Two new monthly composite indicators for France

a business climate indicator and a turning point indicator

EU workshop on recent developments in business and consumer surveys, Brussels

10-11 November 2008
Structure of the talk

1) Historical background

2) A monthly business climate indicator of the overall French economy

3) A monthly turning point indicator of the overall French economy
Part 1

Historical background
Historical background

- 1951: INSEE conducted its first business survey

- 1952: informal cooperation between Germany/Italy/France in the field of business surveys

- 1962: on the strength of the French, German, and Italian experience, the European Communities Commission launched the harmonised monthly survey of industrialists in the Community.
## Historical background

Data availabilities and frequencies of the balances used for the principal business tendency surveys

<table>
<thead>
<tr>
<th>Year</th>
<th>Industry</th>
<th>Services</th>
<th>Building ind.</th>
<th>Wholesale trade</th>
<th>Retail trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>M</td>
<td>NA</td>
<td>Q</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td>Q</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td></td>
<td></td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Since 2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Historical background

- INSEE has developed its own composite indicators
- Sector business climate indicators
  (different from European confidence indicators)
  Industry in 1999, Services in 2004, Wholesale trade in 2006,
  Building in 2007, Retail trade in 2008
- Sector turning point indicators
  Industry in 2000, Building in 2006, Wholesale trade in 2008,
  Services (in test)
- But no overall economy indicators … until now
Part 2

A monthly business climate indicator of the overall French economy
The purpose

- To summarise the numerous balances of opinion,
- To provide a clear interpretation of all the business surveys,
- To deliver an early quantitative message concerning the French economic outlook.
Existing and Needed Tools

5 sectoral business climate indicators: Industry, Services, Building, Retail and Wholesale trade.
Existing and Needed Tools

- But no « all-sector » synthetic indicator

  1) Building « A » Global Climate of the Whole French Economy

  2) Building « THE » Best Global Climate of the Whole French Economy

Using Selection Criteria
Methodology

Dynamic analysis

- Kalman filter with Maximum likelihood estimation
- Extraction of a common dynamic
- Noise => limited number of variables
Selection of the input data set

Three main approaches

- All the business surveys balances… (CI26)
- …or using the previous sector-specific indicators (CI5)
- …or something else in between (CI12obj and CI12subj)
Performance evaluation

- Quick reading and Smoothness
- Stability
- GDP growth forecast
Stability

- Real-time estimation
  - Average revision after 1 (2) Month(s)
  - Stability in the long run

<table>
<thead>
<tr>
<th>Average revision after…</th>
<th>CI5</th>
<th>CI26</th>
<th>CI12obj</th>
<th>CI12subj</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 month</td>
<td>2.36</td>
<td>0.08</td>
<td>0.07</td>
<td>0.69</td>
</tr>
<tr>
<td>2 months</td>
<td>2.44</td>
<td>0.11</td>
<td>0.09</td>
<td>0.69</td>
</tr>
<tr>
<td>Common period</td>
<td>6.92</td>
<td>1.12</td>
<td>0.93</td>
<td>1.83</td>
</tr>
</tbody>
</table>

Note: data are expressed in index points
Stability
GDP growth forecast

- Insee’s forecast exercise framework
- Automated selection (GETS)

<table>
<thead>
<tr>
<th></th>
<th>CI5</th>
<th>CI26</th>
<th>CI12obj</th>
<th>CI12subj</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted $R^2$</td>
<td>0.64</td>
<td>0.62</td>
<td>0.53</td>
<td>0.66</td>
</tr>
<tr>
<td>DW</td>
<td>2.20</td>
<td>2.24</td>
<td>2.24</td>
<td>1.96</td>
</tr>
<tr>
<td>RMSE in sample</td>
<td>0.25</td>
<td>0.25</td>
<td>0.29</td>
<td>0.24</td>
</tr>
</tbody>
</table>
Final business climate indicator in the overall economy

French business climate vs GDP (y o y changes)
Part 3

A monthly turning point indicator of the overall French economy
The purpose

- Detecting turning points as soon as possible (before quarterly national accounts first issue)

- Signaling at each date the most probable phase between the accelerating and the decelerating phases

- Providing an accurate signal on the current outlook
  - +1: acceleration
  - -1: deceleration
  - close to 0: stabilisation, return to long-term growth trend
Existing and needed tools

Industry

Building

Wholesale trade
Methodology

- Detecting as soon as possible regime changes of the underlying state $Z_t$ of the economy by involving observed data $X_t$.

Transition: $\eta$

Conditional: $\pi$

Diagram:

- $Z_{t-1} \xrightarrow{\eta} Z_t \xrightarrow{\eta} Z_{t+1} \xrightarrow{\eta} Z_{t+2}$
- $X_{t-1} \xrightarrow{\pi} X_t \xrightarrow{\pi} X_{t+1} \xrightarrow{\pi} X_{t+2}$
Methodology

- A two-step process
  - The coding step
  - The filtering step

- The chosen coding step
  - Each observation is coded following the position of its 3-month difference \( y_t^p - y_{t-3}^p \) with the median of this series
  - For the bimonthly series \( y_{t-3} = \frac{1}{2} (y_{t-2} + y_{t-4}) \)
  - If \( y_t^p - y_{t-3}^p > median (y_t^p - y_{t-3}^p)_{t=1...T} \) then \( x_t^p = +1 \)
  - This coding step present the advantage of handling easily the change between monthly, bimonthly and quarterly data
Methodology

- The filtering step

  Estimation and results:
  - A state-space model
  - An E-M algorithm
  - The turning point index is calculated:
    \[ TPI_t = P(Z_t=+1|l_t) - P(Z_t=-1|l_t) \]
Selection of the input data set

Two main approaches

- Automated selection of the balances
  - The less accurate balances are excluded from the estimation
  - The criterion is the closeness of the indicator to a reference dating of GDP

- Manual selection of the balances
Stability and real-time validation
A reference dating on GDP growth cycle
Final turning point indicator
Conclusion

- Two new tools:
  - which are based on soft data and very quickly available (at the end of the month under review)
  - which are complementary
  - which offer a clear reading of the economic outlook
  - which can help the economists and the forecasters
Conclusion
Thank you for your attention