EXTERNAL TRADE INDICES

MD. Shahabuddin Sarker

Deputy Director

National Accounting Wing

Bangladesh Bureau of Statistics

StatCaB Training Programme of SESRIC on Price Statistics

Brunei, July 18-20, 2017

INTRODUCTION

❑ Flows of imports and exports are important variables in analyzing economic performances in an open economy

❑ Decomposition of Foreign Trade flows into prices and volumes within

The national accounts framework is required for model building and economic forecasting

USES OF FOREIGN TRADE INDICES

A. **Deflation of Trade Statistics**
    - ❑ Useful measure for the constant price estimation of Export and Import value

B. **Government Economic Policy**
    - ❑ Forecasting Tax base
    - ❑ Centre of negotiations between Government and Development Partners/Foreign Investors- Government deficit to GDP

C. **Country competitiveness**
    - ❑ Capacity of keeping the price in line with market ensures Competitiveness
    - ❑ Studies of Competitiveness involve analyzing movement of prices
    - ❑ Price movement in domestic currency and the currency of major trade partners

D. **Trade contracts**
    - ❑ Import and export prices are used for contract escalation
    - ❑ Appropriate price indices can be used as an escalator for long-term contract

E. **Measuring inflation, Forecasting Future Price Trends**
    - ❑ Critical factor explaining the evolution of domestic inflation
    - ❑ Import prices affect level of domestic inflation

F. **Exchange Rate Analysis**

DATA SOURCES

A. Customs Documents

❑ Main source (single administrative document) of trade statistics

❑ Customs declaration is required for all merchandise imports and exports regardless of concerns to customs duty

❑ Custom declaration contains information on importer-exporter, HS code, value, unit, physical dimensions, duties paid, country of origin/destination, port of entry/exit, mode of transport, cost of transport, insurance and freight

❑ are not always easily accessible to statistical agencies in a timely and regular manner

❑ mainly for revenue purposes and tend to pay much more attention to details on imports rather than exports for duty reasons

❑ Data on imports are usually understated due to avoiding high duties but evidence found about overstatement of imports and understatement of exports for illegal money transfer

❑ Documents can be directly used for compiling Unit Value Index (UVI)

DATA SOURCES-contd.

B. LC document
- ❑ alternative source of trade statistics
- ❑ Central bank collect data through its banking channel and compile it
- ❑ Central bank use it for validation purpose
- ❑ Not recommended by IMTS 2010
- ❑ Not comprehensive, detailed or conceptually comparable with partner countries as customs data

C. Other Sources
- ❑ Export and Import Price surveys
- ❑ Producers Price Index (PPI)
  - ➢ Export price survey as part of PPI
  - ➢ Asking twice for same information-not appreciated
  - ➢ Producer may not be exporter on the other hand wholesaler/retailer may be exporter
- ❑ Wholesale Price Index (WPI)
  - ➢ As proxy o Export and Import price indices
  - ➢ Price representation in terms of firms and commodity in domestic market is different from external market
  - ➢ Prices usually move in different ways in domestic and external market due to competitiveness and tax structure

TYPES FOREIGN TRADE INDICES

❖ The analysis of FTS is generally made using indices of values of external transactions- Volumes, Unit Values, Unit Prices and Terms of Trade.

❖ Various formulas are used- Laspeyres, Paasche and Fisher are most common

❖ Indices are usually fixed-base type (direct comparison between current and base period)

❖ Can also be chain indices (comparing each period with the immediately preceding one)

❖ Items of customs document used in calculation of trade indices are- available detailed commodity code (8-digit and above), Country code, Value of shipment, Unit of Quantity

UNIT VALUE INDEX (UVI)

Advantages of UVI

❑ Relatively straight forward procedure to construct

❑ Recommended for homogenous nature of commodities

❑ Usually considered as best proxies for pure price indices since it -

> ➤ produced at lower cost

> ➤ has no sampling bias

> ➤ consistent with weighting information (classification and time both are calculated from the same data source

UNIT VALUE INDEX (UVI)-contd.

Disadvantages of UVI

❑ Doesn't constitute actual price

❑ Very sensitive to the quality of customs data (mixing of product)

❑ Unit value can be influenced by -

  ➢ Pure price change

  ➢ Changes in quality

  ➢ Shifts in the proportion of the different varieties of goods involved, including the entry varieties and disappearance of old ones

TRUE PRICE INDICES (TPI)

A True Price Index differs from the UVI because it uses price indices instead of unit value relatives

Advantages of TPI

❑ Possible to identify and make adjustments for changes in the quality of the commodities

❑ Having a series of individual prices enables the agency to have control over other factors that affect price

❑ Adequately selecting a sample of respondents enables the compiler to monitor the sample and take appropriate actions to prevent its alteration or renewal from affecting the resulting indices

TRUE PRICE INDICES (TPI)

However, the compilation of trade indices using direct price surveys creates the need to regularly verify that the selected specifications are representatives-usually a costly process for both the statistical agencies and respondents. Direct price surveys also have the following shortcomings ;

❑ The coverage in terms of commodities and transactors of the TPI is often not as high as that of UVI. The selection of a representative sample of importers and exporters could prove difficult if the number of casual transactors is large and count an important share.

❑ The timing of prices collected through direct surveys cannot be easily synchronized with the flows of imports and exports to which they ought to relate as recorded by Customs

HYBRID INDICES (HI)

A Hybrid is defined as "Mixture" or a cross-breed." In terms of a price index, a hybrid index combines both unit-value data and directly collected price data in one single index.

The idea of a hybrid index is to;

❖ Use Unit values of homogenous commodity as far as possible since they are readily available from FTS and price of heterogeneous commodity from direct price survey

❖ use directly price data where unit value data are not suitable

❖ use unit value for primary commodities and semi-manufactured goods and specification prices for manufactured products ready for final use.

Example of Hybrid Index

Sl. No	HS code with specification	2000				2001		
		Value	QTY	Unit Value/Price		Value	QTY	Unit Value/Price
1		300	6	50		1200	20	60
2		450	10	45		450	10	45
3		1200	30	40		600	22	27
Total of unit value		1950				2250		
4		600				700		
4a		500		500		500		500
4b		100		10		200		30
Total value		2550				2950		
Laspeyres UVI items 1-3		$=((60/50)*300/1950+(45/45)*300/1950+(27/40)*300/1950))*100$						83.08
Paasche UVI for items 1-3		$=((60/50)^{-1}*1200/2250+(45/45)^{-1}*450/2250+(27/40)^{-1}*600/2250))^{-1}$						96.20
Fisher Ideal		$= (83.08*96.20)^{\wedge}(1/2)$						89.40
Lasperes TPI for Item 4		$=((500/500)*(500/600)+(30/10)*(100/600))*100$						133.33
Paasche TPI for Item 4		$=((500/500)^{-1}*(500/700)+(30/10)^{-1}*(200/700))^{-1}*100)^{-1}$						123.53
Laspeyres aggregate HPI		$=((1950/2550)*(83.08)+(600/2550)*(133.33))$						94.90

Terms of Trade (ToT)

❖ Country's purchasing power of export or it's capacity to import

❖ ToT attempt to measure the effect on national welfare of a countries involvement in international trade

❖ Attempts to measure the country's gain from international Trade

❖ Indicates health of the economy

Equation used

ToT= Unit Price Index of export/Unit Price Index of Import * 100

FORMULA USED FOR UVI

❖ In theory, one should use Paasche formula for calculating UVI thus to implicitly derive Laspeyres volume index

❖ Calculation formula such as Fisher ideal index or Tornqvist formula arrive at a superlative or "Ideal" index. These indices provide closer approximation to CPI/COLI than the Laspeyres type indices and are being used by many countries

❖ Paasche price index is directly comparable only between the base year and the current year not from year to year unless chaining methods are used. Unlike base year weighted index (Laspeyres), Paasche doesn't accurately measure price change because the change reflects both price change and shifts in quantity weights

❖ Laspeyres index directly comparable from one period to the next and also from base year to current year-with the index result being influenced by the base year chosen. The base year weights can quickly become out dated, especially in the volatile area of FT

❖ It is generally accepted that Laspeyres price index will tend to experience an upward bias because of fixed quantity weights, while Paasche will tend to be biased downwad because of constantlychanging weights. Many countries then use a fisher index formula for calculating UVI

RECOMMENDATIONS FOR COMPILING UVI

❖ It is strongly recommended to develop a true price index if resource permit since UVI for external trade does not usually meet the expectations and needs of macroeconomic policy analysts.

❖ As a second best, high priority should be given to further disaggregating the lowest level of calculation for the UVI

❖ Heterogenous and commodity for which no quantity data are obtained from Customs (like electronic/home appliances) should be excluded but should be reflected in next higher aggregate level

❖ Consistent traders (engagement of once/twice in a year) should be identified

❖ Size of the shipment or quantity is an integral part of UVI and data should be stratified according to ranges in quantity. Rules for identifying outliers in quantity would be established for exclusion.

❖ For cost effectiveness, if possible to collect data through Enterprise survey or PPI survey, it would be worthwhile to begin experimenting with export data collection for a few product areas that suffer from a lack of homogeneity in the unit –value methodology.

❖ Quarterly basis as lowest frequency of compilation is usually advisable

RECOMMENDATIONS FOR COMPILING UVI

❖ Paasche index number formula is recommended for the calculation of UVI with a resulting Laspeyres volume index. The choice of inex number formulas depends upon the primary use of the data, that is, whether the indices are to be used primarily as a deflator, a measure of inflation to calculate export and import price elasticities, or some other function.

❖ Editing and revision

❖ Dealing with heterogenous commodity

❖ Quality change

❖ Unique and infrequent goods

❖ Dealing with seasonality and discontinuities