

LUXEMBOURG LABOUR FORCE SURVEY - CORRECTION FOR BREAKS IN TIME SERIES

For the Luxembourgish labour force survey the differences between new and old classification for employment, unemployment and inactive totals are considered not to be significant. The change of the questionnaire and the new methodology have no perceptible influence on LFS results, hence no significant break in the time series could be observed that need to be corrected.

We draw this conclusion from:

- a) Qualitative analysis of the pilot study
- b) Quantitative analysis of the time series via Demetra by decomposing the time series

a) Qualitative analysis of the pilot study

The pilot study, which follows the new IESS framework regulation, was carried out under similar conditions as the regular LFS during the third quarter of 2020 over a consecutive period of four weeks, in parallel with the main operation for 2020. This additional data collection applied to a sample of 1.750 randomly selected cases with a total of 559 realized interviews.

The main objective of the Pilot survey was to examine the feasibility of the new questionnaire that is intended to be used in the large-scale study from 2021 onwards. The new flow of questions was reviewed and adapted and the results of the pilot questionnaire were systematically analyzed and reviewed, in particular the questions related to the adapted ILO criteria that can potentially lead to a change in the scope of employment. For example, the reasons for absence for people who have a job but have not worked during the reference week or the precise list of job-seeking activities for the unemployed.

However, in view of the “relatively” small number of realized interviews and the potentially strong impact of the seasonal effect (which in addition would be difficult to quantify) STATEC was not able to quantify the above-mentioned effects, ie estimate the overall change in each indicator by direct comparison between the old and new surveys, via weighting factors. Furthermore, we came to the conclusion that the temporal influence of the pandemic, might make it difficult to draw any quantified conclusions from the pilot study that lasted only four weeks (which also happened to coincide with a lockdown period) for the period of 2021 onwards.

Nevertheless, a detailed qualitative analysis of the responses and the question flows was carried out, in order to detect potential changes and differences. From this assessment, it was concluded that the changes introduced by the new regulations, did not determine statistically significant impacts that would justify further adjustments to the LFS data series.

b) Quantitative analysis of the time series via Demetra by decomposing the time series

Quarterly Employment and Unemployment data is highly seasonal. In addition, the impact of the pandemic in 2020, but also in 2021 can be seen as an irregular component of the time series. In order to estimate the impact of the change in methodology these two above-mentioned factors have to be identified and excluded.

This was achieved by decomposing the time series of the 14 mandatory indicators into a trend-cycle, a seasonal component and an irregular component. The linearized series have been decomposed via an ARIMA-model into its components using TRAMO-SEAT, a model-based seasonal adjustment method.

These adjusted series were compared with benchmark data from administrative sources (IGSS social security register data for employment and ADEM unemployment office register data for unemployment) which has been treated in the same way.

After these adjustments, the comparison of the administrative data and the LFS data for each quarter in 2021 shows only small differences. The decision was made not to correct the differences as it was deemed difficult to specifically quantify the part that is due to the changes of IESS.