Special Analyis

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

Yaëlle Gorin
Pierre-Damien Olive
Catherine Renne

Division Enquêes de conjoncture

Clément Bortoli

Division Synthèse conjoncturelle

Increasing, decreasing or stable? The responses businesses provide to questions on their past or future output, asked in the business tendency surveys, provide us with advance information on the French economy. Each month, the forecasters use this information to obtain an early indication of the economic outlook, ahead of the publication of the first quantitative indicators, particularly the quarterly national accounts. The importance of these surveys for short-term forecasting is well-established.

A recent survey conducted by INSEE reveals that businesses generally respond using objective data. Analysing individual responses reveals that respondents are not systematically mistaken in their predictions.

All the individual responses need to be aggregated, keeping data loss to a minimum, in order to yield information which is as comprehensive and as pertinent as possible. We can thus arrive at several types of composite indicator: balances of opinion, business climate and surprise and turning point indicators. While balances of opinion certainly provide us with information on trends at the macro-economic scale considered - for industrial output, in particular - they are ill-suited to direct short-term readings.

More sophisticated tools are thus required to draw the connections between the business tendency surveys and activity. These tools include econometric models allowing us to determine the "average" relationship between survey results and actual activity. In this dossier we demonstrate how tools of this kind can be improved by incorporating a surprise indicator, constructed on the basis of long-term monitoring of the responses from individual businesses. The economic turning point indicator is another such tool. The purpose of this indicator is to analyse the balance of opinion figures for signs of economic turning points. This dossier examines the nature of these turning point indicators, taking the opportunity to propose a new indicator for the service sector which is of superior quality to that published in the past, as well as making certain adjustments to the turning point indicator for the economy as a whole.

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

Business tendency surveys represent a crucial tool for economic forecasting

INSEE surveys around 20,000 businesses on their activity each month or quarter

Each month, the forecasters use the results of the business tendency surveys to obtain an early indication of the economic outlook, ahead of the publication of the first quantitative indicators, particularly the quarterly national accounts. How do qualitative responses obtained from a selected sample of businesses allow us to obtain advance information on the French economy?

INSEE has been conducting business tendency surveys since 1951, initially solely on industrial firms and subsequently extending to cover other sectors. The INSEE now conducts ten tendency surveys covering businesses in the manufacturing, service, trade and construction sectors (see *Table 1*). Six of these categories belong to the joint harmonised European Union programme of business and consumer surveys. All in all, INSEE surveys 20,000 businesses monthly, bi-monthly or quarterly regarding their recent activity (over the past three months) and business prospects (for the three coming months). The qualitative questions contained in these surveys require respondents to select one of several possible answers: "increasing," "stable," "decreasing," or "above average," "average," "below average". This speeds up the process and lightens the burden placed upon respondents.

The resulting information, aggregated in the form of balances of opinion and combined with business climate and economic turning point indicators, is published within a few days of being collected.

How, and based on what criteria, do businesses respond to these surveys? Do they have a precise vision of the immediate future? How do we aggregate all of these individual responses, keeping data loss to a minimum, in order to yield information which is as pertinent as possible?

Businesses provide objective, well-founded responses

Businesses often use numerical information to respond to the tendency surveys

The way in which businesses understand and respond to the questions in the surveys should determine the way in which we use their responses. In September 2014, INSEE questioned around 2500 businesses from the manufacturing sector who regularly respond to the tendency survey about their interpretation of the questions asked each month or quarter; 40% of them responded to this "survey of survey".

Table 1

The 10 conditions of business surveys

Activity sector	Number of firms surveyed	Survey(s)
Industry	4, 000	Activity (monthly) (1)
		Investments (quarterly) (1)
		Cash (half-yearly)
Services	4, 500	Monthly survey
Retail	3, 100	Monthly survey[1]
Wholesale	3, 000	Half-yearly survey
Construction	2, 500	Monthly survey businesses with 11 or more employees[1]
Construction	1, 500	Quarterly survey businesses with less 11 employees
Property development	1, 000	Quarterly survey
Public Works	2, 000	Quarterly survey (1) (2)

(1) Survey harmonized EU Programme of Business and Consumer Surveys in the European Union
(2) In conjunction with the National Federation of Public Works

Seventy percent of respondents to this survey indicated that, generally speaking, their financial director or a subordinate completed the business tendency questionnaire. However, in businesses with between 20 and 99 employees the company director is more likely to be personally involved in the survey than in larger companies.

In responding to the tendency survey, more often than not businesses call upon objective numerical data relating to their activities: quantities produced, amounts invoiced or hours worked. Regarding recent variations in their output, around 80% of businesses reported using one of these three indicators. Half of all businesses, a figure which rises to 70% in the agri-food sector, base their responses on the actual quantities produced. A quarter of businesses base their responses on the total value of invoices issued. Businesses in the transport equipment sector are more likely than their counterparts in other sectors to refer to the number of hours worked.

Businesses have less numerical information to call upon when it comes to making output forecasts. As an indication, 37% (and as many as 50% of companies in the agri-food sector) report basing their response to this question on a "subjective judgement". Nevertheless, around 45% base their response on the current state of their order books.

Finally, this survey allowed us to identify the thresholds beneath which businesses consider their output to be stable, and what they consider as "normal" levels for their order books in different seasons. For more than half of businesses this threshold was below +/-5 %, while for a quarter of businesses it was below +/-1 %.

Responses to the monthly business tendency survey for industry are consistent with the quantitative indicators

In order to monitor industrial output from a quantitative perspective, INSEE conducts branch-specific surveys which yield results that are then used to calculate the monthly Industrial Production Index (IPI). Businesses respond after the end of the

Box 1 - Comparing 11,000 responses to the business tendency survey and the monthly branch survey

Analysis of the ways in which businesses respond to the tendency surveys in the manufacturing sector reveals that not all companies refer to the same period of time when assessing recent developments in their activity. Half of the businesses surveyed base their responses on the variation in their output between the beginning and end of the preceding three-month period, while 43% indicate the variation in their output for the past three months compared with their output for the three months before that.

Using the branch surveys, variations in production have thus been measured in two ways:

- by comparing the total value of invoices declared at the end of the period covered by the three preceding months with the value for the beginning of this period: $\frac{F_{m-1}}{F_{m-3}} = G_m$
- by comparing the total value of invoices declared during the three preceding months with the value declared in the previous three-month period: $\frac{(F_{m-1}+F_{m-2}+F_{m-3})}{(F_{m-4}+F_{m-5}+F_{m-6})} = V_m$

For each business and for each survey month, the responses to the business tendency survey on recent activity have thus been connected to the variations detected by the monthly branch surveys and calculated as follows:

- if the company declares that activity has "increased" recently, the greater of the two values V_m and G_m is retained;
- if the company declares that recent activity has been "stable", we retain whichever of V_m or G_m is closest to 0;
- if the company declares that activity has "decreased" recently, the lesser of the two values V_m and G_m is retained.

By concatenating the results of this comparison for the survey months from July 2012 to April 2013, for a sample of around 1,000 businesses matched up between the two surveys, we obtain around 11,000 observations. These observations are then divided into centiles based on their quantified variation, and in accordance with their response to the tendency survey (increasing, stable or decreasing). This distribution is then smoothed using a moving average of order 5, to make the results easier to read.■

month in question. The results of these surveys are available two months after those derived from the business tendency surveys. Comparing businesses' responses to these two types of survey, at an individual level, allows us test the reliability of the responses given in the qualitative tendency surveys (*Box 1*).

The opinion of each business regarding their recent activity, measured by the tendency survey, does indeed prove to be generally consistent with the variation in their invoiced volumes as declared in the monthly branch surveys over the previous three months (*Villaume, 2014*).

Only 5% of businesses whose amounts invoiced fell by more than 20% over the previous three months declared an increase in activity in the business tendency survey (see *Graph 1*). At the other end of the scale, only 14% of businesses whose amounts invoiced increased by more than 20% declared a dip in their activity over the previous three months. The contradictions apparent in the responses of certain businesses may result from the fact that they base their response to the tendency survey on quantities produced or hours worked, while the branch surveys are based on amounts invoiced. Furthermore, two thirds of businesses whose invoices varied between -1% and +1% over the three previous months indicated that their output had been stable over this period when responding to the tendency survey.

The balance of opinion: an aggregate indicator with a solid theoretical grounding

Balances of opinion allow us to summarise the responses of businesses

The qualitative information provided by the surveys is summarised in the form of balances of opinion, representing the difference between the percentage of businesses reporting an increase in activity and those reporting a decrease. 'Stable' responses do not affect this figure. Depending on the question, the individual responses of businesses are weighted using a variable of interest: turnover, employee headcount etc. This indicator is very simple to construct, and its usefulness has been demonstrated both theoretically and empirically (*Box 2*).

Balances of opinion play an important role in forecasting because they present a close correlation with the macro-economic indicators

Balances of opinion allow us to give 'probable' indications of future variations in the macro-economic variables...

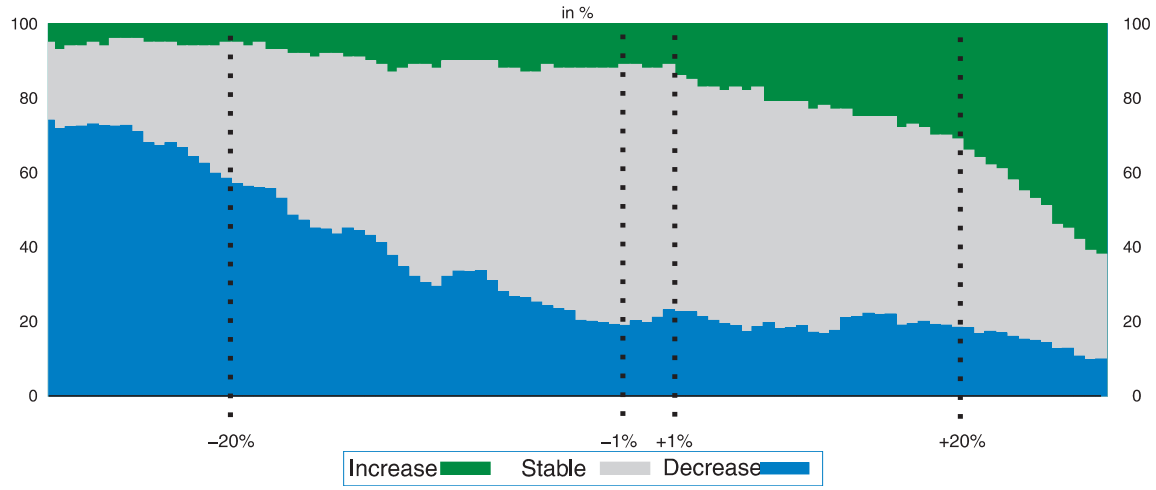
Balances of opinion play a crucial role in the forecasting process. These balances generally present a close correlation with the corresponding macro-economic variables, and thus yield good results when used in forecasts. For example, over time there is a relatively stable linear relationship between the quarterly growth of manufacturing output and the balances of opinion regarding past or predicted output derived from the monthly tendency surveys for industry (see *Graph 2*).

However, while the tendency surveys do generally provide a pertinent indication of the underlying variation in activity, this signal is not perfect and is subject to a certain amount of statistical "noise". Firstly because the qualitative responses from a sample of businesses, however representative that sample may be, cannot precisely reproduce the underlying quantitative variations for all businesses, and also because businesses do not always use the same time frame when assessing recent variations in their levels of activity (*Box 1*).

The presence of this noise prevents us from stating with absolute certainty that the indication provided by a balance of opinion for a given quarter will reflect the real variation in manufacturing output, but it does allow us to indicate the 'probable' direction output will take.

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

1 - Comparison of the opinion of businesses on their recent activity with their responses to the monthly branch surveys



How to read it: 67% of businesses who provided a quantitative response to the monthly branch survey corresponding to a variation of between -1% and +1% over the preceding three months indicated in the business tendency survey that their output had in fact remained stable over the same period (the grey zone on this graph).
Source: INSEE

Box 2 - Modelling business tendency survey response behaviour allows us to confirm the theoretical relationship between balances of opinion and establish an accounting aggregate

In order to respond to the questions with three possible responses contained in the business tendency surveys, we can suppose that businesses must decide upon a threshold beyond which the estimated growth of their activity allows them to indicate an increase, a decrease or a period of stability. The response behaviour of a business i at a given moment in time t can thus be modelled as follows:

$$y_{i,t} = \begin{cases} increase\ if & \widetilde{t_{i,t}} > s^{+} + x_i \\ stable\ \ if & s^{-} + x_i < \widetilde{t_{i,t}} \leq s^{+} + x_i \\ decrease\ if & \widetilde{t_{i,t}} \leq s^{-} + x_i \end{cases}$$

where $y_{i,t}$ indicates the response to the survey question.

The rate of growth as estimated by the company depends on the real growth rate $t_{i,t}$, but also on a collective β_t (for example a general pessimism or optimism in the sector or the country as a whole) and an individual error $\alpha_{i,t}$ (the respondent is liable to be mistaken about the company's actual situation): $\widetilde{t_{i,t}} = t_{i,t} + \beta_t + \alpha_{i,t}$

We can suppose that $\alpha_{i,t}$ obeys a normal law of zero-expectation.

The thresholds $s^{+} + x_i$ et $s^{-} + x_i$ depend upon a component which is specific to each business but does not change over time x_i and a component that is common to all businesses s^{+} and s^{-}. We can suppose that x_i has a normal zero-expectation distribution.

The term $\mu_{i,t} = \alpha_{i,t} - x_i$ covers the error terms, with Φ the distribution function and σ_t the standard deviation.

We thus arrive at:

$$P(y_{i,t} = increase) = 1 - \Phi\left(\frac{s^{+} - t_{i,t} - \beta_t}{\sigma_t^2}\right)$$

$$et\ P(y_{i,t} = decrease) = \Phi\left(\frac{s^{-} - t_{i,t} - \beta_t}{\sigma_t^2}\right)$$

By calculating the balance of opinion at time t as a weighted sum $P(y_{i,t} = increase) - P(y_{i,t} = decrease)$ of for each business, the balance of opinion is expressed in the first order as a weighted sum of the $t_{i,t}$ values, i.e. an estimate of the accounting aggregate that we wish to measure. It is this theoretical relationship which justifies the use of balances of opinion to summarise the information contained in the surveys.■

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

... which justifies their use in bridge models

More sophisticated tools are thus required to draw the connections between the business tendency surveys and activity. These tools include econometric models known as "bridge models", which allow us to establish the "average" relationship between balances derived from surveys (regarding past output, predicted output, order books etc.) and actual activity.

For example, this allows us to predict the growth of manufacturing output by letting the econometric model identify the most pertinent balances for this forecast and determine the respective weight to be attributed to each balance (*Dubois & Michaux, 2006*). These bridge models can be improved by introducing a "surprise indicator" calculated on the basis of responses from individual businesses.

The surprise indicator, a new method for aggregating individual responses which can be useful when forecasting manufacturing output

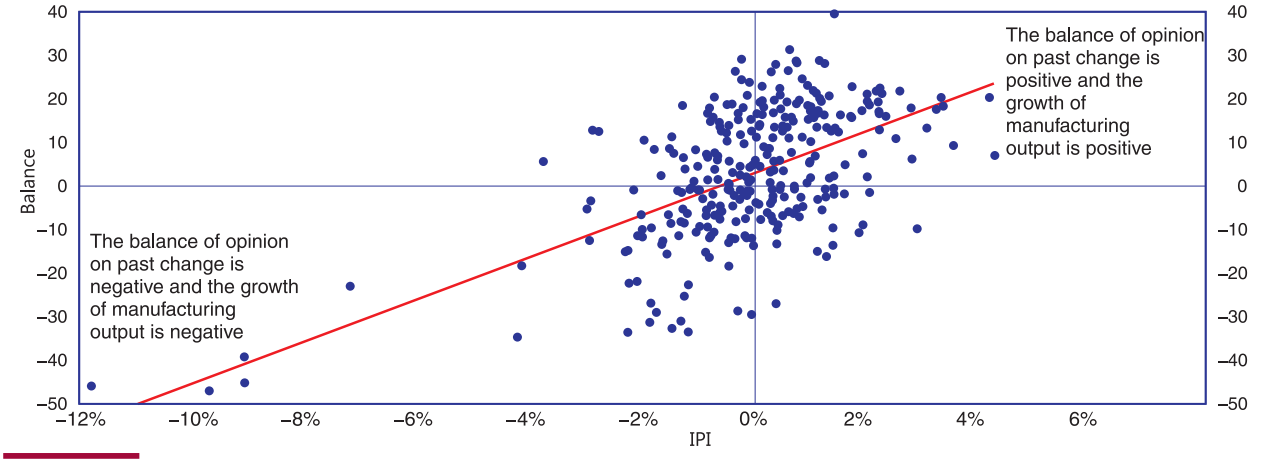
When producing forecasts, some analysts regularly incorporate the difference between the balances of opinion concerning recent output and the predicted output figures from the previous period, which can be interpreted as the extent to which businesses were surprised with regard to their predictions.

We can improve this "surprise indicator" by looking directly at the responses provided by individual businesses and weighting them on criteria other than their weight in terms of turnover, as for the standard economic surprise indicator.

Aggregating the discrepancies between past and predicted activity indicates short-term surprises in industry

In the survey focusing on activity in the manufacturing sector, businesses are quizzed monthly on their recent output and their output prospects. For example, in the survey conducted in March a business will be asked to judge whether its output over the next three months (i.e. Q2) will increase, remain stable or decrease. In the survey in June, the same business will answer questions on its actual output over the previous three months (i.e. Q2). If businesses have a clear idea of their upcoming output, their responses in June should therefore corroborate the responses they gave in March with regard to their activity for Q2. If a business gives a different answer in the second survey, an unexpected event must have occurred in the meantime - a short-term surprise. We can reasonably expect that the more businesses are surprised by increases in their output, the more the short-term outlook has improved over the quarter in question.

2 - Monthly growth of the IPI and balance of opinion on past output



How to read it: for each month between June 1990 and December 2014 this graph gives the value of the balance of opinion on variations in output over the preceding 3 months (y axis) and the value of quarterly growth in industrial output (x axis).
Source: INSEE

Around 60% of businesses predict the future variations in their output correctly

In order to construct this new surprise indicator, we divide businesses into nine groups based on cross-comparison of their responses regarding future output in the survey from three months ago (increase, stable or decrease) and their three corresponding responses after the fact. For example, a business which declared in month M that its output would increase over the next three months, and which then reported in M+3 that its production had decreased in recent months, will be assigned to the"Increase-Decrease" group.

Since 1990, around 60% of businesses have correctly predicted the variations in their output: 35% correctly predicted it would remain stable, 15% predicted an increase and 10% predicted a decrease (*Graph 3*).

Businesses rarely get it wrong twice in a row when it comes to predicting output

Moreover, a business that has poorly predicted its output for one quarter rarely makes the same mistake for the following period: in two-thirds of cases the company will then accurately predict its output for the ensuing quarter. No individual optimistic or pessimistic bias was observed in the businesses surveyed: we did not identify any companies who systematically gave different responses to the two questions. This confirms that the majority of companies make their predictions on the basis of objective data, resulting in consistent forecasts. The differences observed between the responses can be considered as forecasting errors, and thus indicative of surprise in the short-term conditions.

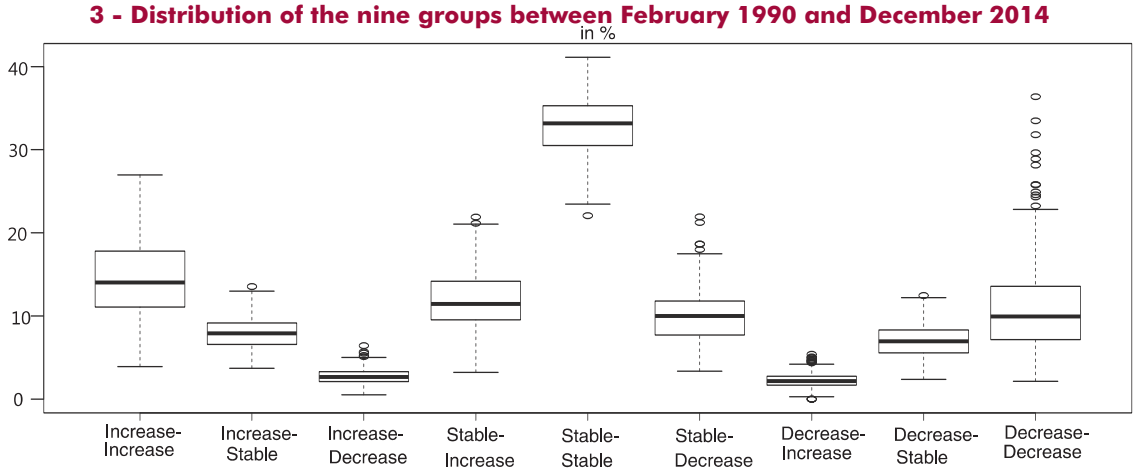
Using principal component analysis gives us a more precise idea of how to determine the surprise indicator

The nine proportions of companies defined in this way change over time. The surprise indicator is constructed by means of a linear combination of these nine categories, applying ad hoc coefficients based on reasonable criteria. These criteria are derived from an intermediate analysis using five less detailed groups.

The nine categories of businesses are grouped based on the type of surprise involved. When a company's predictions prove to be correct, it is classed in the "no surprise" group; when they prove to be incorrect it is either because the company was too optimistic or too pessimistic. We thus establish five broad groups:

- no surprise: Increase-Increase, Decrease-Decrease, Stable-Stable;
- positive surprise (or, conversely, negative surprise): Stable-Increase or Decrease-Stable (conversely, Increase-Stable or Stable-Decrease);
- highly positive surprise (or, conversely, highly negative surprise): Decrease-Increase (conversely, Increase-Decrease).

3 - Distribution of the nine groups between February 1990 and December 2014



How to read it: these boxplots show the distribution over time of the relative proportions of the nine groups: the black line at the centre of each rectangle represents the median, the rectangle covers the first to third quartiles, the segments mark the distance between the first and last deciles, and the round points are outliers. For example, between February 1990 and December 2014 the "Increase-Increase" group contained between 11% and 18% of businesses for one month in two.
Source: INSEE

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Applying principal component analysis to these five groups allows us to identify common trends. The variations observed in the first component reveal a relatively close correlation with the variations in manufacturing output (*Graph 4*). Weighting coefficients obtained using this method are pertinent in so far as the coefficients for the positive surprise groups are the direct inverse of those used for the negative surprise groups. Moreover, even without forcing, the estimated coefficients are symmetrical.

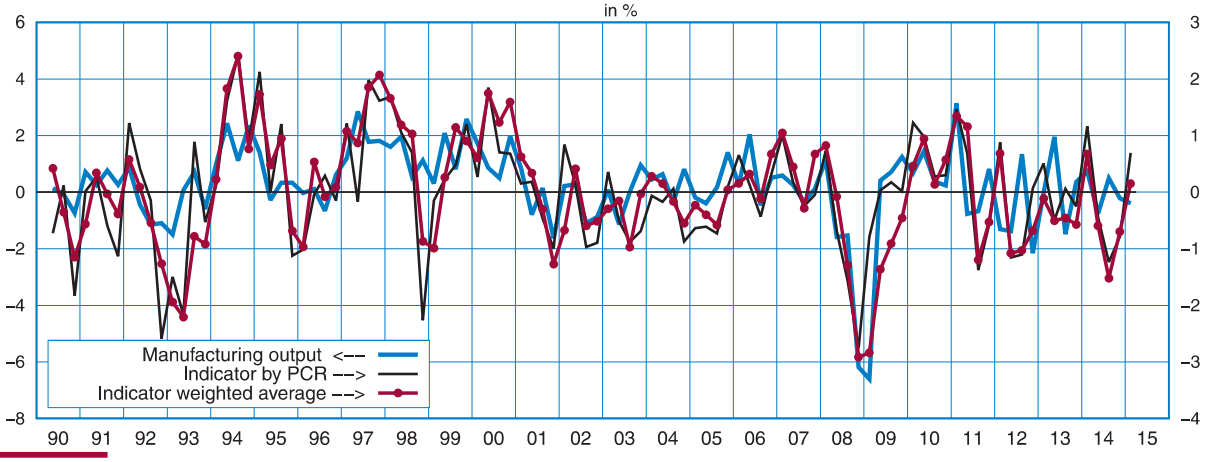
The surprise indicator is based on a weighted average of individual 'surprises'

The analysis cited above does not make use of all available information since the nine categories of businesses have been aggregated into five groups. When we try to use the information provided by the division of businesses into nine categories, principal component analysis applied to these nine groups does not allow us to obtain usable coefficients. It is, however, possible to construct a surprise indicator in an arbitrary fashion via a linear combination of the nine categories, applying ad hoc weighting coefficients selected on the basis of reasonable criteria: these weightings must be symmetrical when we inverse the "increase" and "decrease" responses; the more serious surprise groups must receive higher weighting coefficients.

Among the weighting scenarios tested, we have retained those which satisfy the aforementioned criteria and allow us to obtain a close correlation between the indicator and the reality of manufacturing output (*Graph 4*). The results are relatively stable when the weightings are changed as long as the following order is maintained:

- zero weighting for the group Stable-Stable;
- weighting of 1 (conversely -1) for the group Stable-Increase (conversely Stable-Decrease);
- weighting of 2 (conversely -2) for the group Increase-Increase (conversely Decrease-Decrease);
- weighting of 3 (conversely -3) for the group Decrease-Stable (conversely Increase-Stable);
- weighting of 4 (conversely -4) for the group Decrease-Increase (conversely Increase-Decrease).

4 - Surprise indicators and manufacturing output



How to read it: the indicators have been selected with a gap of three months between the survey in which the business gave predictions regarding future prospects and the follow-up survey in which the business reported on past activity. The value taken for the indicator is that recorded in the final month of each quarter (for example, for Q2 this represents the difference between the responses given in March and June). The indicators have been centred and reduced.
Source: INSEE

The surprise indicator calculated using the weighted average method displays a closer correlation with output than the balance of opinions on recent activity

Under this system, those businesses which correctly forecast their output do not receive the same weighting attributed in the five-group principal component analysis method. The correlation between these indicators and the actual variation in manufacturing output over the period 1990-2014 is 0.65 for the surprise indicator obtained using the weighted average method; the indicator obtained *via* principal component analysis is less efficient, with a correlation of just 0.52 with manufacturing output. This serves to demonstrate the advantages of constructing a surprise indicator using the weighted average method. By way of comparison, the correlation between manufacturing output and the balance of opinion on recent output over the same period is 0.55 for the third month of the quarter and 0.63 for the month immediately following the quarter. The surprise indicator is thus far more closely correlated with manufacturing output than the balance of opinion on recent output as recorded in the third month of the quarter in question.

In the industrial sectors, the surprise indicator significantly improves forecasts for manufacturing output

Another method of testing the performance of this new indicator is to compare the predictive quality of bridge models obtained using these indicators with that of models based on standard balances of opinion. Two models have been tested for the purposes of forecasting manufacturing output: a control model with no surprise indicator, and a second model incorporating a surprise indicator (*Box 3*). The second model is more effective than the first in terms of prediction accuracy: its mean square error is significantly lower for the period 1990-2014. Similarly, the mean square error for the period from 2000 onwards is significantly lower with the second model.

The surprise indicator for industry provides new information on inventory change and investment in manufactured goods

Furthermore, the surprise indicator is also useful when forecasting investment in manufactured goods or inventory change. The correlation between the surprise indicator (in the second month of the quarter) and investment in manufactured goods is 0.66. This means that the surprise indicator can be a useful addition to the models used to forecast variations in investment (*Box 3*).

Box 3 - The surprise indicator in the forecasting models

The bridge models presented here under incorporate balances of opinion available for the final month of the quarter to be forecast (month 3), i.e. 45 days before the first quarterly account results are available for this quarter.

Forecasting manufacturing output

Among the different tools used to forecast manufacturing output in the third month of a quarter, we can take as our reference model that with the first quantitative information provided by the IPI, and the balances of opinion regarding recent or expected production derived from the monthly industry survey as its main indicators.

Reference model

$$Prod\_manuf = \underset{(0,08)}{0,22} + \underset{(0,06)}{0,60} * ipi\_m1 + \underset{(0,01)}{0,023} * solde\_prod\_passée\_m3 + \underset{(0,01)}{0,052} * Dsolde\_prod\_prev\_m3$$

(figures in brackets are the standard deviation of the coefficients)

where:

- ipi_ml is the overhang of the industrial production index in the first month of the quarter
- solde_prod_prev_m3 is the balance of opinion regarding personal production prospects for the third month of the quarter;
- solde_prod_passée_m3 is the balance of opinion regarding past output for the third month of the quarter;
- indicateur_surprise_m3 is the indicator obtained using the averages method for the third month of the quarter.

The standard deviation of errors in this model (RMSE "real time[1]") is 0.93.

Replacing the balance of opinion on past output by the surprise indicator (calculated using weighted averages) has a significant impact, and the performance of the model is improved:

(1) We try to recreate the conditions facing the forecaster constructing the calibrations at each date t. The idea is thus to recalculate the coefficients of the model at each date t, integrating the latest available observations at each stage.

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Model with surprise indicator

$$Prod\_manuf = \underset{(0,08)}{0,26} + \underset{(0,06)}{0,56} * ipi\_m1 + \underset{(0,41)}{2,27} * indicateur\_surprise\_m3 + \underset{(0,01)}{0,043} * Dsolde\_prod\_prev\_m3$$

The standard deviation of the errors in the model is thus reduced to 0.84. According to the *Harvey, Leybourne and Newbold test (1997)*, error is significantly reduced in this model for the period 1990-2014 (with a p value of 0.03). If we limit our analysis to the period 2000-2014, the model which incorporates the surprise indicator is even more effective (p value = 0.045).

Inventory change forecast

Model incorporating surprise indicator

$$Ctr\_stocks\_manuf_t = \underset{(0,09)}{-0,37} * ctr\_stocks\_manuf_{(t-1)} \underset{(0,09)}{-0,25} * ctr\_stocks\_manuf_{(t-2)} + \underset{(0,39)}{1,52} * indicateur\_surprise\_m2_t + \underset{(0,01)}{0,04} * Dsolde\_prod\_passée\_m2_{(t-1)}$$

- ctr_stocks_manuf is the contribution of inventory change in manufactured goods to manufacturing output,
- indicateur_surprise_m2 is the indicator obtained for the second month of the quarter. As the surprise figure for the second month is more effective at explaining inventory levels than the figure for the quarter as a whole,
- solde_prod_passée is the balance of opinion regarding past output for the second month of the quarter.

The standard deviation of the errors in the model (RMSE "real time") is 0.69 for a series with a standard deviation of 0.9. By introducing the balance of opinion on past output into this model, or the figure measuring the gap between the balance of opinion on past output and the delayed balance of opinion on personal production prospects, the Student tests demonstrate that the surprise indicator provides additional information.

Investment forecasts

The principal tools used to forecast investment are the behaviour equations (*Eudeline et al., 2013*). It may however be useful to ensure that these equations match the bridge models constructed on the basis of the business tendency surveys, production capacity utilisation rates and the investment indicator for industry.

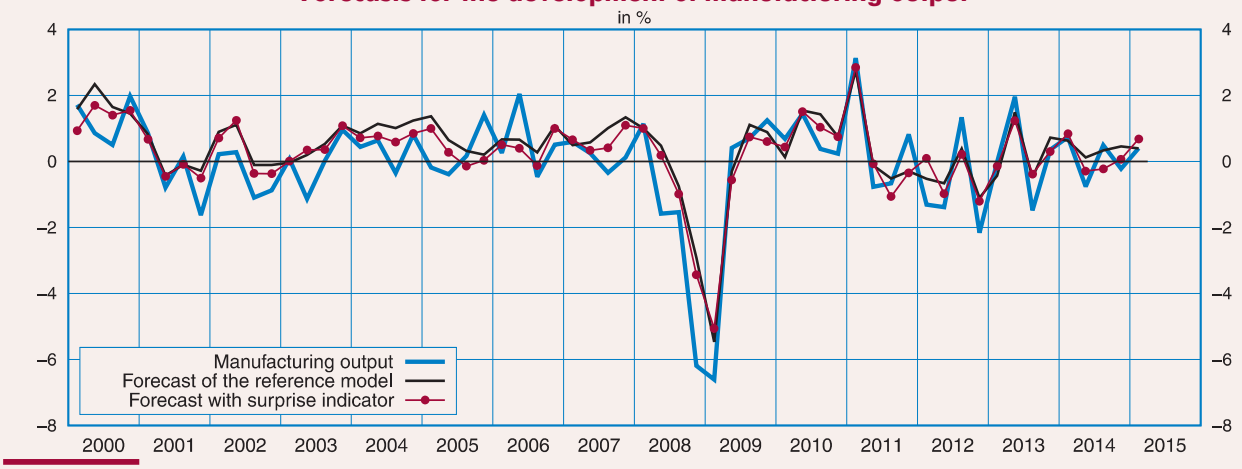
The model obtained using the surprise indicator does not allow us to significantly improve this forecast, but it does appear to be more pertinent than the balance of opinion on past production. In fact when the bridge model incorporates two balances, only the coefficient of the surprise indicator is significant.

$$FBCFhc_t = \underset{(3,25)}{-8,9} + \underset{(0,73)}{1,93} * indicateur\_surprise\_m2_t + \underset{(0,13)}{0,8} * Dtuc\_bdf + \underset{(0,13)}{0,34} * indic\_rev + \underset{(0,04)}{0,11} * tuc\_insee$$

- FBCFhc is the variation in gross fixed capital formation for all output except construction,
- indicateur_surprise_m2 is the indicator obtained for the second month of the quarter (the surprise figure for the second month is more effective at explaining inventory levels than the figure for the quarter as a whole),
- tuc_bdf and tuc_insee are the production capacity utilisation rates taken from the surveys conducted by Banque de France and INSEE (the two surveys yield different results),
- indic_rev is the indicator for revised investment levels in industry.

The standard deviation of errors in this model (RMSE "real time") is 1.16 for a series with a standard deviation of 1.88. ■

Forecasts for the development of manufacturing output



How to read it: these forecasts are created in "pseudo real time", meaning that the calibration coefficients are re-estimated for each period in order to take the latest point into account, based on the series of current estimates, but for each quarter, the series published at the time are not counted.
Source: INSEE

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A surprise indicator can also be constructed in the service sector

For the business tendency survey focusing on the service sector, a surprise indicator can also be constructed using questions relating to recent and predicted activity. The correlation between the indicator obtained using averages and the actual output of market services excluding trade was 0.63 for the period 2000-2014. The correlation between the balance of opinion regarding recent activity and the output of market services excluding trade is not significantly different: 0.60 in the third month of the quarter and 0.70 in the month immediately following the quarter. Moreover, although its coefficient within the forecasting models proves to be significant, the surprise indicator does not allow us to substantially improve forecasts of production of services.

Given their pertinence for the purposes of economic analysis, surprise indicators for the industrial and service sectors will be published from April 2015 onwards.

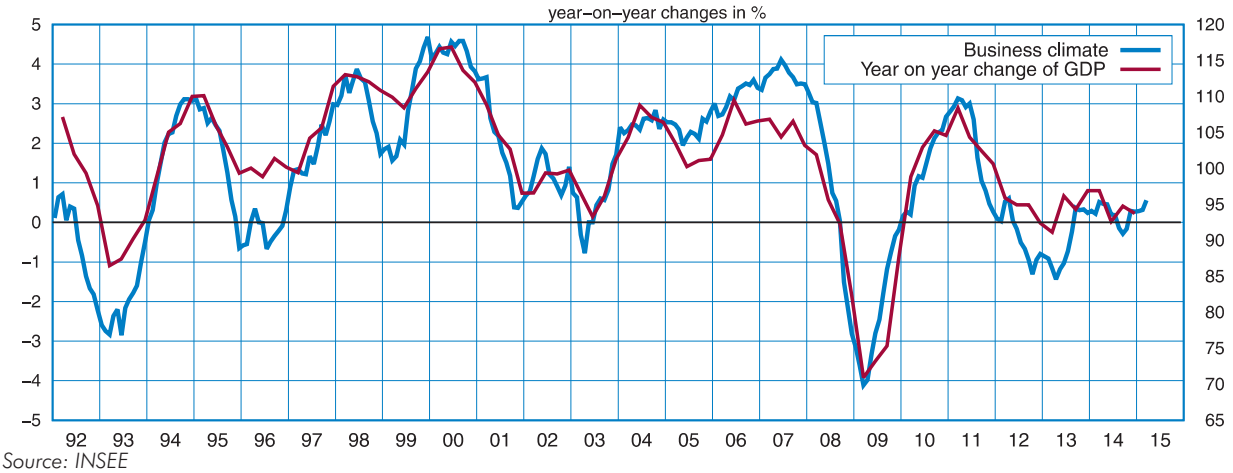
A new method for constructing economic turning point indicators for France and the service sector

This new surprise indicator joins the indicators already constructed on the basis of the business tendency surveys in order to analyse the short-term outlook for France, the business climate and turning points indicators. In its own way, each of these indicators allows us to summarise the information contained in the numerous balances of opinion derived from the tendency surveys (*Bardaji et al., 2008*).

INSEE publishes six business climate indicators designed to track growth in the corresponding sectors of the economy...

The business climate indicator summarises the information contained in multiple balances of opinion in a single indicator. It is obtained using the techniques of factor analysis, which allow us to extract the common component from these balances. INSEE publishes a business climate indicator for each of the five major sectors covered by its surveys (industry, services, construction, retail trade and wholesale trade) as well as an overall indicator (the "France" indicator) which aims to reflect the business climate across the economy as a whole. As a result of the way they are constructed these indicators do not have units, so they are standardised to a mean of 100 and a standard deviation of 10. The value 100 thus corresponds to a normal climate, and can be used to rapidly assess the average rate of growth in the corresponding sector or across the economy as a whole (with the "France" indicator). These indicators have demonstrated their ability to reflect the growth of the French economy accurately in recent years, particularly during and after the major recession of 2008-2009 (*Graph 5*). The method used to construct the business climate indicators is not the only one of its kind; alternative methods are available, such as the method used by the European Commission to calculate its country-by-country Economic Sentiment Indicator (*Box 4*).

5 - Business climate in France and year-on-year GDP figures since 1992



Source: INSEE

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

Box 4 - Different "business climate" indicators

The business climate indicator calculated by INSEE for the economy as a whole is based on 26 balances of opinion used to establish the sector-specific business climate indicators. Taking into account the difference in the frequency of these balances (18 monthly figures, 3 quarterly and 5 bi-monthly), the indicator is calculated using a dynamic factor analysis method and a Kalman filter estimate (*Bardaji et al., 2008*).

Furthermore, every month INSEE passes on the results of the French business and household tendency surveys to the European Commission's Directorate General for Economic and Financial Affairs (DG-ECFIN). DG-ECFIN uses this data to calculate 5 indicators for the French business climate (see *Table*), which differ from the INSEE indicators in that they are not normalised to an average of 100 with a standard deviation of 10.

In addition to these 5 indicators, DG-ECFIN produces a composite indicator for the French economy as a whole. This indicator is normalised so as to give a long-term average of 100 with a standard deviation of 10.

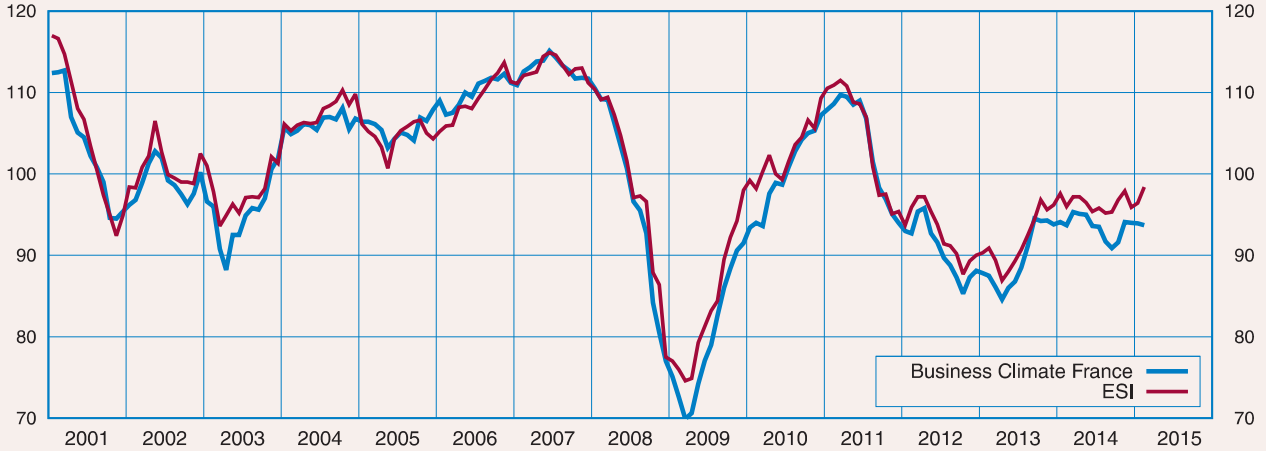
This indicator, which is comparable to the "France" business climate indicator published by INSEE, is particular in that is based not only on the balances of opinion of business leaders in different sectors of activity (industry, services, construction, retail), but also on household responses. Known as the European economic sentiment indicator (ESI), this figure is calculated with predetermined weightings using the following formula:

ESI = 40 %*INDU + 30 %*SERV + 20 %*CONS + 5 %*RETA + 5 %*BUIL

The differences in the respective construction processes for this economic sentiment indicator and the INSEE business climate indicator give rise to certain disparities, relatively slight in the long term, but which can nonetheless occasionally lead to conflicting messages regarding the immediate outlook (see *Graph*).■

	Sales participating in the European calculation of confidence indicators for France	Calculation formula
Industry	Q2 - Global order books Q4 - Finished-goods inventory Q5 - Expected change on output	IND = (Q2 - Q4 + Q5) / 3
Services	Q1 - Tendance passée de la situation de l'entreprise Q2 - Past change in turnover Q3 -Expected change in turnover	SERV = (Q1 + Q2 + Q3) / 3
Construction	Q3 - Opinion on order books Q4 - Expected trend of workforces	BUIL = (Q3 + Q4) / 2
Retail	Q1 -Past sales Q2 - Stocks Q4 -Expected sales	RETA = (Q1 - Q2 + Q4) / 3
Household	Q2 - Situation financière future Q4 -Change perspective of the overall situation of France Q7 - Future change in unemployment Q11 - Future savings capacity	cons = (Q2 + Q4 - Q7 + Q11) / 4

Comparison of the "France" business climate indicator with the economic sentiment indicator



Sources: INSEE, DG-ECFIN

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

... and five turning point indicators designed to detect turning points in the economic cycle

The turning point indicator exists for the same sectors as the business climate indicator, with the exception of the retail sector, and aims to detect turning points in the growth cycle for the sector in question.

The macro-economic aggregates given in the national accounts allow us to identify economic cycles after the fact. The turning point indicators constructed using balances of opinion from the business tendency surveys, meanwhile, allow us to catch these cycles early by identifying periods of expansion or contraction of activity in real time.

Constructing these indicators requires us to translate the signals provided by the balances of opinion for each period into different "states" in the short-term cycle: favourable or unfavourable states (or, in certain cases, an uncertain favourable state, an uncertain unfavourable state, a clearly favourable state or a clearly unfavourable state). This process of summarising the available information requires a prior standardisation of the balances of opinion from which the turning point indicator will be derived: this initial task is known as coding, and several different methods are available (*Box 5*).

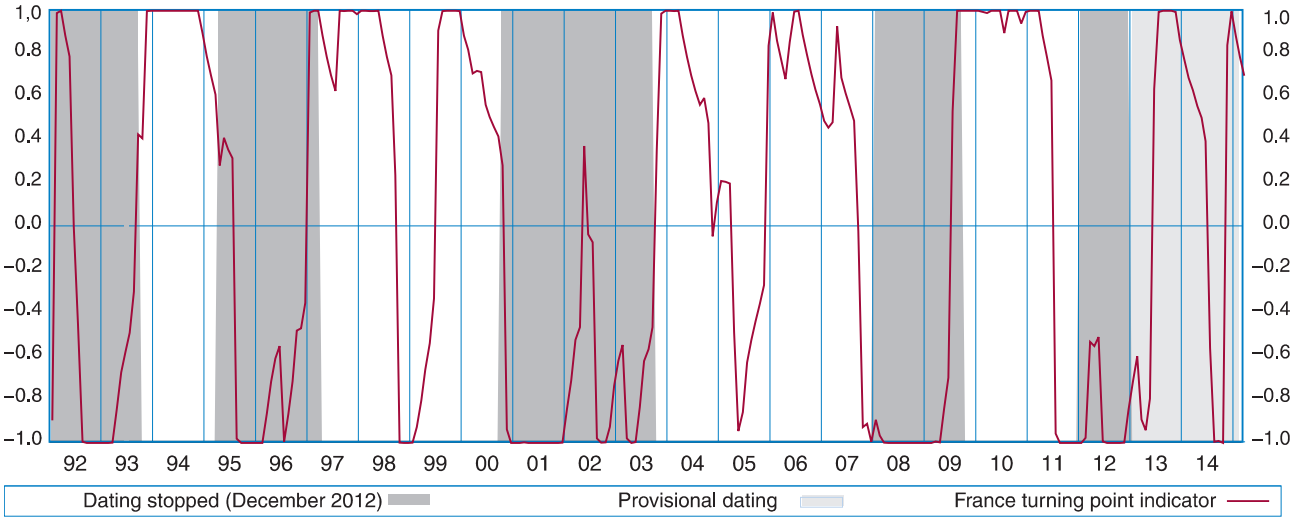
These indicators have been selected so as to provide a coherent message with reference dates. These dates correspond to the series of growth cycles of the French economy as a whole, which can also be understood as the expansion and contraction phases of the GDP output gap. A good turning point indicator will thus be close to 1 during periods in which GDP growth is higher than the long-term trend, and close to -1 in periods when it falls below this trend. We can produce graphs to check that this is indeed the case for the indicators constructed by INSEE, particularly the "France" general indicator, and especially in the period immediately following the introduction of the new construction method (see *Graph 6*).

Since publication began, the turning point indicators have correctly reflected turning points in the economic outlook

Since 2008 the turning point indicator for France has correctly detected shifting dynamics in the economy

The turning point indicator for the French economy ("France") was first constructed in 2008, and published for the first time in June 2009. Its performance was tested ahead of publication by comparing the indications it provided with a dated analysis of the economic activity cycle established up to mid-2007. Since then, the dated period has been extended up to the end of 2012, which allows us to verify retrospectively whether or not the France indicator correctly identified, in real time, the changes observed in the dynamics of the French economy in early 2008, mid-2009 and late 2011.

6 - The turning point indicator for France and the dating of growth cycles



How to read it: the turning point indicator (curve) is in the favourable zone when it approaches 1, and unfavourable when it is closer to -1. It is compared here with the reference dates retained for growth cycles: the grey zones represent periods of slowdown in GDP (compared with long-term trends) and the white zones represent periods of acceleration.

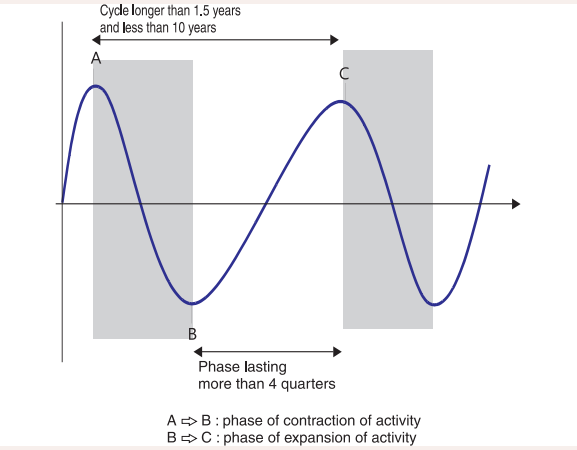
New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

Box 5 - How do we construct economic turning point indicators?

The purpose of a turning point indicator is to identify phases of expansion and contraction in economic activity. These cycles can be linked to the phases of expansion and reduction of the GDP output gap (see *Graph*). The estimations are based on GDP by volume using a Christiano-Fitzgerald filter and identifying cycles of between 1.5 and 10 years, with a censor rule to discount phases of less than 4 quarters (*Bardaji et al. 2009*). This dating system is then used to assess the pertinence of the turning point indicators.

Obtaining quality information in order to measure these activity cycles empirically

Dating cycles of economic activity



The information used to detect turning points in the economic outlook must satisfy the following criteria (*Marcellino, 2005*):

- must be synchronous with the observed cycle;
- must be significant in terms of economic analysis;
- must be rapidly available and subject to limited revisions;
- must provide clear signals.

The balances of opinion which summarise the responses of businesses to the tendency surveys fulfil the first three criteria to varying degrees. Selecting those balances of opinion which are most pertinent in light of these criteria, and which when aggregated allow us to obtain an indicator which provides clear signals (the fourth requirement), is one of the key steps in constructing a turning point indicator.

Coding the information contained in the balances of opinion

INSEE uses several methods to code the balances of opinion

- For the "France" turning point indicator, the coding process uses the difference between the monthly variation in balances of opinion and the median variation, applying the *Baron & Baron method (2002)*; the sign obtained, positive or negative, allows for discrete coding in two modes.
- For the turning point indicators for the industrial, construction and wholesale sectors, coding is based on the hypothesis that the balances follow an autoregressive model (*Grégoir & Lenglart, 2000*): the difference between the balance for a given month on one hand, and the result of this process on the other hand, is the "innovation" of the balance; the corresponding sign, positive or negative, allows for discrete coding in two modes.
- Coding for the turning point indicator for the service sector is continuous and not discrete, based on the variation in balances of opinion and the periodicity specific to each balance.

Estimating the turning point indicator

Using the coding of the balances of opinion, we estimate the probability that the economic phase will be favourable or unfavourable. This estimation is based on a Markov model with hidden variables (*Bardaji et al., 2009*). There are two different types of model:

- The 2-state model which identifies only 2 potential states for the economic outlook ("favourable" or "unfavourable");
- The 4-state model, which for each outlook state incorporates a potential state of uncertainty arising from the information provided by the balances of opinion ("certain" or "uncertain" states).

Ultimately the turning point indicator corresponds to the difference between the probability that the economic phase will be favourable and the probability that it will be unfavourable. Turning point indicators are estimated using all of the information available for each survey (beginning in 1976 for industry, 1988 for services, 1993 for building etc.).■

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

Spring 2008 to spring 2009: the great recession

In late 2007, the short-term outlook for the French economy remained relatively favourable, although activity was beginning to stall: GDP (as measured at present in the quarterly national accounts) grew by just 0.4% and 0.2% respectively in Q3 and Q4 of 2007, down from 0.7% and 0.6% in Q1 and Q2. In the context of the growth cycle, using the standard system, the economic turning point is thus identified after the fact in early 2008. Meanwhile, the turning point indicator – which was not yet published at this time – would have observed the slowdown and moved into the "unfavourable" zone as early as October. After rallying briefly in Q1 2008, the short-term outlook then experienced its most unfavourable spell since the Second World War, between Q2 2008 and Q2 2009 (the period now known as the great recession). During this period, the business climate indicator fell by thirty points and the turning point indicator remained very close to -1.

Summer 2009 to winter 2011: an upturn in growth

After five consecutive quarters in decline, the French economy came out of recession in Q3 2009, with GDP increasing by 0.2%. The rebound was more substantial in Q4, when growth reached 0.7%. As early as July 2009 the "France" turning point indicator foresaw the beginning of this upturn, clearly passing into the favourable zone (+1). A turnaround was predicted in June for the manufacturing industry, and a posteriori analysis of this branch in the national accounts confirms that it was indeed a catalyst for the rebound. Over the ensuing months, the France turning point indicator remained firmly in the favourable zone.

From mid-2011 onwards, the recovery stalled

The quarterly national accounts indicate a very clear slowdown in activity in the very first results received for Q2 2011. The business tendency surveys for September 2011 confirm the long-term nature of the change in the economic outlook: the France turning point indicator passed very clearly into the unfavourable zone (-1), remaining there for subsequent months. INSEE's Conjoncture in France report bore the headline "Economic Recovery on Hold", and the various sector-specific turning point indicators delivered conflicting messages: clearly unfavourable for construction, uncertain for industry.

The turning point indicator returned to the zone indicating a favourable economic outlook in July 2013, remaining there until June 2014. In summer 2014, the business tendency surveys detected a slowdown in activity. Although the business climate has recovered since autumn 2014, it still remains far below its long-term average. The turning point indicator, meanwhile, has returned to the zone indicating a favourable economic outlook.

The majority of turning point indicators published by INSEE have performed very satisfactorily

Progress has been made in recent years, allowing us to more accurately assess the extent to which the indicators reflect the reality of the different phases of the economic cycle. We now have tools which allow us to evaluate the performance of these indicators. Such evaluations have been conducted systematically on the turning point indicators produced by INSEE, allowing us to state with confidence that they are generally pertinent; this process has also led to a modification which has significantly improved the services indicator, as well as an adjustment to the indicator for the French economy as a whole.

The AUC indicator allows us to quantitatively confirm the quality of the economic turning point indicator for France

The consistency of the turning point indicator with the actual dates of economic cycles can thus be represented using ROC curve which provides a graphical illustration of the relationship between the proportion of expansion phases incorrectly forecast and the proportion of expansion phases forecast correctly (*Box 6*). The quality of the turning point indicator can then be summarised using a composite quantitative indicator: Area Under Curve, or AUC. The closer the AUC is to 1, the more closely the turning point indicator corresponds to the real dates.

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

Box 6 - Using the ROC curve to evaluate a turning point indicator

The turning point indicator is presented in the form of a curve which can range between -1 and +1. It can be read as follows: when a point is very close to +1 (inversely -1), we consider the current economic phase to be clearly favourable (or, inversely, unfavourable).

In interpreting this graph, readers must establish a threshold which allows them to differentiate the values of the indicator which are close to +1 from those closer to -1. This value must not be time-specific, and will depend entirely upon readers' level of risk aversion (*Granger, Pesaran, 1996*). Once this value has been set, readers can assume the economic phase to be favourable as soon as the value of the turning point indicator is above the threshold. As such, readers keen to avoid risk will consider the economic phase to be favourable only when the turning point indicator exceeds a relatively high value (e.g.: 0.9) whereas readers with slightly more tolerance for risk may set a lower threshold (e.g.: 0) for their own analyses.

In light of the threshold thus established, individual readers may sometimes incorrectly detect phases of expansion. A turning point indicator is of good quality when it allows all readers to arrive at a correct diagnosis. From this point of view, the perfect turning point indicator is equal to precisely +1 when the economy is in a phase of expansion, and precisely -1 in the opposite case: whatever their individual thresholds, all readers will thus be able to correctly detect favourable and unfavourable phases in the economic cycle.

By calculating for all potential readers (i.e. by ensuring that the detection threshold for favourable phases varies between -1 and 1) the proportion of incorrectly predicted expansion phases and the proportion of expansion phases predicted correctly, we can construct the ROC curve (Receiver Operating Characteristic).

The ROC curve (*Lahiri et al.*) is a graphical representation of:

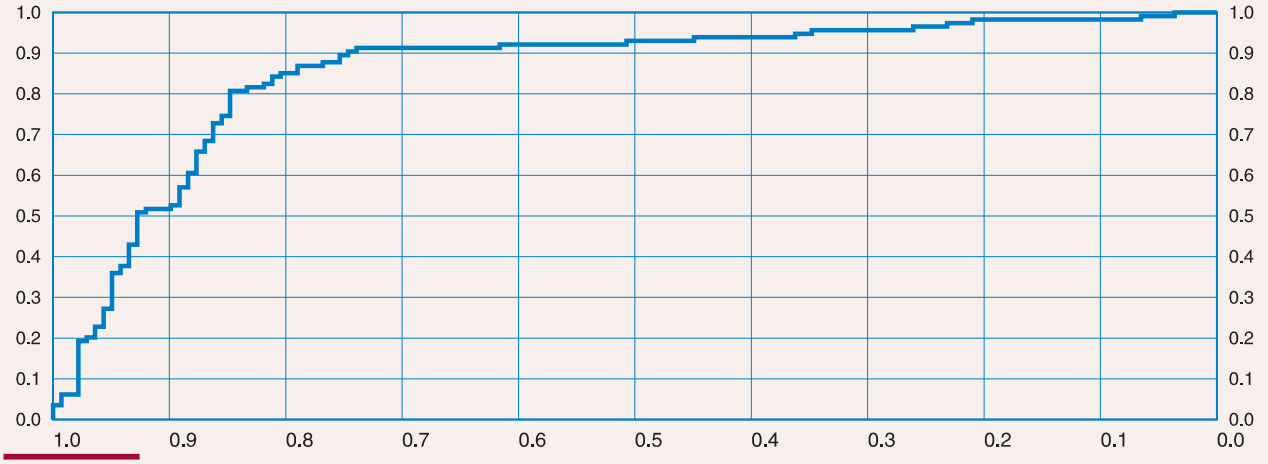
- on the x axis, the proportion of unfavourable periods incorrectly predicted as favourable ("specificity");
- on the y axis, the proportion of correctly predicted favourable periods among the favourable periods ("sensitivity").

The area beneath this curve (Area Under Curve or AUC) is a measure of the quality of the indicator. This area should be as large as possible.

- when the AUC is equal to 1, the turning point indicator has achieved the maximum possible capacity for detecting economic activity cycles - the ROC curve for this 'ideal' turning point indicator passes through the point (1.1);
- when the AUC is close to 0.5 the turning point indicator has no particular detection capacity and its diagnoses are unconnected to the actual cycle dates.

The turning point indicator for France has an AUC of 0.86 for the period 1992-2012. This means the indicator provided a correct diagnosis 86% of the time in the period 1992-2012. ■

ROC curve for the "France" economic turning point indicator



How to read it: when the proportion of incorrectly predicted favourable periods is 20% (specificity = 0.2 on the x axis), the corresponding proportion of favourable periods predicted correctly is nearly 100% (sensitivity = 0.98 on the y axis).
Source: INSEE

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

Constructed to give consistent indications for a dated period up to mid-2007, the "France" economic turning point indicator has an AUC of 0.86 for the period 1992-2007. This means that for the period up to 2007 the indicator delivered a correct diagnosis of the situation in 86% of cases. The quality of this indicator declined very slightly over the period 2007-2012, with the new cycle dating system, to give an AUC of 0.83. Furthermore, the 'France' turning point indicator is significantly more efficient than a turning point indicator constructed purely on the basis of variations in the business climate: the latter achieved an AUC of 0.73 for the period 1992-2012.

With the exception of services, the performance of the sector-specific indicators has been highly satisfactory

With the exception of the turning point indicator for the service sector, the performance of the turning point indicators currently published has proved to be highly satisfactory in terms of AUC. For the period 1992-2012, the AUC results have ranged from 0.81 for the wholesale sector to 0.89 for industry. The performance of these sector-specific indicators remained stable or deteriorated only slightly over the more recent period 2007-2012 (see *Table 2*).

The strong performance of the turning point indicators constructed for France, industry, wholesale and construction is corroborated by a comparison with alternative indicators constructed using different criteria. The four current indicators are based on a modelling process which takes into account the two states of uncertainty derived from the information provided by the balances of opinion (certain and uncertain). We thus refer to them as four-state models. For each indicator, an alternative version was created using a model which does not take this uncertainty into account - a two-state model. While this approach makes the indicator easier to read, this simplification comes at the expense of the quality of the diagnosis: using the same balances of opinion, the reduction from four to two states induces a clear deterioration in the quality of the indicators established for France and the different sectors excluding services (see *Table 3*).

Table 2

Performance of the turning point indicators over the long term and more recently

Turning point indicator	Current model		Performance in terms of AUC		
	Codage	**Modeling**	**1992-2012**	**1992-2007**	**2007-2012**
France	Baron-Baron	4 states	0.86	0.86	0.83
Industry	Grégoir-Lenglart	4 states	0.89	0.88	0.92
Wholesale	Grégoir-Lenglart	4 states	0.81	0.84	0.84
Construction	Grégoir-Lenglart	4 states	0.81	0.81	0.83
Services	Continuous	2 states	0.73	0.68	0.80

How to read it: the turning point indicator for industry has an AUC of 0.89 for the period 1992-2012. This means the indicator provided a correct diagnosis on 89% of occasions.

Table 3

Comparing the performance of 4 and 2-state models

Turning point indicator	Modèle en production		Variant	
	Specification	**AUC**	**Specification**	**AUC**
France	4 states	0.86	2 states	0.73
Industry	4 states	0.89	2 states	0.56
Wholesale	4 states	0.81	2 states	0.78
Construction	4 states	0.81	2 states	0.57

Source: INSEE

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

Detecting turning points in the economic outlook is particularly tricky in the service sector

The business tendency surveys have more trouble interpreting the economic outlook for services

The service sector is relatively disparate and includes activities which are very different in terms of their short-term outlook. In this category, specialist scientific and technical activities, ranked alongside consultancy and business assistance services, and more directly operational activities such as administrative and support services, are included under the same banner as everything from IT services to real estate services, accommodation and catering services and household services. It seems likely that this diversity makes the business tendency surveys more difficult to use in terms of predicting future developments in the sector. In particular, the bridge models used to forecast service output based on the balances of opinion derived from these surveys prove to be of lesser quality than those calculated for the industrial sector, for example.

The turning point indicator for services has seen some tough times

The turning point indicator for the service sector has an AUC of 0.73 for the period 1992-2012. This means that, on average, it produces a correct diagnosis three times out of four, a lower rate than that observed for other sectors.In light of the difficulty encountered in extracting clear signals of the short-term outlook in the service sector, the turning point indicator for services was originally constructed differently from the other sector-specific turning point indicators: it is the only indicator in this category to be based on continuous coding and a two-state model (*Box 5*). Furthermore, the turning point indicator for services is based on balances of opinion available at different intervals, some monthly and some quarterly, which only serves to complicate the task of interpreting them.

By testing different variations of the indicator with new specifications based on a modified list of balances of opinion, it becomes clear that an indicator constructed along the same lines as the others - i.e. using a *Grégoir & Lenglart* coding method, a four-state model and information derived exclusively from monthly balances of opinion - would be of substantially higher quality today.

A new turning point indicator has been developed for the service sector, based exclusively on monthly balances of opinion

All other things being equal, the different variations demonstrate that a four-state model is more effective in terms of AUC than a two-state model, and that *Baron & Baron* coding yields less effective indicators than continuous coding or *Grégoir & Lenglart* coding. Finally, versions of the indicator constructed using monthly balances of opinion are easier to read because they are constructed in a manner which is consistent over time, regardless of the position of the month within the quarter. Overall, for the service sector, it is a version of the turning point indicator based exclusively on monthly balances and using a four-state model and *Grégoir & Lenglart* coding which gives the best performance results in terms of AUC criteria (see *Graph 7*). This version no longer relies solely on the five monthly balances "past turnover", "previous employee headcount", "predicted turnover", "predicted prices" and "predicted demand". This new economic turning point indicator for services proves to be more effective.

This new economic turning point indicator for services proves to be more effective

Over the long-term (1992-2012), this new turning point indicator for the service sector yields an AUC of 0.90, compared to just 0.73 for the indicator currently published. For the more recent period 2007-2012, this performance does not deteriorate (AUC of 0.89, against 0.80 for the current indicator). Most notably, for the more recent period the indication provided by this new turning point indicator for services was more consistent with the actual developments observed in the sector, whose rate of growth as recorded in the national accounts remains well below its average (0.3% per quarter since the start of 2012, against 0.8% per quarter between 1992 and 2007). This indicator will thus replace the old one, and will be published for the first time in April 2015.

New advances in the use of INSEE's business tendency surveys to analyse the short-term economic outlook

An improved turning point indicator for the economy as a whole

For the economy as a whole, a new indicator based exclusively on monthly balances of opinion...

The turning point indicator for the economy as a whole, published since 2009, is based on 26 balances of opinion used to calculate the business climate indicator for France (Bardaji et al., 2008). This is the only such indicator to use the Baron & Baron method to code the balances (see *Box 5*). As with the turning point indicator for services in its previous published form, it is based on balances of opinion available at different intervals: 18 monthly balances, 3 quarterly balances and 5 bimonthly balances. As a result, its content will vary depending on the month in question. It therefore seemed appropriate to test a new method of calculating the economic turning point indicator for France which would be more consistent with that used for the sector-specific indicators, without impairing its performance. The first task was to retain only those balances available with the same regularity, and to use the same coding method (Grégoir & Langlart) used for the sector-specific indicators. This necessarily meant excluding balances of opinion from the wholesale sector, as these are only available every other month.

... and no longer using balances of opinion from the trade sector

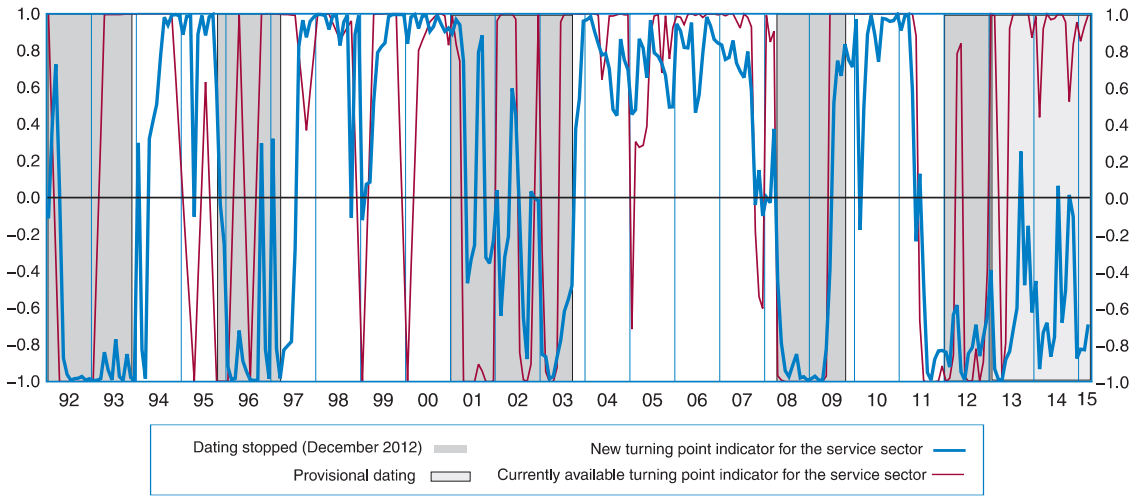
Secondly, a decision had to be made as to whether or not to include balances of opinion derived from the business tendency surveys in the retail sector. Given the greater level of volatility observed in the balances of opinion for retail trade, there is little interest in a specific turning point indicator for this sector. Two alternative versions were tested, one excluding the balances of opinion from retail trade and the other including them. Ultimately, it seems more pertinent to exclude them from the revised indicator.

Following these changes, the turning point indicator for the economy as a whole is far more sparing than the current indicator, based as it is on just 14 monthly balances of opinion covering the current situation in the industrial, construction and service sectors (*Box 7*).

The revised 'France' turning point indicator is just as effective and easier to read for the recent past

More sparing, but also more consistent with the methodologies used to construct the sector-specific indicators, the method thus tested does not significantly affect the performances of the turning point indicator over the long term (AUC of 0.83 compared with 0.86 for the current indicator, over the period 1992-2012). The respective performances are identical for the more recent period (AUC of 0.83

7 - Comparison of the new turning point indicator for the service sector with the one currently available

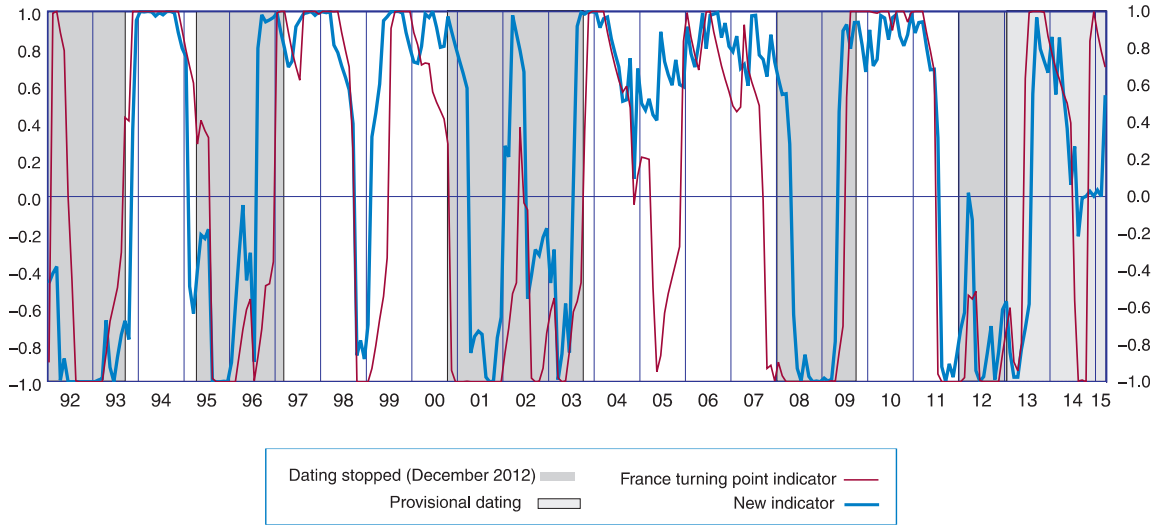


How to read it: the new services turning point indicator is represented by the thick blue line. The indicator published up until now is represented by the thin red line.

for both indicators between 2007 and 2012). These adjustments, tested with a view to improving the method used to estimate the turning point indicator, will be implemented starting with the report published in April 2015.

For the period since 1992, the new and old calculation methods yield broadly similar messages, with the exception of certain periods, including the recent past. While the old method indicated a period of unfavourable circumstances between July and October 2014 then a favourable phase from November 2014 to the present, the new 'France' turning point indicator has been in the 'uncertain outlook' zone since May 2014 (*Graph 8*). In this respect it is a better reflection of the contrasts which emerge from the different sector-specific turning point indicators, which suggest an unfavourable situation in the construction and service sectors but a return to a favourable outlook in the industrial sector since January 2015. ■

8 - Comparison of the new turning point indicator for "France" with the one currently available



How to read it: the new services turning point indicator is represented by the thick blue line. The indicator published up until now is represented by the thin red line.

Box 7 - The balances of opinion used to calculate the turning point indicator for France (as of April 2015)

Industry

- General production expectations;
- Pastactivity;
- Personal production expectations;
- Global order books;
- Export order books;
- Finished-goods inventory.

Services

- Past activity;
- Expected activity;
- Expected demand.

Construction

- Past activity;
- Expected activity;
- Past employment;
- Opinion on order books;
- Production capacity utilisation rate.■

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