



الهيئة العامة للإحصاء
General Authority for Statistics

الرقم القياسي للإنتاج الصناعي Industrial Production Index (IPI)

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Introduction:

The General Authority for Statistics (GASTAT) is keen to provide social, economic, and population statistical data necessary for decision makers, policy makers, and those who are interested in all kinds of studies. GASTAT wants also to cope with the rapid and constant development in the field of studies by improving its technical capabilities to compete with other statistical organizations of many advanced countries.

GASTAT releases the bulletin of Industrial Production Index based on the data and results of the Industrial Production Survey, which GASTAT has started to conduct since 2016 in a quarterly basis all over Saudi regions. Through this survey, data of industrial establishments have been collected. These data have to do with the production quantities, material, commodities, and services that are extracted or produced to compose the Industrial Production Index including all its three main sections (Mining and quarrying, Manufacturing industries, and water and electricity supply).

GASTAT is pleased to thank all those who contributed to this work including all entities concerned with Industrial Production Survey, where their cooperation has greatly impact the release of this bulletin. For comments or suggestions, kindly send them via e-mail info@stats.gov.sa as they may improve the content of the bulletin and further develop future bulletins.



Allah is the Arbiter of Success

General Authority for Statistics



1. Data Sources of the Industrial Production Index Survey' Bulletin:

The Industrial Production Index bulletin 'data are based on the Industrial Production Survey which is a field survey conducted quarterly by GASTAT under the category of (Industrial Statistics). In this survey, data are collected by visiting a representative sample of industrial establishments in all administrative regions of Saudi Arabia, and completing an electronic questionnaire that includes a number of questions. Through this survey, estimates and indicators of the Industrial Production Index are provided.

2. Objectives:

- 2.1 Formation of the Industrial Production Index (IPI)
- 2.2 Preparing short-term indicators that help to identify the seasonal impact of the industrial sector.
- 2.3 Updating short-term economic data series on the activities of industry, electricity, gas, and water, and identifying its contribution in development.
- 2.4 Identifying the seasonal change of workers in the industrial sector.
- 2.5 Identifying the size of seasonal change of workers 'paid compensations, and the other expenses and revenues of the industrial sector.
- 2.6 Providing governmental organizations and researchers with statistical data and information on the industrial production in Saudi Arabia.
- 2.7 Using these statistics for making local, regional, and international comparisons, and conducting studies and analyses.

3. Terminologies and concepts related to IPI:

3.1. Industrial Production: The process of transforming raw material (inputs) into consumption material as commodities (outputs) for the purpose of achieving a return for the establishment.

3.2. Production quantity: The produced quantity of a specific commodity.

3.3. Manufacturing industries: Raw material extracted from earth. This kind of industries depend on the natural resources that cannot be renewed or repaired, such as oil and minerals. They transfer raw materials into final products or intermediary products.

3.4. Extractive Industries: Raw material extracted from earth. This kind of industries depend on the natural resources that cannot be renewed or repaired, such as oil and minerals.





3.5. Electricity, gas, and water supply: Includes the electricity and gas conduction. In addition to water supply, sanitation activities, and wastes processing.

3.6. Raw material: Represents the production inputs or raw material that are used in producing a specific product. These material are not processed but they can be renewed and remain effective.

3.7. Commodities: The tangible material that can be purchased by consumers for the purpose of final consumption. They can be classified into durable and non-durable commodities. It can also be defined as the benefits which any consumer can get to fulfil his/her needs

3.8. Change: A growth on a quarterly basis. It measures the statistical change (for each quarter of the year) compared to the same quarter of the previous year.

3.9. Indicators: During this step, the indicators that should be derived when extracting outcomes are determined. (Laspeure) formula has been used to calculate the production quantities. It depends on the base year 2010 (weights) to calculate and compose the production index in the industrial sector

Indicator	Calculation Formula
Production Index in the industrial sector	$Q = \frac{\sum \frac{Q_1}{Q_0} * w}{\sum w} * 100$ <p>Where: IQ = Index of industrial production quantity Q 1 = quantity in comparison period Q 0 = quantity in the base year W= weight</p>

4. Spatial and Temporal Coverage:

4.1. Spatial coverage:

The Industrial Production Survey covers the thirteen administrative regions of Saudi Arabia: (Riyadh, Makkah, Madinah, Qassim, Eastern Region, Asir, Tabuk, Hail, Northern Borders, Jazan, Najran, Al-Baha, and Al-Jouf).

Greater importance was given to cities, as they represent about 84% of the total establishments in Saudi Arabia, and employ around 91% of the total workers in Saudi Arabia. This is done by





visiting a sample of industrialestablishments in each region selected scientifically as a representative sample of the whole region's economic establishments.

4. 2. Temporal coverage:

This coverage is done during the time period set for visiting a sample of a selected establishment and for completing the questionnaire data. Data of the survey are usually assigned to the previous quarter of its implementation.

5. Used statistical classifications:

Bulletin's data are based on:

- The National Classification of the Economic Activities (ISIC 4):
- Central Product Classification (CPC2) issued by the United Nations in 2008:

6. Sample selection:

The survey's sample was withdrawn by selecting (2100) establishments that practice industrial activities to represent the survey's community, distributed all over the 13 regions at Saudi Arabia's level.

Sample Units in the Industrial Production Survey:

Primary sample units are enumeration areas that were taken in the first stage of the sample design. On the other hand, (establishments) are the secondary and final sample units at the same time. They were chosen in the second stage of the sample design; each secondary sample unit is considered part of the primary sample unit.

7. Data collection tools:

The questionnaire was prepared and designed by specialists of Industry statistics at the General Authority for Statistics GASTAT based on the international standards and recommendations. It was reviewed by experts in this field during their visit to GASTAT and by relevant entities with considering their views and comments. The questions were outlined in a scientific, precise manner, with a view to standardizing the questions asked by researchers.





The questionnaire was divided into seven sections by topic to increase its efficiency and to meet the technical features for the field work stage			
Economic activity	Average number of workers	Compensations of workers	
Operating expenses	Operating revenues	Raw materials	By type of commodity
To view the full version of the questionnaire, please visit GASTAT's official website https://www.stats.gov.sa/ar/494-0			

Once the survey questionnaire is approved, it is converted into an electronic version, so that it can be used through the tablet-based developed data collection system, which offers a variety of features, including:

1. Viewing the field researcher's respective work area (of the survey sample).
2. Locating the sample (establishment) by using a map installed on the tablet.
3. Using highly accurate databases for completing, reviewing and browsing data (to instantly detect typos, errors, and illogical entries).
4. Communicating between the field researcher and the various supervisory levels, by sending and receiving comments and feedback.

8. Data collection method:

- The field researchers who paid field visits to establishments to collect data of (Industrial Production Survey) were selected from candidates based on a set of practical and objective criteria according to the job roles.
- All candidates (GASTAT staff as well as collaborators from some government agencies) were trained and qualified through specific training programs
- Direct contact with households was adopted as a method for questionnaire filling and data collection. The researchers visited establishments selected within the survey sample, after locating them by using the coordinates available on the tablet devices and guiding maps, introduced themselves, showed proof that they are GASTAT staff, clarified the reason for the visit, gave a brief on the survey and its objectives, and completed the e-questionnaire based on the oral answers' of the establishment owner. In case the establishment owner is not available, data shall be collected from any employee who is knowledgeable about the establishment's affairs.





- All field researchers used tablets for completion of the survey questionnaire, during the specified reference period, according to the rules of moving across the questionnaire's sections and question.
- Field researchers throughout the Kingdom used the 'synchronization' feature available on tablets in order to upload and transfer the completed data directly to the relevant database in GASTAT headquarters, to be saved for reviewing and processing .
- E-review rules were applied to ensure consistency, accuracy and plausibility of the provided data. They were designed to 'detect contradiction of answers', by creating logical relations among the answers and variables of the questionnaire. Those rules are meant to help the field researcher to instantly detect errors when filling out questionnaires with the data provided by the establishment owner. By applying those programmed rules, an answer shall not be accepted if it contradicts with another previously provided answer in the questionnaire .
- The collected data were validated and reviewed the researcher himself, inspector overseeing him, and supervisor of the survey in the supervision area. Further, the entire work cycle was controlled and reviewed by the Data Quality Room in GASTAT headquarters. The room, which also oversees and controls the performance of all filed crews directly from the first day to the last day.

9. Preparing and reviewing results:

After reviewing the collected data of the Industrial Production Survey, GASTAT calculated the collected data and extracted the results. Then, specialists in industry statistics conducted a final review, using advanced technology and software designed for the purposes of review and auditing.

10. Data publication:

First: Preparing and processing results designed for publishing

During this stage, GASTAT downloaded data results from the database of Industrial Production Survey. Then, publishing tables and charts of the data and indicators were prepared and processed. Metadata were then added, and the methods were explained, in Arabic and English.





Second: Preparation of Media materials and the announcement of bulletin release date:

After GASTAT published the release date of the bulletin on its official website in the beginning of the Gregorian calendar, it prepared special media materials to announce its release through all media in addition to its various platforms in the social media sites. The announcement is made on the predetermined day of publishing. The publishing starts on the official website in different templates as open data in Excel format to ensure that it spreads and reaches all customers and those interested in the Industrial Production Index, and include it in the statistical library on the website.

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

GASTAT believes in the importance of communicating with the clients, therefore, once the bulletin of the Industrial Production Index is released, it immediately communicates with the clients and provide them with the bulletin. It also receives questions and queries from clients about the bulletin and its results through various communication channels where clients can request data. Requests and enquiries are received through:

- GASTAT official website www.stats.gov.sa
- GASTAT official e-mail info@stats.gov.sa
- Client support's email cs@stats.gov.sa
- Official visits to GASTAT head office in Riyadh or to one of its branches in Saudi Arabia
- Official letters
- Statistical help line (920020081)

11. Applied quality procedures:

The industrial production survey is subject to many technical quality procedures to ensure the quality of the data resulting from this survey. These include:

1. Use of previous survey assessments to monitor strengths and weaknesses in the implementation and to improve statistical data collection procedures.
2. Training and testing of researchers to ensure that the researcher can obtain data in an appropriate manner consistent with the objectives of the survey.





3. Testing the electronic means used in data collection to ensure the safety and protection of data at all the stages of the survey implementation.
4. Reduce the burden of the respondent by using appropriate statistical methods.
5. The obligation in publishing the results according to the predetermined publication dates.

In addition to a number of procedures carried out by the data quality room of GASTAT during the process of collecting field data:

Data quality room:

An operations room that synchronously works with the field works of surveys. It is equipped with electronic monitoring tools and tracking screens used by observers and quality specialists to review the consistency of data and to detect errors and extreme values during the data collection process in the field. This is done by immediately following up what is being filled out by the field researcher. This Room is also responsible for checking the researchers' commitment to the survey's instructions during the visit, and the correctness and logicity of the data. It also reviews some important indicators of the survey to ensure the data accuracy.

The main tasks of the Data Quality Room are:

- Reviewing the collected data and sending notes to the field operating teams of different levels through an automated desktop system that is linked with the tablets of the researchers, so they can access the feedback quickly at their working locations.
- Making phone calls with the establishment in order to ask some questions of the questionnaire to check the accuracy of data completed by the researcher, and his commitment to the instructions during the visit. Also, to obtain the missing data that have not been received yet, and to thank the households' heads for their cooperation.
- Answering field inquiries received either from field researchers or the establishment's informant.
- Checking the questionnaire completion location by matching its coordinates with the registered ones in the sample file.

12. Users and benefits:

The beneficiaries from this bulletin are: The Ministry of Energy, the Industry and Mineral Resources, the Economic Cities Authority, the Saudi Authority for Industrial Cities, the Ministry of Commerce and Industry, the Royal Commission for Jubail and Yanbu, the Saudi Industrial Development Fund as well as the private and academic sectors. The results of this survey (study)





are useful in forming the Industrial Production Index, which is the only indicator that measures the changes in the quantity of industrial production in Saudi Arabia in the short term.

The behavior of the economy in general and the industrial sector in particular can be analyzed using the time series of industrial production indices.

For more details on the Methodology of Industrial Production Index, visit the below link:

<https://www.stats.gov.sa/ar/494-0>





13. Index of Industrial Production of the Fourth Quarter 2018 with a(100 = 2010) Base

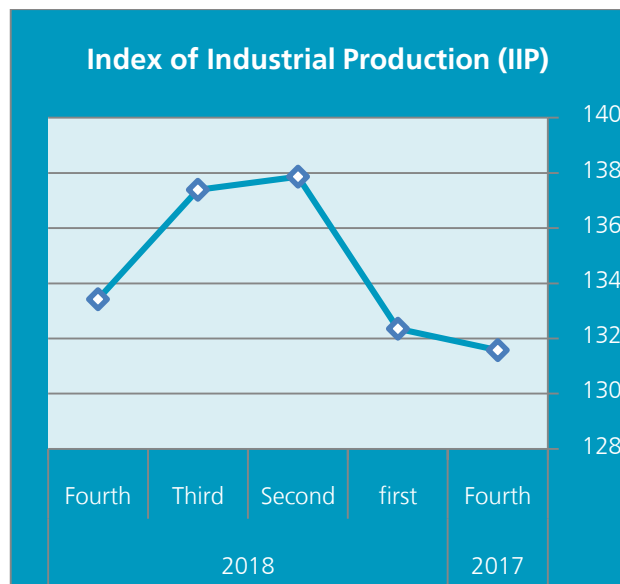
The general index of the fourth quarter 2018 reached (133.42) points. The mining and quarrying activity index recorded (132.18), whereas the manufacturing industry activity recorded (144.85) points. However, the electricity and gas supply activity recorded (76.31) points.

When comparing the results of the fourth quarter 2018 with the results of the previous quarter, we find that the production quantities have decreased by 2.89% in all industrial activities when compared to the third quarter 2018. The production rate in the manufacturing industry decreased by 15.14%, whereas the decrease rate in the electricity and gas supply reached 43.46%. However, the mining and quarrying activity increased to 3.77%.

Furthermore, when comparing the results of the fourth quarter 2018 with the same quarter in 2017, we find that the production quantities increased by 1.4% in all industrial activities when compared to the fourth quarter of 2017. The production rate in the mining and quarrying activity increased to 7.31%. However, the production rate decreases in the manufacturing industry to 10.88%, while the electricity and gas supply decreased to 28.09%.



Industrial Production Index			
Year	Quarter	Index	Change (%)
2017	Fourth	131.58	▼ 1.99
	first	132.35	▲ 0.59
2018	Second	137.87	▲ 4.17
	Third	137.39	▼ 0.35
	Fourth	133.42	▼ 2.89



Source: GASTAT



Index of Industrial Production	Main Sections	2017	2018			
		Q4	Q1	Q2	Q3	Q4
	Mining and Quarrying	123.18	121.76	124.06	127.38	132.18
	Manufacturing Industry	162.54	174.6817	183.53	170.7	144.85
	Electricity Supply	106.12	74.56	136.79	134.96	76.31

