CENTRAL BANK OF THE REPUBLIC OF TURKEY

IMPLEMENTATION OF THE NEW

BUSINESS TENDENCY SURVEY

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1. INTRODUCTION

The purpose of this presentation is to provide a comprehensive overview of the implementation of the Business Tendency Survey (BTS) of the Central Bank of the Republic of Turkey (CBRT) following its revision effective on January 2007, and present the results of the first 9 months of the new implementation, its scope, new and modified questions, methodology and the new application methods that have been prevailed in January 2007.

BTS is a monthly survey carried out to produce indicators as to reflect the tendencies in the manufacturing industry. The survey compiles the assessments of the senior managers on the recent past and the current situation and their expectations regarding the future course of the business activities. It has been conducted since December 1987.

BTS is included in the Short-term Business Statistics of the Turkish Statistical Institute's (TURKSTAT) "Official Statistics Program for 2007-2011", which was prepared in 2006. The studies towards the Programme targets, the harmonization of the BTS with the international standards and the improvement of the scope of the survey units were completed by the end of 2006. Therefore, starting from January 2007 there have been significant changes in the survey.

Currently, BTS has been conducted within the "Joint Harmonized EU Programme of Business and Consumer Surveys" and will be co-financed by CBRT and the European Commission over the period of May 2007 – April 2008.

The organization of the presentation is as follows: In section 2, the methodology of the new BTS is described with a brief overview of its differences from the former BTS. In section 3, the results of the new implementation are compared to the results of the former BTS. The observed breaks in the balance series and the possible causes and the characteristics of these breaks are discussed. In section 4, the performance of the new BTS is examined. Finally, a summary of the findings and their implications for further research are given in section 5.

2. METHODOLOGY OF THE NEW BTS:

2.1 Questions and questionnaire design:

In this section, we will give the details of the new methodology by emphasizing only the major differences from the former BTS. Detailed comparative information on the methodologies of the new and the former BTS implementations are given in Table 1.

TABLE 1: BUSINESS TENDENCY SURVEY (NEW – FORMER COMPARISON)

	NEW	FORMER
Sampling frame	Survey units of the monthly manufacturing industry production index with the base year 2005. It comprises all of the local units of the public sector enterprises and the private sector enterprises' units that generate the 90% of the total production value of the private units with annual average number of 20 or more employees at 4-digit sectors.	The industrial enterprises that are ranked among the "First 500 and Next 500 Industrial Enterprises of Turkey" lists prepared by the Istanbul Chamber of Industry.
Size of the actual frame list	7028 survey units.	1000
Characteristics	Identification, address, NACE code, number of employees.	Identification, address, ISIC code.
Frame list update	Updated whenever the frame of the monthly industrial production index is updated.	The frame list was updated yearly.
Sampling method	Fixed panel. Applied 85% cut-off to the production value of the private sector units with 50 or more employees at 3-digit sectors and 85% cut-off to the production value of the public sector units at 3-digit sectors where the public sector generate at least 20% of the total production value. For the sectors with less than or equal to 10 private (public) local units, all units are included regardless of the cut-off criteria.	Non-probabilistic purposive sampling.
Sample size	1600 survey units	832 survey units
Response rate	70-75 %	Nearly 50 %
Treatment of non-response	There is no special correction for non-response.	There was no special correction for non-response.
Sampling coverage	At least 80% of the production values at 3-digit manufacturing sectors.	
Weighting	First aggregation: Individual responses are weighted on the basis of the average number of employees of the participating units. Second aggregation: From 3-digit level to 2-digit level with production values and from 2-digit to the manufacturing industry total with the value-added figures of Turkish manufacturing.	Weighting was not applied; each response had equal effect on the results.
Sectors and/or categories currently covered	NACE Rev. 1.1 from 15 to 36 + 7 aggregates (CONS, INVE, INTM, TOTA, CDUR, FOBE, CNDU). The following sectors are not covered: 205, 233, 333, 335, 355 and 363.	ICI Rev. 2 economic sectors; mining, food, textiles, forestry, paper products, chemicals, stone&soil, metals, machinery and energy were covered, except services sector.
Periodicity	Monthly and quarterly	Monthly
Survey method	Either by post or via the web site of the CBRT.	Either by post or e-mail.
Fieldwork period	Survey forms are sent on the last working day of the month prior to the surveyed month via post and the survey is available on the first working day of the reference month via Internet. The fieldwork period is between the 1st and 15th day of the reference month. Non-respondents are contacted afterwards.	Survey forms were sent on the first working day of the month via post or e-mail. The fieldwork period was until the first day of the following month.
Dissemination of the results	Results are disseminated between the 25th-29th of the corresponding month.	Corresponding months results were published about the 10th of the following month.
Remarks	Quarterly questions are asked during January, April, July and October surveys.	

In the former BTS there were 34 questions in the monthly questionnaire, of which 20 questions were similar to the questions of EU "Industry Survey". The revision of the survey questions made in 2007 served two ends: Full harmonization with the EU "Industry Survey" and simplification of the survey so as to reduce respondents' burden. By these revisions the number of the questions that were not included in the Industry Survey was reduced while the similar questions were fully harmonized. Meanwhile, two different survey forms were prepared; one for the monthly survey and one for the quarterly survey. The quarterly survey form, which has been sent to the respondents every three months since January 2007 in January, April, July and October, has 28 questions. The monthly survey form, however, comprises only 22 of these 28 questions. The new forms of the survey questions are presented in the Appendix together with the corresponding questions in the former questionnaire.

2.2 Survey frame and survey units

TURKSTAT has provided technical assistance to the new survey design. The survey frame of the new BTS consists of the survey units of the monthly Manufacturing Industry Production Index with the base year 2005. The survey units of the Monthly Industrial Production Survey comprise all of the local units of the public sector enterprises' local units and the private enterprises' local units that generate at least 90 percent of the total production value of the private sector units with annual average number of 20 or more employees at four-digit sectors of NACE, Rev. 1.1.

The survey units of BTS are determined by applying 85 percent cut-off to the production value of the private sector units with 50 or more employees at 3-digit sectors and 85 percent cut-off to the production value of the public sector units at 3-digit sectors where the public sector generate at least 20 percent of the total production value. Whenever there are less than or equal to 10 public (private) units within a 3-digit sector, all of the public (private) units are included regardless of the cut-off criteria. Furthermore, if less than 10 units generate 85 percent of the production value, 90 percent cut-off is applied.

Survey units are the local units that are determined according to the cut-off criteria. However, enterprises with more than one local unit within the same three-digit sector can report for all of their activities in one survey form. Within this context, survey units comprise approximately 1600 local units and enterprises. They generate at least 80 percent of the production values at 3-digit manufacturing sectors of NACE, Rev. 1.1. Unweighted response rate has been about 70-75 percent over January – September 2007.

The panel of the former BTS was formed by non-probabilistic purposive sampling based on the voluntary participation of the managers of the companies, which were ranked in the top 1000

Industrial Companies list of the Istanbul Chamber of Industry (ICI). Number of participants in 2006 was 832 and response rate was 50 percent.

Two-digit sectoral breakdown of the participants of the new and the former BTS are given in Table 2. Compared to the new BTS, the percentage of the units operating in DA, DG and DM were higher in the former BTS, whereas the percentage of the units operating in DB and DI were lower. The percentage of the units operating in the other sectors were close to the percentages of those in the new BTS and 3.5 percent of the participants to former BTS were operating in non-manufacturing sectors. From the participants of former BTS, 31.3 percent are comprised within the respondents of the new BTS (**Graph: 1**).

TABLE 2

SECTORAL BREAKDOWN OF THE FORMER AND NEW BTS RESPONDENTS			
Sector Groups	**Number of Participants (%)-2007**	**Number of Participants (%)-2006 (*)**	**2007 Continuing Respondents from the Former BTS Number of Participants (%)**
DA Manufacture of food products, beverages and tobacco	12.1	15.3	15.8
DB Manufacture of textiles and textile products	29.0	22.7	22.6
DC Manufacture of leather and leather products	1.9	1.1	1.0
DD Manufacture of wood and wood products	2.4	1.1	1.2
DE Manufacture of pulp, paper and paper products; publishing and printing	4.1	4.3	5.6
DF Manufacture of coke, refined petroleum products and nuclear fuel	0.5	0.1	0.2
DG Manufacture of chemicals, chemical products and man-made fibers	3.9	8.4	7.4
DH Manufacture of rubber and plastic products	5.8	5.4	6.8
DI Manufacture of other non-metallic mineral products	9.7	7.4	7.2
DJ Manufacture of basic metals and fabricated metal products	11.3	10.3	11.4
DK Manufacture of machinery and equipment n.e.c.	5.9	5.1	5.0
DL Manufacture of electrical and optical equipment	5.9	6.3	6.0
DM Manufacture of transport equipment	4.7	6.3	6.8
DN Manufacturing n.e.c.	2.7	2.6	2.8
Other (**)	0.0	3.5	0.0
Total	100	100	100

(*) Number of participants in the sectoral breakdown of the former BTS participants according to NACE, Rev. 1.1 is as of 2006 and determined by contacting with the participants in 2006.

(**) Non-manufacturing Sectors

GRAPH 1-COMPARISON OF PREVIOUS AND NEW BTS RESPONDENTS ACCORDING TO SECTORAL BREAKDOWN
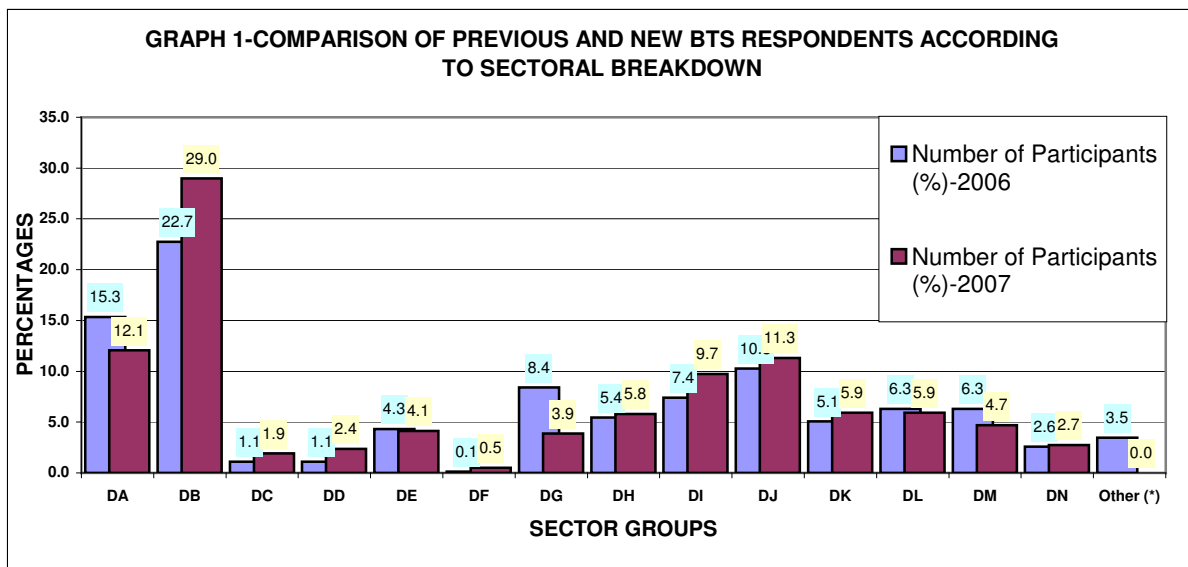
2.3 Application of the survey

The fieldwork period of the survey is between the 1st and 15th of the surveyed month and nonrespondents are contacted afterwards. However, for the first four months of 2007, since the survey is being conducted with its enlarged scope, late responses were accepted in order to communicate with the new respondents and make the respondents more acquainted with the new Survey. First application of the survey in January 2007 was made via post and answering preferences of the respondents were asked. According to their preferences next survey was applied.

2.3.1 Participation via post: Respondents, preferring to participate via post, are sent survey forms on the last working day of the month prior to the surveyed month. They are made to return the forms at the 15th of the corresponding month by post or fax message. If the survey is not returned until that time, the respondent is contacted by phone and requested to return the survey by fax. Respondents responding via post can inter-change their preference and join the survey via web site in the following months, once they indicate their preference on the relevant part of the printed survey form.

2.3.2 Participation via Internet: For the respondents who prefer to respond via web site, the survey form is made available on the related web address on the first working day of the surveyed month. Each respondent is given a firm identification number and an initial password. The respondents' information such as the title and the sector of the establishment are displayed on the survey form and the respondents are requested to send an e-mail to the system's mailbox when there are any changes in their information. Then, these changes are entered to the BTS database system. In addition to the survey form, explanatory notes about the survey, frequently asked questions and the communication numbers are made available on the web site. When there

is any change in the respondent's information, respondents could make the necessary changes in their accounts.

In case of the respondents failing to respond through the end of the fieldwork period, they are sent three remainder mails. Also, at the last day of the Internet application, the participants from the establishments, which have high shares in the production of their sectors, are contacted by phone. For increasing the survey participation toll-free help line system is settled. So, respondents could call the system managers freely and get any help when they needed about the survey.

2.4 Processing the results:

The results of the former BTS were not weighted. Starting from January 2007, BTS results are being published as weighted aggregates. Aggregated results for the qualitative questions of the BTS are calculated as weighted percentages of the establishments that responded with the alternative answer choices of these questions such as "increased, remained the same, decreased"; "above normal, normal for the season, below normal"; "will increase, will remain the same, will decrease". For the quantitative questions such as producer prices inflation and the duration of the production assured by the current order books, the aggregate figures are calculated as the weighted average of the responses. Responses to the question related to the restrictive factors on production are also calculated as weighted aggregates.

Weighting is performed at two stages: First, answers received from the establishments are weighted with the average number of employees of the establishments in the previous year as provided by the respondents once a year, and totaled up to three-digit level classification of the business activities. For the transition from three-digit level to two-digit level, results are weighted with production values, while the transition from two-digit level to the manufacturing industry total, the weights are based on the value-added figures related to the overall Turkish economy.

Production value weights utilized in 2007 at three-digit level have been calculated by using the production data provided by the establishments for the compilation of the Industrial Production Index in previous year. Value-added weights have been calculated by carrying the value-added proportions of the year 2000 forward into 2006, using the Manufacturing Industry Production Index (1997=100). All weights will be updated once a year by using the most recently released data on value-added figures and the annual Industrial Production Index for the previous year.

All responses to the survey questions are checked immediately, and any inconsistencies are notified to firms and corrected if necessary. No correction is made for non-response and the results are not revised in view of responses received after the survey period.

3. RESULTS OF THE NEW BTS AND OBSERVED BREAKS IN THE SERIES:

As mentioned in the previous section of the study, BTS has undergone various changes including the wording changes of a number of questions, enlargement of the survey units and the use of weights in the aggregation during the revision process. Following these revisions breaks observed in some of the series.

One of the major causes of the break in the series is weighting. The new series could not be backcasted, because of the differences in the sector classification and definition of the survey units as well as the lack of employment figures of the participants to the former survey. However, examination of the unweighted results in comparison to the previous results also displayed breaks in the balances of the several questions indicating that there might have been further causes of the breaks between the two series. Thus the nature of the breaks is sought and the possible causes are discussed on the basis of unweighted results.

3.1 Which series have broken?

To find an answer to this question, all of the joint questions in the two surveys were examined. The former BTS series starts from the year 1987; however there have been several crises until 2007. Therefore, to have harmonic series, which include similar observations to the year 2007 in terms of the growth rate, the series between the years 2003-2006 (former series) have been taken for comparison. This was a high growth period following the 2001 crises.

When graphical views were examined, it was realized that, especially some of the questions were broken much more than the others **(Figure: 1).** Detailed examination of descriptive statistics has also supported this claim. For each question, the magnitude of the break in the balance observed in January 2007 is compared to the standard deviation of the former series estimated over the January 2003 – December 2006 period. The descriptive statistics of the balances for this period and observed changes in the balances of January 2007 are given in **Table 3**. In January 2007, for 5 questions out of 16 joint questions, the changes in the balances were over two standard deviations of the former series while 4 questions the changes were over one standard deviation. In addition to comparing the balances of the former series with the January 2007 balance values, the means of the former 2003-2006 balance series are also compared with the 2007 balance means for 9 months (January-September). The means of the new balance series of the question
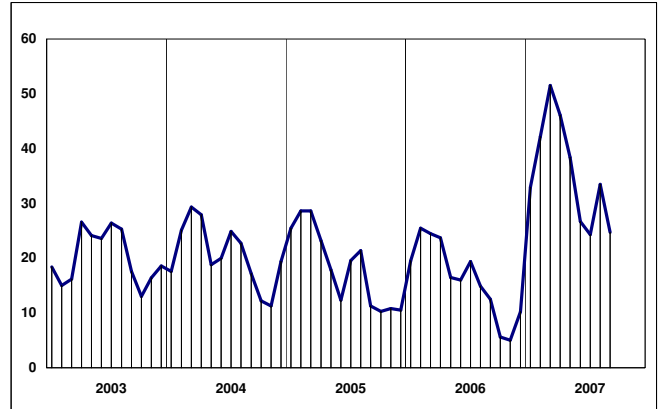
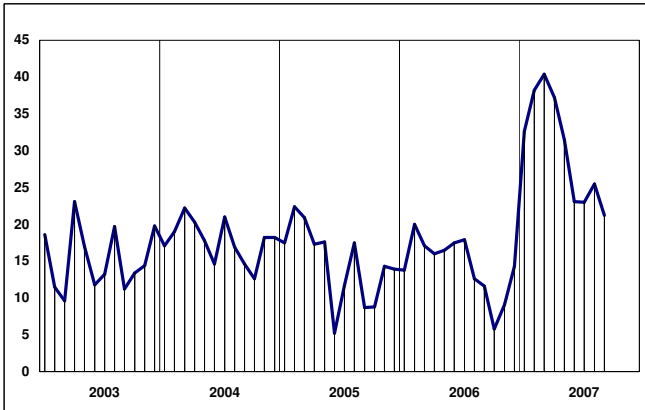**FIGURE 1: GRAPHS OF THE SIGNIFICANT BROKEN SERIES:**

GRAPH:A PRODUCTION (PAST 3 MONTHS) - BALANCE
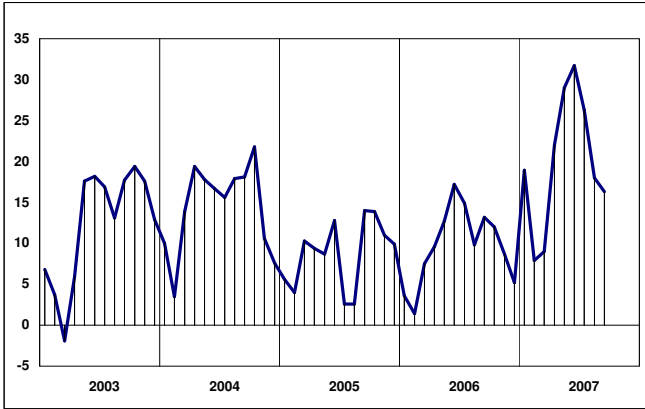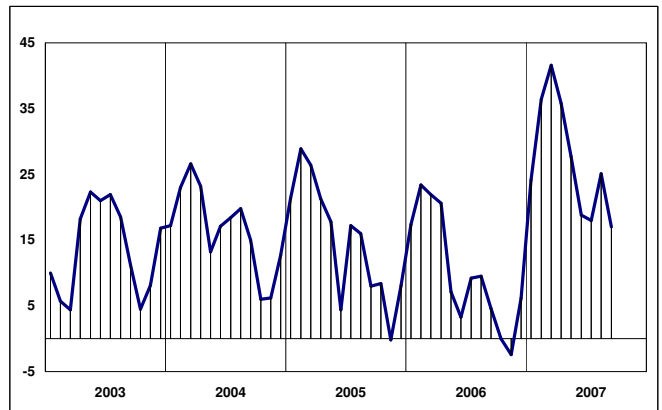

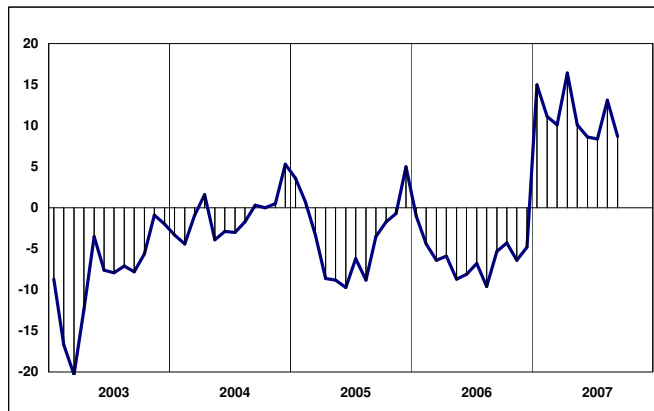**GRAPH: B PRODUCTION (NEXT 3 MONTHS) - BALANCE**

GRAPH :C EXPORT ORDERS (NEXT 3 MONTHS) - BALANCE

GRAPH: D   DOMESTIC ORDERS (NEXT 3 MONTHS) - BALANCE

GRAPH: E FIXED INVESTMENT EXPENDITURE - BALANCE

TABLE 3: THE DESCRIPTIVE STATISTICS OF THE BALANCES

QUESTION ID	FORMER MEAN	FORMER MEAN LOWER BOUND	UPPER BOUND	FORMER STD. DEV.	BALANCE OF DECEMBER-2006	BALANCE OF JANUARY-2007	CHANGE= (DEC. 2006 – JAN. 2007)	CHANGE IN STD. DEV.	NEW STD. DEV.	NEW VARIANCE /FORMER VARIANCE	BREAK
1	11.3	0.09	22.47	5.71	5.2	18.9	13.7	2.4	8.3	2.1	YES: OVER 2 ST.DEV.
2	-15.9	-26.83	-4.5	5.57	-12.5	-9.6	2.9	0.5	2	0.1	NO
3	-15.7	-23.79	-7.53	4.15	-12.9	-11.2	1.7	0.4	4.3	1.1	NO
4	4.4	-1.06	9.83	2.78	4.8	5.8	1	0.4	6.8	6.1	NO
5	18.8	6.5	31.04	6.26	10.2	32.9	22.7	3.6	9.7	2.4	YES: OVER 3 ST.DEV
6											
7	4.4	-2.26	10.99	3.38	1.3	7.1	5.8	1.7	2.4	0.5	YES: OVER 1 ST.DEV.
8											
9											
10											
11											
12	15.5	7.17	23.83	4.25	14.3	32.6	18.3	4.3	10.3	5.8	YES: OVER 4 ST.DEV
13											
14											
15											
16											
17											
18	3	-6.89	12.83	5.03	8.6	13.2	4.6	0.9	10.3	4.2	UNCERTAIN
19											
20	2.7	-11.2	16.55	7.08	2.1	-9.4	-11.5	-1.6	14.4	4.1	YES: OVER 1 ST.DEV.
21	13.7	-1.9	29.38	7.98	6.2	24.2	18	2.3	10.9	1.8	YES: OVER 2 ST.DEV
22	17.3	-0.55	35.24	9.13	18.7	12.7	-6	-0.7	4.7	0.3	UNCERTAIN
23	-4.7	-14.38	4.94	4.93	-4.8	15	19.8	4	7.9	2.6	YES: OVER 4 ST.DEV
24	38.9	20.52	57.25	9.37	34.4	46.6	12.2	1.3	8	0.7	YES: OVER 1 ST.DEV.
25	36	17.22	54.77	9.58	40.8	50.9	10.1	1.1	8.9	0.9	YES: OVER 1 ST.DEV.
26											
27	-30.3	-96.6	36.09	33.85	-0.9	6	6.9	0.2	15.2	0.2	NO
28	15.5	-6.32	37.31	11.13	4.4	-2.7	-7.1	-0.6	6	0.3	UNCERTAIN

for which the break in January 2007 is significant, are outside the confidence intervals of the means of the corresponding former balance series under the assumption of normality, indicating that the break in January 2007 is not a one-time abrupt change.

Yet there were questions, which showed no breaks. When further analysis was made on the questions, it was realized that, especially the current situation questions such as current overall and export orders and stocks of finished products have had no breaks.

3.2 What are the causes? [1]

Several factors might have been effective on the breaks observed in the unweighted series. Those are mainly the extension of the scope of the survey units and wording changes. Furthermore, the unstabilization of the panel in the new period as well as the possible changes in the attitudes of the former participants to the survey might also be effective. Some of the questions may be affected only from one of these factors whereas the other from more than one factor. At this point, it is important to identify which changes have caused the breaks in which questions mostly.

At first, these breaks were thought to originate from the changes in the scope of the survey units. Since, the different survey forms had not been applied at the same periods, we cannot compare the new and the former directly in the same economic environment. Instead, we examined the answers of the participants of the former, who has continued to participate in 2007, separately from the new participants. Accordingly, the balance values for January and mean of the balances of 2007 were calculated only with the continuing former BTS participants, which are about 31.3% of the whole participants and have a similar 2-digit sector breakdown to the all former BTS participants. By this way, the effect of the differences because of the new participants could have been eliminated to some extent. Those results have appeared to look like to the results of the whole participants, given in section 3.1, except a few differences. On the whole participants, January 2007 balance value for the past 3 months' production increased by 2.4 standard deviations of the former series, whereas, the change in January balance of the same question calculated only for the continuing former participants was about 1.6 standard deviations. It seems that there could still be a probable break but it was not such a notable one. On the other hand, for the total employment for the next 3 months question, the change in the balance in January 2007 seems to be more significant for the   continuing   former BTS participants. The balance of the

answers to this question displayed a change about 2.5 standard deviations for the continued former participants, while the change was about 1.7 standard deviations for the whole.

The similarity between the results of the answers of former and the new participants is considered to indicate that the factors other than the extension of the survey units might be effective on the breaks. Specifically, due to observing breaks in all questions asking "quantity changes" instead of asking "direction of the trend", wording changes in these questions are considered to be effective. Besides, the minor changes in the wordings of the questions of the "current situation" did not lead to significant breaks.

3.3 The Nature of the Break

According to the analysis made above, it is clear that there have been breaks in the balance values. In addition to the breaks to the balances, the new series displayed higher volatility. The variances of the new series are nearly more than 2 times bigger than the former series variances.

In this section, we examined which changes in the answer choices (increase-remain unchanged-decrease) were effective on these breaks by graphical analysis. When the graphs of the answers to the questions are investigated in terms of choices, the breaks in the answer choices of "remain unchanged" and "increase" have found more remarkable than the choice "decrease" for all of the broken series except for question 23 (fixed investment expenditure for the next 12 months) **(Figure: 2).** For question 23, while the percentage of "the same" choice did not change much in January 2007, the sign of the balance was reversed to the positive as a result of the reverse changes in negative and positive answers.
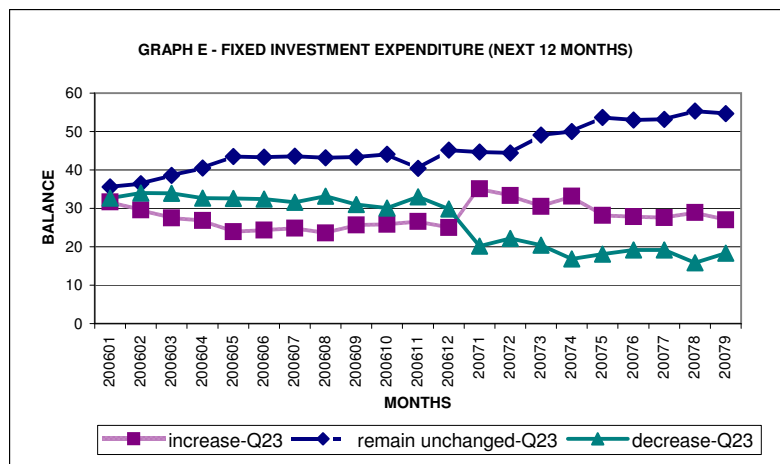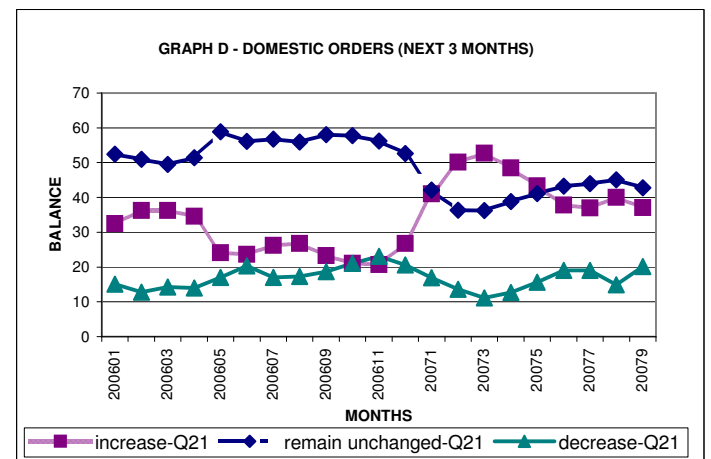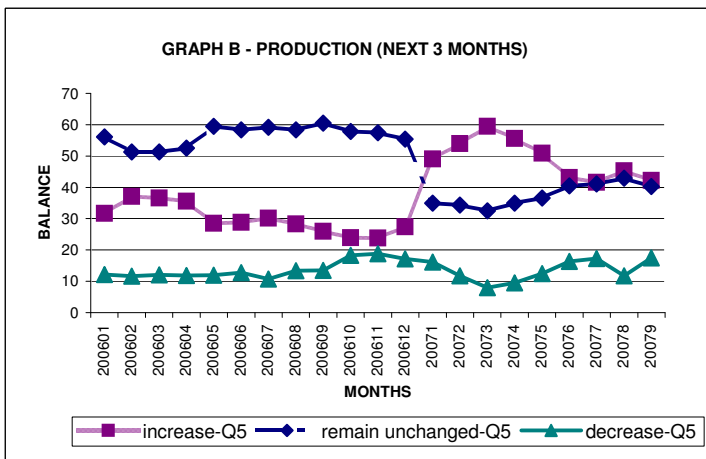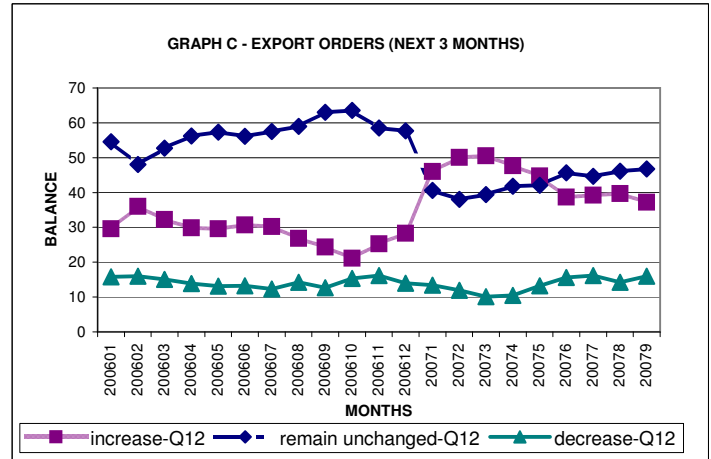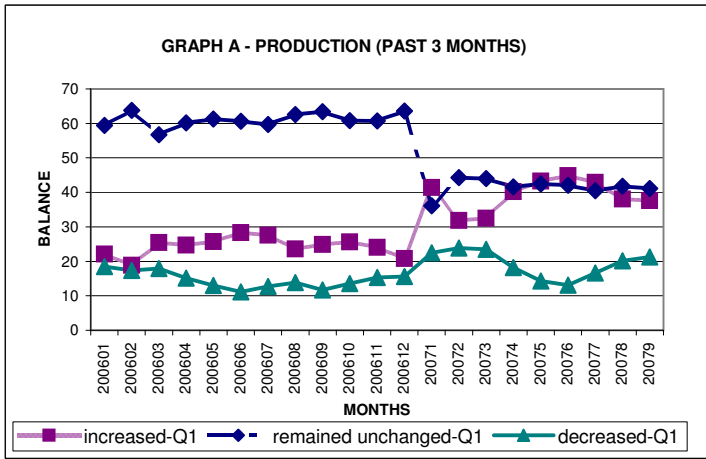
The analysis of the answer choices of the broken series has shown that in addition to "remain unchanged" both of the "increase" and "decrease" were broken. In fact, the break in "increase" was higher than the break in "decrease". Given that higher proportion of "remain unchanged" shifted to "increase", we checked if diffusion indices could provide a continuous series comprising the former and the new series. Therefore, diffusion indices were calculated by adding the half of the answers of "remain unchanged" to the choice "increase". However, again there were still breaks in the diffusion indices of the January 2007, indicating that the shift of "remain unchanged" to the "decrease" choice should also be taken into consideration.

4. PRELIMINARY RESULTS FOR THE PERFORMANCE

4.1 Consistency between the survey questions:

With the purpose of identifying the consistency between the questions, graphical views of the related questions are used. In BTS for each of the production, average unit cost, export, domestic

FIGURE 2- GRAPHS OF THE BREAKS IN TERMS OF CHOICES

GRAPH A - PRODUCTION (PAST 3 MONTHS)

GRAPH C - EXPORT ORDERS (NEXT 3 MONTHS)

GRAPH B - PRODUCTION (NEXT 3 MONTHS)

GRAPH D - DOMESTIC ORDERS (NEXT 3 MONTHS)

GRAPH E - FIXED INVESTMENT EXPENDITURE (NEXT 12 MONTHS)

and total orders questions assessment of past 3-months and the expectations for the next 3 months, are asked monthly. To see the consistency between the expectations and the assessments, they are drawn in the same graph, by matching the reference periods **(Figure: 3).** Comparisons are made for both weighted and unweighted results. According to these graphs;

- For the production past and next 3 months, evaluation of the balances over the matching periods is parallel for both the weighted and the unweighted results.

- For 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.

- For export orders, the evaluation of the expectations and the assessments over the matching periods seem parallel for both weighted and the unweighted results.

- At the domestic orders questions, past assessments seem to be parallel to the expectations of the matching periods for the unweighted results; however, there are some directional differences at weighted balances.

- While the average unit cost series show no conformity between the expectations and assessments weighted results, they are mostly conformable for the unweighted series.

To summarize, consistency seems to be higher for the unweighted results, indicating that participant's expectations are realized, in general.
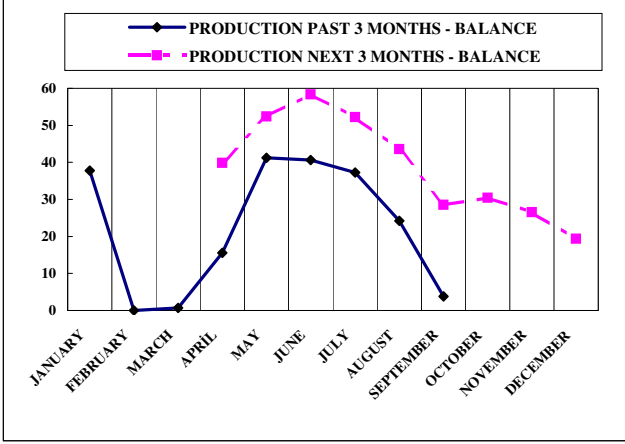
4. 2 Comparisons with the Reference Series:

For the evaluation of the performance of the weighted results in reflecting the economic tendencies, the balance figures are compared with the percentage changes of the related reference series.

The balance of the production in the past 3 months is compared to the percentage change in the 3-month moving average of the Manufacturing Production Index (MPI) from (t-3) and (t-1) to t **(Figure 4-Graph A).** Graph A displays that there is a close relation between the 3-month change of the moving average of the MPI and the balance of the past 3 months' production question. This indicates that participants compare the consecutive 3-month periods for evaluating the past 3 months' production developments. Consistency between the replies to the questions of the past and the next 3-month production developments implies that the future developments of the production are evaluated similarly. The month-to-month changes of the MPI resembles to its 3-month changes except that evolution of the month-to-month changes are s moother. So the
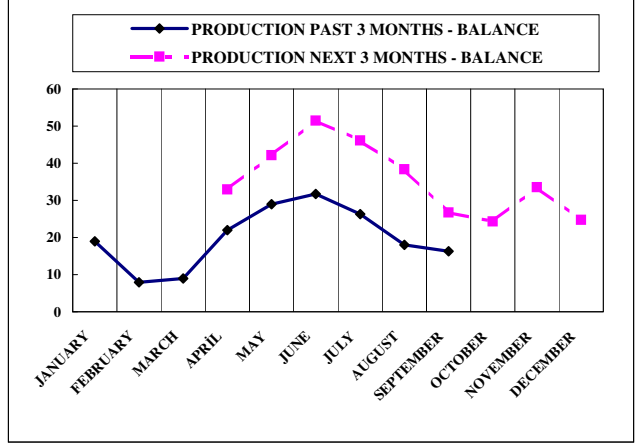
FIGURE 3: GRAPHS OF THE MATCHING SERIES

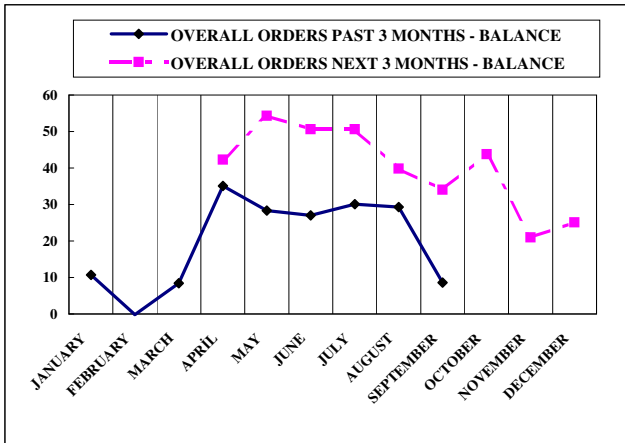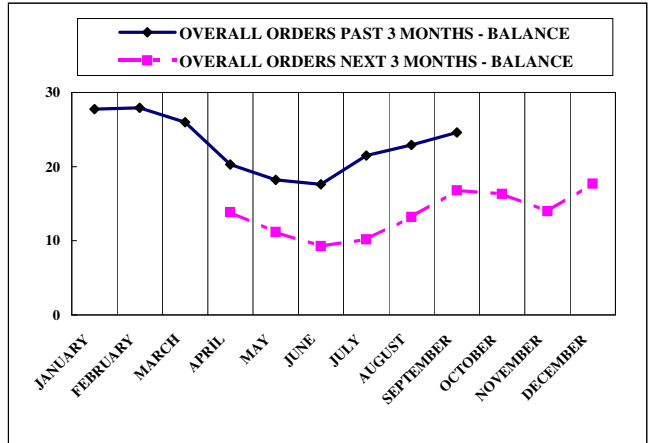**WEIGHTED BALANCES**

GRAPH: A-1

GRAPH: B-1
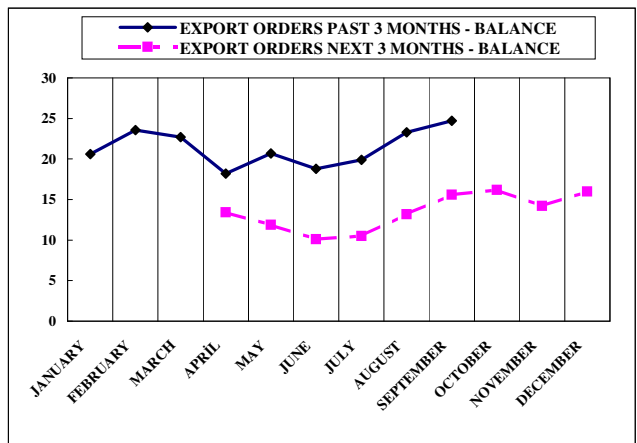

GRAPH: C-1

UNWEIGHTED BALANCES

GRAPH: A-2

GRAPH: B-2
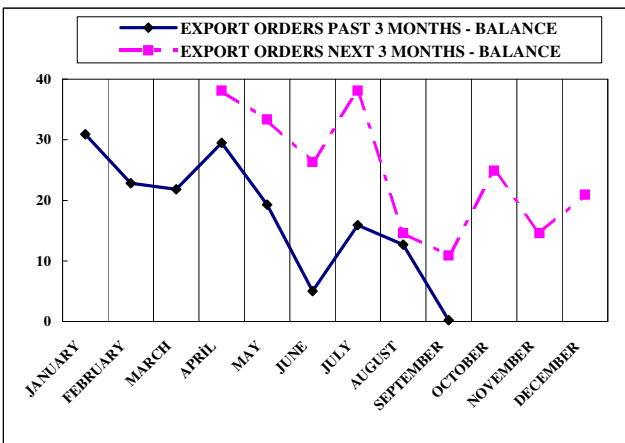
GRAPH: C-2

WEIGHTED BALANCES

GRAPH: D-1

Legend:
- DOMESTIC ORDERS PAST 3 MONTHS - BALANCE
- DOMESTIC ORDERS NEXT 3 MONTHS - BALANCE

UNWEIGHTED BALANCES

GRAPH: D-2

Legend:
- DOMESTIC ORDERS PAST 3 MONTHS - BALANCE
- DOMESTIC ORDERS NEXT 3 MONTHS - BALANCE

GRAPH: E-1

Legend:
- AVERAGE UNIT COST PAST 3 MONTHS - BALANCE
- AVERAGE UNIT COST NEXT 3 MONTHS - BALANCE

GRAPH: E-2

Legend:
- AVERAGE UNIT COST PAST 3 MONTHS - BALANCE
- AVERAGE UNIT COST NEXT 3 MONTHS - BALANCE

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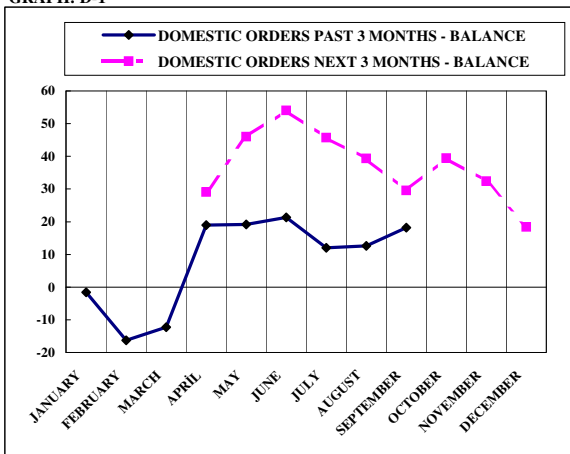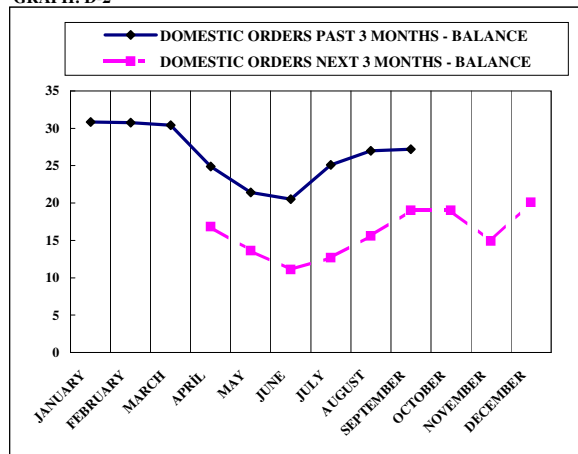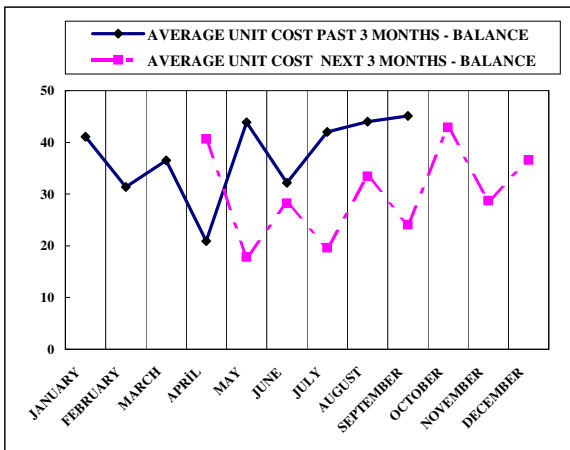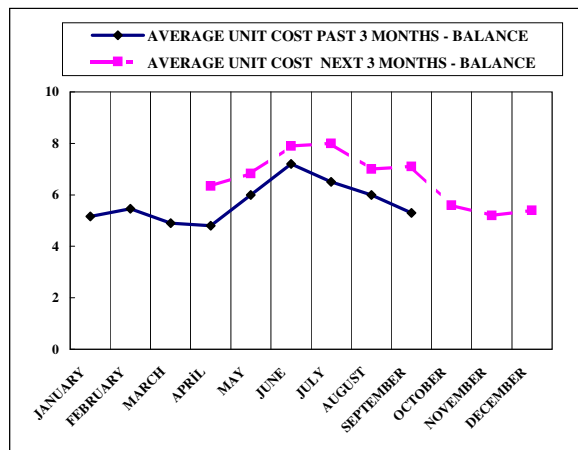
FIGURE 4- COMPARISONS WITH THE REFERENCE SERIES

GRAPH A - INDUSTRIAL MANUFACTURING INDEX (3-MONTH MOVING AVERAGE) AND PAST 3 MONTHS BALANCE OF PRODUCTION

Legend: MPI MA(3) % (t-3) — Balance — MPI MA(3) % (t-1)

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

Legend: RSCI — EUCI — MPI MA(3) % (t-12)

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

Legend: RSCI — EUCI — MPI MA(3) % (t-12)

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

Legend: Manufacturing MA(3) % (t-3) — Balance — Manufacturing MA(3) % (t-1)

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balance of past production is also in close relation to the month-to-month change of the moving average of MPI. However, the 12-month changes of the moving average of MPI does not show similar tendency to the past 3-month production balance which indicates that the raw data for the balance differ from the longer term tendencies in the manufacturing production.

Compared to the 12-month changes of the moving average of the MPI, the manufacturing confidence index estimated by CBRT and EU Confidence Index seem to give more information on the longer-term tendencies in the manufacturing production **(Figure 4 - Graph B, C).**

Similar to the assessment of the past production, the assessment of the past export orders seems to reflect the recent developments of the exports **(Figure 4 – Graph D).** In Graph D, the balance of the export orders in the past 3 months is compared to the percentage changes in the 3-month moving average of the exports. For this question, evolution of the balance is closer to the evolution of the month-to-month percentage change of the moving average of the monthly exports and also has similarities with the evolution of the 3-month change of the moving average.

The graphical inspection of the results seems to reflect that there are close contemporaneous relations between the balances and the evolution of the related macroeconomic indicators. However, care should be taken, since these inferences are based on the graphical inspection of a few observations available over the period following some major modifications including the extension of the survey units and wording and questionnaire form changes. As more observations become available, more reliable inferences can be made on the performance of the survey.

4. CONCLUSION

The BTS conducted by CBRT since December 1987 has undergone substantial revisions in 2007. Following these revisions, notable structural breaks are observed in some of the questions. In this presentation, the new methodology of the survey is described and the observed breaks in the balance series, possible causes for these breaks and the performance of the new survey results are investigated on the basis of January – September 2007 results.

The breaks in the series were not only due to use of weighting in the new series. Graphical views and examination of descriptive statistics indicated that unweighted balances of 9 questions displayed changes over one standard deviation of the related former series.

The changes in the wordings of several questions in the new BTS had various impacts as regards the occurrence of structural breaks: Due to the minor changes in their wording some questions were not affected much like the others. Only minor changes are observed in the results of the "current situation questions", indicating no significant breaks in these questions. However, notable structural breaks appeared, after more major changes in the wordings of questions such as asking "quantity changes" instead of asking "direction of the trend".

Performance of the new survey results is examined on the basis of internal consistency and relation with the related macroeconomic indicators. The assessments of the past are found conformable with the expectations by graphical inspection of the available matching observations. Conformity between them is higher for the unweighted results while weighted results might display different directional changes for some questions/periods.

Weighted results for the assessments of the past evolution of the exports and production seem to be in close relation with the short-term changes of the manufacturing exports and production. CBRT and EU Confidence Indices, calculated by using the weighted results, reflect the evolution of the annual changes of the industrial production.

Since the findings reported in this study are based on a few observations, should be taken with care as preliminary findings. Further examinations as more observations become available will provide more reliable evidence on the investigated topics.

On the basis of the preliminary findings of this study, further research on the following issues are considered to be useful:

• In some of the questions there are uncertain breaks in the series that there is need for some further observations and analysis to confirm the break.

• Transformations of the former series as to provide the continuity between the new series and the former series will be inquired. Distributing some of "the same" options in the former series between the "increase" and "decrease" choices might be considerable given the 9-month results of the new implementation.

• Alternative weight use for weighting the individual answers, such as using the exports of the establishments for weighting the export questions, will be sought.

• Non-response bias and the use of alternative methods for the non-response correction will be examined as more observations become available.

Acknowledgement

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APPENDIX   THE NEW AND FORMER QUESTIONS OF BTS

New Questions	Former Questions (**)
1- How has your production developed over the past 3 months? It has... **increased - remained unchanged - decreased**	15- Volume of output (last 3 months trend) **up - same - down**
2- Do you consider your current overall order books to be...? **above normal - normal for the season - below normal**	9- Total amount of orders received this month: **above normal - normal - below normal**
3- Do you consider your current export order books to be...? **above normal - normal for the season - below normal**	10 - Amount of export orders received this month: **above normal - normal - below normal**
4- Do you consider your current stock of finished products to be...? **above normal - normal for the season - below normal**	11 - Amount of monthly stocks of finished goods this month: **above normal - normal - below normal**
5- How do you expect your production to develop over the next 3 months? It will... **increase - remain unchanged - decrease**	15- Volume of output (next 3 months trend) **up - same - down**
6- How do you expect your selling prices to change over the next 3 months? They will... **increase - remain unchanged - decrease**	
7- How do you expect your firm's total employment to change over the next 3 months? It will... **increase - remain unchanged - decrease**	12-Total employment (next 3 months trend) **up - same - down**
8- (*) What main factors are currently limiting your production? Rank according to degree of importance. • None • **Insufficient demand** • **Shortage of labour force** • **Shortage of material and/or equipment** • **Financial constraints** • **Others**	25- Over the next quarter, which factor(s) might limit the production? Rank according to degree of importance. • **Order and sale** • **Skilled labour** • **Unskilled labour** • **Plant capacity** • **Credit-finance** • **Input cost**
9- (*) Considering your current order books and the expected change in demand over the coming months, how do you assess your current production capacity? The current production capacity is... **more than sufficient - sufficient - not sufficient**	5- What is the level of your productive capacity in accordance with your expectations on demand for the next twelve months? **more than adequate - adequate- less than adequate**
10- (*) How many months of production are assured by your current overall order books? **..... Months**	24- According to your existing orders received or production plan, how many months is your production programme? **1 month / 1-3 months / 3-6 months / 6-9 months – 9-12 months / 12-18 months / 18-24 months**
11-How have your overall orders developed over the past 3 months? They have... **increased - remained unchanged - decreased**	
12- How do you expect your export orders to develop over the next 3 months? They will... **increase - remain unchanged - decrease**	14- Amount of new orders received from the export market (next 3 months trend) **up - same - down**
13- At what capacity is your company currently operating (as a percentage of full capacity)? **.......... %**	

14- **(*)** How has your competitive position on the domestic market developed over the past 3 months? It has... **improved - remained unchanged - deteriorated**	
15- (*) How has your competitive position on foreign markets inside the EU developed over the past 3 months? It has... **improved - remained unchanged - deteriorated**	
16- **(*)** How has your competitive position on foreign markets outside the EU developed over the past 3 months? It has... **improved - remained unchanged - deteriorated**	
17- How do you expect your overall orders to develop over the next 3 months? They will... **increase - remain unchanged - decrease**	
18- How has your export orders developed over the past 3 months? They have... **increased - remained unchanged - decreased**	14- Amount of new orders received from the export market (past 3 months trend) **up - same - down**
19- Do you consider your current domestic order books to be...? **above normal - normal for the season - below normal**	
20- How has your domestic orders developed over the past 3 months? They have... **increased - remained unchanged - decreased**	13- Amount of new orders received from the domestic market (past 3 months trend) **up - same - down**
21- How do you expect your domestic orders to develop over the next 3 months? They will... **increase - remain unchanged - decrease**	13- Amount of new orders received from the domestic market (next 3 months trend) **up - same - down**
22- How do you expect your domestic market selling prices to change over the next 3 months? They will... **increase - remain unchanged - decrease**	22- Average price for new orders received from the domestic market (next 3 months trend) **up - same - down**
23- Compared to the last 12 months, how do you expect your fixed investment expenditure to change over the next 12 months? It will... **increase - remain unchanged - decrease**	3- How much investment expenditure do you expect to realize over the next twelve months? **more - same - less**
24- How has your average unit cost changed over the past 3 months? It has... **increased - remained unchanged - decreased**	21- Average unit cost (past 3 months trend) **up - same - down**
25- How do you expect your average unit cost to change over the next 3 months? It will... **increase - remain unchanged - decrease**	**21- Average unit cost (next 3 months trend)** **up - same - down**
26- What is your expectation for inflation (producer prices) rate over the next 12 months (as an annual percentage)? **.......... %**	30- Over the next twelve months, what is your expectation for inflation (producer prices) rate? **.......... %**
27- How do you expect the short term Turkish Lira credit interest rate to change over the next 3 months? It will... **increase - remain unchanged - decrease**	32- Over the next three months, what is your expectation for short-term Turkish Lira credit interest rate? **up - same - down**
28- Your opinion about the general course of business in your industry, compared to previous month. **more optimistic - same - more pessimistic**	1-Your opinion about the general course of business in your industry, compared with previous month: **more optimistic - same - more pessimistic**

(*) These questions are asked quarterly.

(**) The placement of the question numbers is arranged according to the former survey questionnaire.