Outline

- Introduction
- Methodology
- Results of the new BTS and observed breaks in the series
- Preliminary results for the performance of the new series
- Conclusion
Introduction

BTS is a monthly survey carried out to produce indicators as to reflect the tendencies in the manufacturing industry. It has been conducted since December 1987 and undergone various changes in 2007.
Methodology

- Questions & questionnaire design
- Survey frame & survey units
- Application of the survey
- Processing the results
Questions & questionnaire design

• Monthly questionnaire form

• Quarterly questionnaire form
Survey frame & survey units

Former and New Survey comparisons in terms of:

- Survey frame
- Survey units
- Sampling methods
- Sectoral breakdowns
## Business Tendency Survey (New – Former Comparison)

<table>
<thead>
<tr>
<th></th>
<th>New</th>
<th>Former</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sampling Method</strong></td>
<td>Fixed panel</td>
<td>Non-probabilistic purposive sampling</td>
</tr>
<tr>
<td></td>
<td>Cut-off applied</td>
<td></td>
</tr>
<tr>
<td><strong>Sample Size</strong></td>
<td>1588</td>
<td>832</td>
</tr>
<tr>
<td><strong>Response Rate</strong></td>
<td>70-75 %</td>
<td>Nearly 50 %</td>
</tr>
<tr>
<td><strong>Weighting</strong></td>
<td>Two-step weighting</td>
<td>No weighting</td>
</tr>
</tbody>
</table>
Sectoral breakdown of the former & new BTS respondents

**SECTOR GROUPS**

<table>
<thead>
<tr>
<th>SECTOR GROUPS</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>DA</td>
<td>14.7</td>
<td>11.8</td>
</tr>
<tr>
<td>DB</td>
<td>29.1</td>
<td>21.6</td>
</tr>
<tr>
<td>DC</td>
<td>0.8</td>
<td>1.9</td>
</tr>
<tr>
<td>DD</td>
<td>1.2</td>
<td>2.4</td>
</tr>
<tr>
<td>DE</td>
<td>3.7</td>
<td>4.1</td>
</tr>
<tr>
<td>DG</td>
<td>7.9</td>
<td>3.9</td>
</tr>
<tr>
<td>DH</td>
<td>5.0</td>
<td>5.8</td>
</tr>
<tr>
<td>DI</td>
<td>6.9</td>
<td>6.9</td>
</tr>
<tr>
<td>DJ</td>
<td>9.8</td>
<td>9.3</td>
</tr>
<tr>
<td>DK</td>
<td>11.3</td>
<td>11.3</td>
</tr>
<tr>
<td>DL</td>
<td>4.8</td>
<td>5.9</td>
</tr>
<tr>
<td>DM</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>DN</td>
<td>7.7</td>
<td>7.7</td>
</tr>
<tr>
<td>Other (*)</td>
<td>2.4</td>
<td>2.8</td>
</tr>
</tbody>
</table>
Application of the survey

Respondents have two choices to participate the new BTS, currently:

• Participation via post 31.9%
• Participation via internet 68.1%
Processing the results

• Calculation of the balance

Balance = % of the Positive Answers - % of the Negative Answers

• Weighting the results

• 1st step: Individual answers by the average number of employees of the previous year

• 2nd step: Weights related to overall Turkish Economy
  • From 3-digit to 2-digit by production values
  • From 2-digit to the total by value added
Results & observed breaks

- Broken series in new BTS
- Causes of the breaks
- The nature of the breaks
Broken series in new BTS

Breaks were not only in weighted balances also in unweighted balances. To find the broken series in new BTS, unweighted results of all of the joint questions in the former and the new surveys are examined.

• Graphical views and
• Descriptive Statistics
Broken series in new BTS

PRODUCTION (PAST 3 MONTHS) - BALANCE

-5 - 0 5 10 15 20 25 30 35
2003 2004 2005 2006 2007
Broken series in new BTS

PRODUCTION (NEXT 3 MONTHS) - BALANCE
Broken series in new BTS

EXPORT ORDERS (NEXT 3 MONTHS) - BALANCE

2003  2004  2005  2006  2007
Broken series in new BTS

DOMESTIC ORDERS (NEXT 3 MONTHS) - BALANCE

YEAR
- 2003
- 2004
- 2005
- 2006
- 2007

ORDERS (5 Steps/Year)
Broken series in new BTS

Fixed Investment Expenditure - Balance

- Years: 2003 to 2007
- Values range from -20 to 20
- Chart shows fluctuations over the years

Note: The chart indicates a trend of variability with significant peaks and troughs.
The descriptive statistics of the balances for this period showed that:

- For 5 of 16 joint questions, the changes in January 2007, in the balances were over two standard deviations of the former series.
- For 4 questions, the changes in the balances were over one standard deviation.
- For current situation questions such as current overall and export orders and stocks of finished products, the changes were less than one standard deviation.
Causes of the breaks

Several factors might have been effective on the breaks observed in the unweighted series

- Extension of the scope of the survey units
- Wording changes in the questionnaire
- Unstabilization of the panel in the beginning of the new period
- Possible changes in the attitudes of the former participants
Causes of the breaks

In order to examine the effects of the extension of the scope answers of the participants of the former survey, who have continued to participate in 2007 (31.3%) were examined:

- Their results also displayed similarities to the whole participants
- Wording changes seemed to be the most effective factor on the observed breaks
The nature of the break

- There were breaks in the balance values of the questions related to the quantities.
- Also the new series displayed higher volatility for these questions.
- Changes in the answer choices (increase–remain unchanged–decrease), which were effective on these breaks, were examined graphically.
The nature of the break

The breaks in the answer choices:

- “Remain unchanged” decreased. Most of the decreases shifted to “increase” choices
- As one exception, for question 23 (fixed investment expenditure for the next 12 months), the choices shifted from “decrease” to “increase”
Graphs of the breaks in terms of choices

GRAPH A - PRODUCTION (PAST 3 MONTHS)

GRAPH B - PRODUCTION (NEXT 3 MONTHS)

GRAPH C - EXPORT ORDERS (NEXT 3 MONTHS)
Graphs of the breaks in terms of choices
Preliminary results for the performance

- Consistency between the expectations and past assessments
- Comparisons with the reference series
Consistency between the survey questions

To see the consistency between the expectations and the assessments, they are compared by matching the reference periods:

- Assessments seemed to move parallel to the expectations in general
- Unweighted results seemed to be related more closely
Consistency between the survey questions

The production for the past and next 3 months, over the matching periods is parallel for both the weighted and the unweighted results.
Consistency between the survey questions

The overall orders, assessments are in conformity with the expectations over the matching periods for the unweighted results, while there are some directional differences between the weighted balances of the two.
Consistency between the survey questions

The export orders, the evolution of the expectations and the assessments over the matching periods seem parallel for both weighted and the unweighted results.

WEIGHTED BALANCES

UNWEIGHTED BALANCES
Consistency between the survey questions

The average unit cost series show no conformity between the expectations and assessments in weighted results, they are mostly conformable for the unweighted series.
Comparisons with the reference series

For the evaluation of the performance of the weighted results in reflecting the economic tendencies, the results are compared with the evolution of the related reference series:

- Balances
- Confidence Indexes
Comparisons with the reference series

GRAPH A - INDUSTRIAL MANUFACTURING INDEX (3-MONTH MOVING AVERAGE) AND PAST 3 MONTHS BALANCE OF PRODUCTION
Comparisons with the reference series

GRAPH B - EXPORT ORDERS BALANCE (PAST 3 MONTHS) AND EXPORTS OF MANUFACTURING INDUSTRY AVERAGE OF THE PAST 3 MONTHS

-20 -10 0 10 20
-20 -10 0 10 20

MONTHS

BALANCE

PERCENT CHANGE

200701 200702 200703 200704 200705 200706 200707 200708 200709

Manufacturing MA(3) % (t-3) Balance Manufacturing MA(3) % (t-1)
Comparisons with the reference series

The manufacturing confidence index estimated by CBRT and EU Confidence Index are compared to the 12-month changes of the moving average of the MPI. The confidence indexes seem to give information on the longer-term tendencies.

GRAPH B - REAL SECTOR CONFIDENCE INDEX - EU CONFIDENCE INDEX - MPI (3-MONTH MOVING AVERAGE) YEARLY PERCENTAGE CHANGE

GRAPH C - REAL SECTOR CONFIDENCE INDEX - EU CONFIDENCE INDEX - MANUFACTURING PRODUCTION INDEX (3-MONTH MOVING AVERAGE)
Conclusion

Preliminary evaluations on the basis of 9-month results indicated:

- The breaks were not only due to use of weighting
- Wording changes affected the results
- Conformity between the survey questions and with the reference series seem to indicate good performance
- Further observations and analysis are expected to provide more reliable evidence
Thank you for your attention!