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## VELA: ISTAT survey on job vacancies and hours worked

Two main indices on labour input:

- number of hours worked
- hours worked per capita, obtained by dividing the total hours worked with the average number of employee positions occupied in the quarter

Fixed basis indices are obtained for each economic activity sector as a ratio between the value of the indicator in the reference quarter and the average value of the base year.

### Current treatment of SEASONALITY in VELA

Seasonality is strongly present in hours worked.

To produce seasonally adjusted (S.A.) indices is currently used a

#### DIRECT APPROACH

all series are individually seasonally adjusted, both elementary and aggregates

**pro**

✓ **easier** to implement: seasonal adjustment is applied **directly** to the series of interest

**cons**

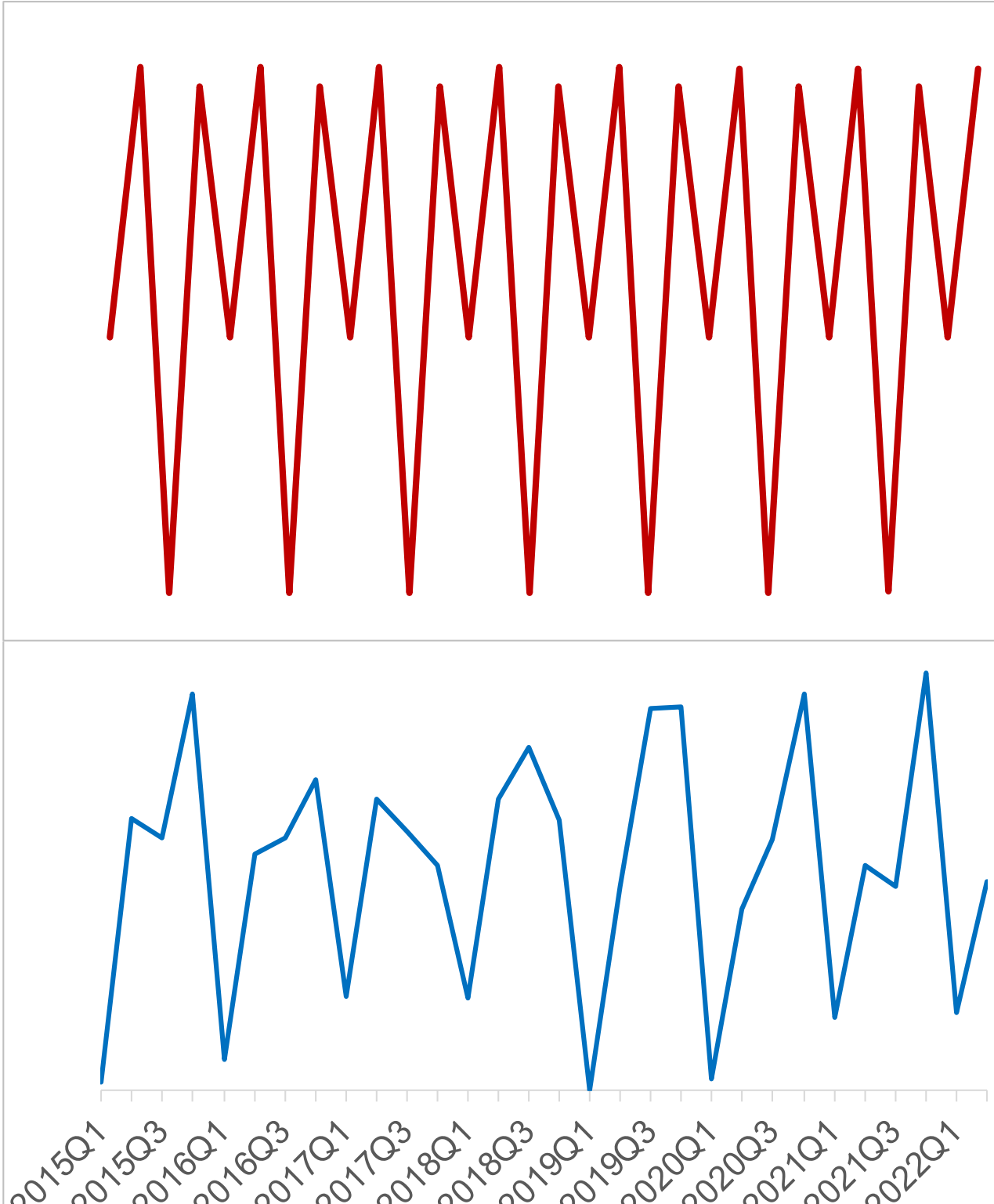
✗ can lead to inconsistency problems (**out-of-range**) between aggregated and component series

### Eurostat guidelines on seasonal adjustment

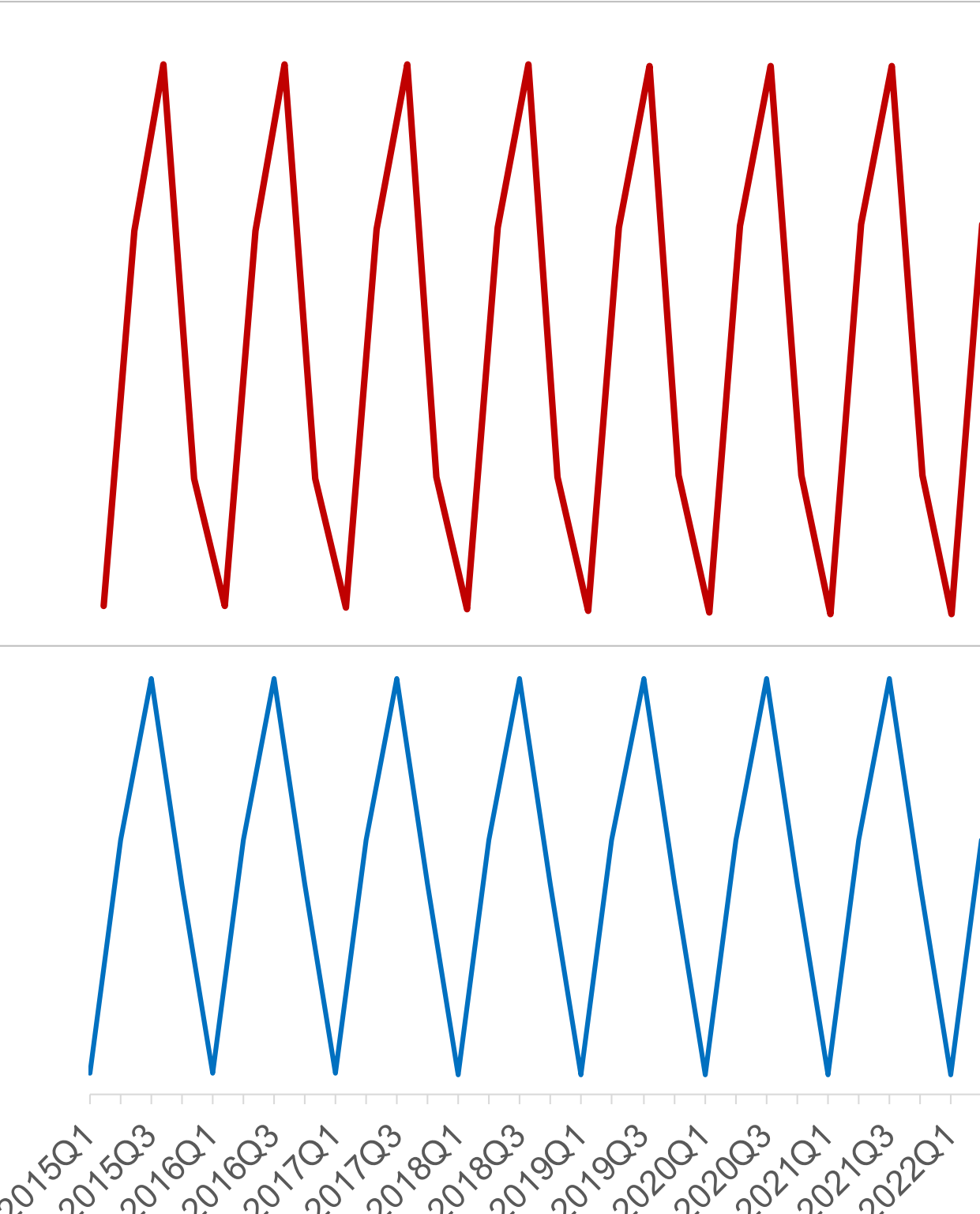
- if the seasonally adjusted component series have similar trends, the direct approach is preferred
- if they have very **different** characteristics and vary in weight over time, the **indirect** approach is preferred

### Example: SECTOR H and SECTOR I

Seasonal patterns in sector H and I: **hours worked** and **number of employees**. Quarterly series, 2015Q1 – 2022Q2



SECTOR H (transport and storage)



SECTOR I (accommodation and food service activities)

#### INDIRECT APPROACH

Each elementary serie is seasonally adjusted; S.A. aggregates series are obtained combining two or more S.A. elementary series

**pro**

✓ internal consistency between aggregate and component series is guaranteed by construction (no out-of-range)

+

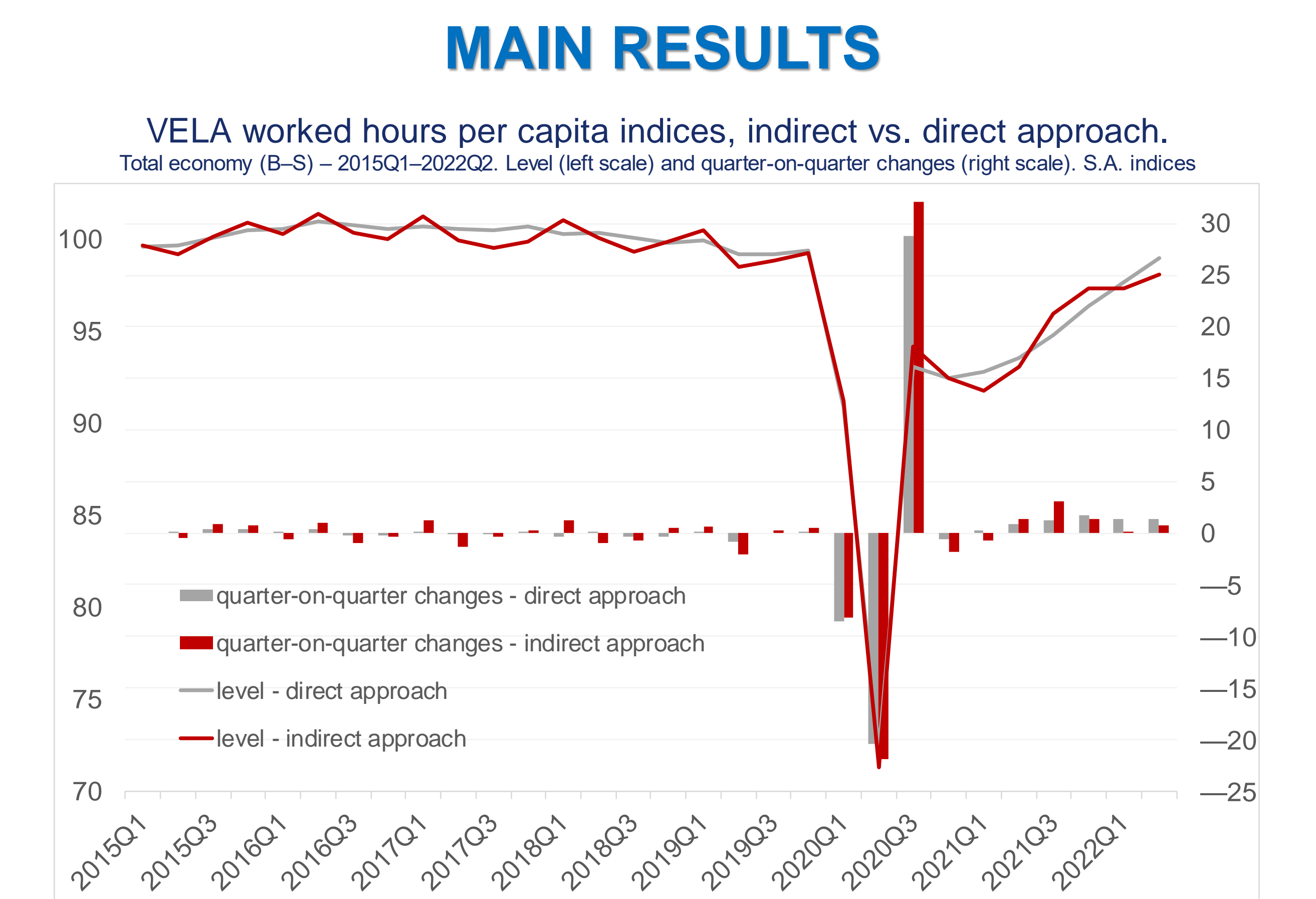
Experience already gained in Istat LFS

↓

#### TEST INDIRECT APPROACH ON VELA SERIES

In the case of hours worked per capita, the application of the indirect approach was **twofold**:

- the S.A. series were obtained by seasonally adjusting the series of **hours** and the series of the **employed** separately and then relating them
- for the numerator, as well as for the denominator, the different series, **disaggregated by NACE Rev. 2** economic activity sections, were S.A. separately and then aggregated



Relative Mean Absolute Revision on the quarter-on-quarter changes, by NACE Rev. 2 sections - average values 2015Q1–2022Q2

NACE REV. 2 sections	RMAR
Mining and Quarrying - B	0,8
Manufacturing - C	0,5
Electricity, gas, steam, and air conditioning supply - D	0,8
Water supply: sewerage, waste management, and remediation activities - E	0,6
Construction - F	0,2
Wholesale and retail trade; repairs - G	0,4
Transportation and storage - H	0,1
Accommodation and food service activities - I	0,3
Information and communication - J	0,6
Financial and insurance activities - K	1,4
Real estate activities - L	0,2
Professional, scientific, and technical activities - M	0,3
Administrative and support service activities - N	0,5
Education - P	0,3
Human health and social work Activities - Q	0,1
Arts, entertainment, and recreation - R	0,5
Other service activities - S	0,3
Industry - B–F	0,4
Services - G–S	0,3
Total Economy - B–S	0,4

### CONCLUSIONS

LFS indirect approach applied to VELA led to important results:

- improved quality of VELA S.A. series
  - ✓ **no out-of-range** vs ~ 20 data points in the current procedure
  - ✓ **no significant revisions** comparing direct to indirect method
- improved quality of official statistics
  - ✓ **integrating methodologies** followed by surveys with different characteristics
  - ✓ better **comparability** of data from **different sources**