

External Trade Indices

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Introduction

- External trade index is a measurement of price and quantity changes in external trade.
- Many users need not only trade values and quantity but also need external trade unit value or price index, quantity index, terms of trade information..
- They are used as a short term indicator and used to deflate external trade values.

Introduction

- In most countries, unit value indices have been used widely.
- Unit value indices cover relatively a larger proportion of commodities than price indices
- Unit value indices are derived from administrative data of the customs office.
- Low resource cost
- One of the defects of unit value indices is that they lack the quality change adjustment in commodities.
- Chain method can be easily adapted for unit value index, compared to price index.

The UN Recommendation

- It is recommended that all countries produce and publish volume indices and either unit value or price indices a monthly, quarterly and annual basis.
- Countries are also encouraged to calculate and publish such indices for commodity groups of particular importance to countries at least quarterly and annually

Main Users

- National Accounts
- Central Bank
- Undersecretariat of Treasury
- Undersecretariat of Foreign Trade
- United Nations
- OECD
- EU (Eurostat)
- Universities and researchers
- Other governmental organization

Selection criteria

- More detailed (at the lowest level) commodity description (12-digit)
- Threshold for total value of products
- Data available at least 8 months
- Homogeneity test: Clossness Percentage ≥ 60

$$CP = ((\text{Mean} - \text{Standard deviation}) / \text{Mean}) * 100$$

- Coverage $\geq 75\%$ (representative ratio) and enough number of items under sub-sectors

Indices in Turkey

- Sources:
 - Customs records
 - Survey for some goods
 - Crude petroleum & natural gas & electricity
- Unit value, Quantity and terms of trade,
- Monthly, quarterly, annually

Calculated indices

- Unit value
- Quantity
- Value
- Terms of trade

Indices in Turkey

- Chain index method,
- Fisher formula,
- Classification:
 - ISIC Rev.3.1 & SITC Rev.3.1 & BEC & CPA_2002
- Currency for unit value:
 - US Dollar & TL (Turkish Lira)
- Coverage:
 - Export » 1,909 items and 85,9%,
 - Import » 2,633 items and 84,7%.
- SAS / Oracle databases and Ms Excel

Relations among indices

Unit Value index X Quantity index = Value index

$$\text{Value Index} = \sum (V_t / V_o) * 100$$

Calculation of the quantity indices by dividing the value index by the unit value index

$$\text{Quantity index} = (\text{Value index}) / (\text{Unit value index})$$

Terms of Trade

- Simply, the ratio of export unit value index to import unit value index

$$ToT = (\mathbf{I}_{\text{ExportUnitValue}} / \mathbf{I}_{\text{ImportUnitValue}}) * 100$$

Encountered Problems

- Poor quality of quantities
- Misclassification / Incorrect commodity coding
- Changes in commodity codes
- Heterogeneous commodities
- Quality changes
- Extreme unit value relatives

Encountered Problems

- Poor quality of quantities

Number of line corrected

Error Type	Flow	
	Ex	Im
	N	N
Quantity-1	3,460	3,207
Supp.Unit	4,955	1,704

Commodity	Description	StatValue	Old-Quantity	New-Quantity	Old-UV	New-UV
391721900000	Tubes, pipes	642,126	322,933,958	322,933	0.002	1.99

Encountered Problems

- Misclassification / Incorrect commodity coding

Number of line corrected

Error Type	Flow	
	Ex	Im
	N	N
Commodity	123	146

Encountered Problems

- Changes in commodity codes

2006		} →	2007
Dried figs			Dried figs
0804.20.90.00.11	Extra class		0804.20.90.00.00
0804.20.90.00.12	First class		
0804.20.90.00.13	Second class		
0804.20.90.00.14	Dried and natural		
0804.20.90.00.19	Others		

2006	} →	2007	
Fluorides and iodides		Fluorides and iodides	
2903.30.80.10.00		2903.39.90.10.12	Flormetan
		2903.39.90.10.13	Diflormetan
		2903.39.90.10.14	Triflormetan
		2903.39.90.10.15	Difloretan

Encountered Problems

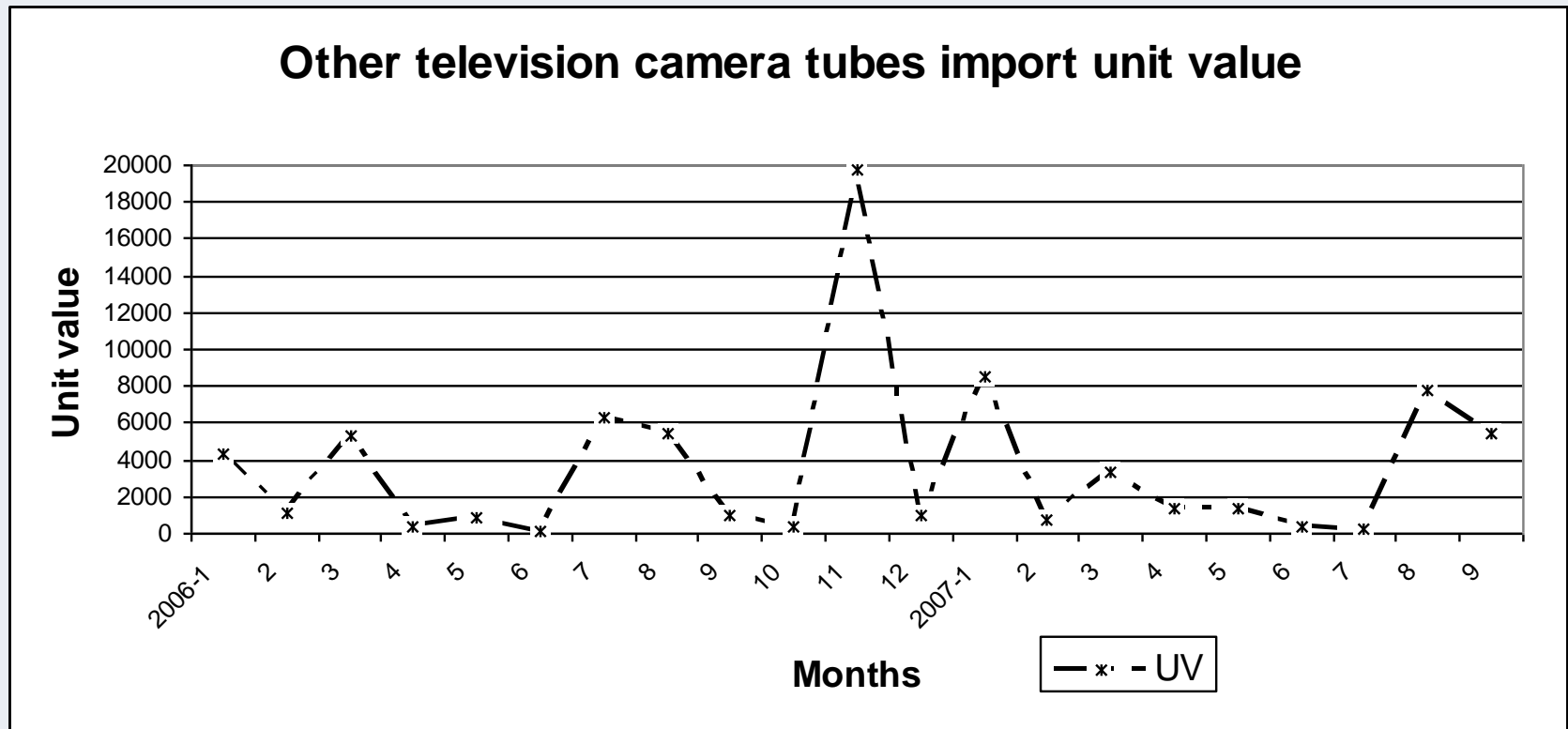
- Changes in commodity codes

Number of	2006	2007	Diff
GTIP (12 Digits)	18,827	18,275	-552
CN (8 Digits)	9,855	9,735	-120
HS (6 Digits)	5,237	5,058	-179

Number of Changes in	N
GTIP (12 Digits)	2063
CN (8 Digits)	820
HS (6 Digits)	325

Encountered Problems

- Heterogeneous commodities



Encountered Problems

- Quality changes
 - Quality change is common problem
 - The commodities are a mix of products
 - Solution: collect the prices from establishment?

Encountered Problems

➤ Extreme unit values

Commodity	Description	Processing Fee	Gross Value Stat Value	Quantity	CPC	Old-UV	New-UV
760511000000	Aluminium wire	40,502	609,739	201,500	6121	0.20	3.03
760511000000	Aluminium wire	31,017	466,951	154,313	6121	0.20	3.03
760511000000	Aluminium wire	25,740	339,666	128,057	6121	0.20	2.65
760511000000	Aluminium wire	20,028	310,985	99,643	6121	0.20	3.12
760511000000	Aluminium wire	18,234	283,136	90,720	6121	0.20	3.12
760511000000	Aluminium wire	14,532	225,648	72,300	6121	0.20	3.12
760511000000	Aluminium wire	10,539	162,589	52,431	6121	0.20	3.10

Commodities not traded in the current month (Missing Price)

- Similar products relative
- Geometric mean

Analysis of unit value

- Aggregated level
- Transaction level

Aggregated level

- Determination of suspicious commodities by unit value in the current month.

Determination of suspicious commodities

➤ Descriptive statistics

Rank

Min, Max, Quartiles

Example for rank

Commodity			2010				2011	
code	1	2	3	.....	11	12	1	RANK
842230000000	24,8	25,0	24,3	.....	18,3	29,7	11,5	1 Suspicious
40610200011	4,2	3,8	3,8	.....	3,8	4,0	3,9	7
40630100000	3,2	3,3	3,1	.....	3,3	3,2	3,3	10
40690320092	3,2	2,7	2,9	.....	3,9	3,4	3,7	11
350691001000	1,4	1,3	1,5	.....	1,0	1,6	10,3	13 Suspicious
40690990019	5,7	4,9	5,1	.....	6,2	6,3	5,6	7

Descriptive statistics

- Min
- Max
- Quartiles

Example of descriptive statistics

Commodity codes	Relatives				
	UV/Min	UV/Q1	UV/Q2	UV/Q3	UV/Max
350691001000	10,59	7,78	7,08	6,78	6,39
842230000000	0,62	0,49	0,46	0,38	0,26

Transaction level

- Quartile coefficient variation

$$QCV = (Q3 - Q1) / (Q3 + Q1)$$

- Lower limit = $(1 - QCV)$
- Upper limit = $(1 + QCV)$

Revision Policy

- External trade indices which are calculated by the provisional trade data, are revised for previous year, with a view to reflect updated foreign trade data.
- The revisions are revealed in January bulletin by month, quarter and annual.

Dissemination

- Monthly news release (ISIC Rev.3)
 - Hard Copy and Internet with methodology
 - Foreign Trade Statistics Yearbook (Hardcopy and CD-Rom)
- Excel tables on Web (www.turkstat.gov.tr)
- Dynamic database on Web (www.turkstat.gov.tr)
- Advanced release calendar

Foreign Trade Indices Release Calendar		
Foreign Trade Indices	October 2012	11/12/2012 10:00
Foreign Trade Indices	September 2012	09/11/2012 10:00
Foreign Trade Indices	August 2012	10/10/2012 10:00
Foreign Trade Indices	July 2012	07/09/2012 10:00
Foreign Trade Indices	June 2012	10/08/2012 10:00
Foreign Trade Indices	May 2012	10/07/2012 10:00
Foreign Trade Indices	April 2012	08/06/2012 10:00
Foreign Trade Indices	March 2012	10/05/2012 10:00
Foreign Trade Indices	February 2012	10/04/2012 10:00

Foreign Trade Indices

Base year
 2003 1994 1989 1982

Table Selection

General Foreign Trade Indices
 General Foreign Trade Index by SITC Rev.2
 Foreign Trade Index by SIC
 Foreign Trade Index by SITC Rev.3
 Foreign Trade Index by CPA

Sectors
 Main Sector Main and Sub-sector

Sector Selection

See All Sectors >>
 T-General
 A-Agriculture and forestry
 Q1-Agriculture, hunting and related service activities
 Q2-Forestry, logging and related service activities
 S-Fishing
 Q3-Fishing, aquaculture and service activities incidental to fishing
 C-Mining and quarrying
 10-Mining of coal and lignite; extraction of peat
 11-Extraction of crude petroleum and natural gas
 12-Mining of uranium and thorium ores
 13-Mining of metal ores
 14-Other mining and quarrying

Time Interval
 Yearly Monthly Quarterly





Year





See All years >>
 2012
 2011
 2010
 2009
 2008
 2007
 2006
 2005
 2004
 2003

Index Numbers/changes
 Index Numbers
 Change by the previous year (%)

Index Types Selection

Export unit value index_USD
 Export unit value index_TL
 Import unit value index_USD
 Import unit value index_TL
 Export volume index
 Import volume index
 Terms of trade_USD
 Terms of trade_TL

Table format:    

Information and remarks:    

[Clean Screen] [Make Report]

Thank you
for your attention!