

TURKISH STATISTICAL INSTITUTE

TRAINING WORKSHOP ON RETAIL TRADE TURNOVER STATISTICS

**Cengiz ÖZKAN
22-24 MAY 2017
Muscat, Oman**

OUTLINE

➤ COMPUTATION METHODOLOGY

➤ INDEXING

➤ *REFERENCE PERIOD*

➤ *DEFLATION*

➤ *VOLUME MEASURES*

➤ RELIABILITY OF ESTIMATES

➤ REVISION

INDEX FORMULA

➔ LASPEYRES FIX BASED CALCULATION FORMULA

$$I_T = \frac{\sum_i Q_{i,0} \times D_{i,T}}{\sum_i Q_{i,0} \times D_{i,0}}$$

- I** = Index value,
- Q** = Weight of enterprise,
- D** = Data of ent. (turnover)
- T** = Current year,
- 0** = Base year,
- i** = Enterprises

REFERENCE PERIOD

➡ **T + 38**

➡ **MONTHLY**

➡ **FROM THE FIRST DAY OF THE MONTH UNTIL THE LAST DAY OF THE
MONTH (1-31)**

DEFLATION PROCESS

- ➔ Turnover Indices are deflated in order to obtain Retail Sales Volume Index
- ➔ For this process price relatives are required besides turnover indices



DEFLATION PROCESS


CALCULATION OF RETAIL TURNOVER INDEX

As CPI includes Value Added Tax, turnover indices are also calculated including VAT.

DEFLATOR OF RETAIL SALES

Price relatives from CPI

CPI's are re-calculated for NACE Rev.2 classification

Household Budget Survey Results are used for COICOP  NACE transition

DEFLATION

- ➔ **Eliminate the price effect**
- ➔ **Price changes in the goods**
- ➔ **Deflator of sales**
- ➔ **Weighted average of the relevant price indices**
- ➔ **price-determining characteristics of the products**
- ➔ **The specification**

Deflator of Sales

Difficulties with the theoretical concept/definition

- ➔ Product based index
- ➔ Disadvantage of using the HICP

How to measure / other issues

- ➔ A survey of prices for a sample of products
- ➔ Costs
- ➔ Member States
- ➔ *Methods to combine the raw data*
- ➔ STS-Regulations

DEFLATION FORMULA

- ➔ Volume of sales is derived by combining the deflator and the value turnover index. As the value turnover index can be expressed as:

$${}_V I = \frac{{}_P I \times {}_{VOL} I}{100}$$

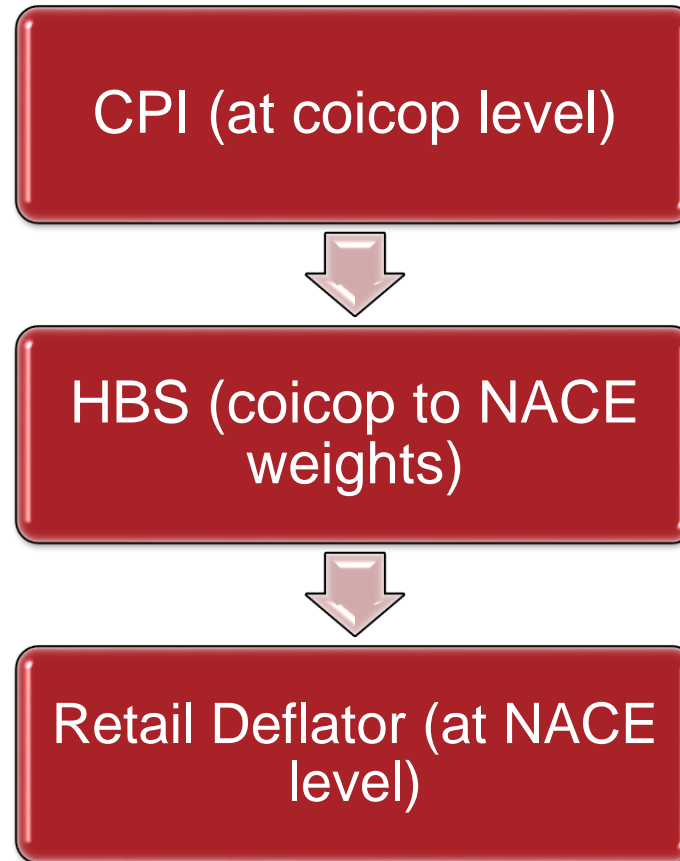
- ➔ The volume index can be expressed as:

$${}_{VOL} I = \frac{{}_V I}{{}_P I} \times 100$$

Deflation

- ➔ Price indices are available at product (COICOP) level
- ➔ Turnover Index is at NACE level
- ➔ In order to obtain NACE level price indices followings are required:
 - ➔ Which products are sold
 - ➔ At what amount
 - ➔ And at which shops
 - ➔ Main activity of the shop

Price Relatives from CPI



Price Relatives from CPI

	A	B	C	D
1	Alışveriş yerine göre hanehalklarının aylık tüketim harcaması, Türkiye, 2010			
3	Alışveriş Yeri kodu	Harcama alt grubu (COICOP_HBS4)	Harcama alt grup adı	Aylık toplam tüketim harcaması (TL)
104	1101	111	Ekmek ve tahıllar	22.404.066
105		112	Et	30.551.356
106		113	Balık	3.680.947
107		114	Süt, peynir ve yumurta	25.848.310
108		115	Kati ve sıvı yağlar	10.440.885
109		116	Meyveler	11.955.830
110		117	Sebze	15.642.962
111		118	Seker, reçel, bal, çikolata ve sekerlemeler	14.493.643
112		119	Baska yerde sınıflandırılmayan diğer gıda ürünleri	4.433.489
113		121	Kahve, çay ve kakao	5.967.308
114		122	Maden suyu, alkolsüz içecekler, meyve ve sebze suları	8.330.631
115		211	İçkiler	2.129.588
116		212	Sarap	585.742
117		213	Bira	1.313.684
118		221	Tütün	6.177.338
119		312	Giysiler	12.212.892
120		313	Diğer giysi çeşitleri ve giysi aksesuarları	630.494
121		321	Ayakkabi	5.465.159
122		322	Ayakkabi tamiri ve kiralınması	108.926
123		431	Konutun bakım ve onarımı için malzemeler	1.870.217
124		454	Kati yakıtlar	5.037
125		511	Mobilya ve mefrusat	4.640.914
126		512	Ulaştırma araçları ve diğer taşıtlar	81.266

The results of the Household Budget Survey provide information on:

- expenditure group (COICOP)
- Code of shop place (shop code)
- amount of expenditure

Price Relatives from CPI

The NACE codes corresponding to Shop Codes are assigned.

Share (weight) of COICOPs in NACE are calculated.

SHOP CODE	shop tanım	COICOP	Coicop Tanım	HBS_VALUE	COICOP Ağırlığı	NACE2	nace tanım
4108	Benzin istasyonu	0220	Sigara ve tütün	4349	0,0	473	Motorlu tasit yakitinin perakende satisi
4108	Benzin istasyonu	0452	Gaz	1146922	0,2	473	Motorlu tasit yakitinin perakende satisi
4108	Benzin istasyonu	0721	Kişisel ulaştırma araçlarının yedek parça ve aksesuarları	652479	0,1	473	Motorlu tasit yakitinin perakende satisi
4108	Benzin istasyonu	0722	Kişisel ulaştırma araçlarının yakıt ve yağları	571900239	95,0	473	Motorlu tasit yakitinin perakende satisi
4108	Benzin istasyonu	0723	Kişisel ulaştırma araçlarının bakım ve onarımı	1717758	0,3	473	Motorlu tasit yakitinin perakende satisi
4108	Benzin istasyonu	1110	Restoranlar ve cafeler	5024	0,0	473	Motorlu tasit yakitinin perakende satisi
4142	LPG Satis istasyonu	0452	Gaz	1182717	0,2	473	Motorlu tasit yakitinin perakende satisi
4142	LPG Satis istasyonu	0722	Kişisel ulaştırma araçlarının yakıt ve yağları	25073872	4,2	473	Motorlu tasit yakitinin perakende satisi
4142	LPG Satis istasyonu	0723	Kişisel ulaştırma araçlarının bakım ve onarımı	16128	0,0	473	Motorlu tasit yakitinin perakende satisi

Price Relatives from CPI

- COICOP weights of each NACE and
- CPI's of each COICOP comes together

SHOP CODE	COICOP	COICOP Ağırlığı	NACE2	coicop düzeyinde TÜFE											
				2005 oca	2005 şub	2005 mar	2005 nis	2005 may	2005 haz	2005 tem	2005 ağü	2005 eyl	2005 eki	2005 kas	2005 ara
4108	0220	0,0	473	121,0	122,1	122,1	122,1	122,1	122,1	124,7	147,5	147,5	147,5	147,5	155,3
4108	0452	0,2	473	111,7	112,9	116,9	119,9	120,6	120,8	123,3	123,8	129,5	134,8	138,2	138,2
4108	0721	0,1	473	110,2	111,4	111,9	111,4	110,2	109,8	110,4	110,9	110,8	112,3	112,9	113,1
4108	0722	95,0	473	125,8	126,2	128,6	134,4	132,3	134,3	136,3	138,5	143,3	143,7	139,0	138,5
4108	0723	0,3	473	123,8	125,4	125,2	126,5	127,6	129,1	130,4	132,1	133,8	135,6	136,7	138,2
4108	1110	0,0	473	126,0	128,2	129,6	130,2	132,0	133,1	134,1	134,9	135,9	137,9	139,4	140,4
4142	0452	0,2	473	111,7	112,9	116,9	119,9	120,6	120,8	123,3	123,8	129,5	134,8	138,2	138,2
4142	0722	4,2	473	125,8	126,2	128,6	134,4	132,3	134,3	136,3	138,5	143,3	143,7	139,0	138,5
4142	0723	0,0	473	123,8	125,4	125,2	126,5	127,6	129,1	130,4	132,1	133,8	135,6	136,7	138,2

Price Relatives from CPI

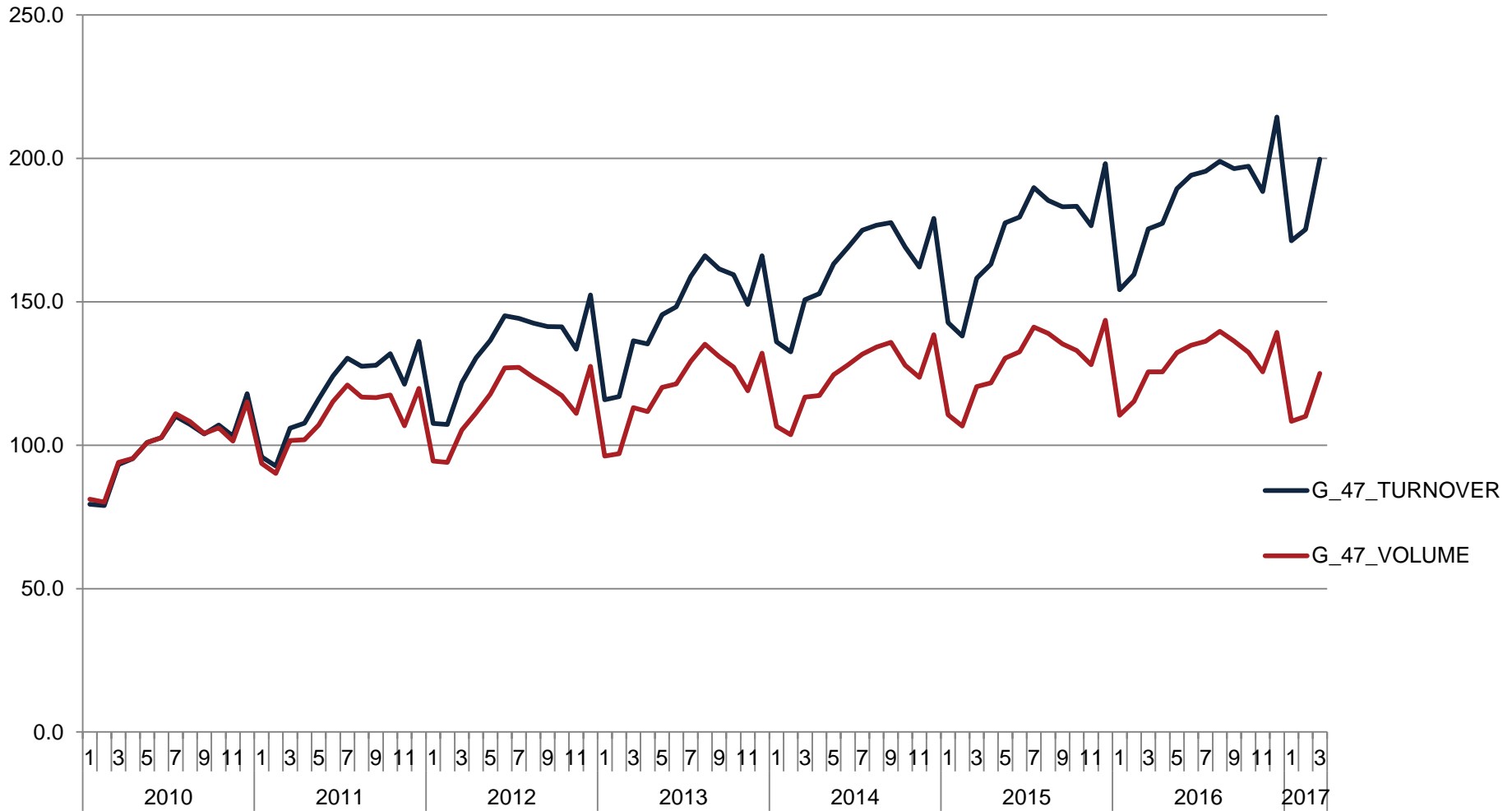
Sumproduct of COICOP level price indices gives NACE level price indices.

NACE düzeyinde Perakende Satış Deflatörü												
NACE2	2005 oca	2005 şub	2005 mar	2005 nis	2005 may	2005 haz	2005 tem	2005 ağu	2005 eyl	2005 eki	2005 kas	2005 ara
473	125,7	126,2	128,5	134,3	132,2	134,2	136,2	138,4	143,2	143,6	138,9	138,5

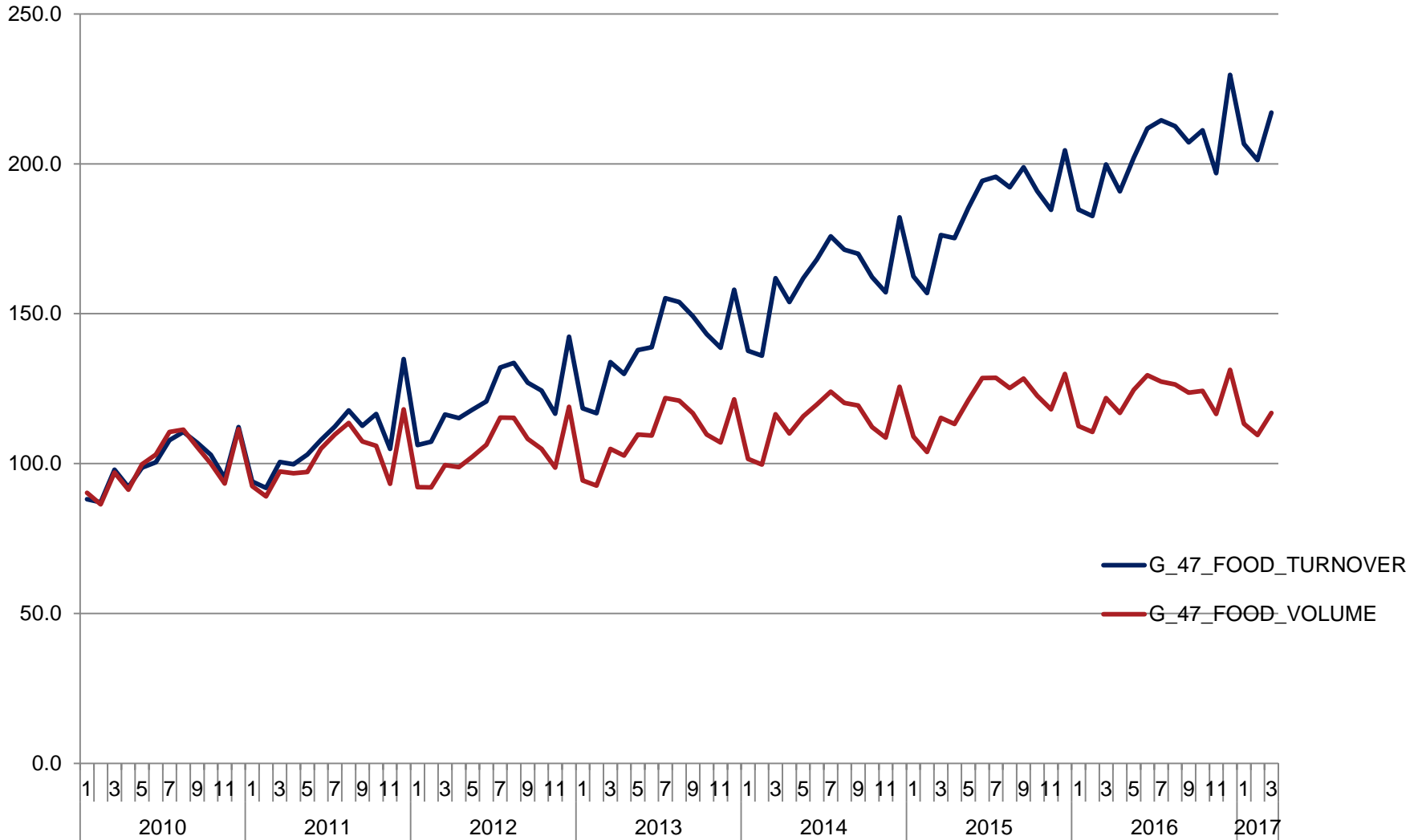
Indices are re-scaled as 2010 average equals to 100.

NACE düzeyinde Perakende Satış Deflatörü (2005=100)												
NACE2	2005 oca	2005 şub	2005 mar	2005 nis	2005 may	2005 haz	2005 tem	2005 ağu	2005 eyl	2005 eki	2005 kas	2005 ara
473	93,1	93,5	95,2	99,5	98,0	99,4	100,9	102,5	106,1	106,4	102,9	102,6

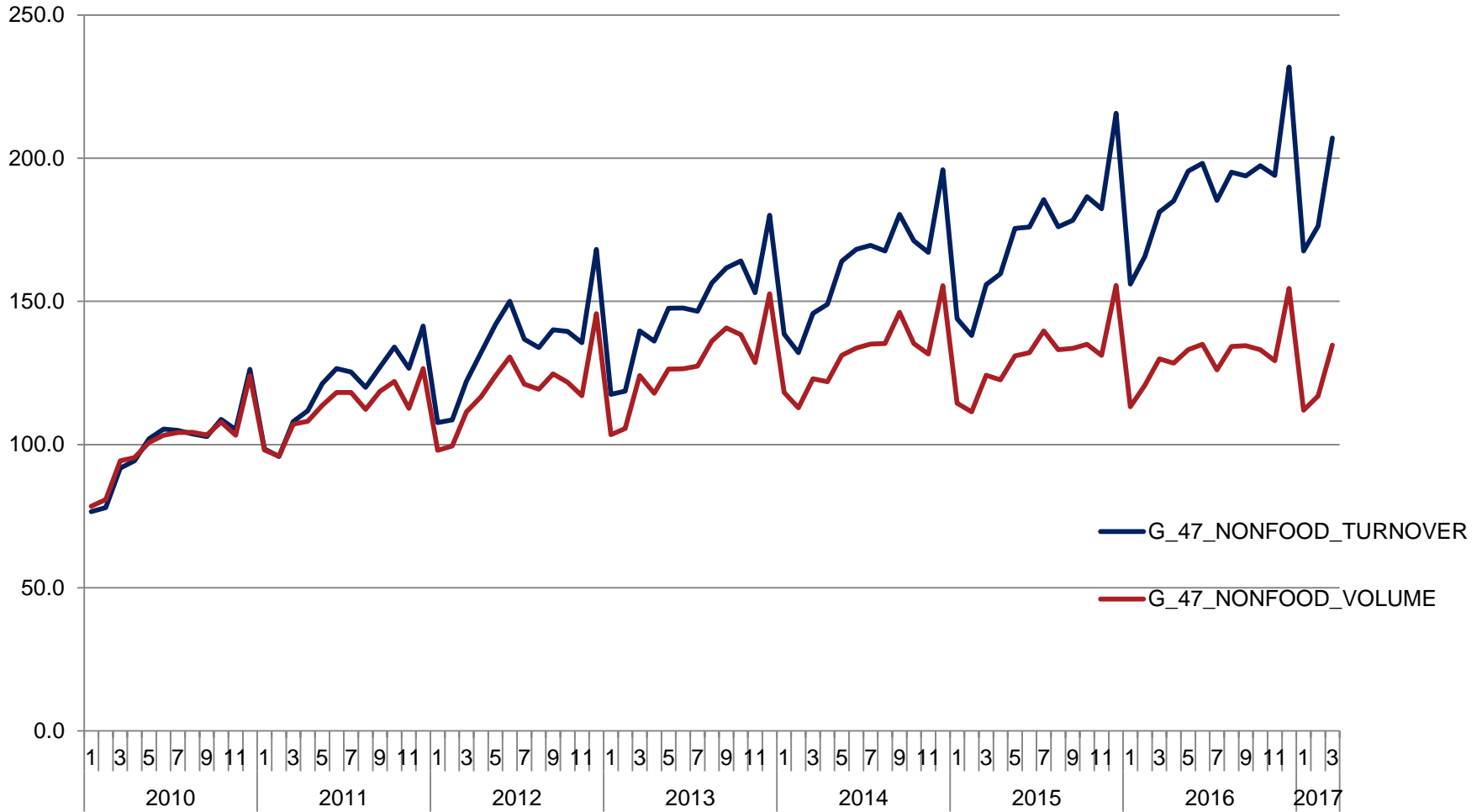
Results of Turkish Retail Sales Volume Index



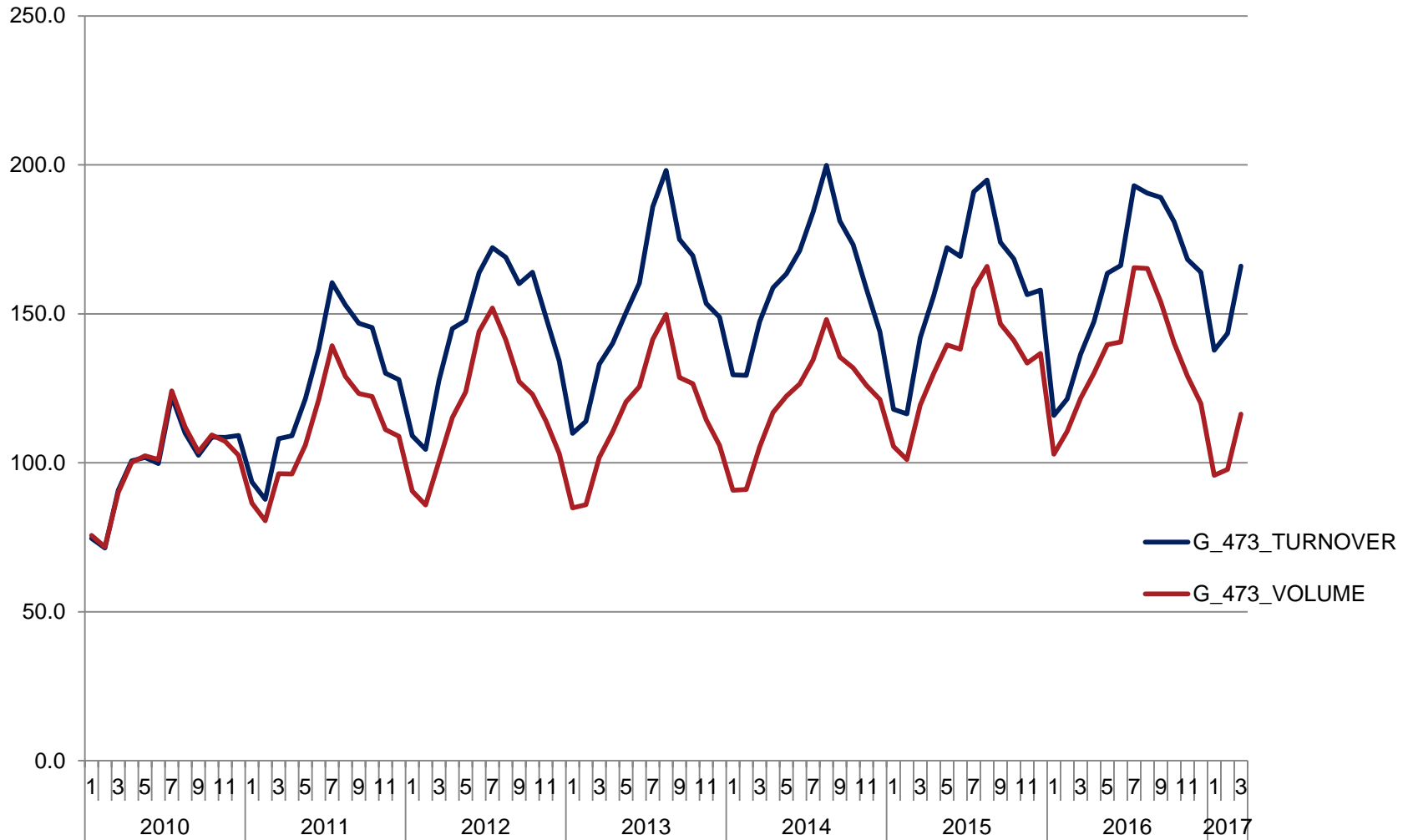
Results of Turkish Retail Sales Volume Index



Results of Turkish Retail Sales Volume Index



Results of Turkish Retail Sales Volume Index



RELIABILITY OF ESTIMATES

➡ INDICES COMPARES MONTHLY, QUARTERLY AND ANNUAL INDICATORS
(HOUSEHOLD LABOR SURVEY ETC.)

➡ % 97 REGISTERS

➡ EUROSTAT COMPLIANCE LEVEL

REVISION POLICY

➔ Revisions

- ➔ Unadjusted series: Previous month is revised with current release, whole year is revised at the end of the year
- ➔ Seasonally adjusted series: Current year plus previous three years are revised each month

THANK YOU