

Operation quality of CPI and chaining procedures

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TURKSTAT

Quality Controls

Quality controls are carried out with two steps in Turkish CPI.

- Before the dissemination of CPI data
- After the dissemination of CPI data

Quality Control Before the Dissemination

Harzemli Mobil - V29 - FIRAT ŞİMŞEK

GD	Seçiniz	Önceki GD	Seçiniz
Barkod		Önc.Barkod	
Marka	Melodi	Önc.Marka	Melodi
Ayr.Tanım	Açık	Önc.Ayr.Tan.	Açık
Miktar	1000	Önc. Miktar	1000
1.İnd.(%)		Önc1.İnd.(%)	0
2.İnd.(%)		Önc.2.İnd.(%)	
Reyon Fiyatı		Önc.Rey.Fiyat	40.0000
		Önc.Bir.Fiyat	40.0000
Birim Fiyatı	0.0000	Önc.Değ.Oranı	
Değ.Oranı	-100.00	Önc.Fiy.Değ.Ned.	Seçiniz
Fiy.Değ.Ned.	Seçiniz	Önc. Açık1	
Acıklama1			

Quality Control Before the Dissemination

Price is automatically calculated by considering quantity, discount as a percentage and rayon price.

By comparing the preceding price and current price, if change rate exceeds %20 limit, system gives warning. This is the first alert for the price collector.

Quality Control Before the Dissemination

Miktar	1000	Önc. Miktar	1000
1.İnd.(%)	10	Önc1.İnd.(%)	0
2.İnd.(%)		Önc.2.İnd.(%)	
Reyon Fiyatı	40	Önc.Rey.Fiyat	40.0000
		Önc.Bir.Fiyat	40.0000
Birim Fiyatı	36.0000	Önc.Değ.Oranı	
Değ.Oranı	-10.00	Önc.Fiy.Değ.Ned.	Seçiniz

Quality Control After Dissemination

- CATI is an interactive front-end computer system that aids interviewers to ask questions over the telephone. The answers are then keyed into the computer system immediately by the interviewer.
- The computer program controls branching to or skipping among questions and validates the data as it is entered. CATI application has been used in TURKSTAT since 2006.

Quality Control After Dissemination

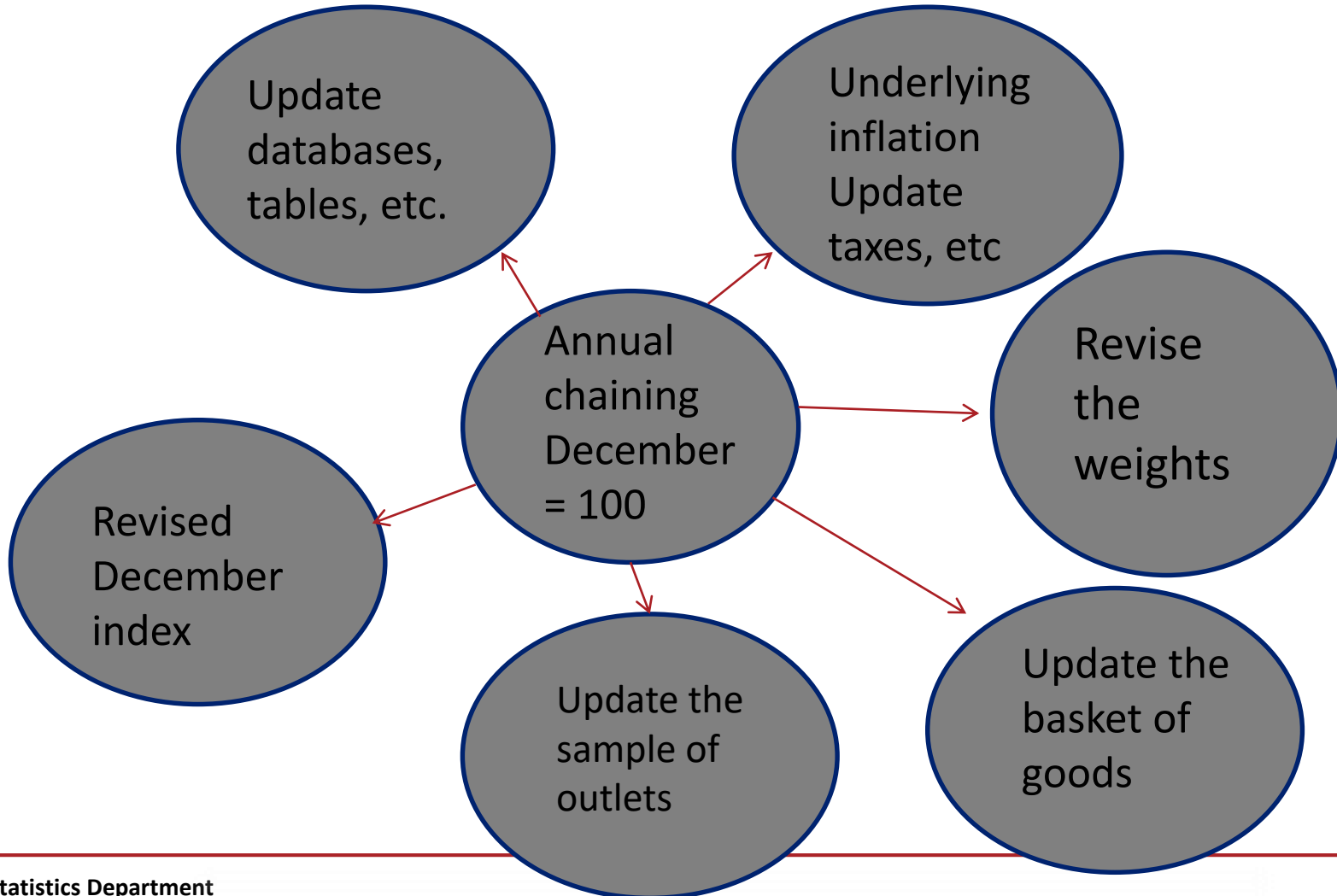
- The smart electronic form also performed on-line checks on the responses keyed in and alerted the interviewer of inconsistent or doubtful answers. The outlet or renter is not called twice in a year.

Calculation of An Annual Chain CPI

Factors affecting changes in demand

- Purchaser's tastes or preferences
- Changes in technology which improve productivity
- Changes in real incomes
- Changes in population and its distribution

Calculation of An Annual Chain CPI



Calculation of An Annual Chain CPI

- Identify new items that have a significant share of consumption, i.e. 0.1 % of the expenditures covered
 - Important to look for new types of items and services, i.e. I-pad, download music, etc
 - Introduce as early as possible – capture the price decrease

- Collect prices for all new items in the price reference month (i.e. December)
 - Collected prices for new items will not be used in the calculating of December CPI. Will enter the CPI in January and work as references prices (base prices)

- Remove items that are **obsolete**
 - Do not remove from the basket before December index is calculated

Calculation of An Annual Chain CPI

- Use a reliable source, i.e. Household budget survey or National accounts
- Only consumption expenditures are relevant
- If possible use additional information
 - Production and trade statistics, retail sales data, etc.
- Updating the weights is a time consuming task
 - Start as soon as the consumption data are available

Calculation of An Annual Chain CPI

- December price observations must be edited to ensure reference prices of good quality
- All items in the basket must have a price and an index for December when calculating the January CPI
 - Impute December prices for those items that does not have a December price
- Indices for December on every level (item, sub-groups, classes, groups and divisions) work as chaining
 - The December indices for the new items will be equal to 100

Calculation of An Annual Chain CPI

- If you are calculating indicators of underlying inflation:
 - Update taxes
 - Update chain factors on all levels, etc.
- Update databases
- Update tables
- Inform the users about the revised weights and basket of goods and services
 - If possible calculate the CPI with new and old weights to estimate the impact of revised weights

Calculation of An Annual Chain CPI

Frequent weight updates and chained price indices

- Advice is to update at least every 5 years, and more often if there is evidence of rapid changes in consumption/production patterns.
- The shorter the period between weight updates, the less likely that changes in preferences, improved technology, and changes in income will have a large impact on our price measures.

Calculation of An Annual Chain CPI

- So far the discussion has been of direct comparisons – between places s and t . There will be seen to be a case for comparing say s and t by comparing say, s with a , then a with b , then b with t . The indices or *links* between each successive pair of places can then be linked together by successive multiplication to form a *chain index*. Any index number formula can be used for the links.

Calculation of An Annual Chain CPI

The CPI is calculated as a chain linked index with annual update of the weights. Thus, from January 2005 to December 2005 all higher level indices were calculated as

$$I_{03:t} = \sum W_{03}^i \cdot I_{03:t}^i ,$$

From January 2006 to December 2006 all higher level indices will be calculated as

$$I_{03:t} = I_{03:Dec05} \cdot \sum W_{03/04(Dec05)}^i \cdot I_{Dec05:t}^i$$

Where indicates the weights based on 2/3 of the HBS of 2003 and the HBS of 2004, price updated to December 2005.

Calculation of An Annual Chain CPI

From January 2007 to December 2007 all higher level indices will be calculated as

$$I_{03:t} = I_{03:Dec06} \cdot \sum W_{04(Dec06)}^i \cdot I_{Dec06:t}^i$$

From January 2008 to December 2008 all higher level indices will be calculated as

$$I_{03:t} = I_{03:Dec07} \cdot \sum W_{05(Dec07)}^i \cdot I_{Dec07:t}^i$$

Calculation of An Annual Chain CPI

- Laspeyres formula is used to aggregate basic item indices to obtain group and all item indices
- Aggregated short term indices at the group level are chained to the previous indices

$$I_{0:t} = \sum w_b I_{0:t-1}^i * I_{t-1:t}^i$$

Calculation of An Annual Chain CPI

Weights are price updated to ensure period covered by expenditure weights and the base price period correspond.

PRICE UPDATE	2014 HBS weights	2014 Index Average	2015 December Index	Index Change	Price Update	Price Update (100) FINAL
Item a	60	150	200	1,3333	80	61,8
Item b	40	170	210	1,2353	49,41176	38,2
	100				129,4	100

Calculation of An Annual Chain CPI

	Index December 2010	Weight 2011	January 2011	February 2011	Monthly Change(%)	Chain January 2011	Chain February 2011	Monthly Change(%)
GENERAL	160		101,72	104,59	2,83	162,75	167,35	2,83
FOOD	135	75	99,71	102,33	2,63	134,61	138,14	2,63
Item a	120	61,8	102	105	2,94	122,40	126,00	2,94
Item b	150	38,2	96	98	2,08	144,00	147,00	2,08
CLOTHING	200	25	107,75	111,40	3,39	215,50	222,80	3,39
Item c	220	55	110	115	4,55	242,00	253,00	4,55
Item d	180	45	105	107	1,90	189,00	192,60	1,90

SAME
MONTHLY
CHANGE (%)

THANK YOU...