

## Box 2.3

### Services Production Index: Relation to Supply and Demand

TURKSTAT started to publish the Services Production Index (SPI) in March 2024 as part of the efforts to reflect the recent changes in the EU Business Statistics legislation to Short-Term Business Statistics. The new index is calculated with an average of 100 in 2021 and published at a monthly frequency starting from 2017. The SPI covers the following service sectors:

- H - Transportation and storage
- I - Accommodation and food service activities
- J - Information and communication
- L - Real estate activities
- M - Professional, scientific and technical activities
- N - Administrative and support service activities

Since the SPI aims to provide information on the volume of output produced in the services sector in a given period, it is adjusted for price effects. In the price-adjustment (realization) process, turnover values at the quadruple activity level according to the NACE Rev. 2 classification and appropriate deflators mostly obtained from the services PPI are used.<sup>1</sup> The SPI is calculated according to the chain index method, and the higher level indices of the NACE Rev. 2 classification are aggregated by using the GDP value added weights of the relevant sectors.

Given that most of the services are by nature non-stockable, the SPI is assessed to provide timely and valuable information on both the demand and supply of services. The share of services value added in national income averages around 57% over the 1998-2023 period, while services expenditures account for about half of final household consumption (45.9% on average over the 2009-2023 period). Considering that national income statistics are released with a two-month lag from the reference period, this new index will be useful in tracking production and demand conditions in a timely manner by providing insights on the production and consumption of services. These insights may constitute an input to the information set considered in the monetary policy decision-making processes. A better understanding of the link between this statistic and the supply and demand for services will help to interpret and use the SPI in a more reliable manner. To that end, this box analyzes the relationship between the SPI and the supply and demand for services.

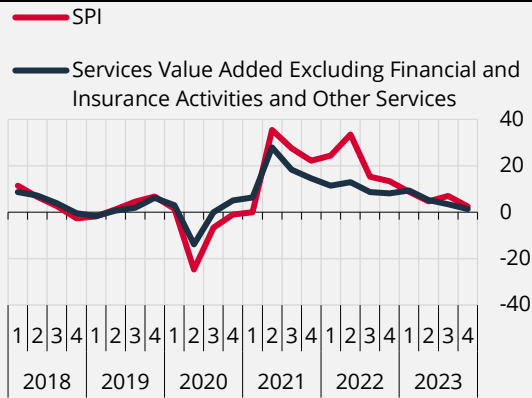
#### SPI and Services Production

The SPI includes all GDP services sub-items except financial and insurance activities and other services. Therefore, it would be more accurate to include the matching services items under GDP by production approach in the analysis when looking at the leading power of the SPI for services production. As a result, services value added in real terms excluding financial and insurance activities and other services items is preferred for the comparison with SPI. An analysis of the annual and quarterly changes in the SPI and the real value added of related services reveals that the series are largely consistent with each other (Charts 1 and 2). The coefficient of correlation between the two series is calculated as 0.93 for annual changes and 0.95 for quarterly changes.

The high correlation between the two series suggests that the SPI may be a good leading indicator for the real services value added. On the other hand, from a supply-side perspective, although the index is consistent with selected services value added items, there are some divergences. It is possible that a significant part of these divergences stems from the fact that the SPI is compiled from turnover and therefore does not fully capture value added.

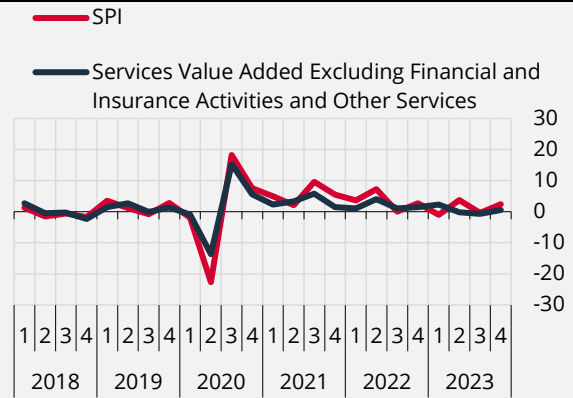
<sup>1</sup> 94.1% of the deflator is the Services Producer Price Index and 5.9% is other price indices (CPI, D-PPI, Non-Domestic PPPI, Agricultural Products PPI, Construction Cost Index).

**Chart 1: SPI and Real Value Added of Services Excluding Financial and Insurance Activities and Other Services (Annual Change, %)**



Source: CBRT, TURKSTAT.

**Chart 2: SPI and Real Value Added of Services Excluding Financial and Insurance Activities and Other Services (Seasonally and Calendar Adjusted, Quarterly Change, %)**



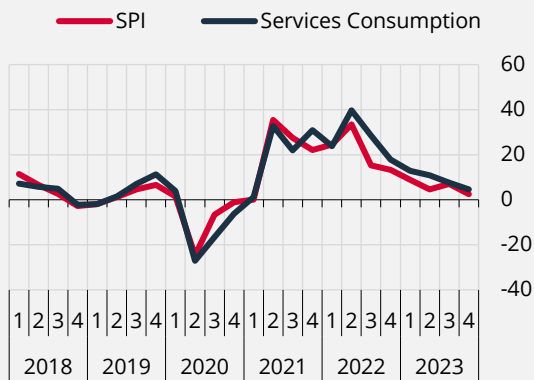
Source: CBRT, TURKSTAT.

**Services Production Index and Services Consumption**

Given that the SPI is calculated on the basis of turnover indicating total sales and that services cannot be stocked due to their nature, it is also considered as an indirect demand indicator in addition to production. Indeed, the coefficient of correlation between annual changes in real services consumption and the SPI is around 0.95, while the coefficient of correlation between quarterly changes is 0.92.

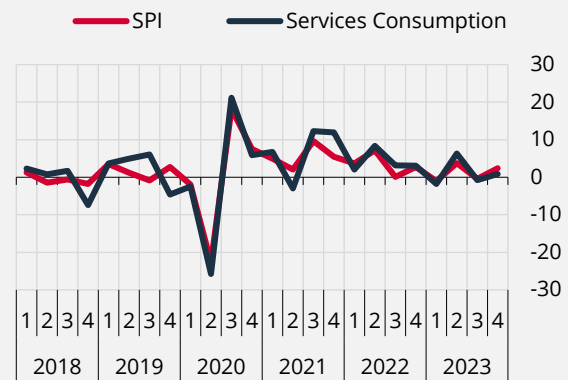
A comparison of annual and quarterly changes in services consumption, which is a component of final consumption expenditures of households, and SPI reveals that the two series closely track one another, although there are periodic divergences (Charts 3 and 4). As mentioned above, these divergences may be attributed to the aggregation of subcategories with value-added weights and the price adjustment largely based on producer prices. Moreover, the inability to decompose the financial and insurance activities and other services items in the private consumption of services also plays a role in this periodic divergence.

**Chart 3: SPI and Services Consumption (Annual Change, %)**



Source: CBRT, TURKSTAT.

**Chart 4: SPI and Services Consumption (Seasonally and Calendar Adjusted, Quarterly Change, %)**



Source: CBRT, TURKSTAT.

To summarize, the SPI published by TURKSTAT can be used as both a production/supply and a consumption/demand indicator due to the way it is calculated, its content and the fact that services are mostly non-stockable. In fact, despite periodic divergences, the annual and quarterly changes of the SPI are very similar to those of both services value added and services consumption. Hence, the SPI is considered to be an important leading indicator that will contribute to a more timely monitoring of supply and demand conditions for services in the monetary policy decision-making process.