Methodological Summary on the Break Correction for Austria

The basis for the break correction of the Austrian LFS is the regular LFS data from 2009 onwards as well as a pilot study conducted in 2020. The pilot study (12,600 respondents) was carried out under similar conditions as the regular LFS during all quarters of 2020. The questionnaire of the pilot study follows the IESS Framework Regulation. Table 1 and Table 2 show the impact factors for the years 2009 to 2019 and for the year 2020 separately. The new definitions of the IESS are more sensitive to the labour market crisis due to the pandemic, therefore different impact factors for the time before and during the crisis are needed.

2009-2019	Q1	Q2	Q3	Q4
Employed, 15-24, Males	1	1	1	1
Employed, 25-64, Males	1	1	1	1
Employed, 20-64, Males	1	1	1	1
Employed, 65-74, Males	1	1	1	1
Employed, 15-24, Females	1	1	1	1
Employed, 25-64, Females	1	1	1	1
Employed, 20-64, Females	1	1	1	1
Employed, 65-74, Females	1	1	1	1
Unemployed, 15-24, Males	1.2563	1.0404	1.0184	1.0641
Unemployed, 25-64, Males	1.2563	1.0404	1.0184	1.0641
Unemployed, 65-74, Males	1.2563	1.0404	1.0184	1.0641
Unemployed, 15-24, Females	1.0582	1.0464	1.0294	1.0617
Unemployed, 25-64, Females	1.0582	1.0464	1.0294	1.0617
Unemployed, 65-74, Females	1.0582	1.0464	1.0294	1.0617

Table 1: Impact factors for the years 2009 to 2019 (rounded to 4 decimal places).

2020	Q1	Q2	Q3	Q4
Employed, 15-24, Males	1	0.9938	0.9926	0.9925
Employed, 25-64, Males	1	0.9938	0.9926	0.9925
Employed, 20-64, Males	1	0.9938	0.9926	0.9925
Employed, 65-74, Males	1	0.9938	0.9926	0.9925
Employed, 15-24, Females	1.0059	0.9693	0.9885	0.9818
Employed, 25-64, Females	1.0059	0.9693	0.9885	0.9818
Employed, 20-64, Females	1.0059	0.9693	0.9885	0.9818
Employed, 65-74, Females	1.0059	0.9693	0.9885	0.9818
Unemployed, 15-24, Males	1.1620	1.1422	1.0634	1.0954
Unemployed, 25-64, Males	1.1620	1.1422	1.0634	1.0954
Unemployed, 65-74, Males	1.1620	1.1422	1.0634	1.0954
Unemployed, 15-24, Females	1.0769	1.2485	1.0587	1.0818
Unemployed, 25-64, Females	1.0769	1.2485	1.0587	1.0818
Unemployed, 65-74, Females	1.0769	1.2485	1.0587	1.0818

Table 2: Impact factors for the year 2020 (rounded to 4 decimal places).

Employment: Impact Factors for 2009–2019

The impact factors ("IF") for employed are equal to 1 for all quarters (q_t, t=1, 2, 3, 4) of the years 2009 to 2019. In order to compute impact factors without the influence of the pandemic the exclusion of employed that were absent from work during the reference week due to a reason connected to the pandemic was necessary (e.g. persons who did not work for an "other reason" like "Lockdown" or "business temporarily closed due to COVID-19"). The comparison of this reduced number of employed in the pilot study and the regular LFS for each quarter in 2020 shows minimal differences (≤1%). These small differences are not corrected because sampling errors overlap potential effects of the changes due to the IESS. Furthermore, from a theoretical point of view, the impact of differences between the two definitions is negligible for the Austrian labour market before the COVID-19 crisis.

$$\mathrm{IF}[\mathrm{q}_t] = 1$$

Employment: Impact Factors for 2020

As the new definitions of the IESS are more sensitive to the labour market crisis due to the pandemic, in 2020 visible differences exist between the number of employed persons in the pilot study and in the regular LFS. The impact factors correspond to the ratio of the pilot study and the regular LFS results for each quarter in 2020.

$$\mathrm{IF}[\mathrm{q}_t] = \frac{\text{Employed persons (pilot) } \mathrm{q}_t}{\text{Employed persons (LFS) } \mathrm{q}_t}$$

Unemployment: Impact Factors for 2009–2019

The number of unemployed in Austria changes significantly due to the IESS, in particular because of the new treatment of persons returning to their previous employer (e.g. seasonal workers). In the aggregates the new definitions of unemployed can be approximated using the regular LFS following the old definitions. For the calculation of the impact factors the number of persons returning to their previous employer (mean of the corresponding quarter, 2009–2019) is added to the number of unemployed (mean of the corresponding quarter, 2009–2019). Furthermore, in order to get close to the new definitions of the IESS the number of persons returning to their previous employer is corrected by two components:

- Availability: the share of persons returning to their previous employer who were available within two weeks.
- Duration of absence: the share of persons returning to their previous employer, who were employed in the following quarter, i.e. who started to work within the next three months. This information comes from LFS longitudinal data sets.

The impact factors for unemployed for the years 2009 to 2019 correspond to the ratio of unemployed according to the old definition plus the corrected number of persons returning to their previous employer to the number of unemployed according to the old definition.

$$\mathrm{IF}[\mathrm{q}_t] = \frac{\overline{\text{Unemployed persons (LFS)}[\mathrm{q}_t]} + \overline{\text{Persons returning to previous employer (corrected, LFS)}[\mathrm{q}_t]}}{\overline{\text{Unemployed persons (LFS)}[\mathrm{q}_t]}}$$

Unemployment: Impact Factors for 2020

For the impact factors for 2020 the formula from the impact factors of 2009 to 2019 is used, additionally supplemented by pilot study outcomes, namely the number of persons employed and not employed respectively. This additional part is the ratio of not employed persons (pilot) to not employed persons (regular LFS). This supplement takes the changed share of persons not employed and therefore potentially unemployed into account.

$$\mathrm{IF}[q_t] = \frac{(\text{Unemployed persons (LFS)}[q_t] + \mathrm{Pr}\,[q_t]) \; * \left(\frac{\text{Not employed persons (pilot)}[q_t]}{\text{Not employed persons (LFS)}[q_t]}\right)}{\text{Unemployed Persons (LFS)}\,[q_t]}$$

Pr…Persons returning to previous employer (corrected, LFS)