

## METHODOLOGICAL DOCUMENT RELATED MAIN REVISION ON ECONOMIC CONFIDENCE INDEX

### Introduction

Economic confidence index is a leading and composite indicator, encapsulating and summarizing broadly the decisions, evaluations, expectations and tendencies of both supply-side and demand-side (producers and consumers) actors of the economy on general economic situation.

Index is a stimulative indicator hence it provides earlier information than widespread used economic indicators such as gross domestic product (GDP), employment and industrial production. Index is also used as a guide to develop and monitor economy policies and point out potential risks of the economic situation.

Economic confidence index is the weighted average of standardized balance values of the components, that consists of consumer, seasonally adjusted real sector (manufacturing industry), services, retail trade and construction sectors. (see Table 1 for more information about sub-indices)

Weights of the sectors, which are equally distributed to their sub-indices, are as below;

- Consumer :20%
- Real sector (manufacturing industry) :40%
- Services :30%
- Retail trade : 5%
- Construction : 5%

Turkish Statistical Institution began to release economic confidence index monthly since January 2015, as a serial that starts at January 2012. The reason for publishing economic confidence index serial starting at 2012 was; sub-indices of the consumer confidence index which are components of economic confidence index were starting at 2012. After including enough time period length possible for multivariate model backcasting, sub-indices series of consumer confidence index backcasted for January 2004 - December 2011 period. Thus, it became possible to increase length of the economic confidence index data by combining real sector confidence index data ready from January 2007 and services, retail trade and construction confidence indices data ready from 2011. As a result of this revision, economic confidence index was revised and calculated starting at January 2007.

The aim of this revision is only for starting the serial at an earlier time period and there is no difference about the calculation and weighting method that is full-compatible with the Joint Harmonized EU Programme of Business and Consumer Surveys.

The sub-indices series used at the calculation of economic confidence index, starting period of the indices before-revision and after-revision, sum of additional periods and data sources are shown at Table 1.

**Table 1.** Revision of Economic Confidence Index

Confidence indices	Sub-indices	Starting period of sub-indices		Additional periods after 2017 revision	
		Before revision (2015 and 2016)	After 2017 revision	Sum	Data source
Consumer confidence index	Financial situation expectation of household (over the next 12 months)	January 2012	January 2007	60 months	backcasted series calculated by TurkStat
	General economic situation expectation (over the next 12 months)	January 2012	January 2007		
	Number of people unemployed expectation (over the next 12 months)	January 2012	January 2007		
	The probability of saving (over the next 12 months)	January 2012	January 2007		
Real sector (manufacturing industry) confidence index	Total amount of orders (current situation)	January 2012	January 2007	60 months	series published by Central Bank of the Republic of Turkey (CBRT)
	Amount of stocks of finished goods (current situation)	January 2012	January 2007		
	Volume of output (next 3 months)	January 2012	January 2007		
	Total employment (next 3 months)	January 2012	January 2007		
	Total amount of orders (past 3 months)	January 2012	January 2007		
	Export orders (next 3 months)	January 2012	January 2007		
	Fixed investment expenditure	January 2012	January 2007		
	General business situation	January 2012	January 2007		
Services confidence index	Business situation (over the past 3 months)	January 2012	January 2011	12 months	series published by TurkStat
	Demand-turnover (over the past 3 months)	January 2012	January 2011		
	Demand-turnover expectation (over the next 3 months)	January 2012	January 2011		
Retail trade confidence index	Business activity-sales (over the past 3 months)	January 2012	January 2011	12 months	series published by TurkStat
	Current volume of stock	January 2012	January 2011		
	Business activity-sales expectation (over the next 3 months)	January 2012	January 2011		
Construction confidence index	Current overall order books	January 2012	January 2011	12 months	series published by TurkStat
	Total employment expectation (over the next 3 months)	January 2012	January 2011		

## Reasons of the main revision

Composite indicators are designed to combine data with different sources and length in one-dimensional index. It makes the main issue more comprehensive when composite indices comprise longer time periods and deeper data.

Economic confidence index is such a composite index serial that combines different confidence indices for different sectors at one dimension. When the periods of sub-indices used at the calculation of the index is longer, it makes possible to collect information with longer period's average and standard deviation and at the same time it provides more significant correlation with other comparable series such as GDP.

As mentioned at Table 1, the starting period of 20 sub-indices used in the calculation of the index published during 2015 and 2016 were January 2012. Between these 20 sub-indices;

- 8 sub-indices of real sector (manufacturing industry) starting from January 2007,
- 3 sub-indices of services, 3 sub-indices of retail trade and 2 sub-indices of construction sector starting from January 2011

are already published.

In addition, 4 sub-indices series of consumer confidence index starting at January 2012 were produced for January 2004 - December 2011 period with a model most recently came into use in literature: “multivariate model-based approach for backcasting method”. This model includes “VAR models - Non-linear Optimization - Benchmarking” sub-models and when there is no available information about past, it can be summarized as the implementation of a learning matrix obtained from the movements of the consumer confidence index and it’s sub-indices between 2012 - 2016 periods to 2004 - 2011 periods. Before 2016, sub-indices series of consumer confidence were not sufficient enough for backcasting because both consumer confidence itself and sub-indices did not have enough period length for creating a learning matrix. When it came to the end of 2016, it is evaluated that the sub-indices series were ready for backcasting. Detailed information about backcasting process can be reached from metadata at link ([http://www.turkstat.gov.tr/PreTablo.do?alt\\_id=1104](http://www.turkstat.gov.tr/PreTablo.do?alt_id=1104)).

In this context, to increase the length of the serial, totally 20 sub-indices series that are 8 sub-indices of real sector (manufacturing industry) and 4 sub-indices of consumer confidence starting at 2007 and 8 sub-indices of services, retail trade and construction confidence indices starting at 2011 were calculated at 2017 revision.

## Backcasting of Economic Confidence Index

While frozen sample used for the normalization of index series published in 2015 was from January 2012 to the previous period (month) of the reference period, in 2016 it was fixed between January 2012 - December 2015.

With the 2017 revision, two different cases compared to old 2016 index calculation appears:

First; frozen sample for normalization is; January 2007 - December 2016 period for the year 2017.

Second;

- the composite index for January 2007 - December 2010 period is calculated with sub-indices of consumer confidence and real sector (manufacturing industry) confidence indices series,
- starting at January 2011, all sub-indices series were included at calculation of composite index.

After the revision process; an original economic confidence index serial for the periods between 2007 - 2011 was built and the old serial for the periods between 2012 - 2016 was revised with the new serial.

## The Length of the Main Revision

The revision process begins at January 2007 up to December 2016.

## The Depth of the Main Revision

The revision process is made for economic confidence index serial.

## Impacts of the Main Revision

Composite index that was oversensitive to the changes of the sub-indices became more factual after the 2017 revision with contribution of longer sub-indices series.

Table 2 and Graphic 1 displaying the effects of the revision of economic confidence index serial are below.

Considering Table 2, old serial and revision percentages does not exist before 2012. After 2012, average absolute revision of economic confidence index serial is 7.01%.

**Table 2.** Main revision effects in economic confidence index

Year	Month	Old serial	New serial	Absolute revision (%)	Year	Month	Old serial	New serial	Absolute revision (%)
2007	January	-	113.0	-	2012	January	109.7	105.8	3.74
2007	February	-	110.9	-	2012	February	109.1	105.3	3.68
2007	March	-	109.7	-	2012	March	116.0	107.1	8.28
2007	April	-	110.2	-	2012	April	113.9	105.8	7.64
2007	May	-	105.2	-	2012	May	113.0	106.3	6.33
2007	June	-	107.8	-	2012	June	104.7	104.2	0.50
2007	July	-	108.7	-	2012	July	110.1	105.8	4.06
2007	August	-	111.7	-	2012	August	101.4	102.8	1.40
2007	September	-	109.9	-	2012	September	98.3	102.1	3.74
2007	October	-	109.4	-	2012	October	100.2	101.2	0.96
2007	November	-	107.7	-	2012	November	97.0	100.5	3.49
2007	December	-	109.4	-	2012	December	96.0	100.3	4.31
2008	January	-	107.2	-	2013	January	98.9	102.1	3.13
2008	February	-	103.7	-	2013	February	110.0	104.9	4.79
2008	March	-	98.3	-	2013	March	112.0	105.3	6.35
2008	April	-	92.0	-	2013	April	107.5	104.3	3.12
2008	May	-	90.7	-	2013	May	108.4	104.7	3.57
2008	June	-	89.4	-	2013	June	106.7	103.4	3.11
2008	July	-	88.4	-	2013	July	104.1	103.3	0.81
2008	August	-	90.6	-	2013	August	106.6	104.1	2.41
2008	September	-	85.2	-	2013	September	106.9	103.0	3.75
2008	October	-	74.4	-	2013	October	114.3	105.8	8.07
2008	November	-	61.3	-	2013	November	115.7	106.4	8.67
2008	December	-	64.7	-	2013	December	110.7	104.4	6.00
2009	January	-	67.2	-	2014	January	101.6	102.0	0.39
2009	February	-	71.1	-	2014	February	95.7	98.8	3.15
2009	March	-	70.9	-	2014	March	96.7	99.3	2.66
2009	April	-	83.9	-	2014	April	97.8	100.8	2.98
2009	May	-	93.7	-	2014	May	96.3	100.1	3.78
2009	June	-	96.5	-	2014	June	96.8	99.6	2.89
2009	July	-	96.6	-	2014	July	92.3	98.2	6.05
2009	August	-	95.5	-	2014	August	95.3	99.6	4.33
2009	September	-	94.2	-	2014	September	103.2	102.0	1.15
2009	October	-	94.6	-	2014	October	103.8	101.1	2.62
2009	November	-	94.7	-	2014	November	91.6	97.5	6.04
2009	December	-	96.3	-	2014	December	94.9	98.6	3.77
2010	January	-	100.5	-	2015	January	95.0	98.8	3.88
2010	February	-	100.5	-	2015	February	93.8	98.8	5.10
2010	March	-	104.6	-	2015	March	84.1	95.6	12.06
2010	April	-	106.8	-	2015	April	86.0	95.8	10.30
2010	May	-	104.5	-	2015	May	87.0	96.2	9.56
2010	June	-	104.6	-	2015	June	83.5	95.5	12.57
2010	July	-	105.2	-	2015	July	86.5	96.5	10.37
2010	August	-	106.5	-	2015	August	86.5	95.4	9.35
2010	September	-	107.9	-	2015	September	72.6	90.7	19.98
2010	October	-	107.3	-	2015	October	82.6	94.0	12.13
2010	November	-	109.6	-	2015	November	104.8	102.6	2.13
2010	December	-	110.1	-	2015	December	100.8	100.7	0.10
2011	January	-	116.3	-	2016	January	83.9	95.3	12.00
2011	February	-	113.9	-	2016	February	71.5	90.3	20.89
2011	March	-	112.9	-	2016	March	78.3	93.1	15.94
2011	April	-	112.2	-	2016	April	73.5	91.0	19.26
2011	May	-	112.3	-	2016	May	82.3	94.1	12.56
2011	June	-	113.6	-	2016	June	83.3	94.8	12.08
2011	July	-	112.5	-	2016	July	95.7	98.9	3.18
2011	August	-	108.1	-	2016	August	72.7	92.3	21.24
2011	September	-	111.4	-	2016	September	87.8	97.0	9.48
2011	October	-	106.2	-	2016	October	80.6	94.4	14.70
2011	November	-	107.9	-	2016	November	86.5	95.1	9.01
2011	December	-	107.1	-	2016	December	70.5	89.2	20.98
<b>Average absolute revision (%)</b>				-	<b>Average absolute revision (%)</b>				<b>7.01</b>

- Denotes magnitude null.

**Graphic 1.** Main revision effects in economic confidence index

