

Two new indicators of activity in services and trade to refine short-term monitoring in these two sectors

Since March 2017, the range of short-term economic indicators provided by INSEE has seen the addition of two new indices, the Index of Services Production (*indice de production dans les services - IPS*) and the Index of Sales Volume in Wholesale and Retail Trade (*indice de volume des ventes dans l'ensemble du commerce - IVVC*). Both have proved to correlate well with their sector's business climate derived from the business tendency surveys. They also correlate well with the corresponding aggregates in the quarterly national accounts, the IPS with the production of market services and the IVVC with that of commercial services. In certain cases, the IPS can be used to complete the short-term diagnostic in real time.

Since March 2017, INSEE has developed a new Index of Services Production (IPS) which has been added to the panel of tools used to monitor economic activity in France. Like the industrial production index (IPI), this index is calculated monthly. It is published approximately 60 days after the end of the month in question, like the indices of turnover in value it is based on (see Method). With regard to the latter, it aims to measure the change in the volume of activity excluding price effects, facilitating interpretation for the purposes of short-term analysis.

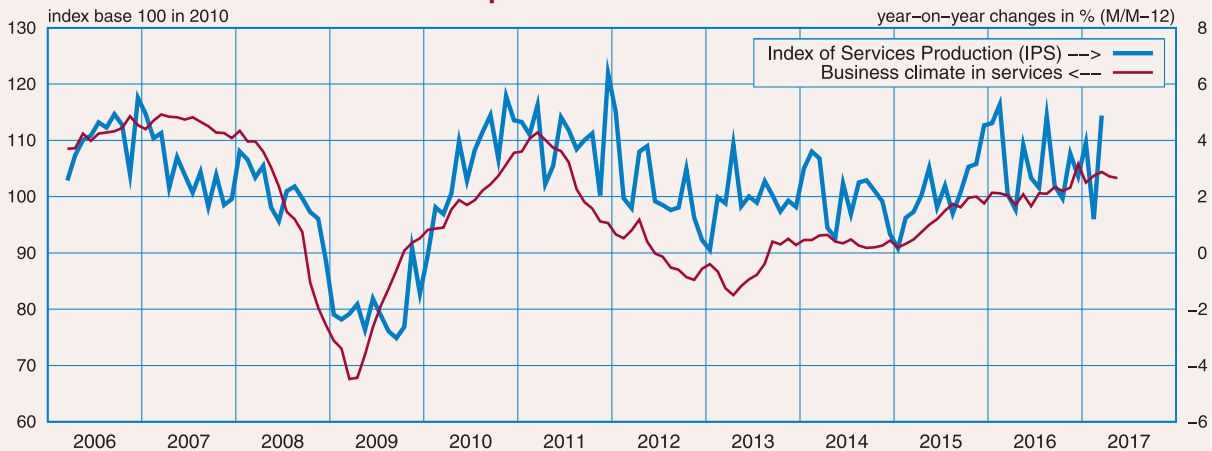
The IPS is obtained by aggregating the output indices of the market service sectors it covers (most of them, with the exception of activities that are not liable for VAT such as financial services or market health services). Similarly, an Index of Sales Volume in Wholesale and

Retail Trade (IVVC) now provides the volume of activity in the trade sectors every month. With the industrial production index and the construction output index, the outlook in most market sectors is now monitored by a quantitative monthly indicator.

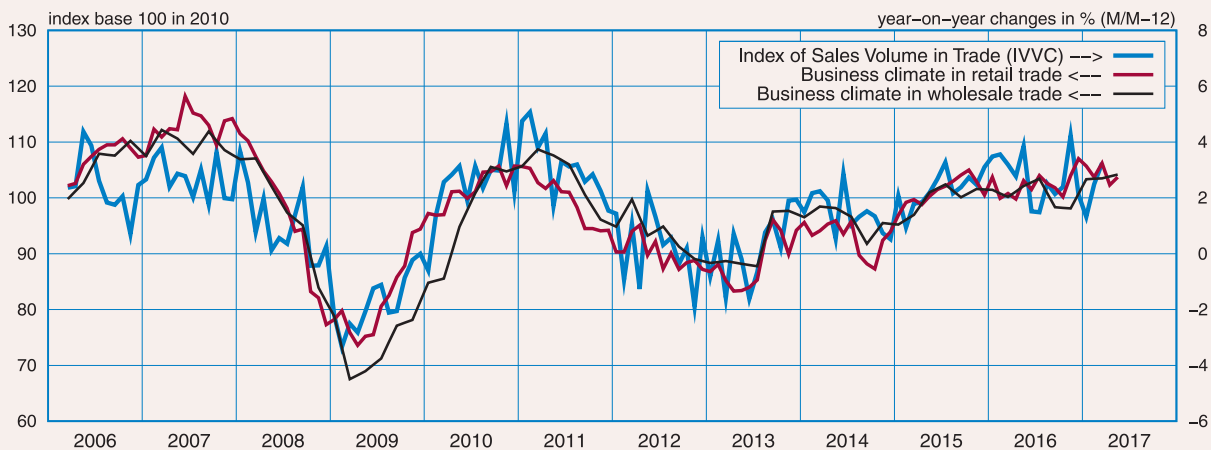
These two new quantitative indicators correlate well with the sectoral business climates estimated from the business tendency surveys

Even though the monthly variability of the IPS is greater than that of the business climate estimated from the business tendency survey in services (Gorin et al., 2015), their medium to long term trends appear to be very closely correlated; the correlation coefficient since 2006 between the business climate and the year-on-year IPS figures is 68% (*Graph 1*).

1 – Business climate and production index in volume in trade services



2 – Business climate and sales volume in wholesale and retail trade



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The same applies to the IVVC (*Graph 2*): the correlation coefficient since 2006 between the year-on-year figures for this indicator and the business climate is 69% in retail trade (including the sale, maintenance and repair of motor vehicles); it is 75% for wholesale trade alone.

The IPS and the IVVC also correlate well with the corresponding aggregates in the quarterly national accounts

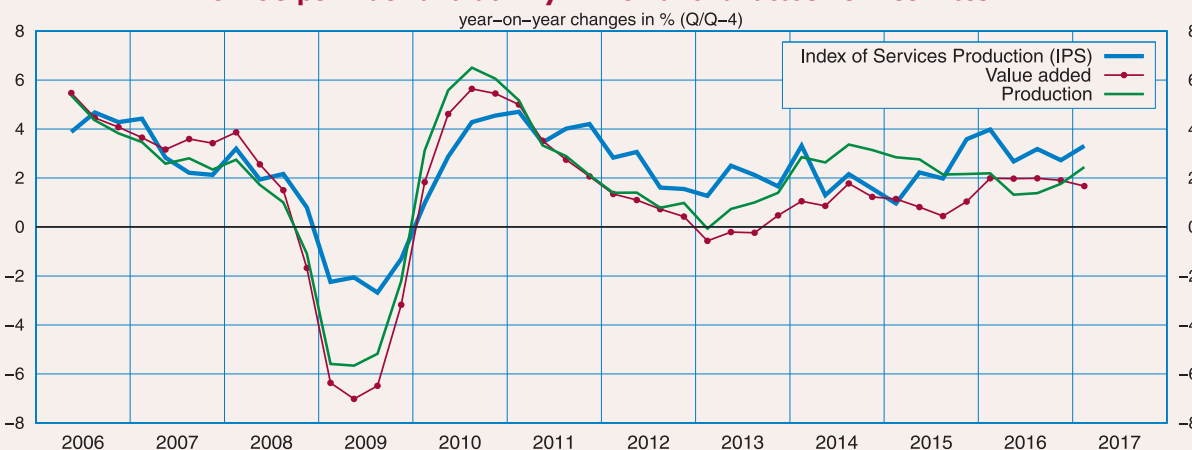
In the quarterly national accounts, the production of trade and services is not estimated directly: it is derived from the resources-uses balance, at a relatively detailed level in the classification of products (accommodation, food services, telecommunications, etc.). For many products, the turnover indices are used to calculate certain uses (consumption, investment, etc.); for example, the food services turnover index is the indicator used to work out quarterly consumption of the product in question. Other indicators are sometimes preferred: for example, the data from the ARCEP (electronic communications and postal regulation authority) or the balance of payments data for exports of services.

In spite of these differences in sources, the services production taken from the quarterly accounts and the index of services production have proven to be well correlated, in a scope rendered as comparable as possible (on the national accounts side: excluding financial services and real estate services, a branch which is very closely related to household activity).

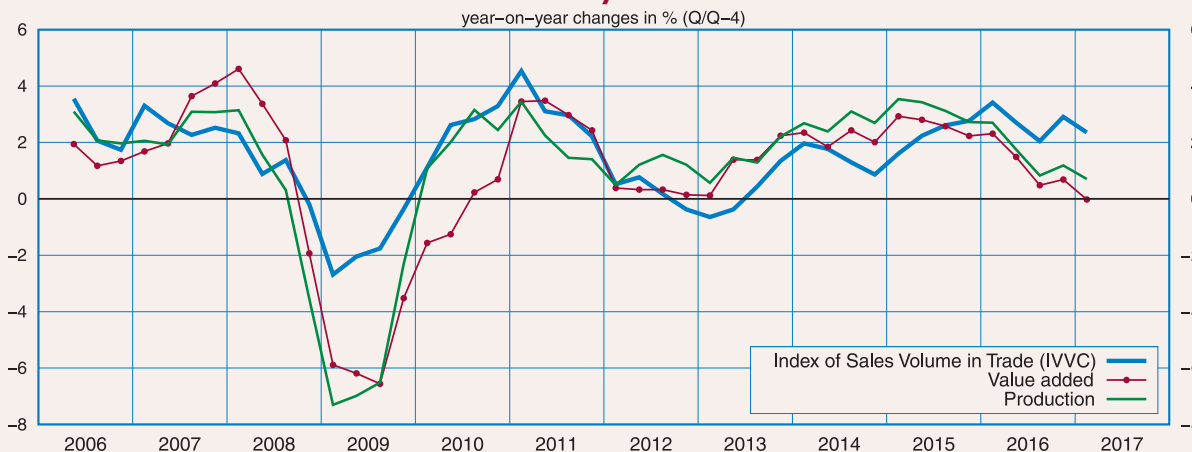
In this scope, the short-term fluctuations in the IPS and the services production in the national accounts tally well (*Graph 3*). The correlation between the quarterly variations in the two aggregates is 70%.

The dynamic of the IPS has proven to be closer to that of output than to that of value added. As the IPS is weighted by value added, this observation may seem paradoxical, but there are two reasons for it. First of all, the elementary changes are in fact changes in turnover, for which the closest national accounts concept is output. Secondly, these changes, even when weighted by value added in a base year, cannot detect the deformation of production capacity evidenced by the structural data and the national accounts: indeed, production patterns change over time and the ratio of output to value added is not constant, even at the most detailed level of activity.

3 – Output index and activity in the national accounts in services



4 – Sales volume index and activity in the national accounts in trade



In the commercial services scope, the fluctuations between the IVVC and output from the trade branch in the accounts also coincide (Graph.4). The correlation between quarterly variations in these two variables is 69%. As with services, this correlation cannot be taken for granted: the fluctuations in trade output in the quarterly accounts are mainly due to those in the uses of tradable goods (consumption, investment and exports of manufactured goods, in particular), for which the sources differ from the IVVC.

For the forecaster, the IPS can serve as a useful new indicator to appraise growth in real time

The good match between the quarterly variations in the accounts and those of the IPS make this new indicator a source of potentially useful information on the real-time outlook.

Most notably, when a quarter Q ends and only a small amount of quantitative information about it is available (1 or 2 months of IPI, which is published 40 days after the end of the month in question), what does the information from the first month of the quarter in question (available after 60 days, i.e. at the end of quarter Q) tell us?

Some initial econometric modelling tests, attempting to directly explain the quarterly variations in GDP or in the output of the market services sectors, have given the following few findings (Table):

- on its own, the series of “one-month” quarterly carry-over effects of the IPS provides some clearly significant information (model 1);
- this information remains significant if business climate indicators derived from the business tendency surveys are added into the model (model 2);
- however, the one-month quarterly carry-over effect of the IPS no longer provides sufficient complementary information on the change in GDP once the one or two-month IPI carry-over effect information is added in (models 3 and 4);
- the IPS carry-over effect remains significant in these models (3 and 4) as long as it is restricted to market services activity only. ■

Contribution of the IPS to calibration models of GDP or market services activity

	One-month IPS carry-over effect elasticity of...			
	...GDP growth (standard deviation : 0.50 %)		...growth in trade services output (standard deviation : 0.86 %)	
	Coefficient (probability)	In-sample RMSE	Coefficient (probability)	In-sample RMSE
Model 1 : IPS variable only	0.16 (0.03)	0.42	0.41 (0.00)	0.62
Model 2 : model 1 + business climate in France	0.13 (0.04)	0.31	0.29 (0.01)	0.51
Model 3 : model 2 + one-month IPI carry-over effect	0.05 (0.37)	0.25	0.19 (0.05)	0.46
Model 4 : model 2 + two-month IPI carry-over effect	0.05 (0.28)	0.25	0.19 (0.03)	0.43

How to read it: in calibration model 3 of growth in the output of market services, three variables are tested at the same time: the business climate, the one-month IPI carry-over effect and the index of services production. For the latter, the related coefficient is 0.19 and appears significantly to be non-null insofar as the probability of the associated Student's t test is 0.05. The root mean square error (RMSE) of this model is 0.46%.

Source : Insee

Bibliography

Gorin Y., Olive P.-D., Renne C. and Bortoli C. (2015), “New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook”, *Conjoncture in France*, March, p. 21-41.

Method

How is the Index of Services production constructed?

A company's production of services can be estimated based on the turnover it generates. For forty years INSEE has been publishing “turnover indices” for most of the market sectors (excluding agriculture and financial activities, among others). These indices are based on a financial source, the “CA3” form which enterprises must complete to pay value added tax (VAT). Nevertheless, the variations in these indicators include changes in price, which complicates the understanding of cyclical developments. To obtain an assessment of the volume of activity, that is, the change in turnover that does not depend on price variations, it is necessary to deflate (i.e. divide) the turnover value indices by a production price index reflecting the change in prices in the sector in question.

The production price indices for services are calculated from quarterly price data for some 10,000 products collected from a representative sample of about 1,700 enterprises as part of the “Observation of Prices in Industry and Services” survey. Data are not collected for certain specific sectors; in these cases a very similar

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price index is used as a deflator: this may be the consumer price index (CPI) for the service in question or the production price index in another service activity that appears to be a good proxy. Insofar as these production price indices are calculated and published 60 days after the end of the reference quarter, they must be converted to monthly indices by appropriate statistical processing (using a well correlated monthly indicator, for example a monthly consumer price index) and be subjected to forecasts for two months out of three.

Production indices at a detailed level are thus defined as the division of turnover sales indices by the associated price deflator. This operation is carried out for the 141 classes of the market service sectors used: transport and warehousing (section H in the French classification of activities, NAF rev. 2); accommodation and food services (I); information and communication (J); real estate activities (L); professional, scientific and technical activities (M); administrative and support services (N); arts, entertainment and recreation (R); "other services" (S, divisions 95 and 96 only).

Once the indices have been calculated at the most detailed level of classification, the indices for broader sectors are obtained by aggregating these elementary indices by Laspeyres indices (with constant weightings over time).

The base for the services output index will be reset every five years; the index currently being published is in the 2010 base, that is, the weightings of the different levels correspond to values calculated in the year 2010. It is also published with a reference 100 in 2010, meaning that the indices for the different levels had an average of 100 in 2010. The constant weightings of the elementary indices are the value added for each sector taken from the national accounts.

The series are published since 2005, corrected for seasonal variations (CSV) and for calendar effects (CWD). ■