rate for females 35 – 44.