



الهيئة العامة للإحصاء
General Authority for Statistics

Wholesale Price Index Methodology

(Base year : 2014)

Contents:

S.N	Subject
	Introduction
1	Data Sources
2	Setting the Base Year
3	Objectives
4	Terminology and Concepts of the Wholesale Price Index
5	Indicators
6	Temporal and Spatial Coverage
7	Adopted Statistical Classifications
8	Relative Importance and Identification of Commodities and Services
9	Adopted Framework and Sample
10	Data Collection Tools
11	Data Collection Method
12	Preparation and Reviewing of Results
13	Data Publication
14	Implemented Quality Procedures
15	Beneficiaries and Benefits of the Bulletin



Introduction:

Wholesale price indices are considered important economic indicators that grab attention on the part of economists and the public. Therefore, the General Authority for Statistics (GaStat) devoted enough attention to this aspect and prepared indicators that can be used to monitor the price movements of commodities and services in all sale phases in the Kingdom's markets, including the indicator of the wholesale price index which measures the price movements of commodities in the stage that precedes wholesale.

GaStat started to follow up wholesale price movements decades ago. The first wholesale price index was released in the first quarter of 1985 for a basket composed of 57 items. The number of items was increased in 1988 to 160.

GaStat is very keen on developing its programs in all fields to keep pace with the latest methods, systems and relevant international recommendations. Therefore, GaStat developed and updated all components of the wholesale price index program. The following are the main aspects of that development:

- Changing the base year to 2014.
- Disaggregating items according to the Central Product Classification (CPC2).
- Increasing the items of the item basket to 343.
- Increasing the number of points of sale where the prices of items will be collected to 7 in each city included in the program.
- Making qualitative changes in the method of data collection and the software of a number of technical processors and program outputs.

GaStat extends its gratitude and appreciation to respondent establishments for their cooperation and response with regard to providing data. Their response, second to the success granted by Allah, had great impact on the issuing of this bulletin. GaStat hopes that all sides will send it their suggestions and remarks on this bulletin to (info@ststs.gov.sa) to improve the bulletin content and lead to improvements to future bulletins.

Allah is the Arbiter of Success.

1. Data Sources of the Wholesale Price Index Bulletin:

The wholesale price index bulletin uses in its data the field survey of wholesale price index, which is a field survey conducted by GaStat monthly and is listed under the classification of economical statistics. The survey involves collecting prices through visiting wholesale shops in three cities (Riyadh, Jeddah and Dammam) representing all wholesale points of sale in the Kingdom, completing an electronic questionnaire that includes a number of questions and providing indicators related to the wholesale price index.

2. Setting the Base Year:

The year 2014 was set as a base year as it meets the required conditions in terms of economic and social stability and witnessed no crises.

3. Objectives:

- To provide statistics on the movements of commodity prices in the stage preceding wholesale.
- To provide a time series of statistical data on wholesale price indices.

4. Terminology and Concepts of the Wholesale Price Index:

- 4.1. **Price Index:** It is a rational number that measures variation in the prices of a set of commodities and services and is obtained by dividing the prices of commodities in the comparison period by their prices in the base period.
- 4.2. **Wholesale Price Index:** It is a statistical tool for measuring the variation rate in the prices of local and imported commodities in primary markets (wholesale) between two different periods of time.
- 4.3. **Commodity Basket:** It is a set of commodities chosen according to their importance in the import balance and the local product value evaluation.
- 4.4. **Points of Sale:** They are the establishments or units where data are collected on wholesale prices of commodities within the basket of the wholesale price index program.



- 4.5. Shadow Sample:** It is a set of backup points of sale which can be referred to when needed to replace one of the basic points of sale when it becomes difficult to get the price from that point for any reason, whether because the shop is closed permanently or because the commodity is definitely unavailable.
- 4.6. Comparison Period Price:** It is the recorded price of a commodity in the current period of time.
- 4.7. Base Period Price:** It is the recorded price of a commodity in a previous period of time with which the current price is compared.
- 4.8. Base Year:** It is the year whose prices are the divisor of the comparison period prices.

5. Indicators:

Indicator	Calculation Equation
Calculation of average prices on the basis of the geometric mean of prices	$\left[\prod_j P_{i,j} \right]^{1/x} = \sqrt[x]{\prod_j P_{i,j}}$ <p>Where: $P_{i,j}$ = Prices in the source period X = Number of sources for all data</p>
Calculation of index according to the following formula (Laspeyres equation):	$WPI = \sum_{a=1}^N \frac{P_{i,a}}{P_{o,a}} \times \frac{P_{o,a} Q_{o,a}}{\sum_{a=1}^N P_{o,a} Q_{o,a}}$ <p>Where: $P_{i,a}$ = the geometric mean of the price of commodity a in a month $P_{o,a}$ = the geometric mean of the price of a in the base year $Q_{o,a}$ = the quantities of item a in the base year (item weighting)</p>

6. Coverage:

6.1. Spatial Coverage:

The wholesale price index bulletin covers data on wholesale prices in three major cities, Riyadh, Jeddah and Dammam.

6.2. Temporal Coverage:

The prices of most basket items are collected monthly as the accumulated data are attributed to the calendar month in which the price data are collected.

7. Adopted Statistical Classification:

The bulletin data use the **Central Product Classification (CPC2)**

8. Relative Importance and Identification of Commodities and Services

Considering that the adopted method for index calculation depends on a mathematic formula known as Laspeyres formula, the required data should be provided to extract and calculate the weightings necessary for that equation. The volume of locally produced commodities with regard to economic activities as well as the imported commodities circulated in wholesale markets are used.

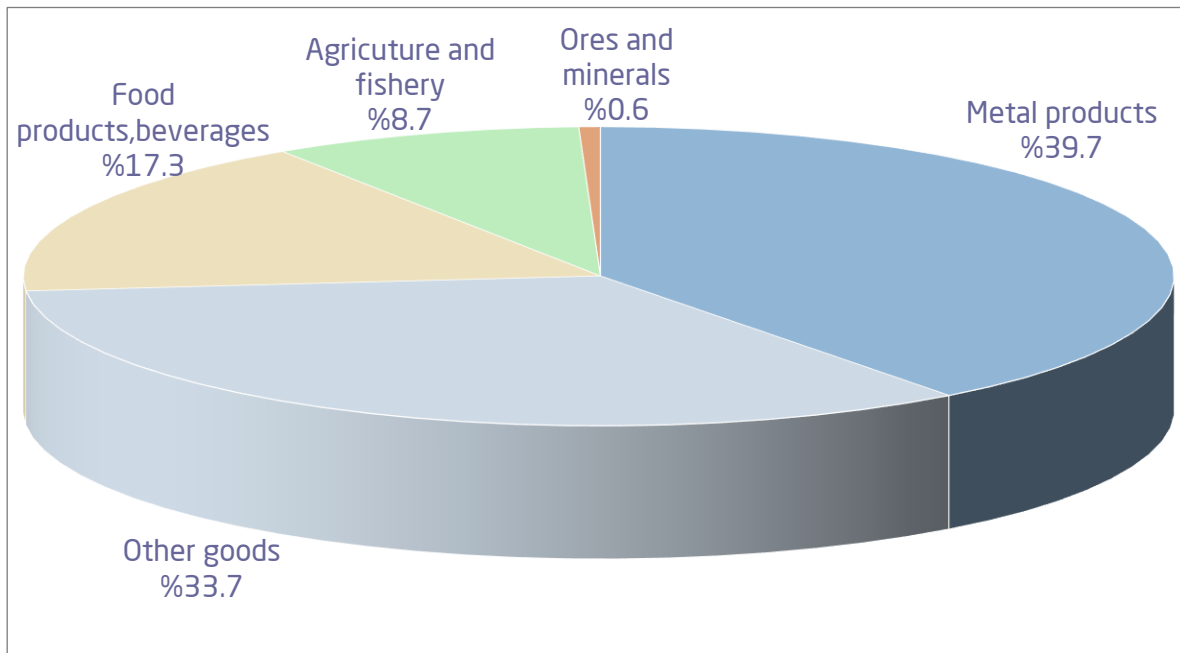
The required weights are extracted using the value of locally produced commodities in the sectors of agriculture and industry as well as the imported commodities which are disaggregated according to the Central Product Classification (CPC2).

It is noteworthy that commodity weight (commodity importance) is the ratio of commodity value to the total value of imported commodities and locally produced commodities within the wholesale trade.

Weights are extracted at a detailed level so that they can encompass items, activities, subclass, class, group, division and section.

Sections	Agriculture and fishery products	Ores and metals	Food products, beverages and tobacco	Other commodities	Metal products, machinery and equipment
Relative importance	8.7%	0.6%	17.3%	33.7%	39.7%





9. Adopted Framework and Sample

Points of Sale Framework:

The framework includes all wholesale shops in the three cities (Riyadh, Jeddah and Dammam). The establishment search results are used to identify wholesale shops.

Item Framework:

It is the set of commodities of the wholesale price system that are disaggregated according to the Central Product Classification (CPC2). It consists of all major business dealings made in the primary markets of the Kingdom of Saudi Arabia in respect of locally produced or imported commodities. A framework including the whole items and their relative importance was set on the basis of foreign trade lists of items of exports and imports and also lists of agricultural products from the Ministry of Agriculture.

Designing and drawing the sample:

Points of Sale Sample:

3. Completing data of high quality using data check rules and navigation to automatically detect input errors and illogical inputs while the completion of the data is underway.
4. Communicating with supervising entities by exchanging remarks with the field researcher.

11. Data Collection Method:

- The workers, who were nominated as field researchers and visited the establishments (points of sale) to collect data, were chosen on the basis of several practical and subjective criteria related to the nature of work.
- All candidates (GaStat staff and collaborators from some government entities) were qualified and trained through special training programs.
- The method of direct contact with the managers of the points of sale was adopted in the process of completing the survey questionnaire and data collection. Field researchers visit the points of sale located within the survey sample after arriving at them using the coordinates recorded on the tablets and the guiding maps and introducing themselves and showing official documents proving their statistical identity. They will also clarify the aim of their visit, present an overview of the survey and its objectives and complete the electronic questionnaire through verbal discussion with the managers of the point of sale.
- All field researchers use tablet devices to complete the survey questionnaire data.
- Field researchers at all work locations in the Kingdom use the “synchronization” feature available on tablet devices to download and transfer the completed data of establishments (points of sale) directly to the database linked to them at GaStat’s headquarters where they are stored in a specific way to be reviewed and processed at a later stage.
- Check rules are applied electronically to guarantee the consistency, precision and rationality of the data of the wholesale price index questionnaire. They are electronic rules that identify contradictions between answers and were built through linking the logical relationship between the answers to the questionnaire and its variables to help field researchers directly identify any errors upon completing the survey data with the manager of the point of sale. Those programmed rules don’t allow any errors to go through when an answer contradicts with another piece of information or another answer in the questionnaire.
- Collected data are verified by being reviewed by the field researcher himself and the survey supervisor in the supervision city. All work areas are subjected to a process of monitoring and reviewing by the Price Statistics Department at GaStat’s headquarters. The department also controls and monitors the



performance of all working groups in the field in synchronization with the time of performing the data collection process starting from the first day to the last.

12. Preparation and Reviewing of Results:

After reviewing the data collected for the survey in previous stages, results were calculated and extracted. Outputs are uploaded to and stored in the database. Afterwards, final reviewing is conducted by specialists in price statistics using modern technologies and software designed for reviewing and checking purposes.

13. Data Publication:

First: Preparing and setting results for publication:

Data results are uploaded in this stage from the database of the price statistics software. Afterwards, publication tables and graphs for data and indicators are set and prepared and have descriptive and methodological data added to them in Arabic and English.

Second: Preparing media material and announcing the date of releasing the bulletin:

GaStat announces the date of releasing the bulletin on its official website at the beginning of the calendar year. Afterwards, it prepares in this stage the media material of the announcement of issuing the bulletin on all media outlets as well as its various social media platforms. The announcement is made on the release date. The bulletin is published on the official website in various templates as open data in Excel format and data in PDF format

to guarantee its circulation and accessibility to all clients and parties interested in price statistics. The bulletin is included in the website's statistics library.

Third: Communicating with the clients and providing them with the bulletin:

GaStat pays great importance to communicating with the clients who use the data. Therefore, GaStat communicates with the clients upon the release of the wholesale price index bulletin to provide them with it. GaStat also receives the clients' questions and enquiries about the bulletin and its results through all communication channels so that clients can communicate with the authority to request data. Questions and inquiries are received via:

- GaStat website: www.stats.gov.sa
- GaStat email: info@stats.gov.sa



- Client support email cs@stats.gov.sa
- Visiting GaStat's headquarters in Riyadh or one of its branches in the regions of the Kingdom.
- Official Letters.
- By Statistical Phone (920020081)

14. Implemented Quality Procedures:

The wholesale price index is subject to many technical quality procedures to ensure the quality of survey data. Such procedures include:

- Training and testing researchers to guarantee their ability to get data properly in line with the survey objectives.
- Reducing the burden on respondents by using software and electronic means to collect data.
- Testing the electronic means used to collect data to ensure data integrity and protection at all survey stages.
- Committing to the timely publication of results based on previously set deadlines.



15. Beneficiaries and Benefits of the Bulletin:

The wholesale price index bulletin is useful to many government bodies that benefit from the detailed data. The Saudi Arabian Monetary Authority is considered the main beneficiary of the bulletin. The data of the wholesale price index are considered a statistical instrument to track variations in the prices of local or imported commodities traded in markets and consequently detecting price trends and market conditions, in addition to doing national accounts by relieving national income and aggregates of the impact of variations in prices.

Details on the wholesale price index methodology can be found on GAStat's website:

<https://www.stats.gov.sa/ar/397#>