

Methodology

Index of Industrial Production for the Manufacturing Industries Sector 2020

Table of Contents

Background of Index of Industrial Production	3
Target Population	3
Survey Sample	5
Stages of the Survey	6
Main Documents of the Survey	6
Survey Staff	9
Fieldwork Phase	11
Data Processing Stage	12
Main Definitions	14
Improvement Plans	15

First: Background of Index of Industrial Production

1.1 Introduction

Since its establishment, the Dubai Statistics Center has been keen on providing social, economic and population statistical data for decision makers, policy makers and those interested in studies of all its forms. The center also seeks to keep pace with the rapid and continuous development in the field of studies by developing its technical and technical capabilities to reach a high level in this field to match the statistical agencies in many developed countries.

The industrial production index is an important indicator related to the performance of the economy, as it reflects the ability of national products to compete based on the commercial capabilities of the local economy, the higher the competitiveness of local products, the better the trade balance.

1.2 Survey Objectives

- The Index of Industrial Production is used to monitor changes in the volume of production domestically and that are dealt with in the markets, and what follows is to identify trends in prices, quantities produced and market conditions.
- One of the important tools used in preparing national accounts by ridding national income and totals of the impact of price changes.
- Used as an important indicator that reflects the progress and development that is occurring in the local production sector in a period compared to another.

Second: Target Population

2.1 Target Community

The survey focus on all industrial establishment operating in the Emirate of Dubai and mainly in the manufacturing industries sector, as stipulated by International Standard Industrial Classification of Economic Activities ISIC 4, in a way that ensures coverage of all selected

items in index calculation of produce prices according to its economic activities. The key requirements of the selected establishment can be summarized into the following:

- Engagement in manufacturing activities.
- Continuous production activity.
- Opening the facility to the general public (as private establishments that do not serve or sell except to a certain class of individuals and which require membership or are limited to certain persons or entities: these establishments are not valid for inclusion in the facilities from which data will be collected later).
- The establishment operating within the manufacturing section includes: manufacturing industries, as follows:

Section C - Manufacturing

- 10 Food products
- 11 Beverages
- 12 Tobacco products
- 13 Textiles
- 14 Wearing apparel
- 15 Leather and related products
- 16 Wood and of products of wood and cork, except furniture
- 17 Paper and paper products
- 18 Printing and reproduction of recorded media
- 19 Refined petroleum products
- 20 Chemicals and chemical products
- 21 Pharmaceuticals, medicinal chemical and botanical products
- 22 Rubber and plastic products
- 23 Other non-metallic mineral products
- 24 Basic metal products
- 25 Fabricated metal products, except machinery and equipment
- 27 Electrical equipment

- 28 Machinery and equipment n.e.c.
- 29 Motor vehicles, trailers and semitrailers
- 31 Furniture
- 32 Other manufacturing industries
- 33 Repair and installation of machinery and equipment

Industrial classification 4 ISIC was used in the classification of components of industrial production indexes to facilitate comparisons between countries due to the reliance of many countries on this classification.

In light of the selection of economic activities that will be covered by the indices of industrial production, and after reviewing the local production of industrial goods at the required level (categories), the activities were chosen according to their relative importance and availability in the markets. Based on this tab, the index tables will be issued and tabulated with their details, as are the sections, groups, categories and items.

Third: Survey Sample

The sample for the research sources is chosen to take into account the coverage of manufacturing activities at the level of the Emirate of Dubai, as the aim of the research is a comprehensive coverage of the activities included in the calculation of the price index of the product in the first stage and then the activities also covered in the calculation of the index of industrial production, and thus It is necessary to provide production sources for these activities as much as possible, using the general framework of the industrial establishments operating in the Emirate of Dubai.

The industrial establishment is selected according to the following rules:

- Comprehensive census of all establishments engaged with activities are not available in other establishment.
- Classifying establishments according to the numbers of their employees according to the categories: 1-9, 10-24, 25-49, 50-99, 100 and more.

- If there are more than three establishments for each activity, the sampling method will be based on the number of establishments within each activity. The number of establishments in the frame were 8,892 so the sample size will be determined within the same activity by covering 3% of the operating establishment.
- The number of facilities completed to survey the index of industrial production reached 167 establishments covering 24 major economic activities on the second digit of the ISIC 4 classification and 74 economic activities on the fourth digit.

Forth: Stages of the Survey

Survey stages include the following set of operations:

- Sample design and selection.
- Design the survey Form and prepare the Instructions Manual
- Test and develop forms, instructions, software and data, as well as the collection and processing procedures.
- Preparation of fieldwork stage; for example, the preparation of equipment and software, data collection instructions, field and desk audit rules, automated matching rules and the preparation of the coding manual.
- Collecting and entering data for selected items and services.
- Data auditing and coding.
- Clean up data from errors
- Database finalization.
- Extraction of IIP for the manufacturing sector.
- Publishing results.

Fifth: Main Documents of the Survey

Survey documents included all forms and instruction manuals for supervisors, researchers, rules of auditing and automated conformity rules. The following is a summary of the most important documents:

5.1 Survey Form

In order to reach the objectives of the survey, a special form designed and finalized after tested, reviewed and translated by specialists, taking into account the preparation of the form program and the audit process. The form contains the following main parts:

1. Establishment Code.

2. Establishment Serial No.

3. Identifiers/Metadata:

- Establishment Commercial Name
- License number.
- Licensing Entity
- Name of the establishment's owner or director.
- Main business Economic activity (in detail).
- Number of employees.

4. Establishment address:

- Community Name.
- Community Number.
- Parcel ID.
- Makani Number.
- Street name.
- Building name/Owner.
- Location in building.
- P.O .Box
- Telephone Number.
- Fax Number.
- E-mail.
- Website.

5. Information of Respondent:

- Name of Respondent.

- Telephone number.
- Mobile number.
- E-mail.
- Alternative contact name.
- Telephone number.
- Mobile telephone number.
- E-mail.

6. List of activities and their specifications.

7. Values of production activities.

5.2 Instruction Manual

The instruction manual includes all definitions and concepts used in the survey and detailed instructions for the researchers, in addition to providing a detailed explanation of all the questions and concepts contained in the form. Its various sections and the classifications used for each of them, in addition to instructions on how to complete the data in a manner affording the highest degree of accuracy. The manual also includes the basic audit rules to be follow in verifying the forms, as well as the review mechanisms, rules for desk auditing and automated matching rules.

5.3 Coding Manuals

These manuals include the following codes:

- Guide to coding economic activities according to ISIC4.
- Directory of Dubai area codes and their names.
- Symbol analysis guide.
- Production stage codes.

5.4 Preparation of software to be use

- Entry programs.
- Compliance and electronic auditing programs.
- Required output programs.

Sixth: Survey Staff

6.1 Functional structure of survey personnel

The staff involved in the technical, administrative and fieldwork parts of the survey organized as follows:

Tasks of the technical supervisor

- Supervise the training of the researchers in fieldwork.
- Provide work supplies (forms, devices and stationery) for researchers.
- Distribute work among field researchers and ensure compliance with the periodic pricing plan.
- Periodically accompany the researcher on field visits to ensure the accuracy of his method in interviewing respondents, correct method of collecting such data and adherence to carrying the work ID card while conducting field tours.
- Conduct field visits to the production sources by taking random samples of each researcher's forms.
- Conduct ongoing meetings with the researchers, directing them in response to queries or obstacles that may face them, following up on the process of their field visits, evaluating their performance and addressing cases of rejection, if any.
- Design forms - or records for the receipt and delivery of forms - in order to control their movement.
- Maintain desk auditing data by verifying the accuracy of the researcher's method of completing forms before entering them, ensuring that the researcher complies with the specifications required for items and services, in addition to monitoring the accuracy of the numbers on the forms, ensuring that they include all the required data and that the progress of the research work runs on schedule.
- Prepare progress reports relevant to the project for submission to the Department.
- Check forms and data entered on handsets, notifying the researcher of any errors or technical problems that hinder the flow of the input process.

- Commitment to data entry of time plan.
- Prepare the final reports and outputs of the survey.

Tasks of the field researcher

- Receive the establishment's sample.
- Visiting establishments according to the plan of fielding.
- Commitment to updating all the forms and ensuring their comprehensiveness (production values, activities, etc.) as contained in the Manual for each item before leaving the establishment.
- The necessity to review economic activities and ensure their availability at the source of production and not to rely on the data providers in that, so that the researcher records the production values of the available varieties only when visiting.
- Deliver completed forms to the supervisor promptly, in accordance with the relevant schedule.
- Commitment to the survey time plan.
- Notify the field supervisor of difficulties and obstacles facing the researcher in the field and participate in solving them.
- Adhere to carrying the work card and commit to wearing the relevant uniform during fieldwork.
- Commitment to the confidentiality of data, using it for statistical purposes only.

6.2 Selection of Researchers

Since the researchers working in the survey are from the ranks of the department staff, nine (7) of them were selected to work on the survey at various supervisory and executive levels. A plan for training the researchers developed and they trained prior to commencing data collection from the field, including the definition of the survey, its objectives, data collected and collection mechanisms. They also trained practically on the data entry program, relying on the user manual as a work reference.

6.3 Researcher Training

- General background of the DSC and the survey, its importance and objectives.
- Environment, health and safety standards and fieldwork quality.
- The art of dealing with the public.
- Security and confidentiality of information.
- Basic principles for collecting data from industrial establishments.

Seventh: Fieldwork Phase

7.1 Inventory of production sources phase

A special form designed for the sources of production, to fill in by the field researcher directly after the supervisor's distribution of the brief on the sources of production and their locations, as follows:

- Provide the researchers with the frame of the establishments to visited, including their names and addresses.
- Provide the researchers with the necessary forms so that each establishment shall have a unique form.
- Researchers shall visit these facilities and complete the forms through direct interviews.
- Researchers shall list the most important items, services and prices available in those establishments according to the instructions given.
- Researchers shall submit completed forms to the supervisor promptly.
- The forms reviewed and audited by the supervisor.
- Data entered directly after the completion of the checks and coding.

7.2 Production values collection phase

A special form is designed to collect the values of industrial production and includes the economic activities that have been mentioned by production sources according to the following determinants:

- Provide researchers with the frame of the selected establishments.
- Provide the researchers with the necessary forms so that each establishment shall have a unique form.
- Researchers visit these facilities and fill in data on industrial production values on a monthly basis.
- Researchers shall submit completed forms to the supervisor promptly.
- Values reviewed and audited by the supervisor.
- Data entered upon completion of the auditing/checking and coding process.
- Review and audit entered data.

7.3 Field Audit

A series of administrative and field procedures provided to achieve a high level of accuracy, through:

- Studying field reports submitted and responding to the queries directly.
- Holding regular meetings with field researchers to take their views regarding production values in different places.
- Continuing to monitor researchers' performance in the field.
- Preparing comparisons and matching prices of randomly selected items to test the performance of the field researchers.
- Field test of the frame of collecting data.
- Supervisory field inspections include:
 - Interview attendance.

- Examining the internal interconnection of data.
- Screening using a random sample.
- Provide records to control the movement of the form, both field and desk auditing.
- Receipt of all required forms.

Eighth: Data Processing Stage

8.1 Desk Audit

After the data is collected from the field, a logical review of this data is carried out by the researchers. Office audits can be summarized by making sure of the following things:

- Production values represent the required month.
- Production values are in the required currency.
- Values are Production values.
- Production values collected from all required sources.
- Conduct a quick review of the registered Production values to assess if they seem reasonable.
- The description of the item or unit of measurement is not to be changed, nor the source switched without the supervisor's knowledge.

8.2 Automated Audit

In light of the extraction of entry reports, errors occurring during the process of collecting and entering production values data corrected. Audit reports aim to:

- Ensure that all production values are entered into economic activities.
- A comparison are made between the production values of a given category for the same source over two consecutive months, providing a note of any production values difference of $\pm 20\%$ and above (specifying the percentage).

Among the most important observations that should also focused on during the development of automated auditing programs include:

- There were irrational changes to the production value of the variety compared to the production values for the same variety for the previous month.
- The production values of the variety disappeared during the month.
- Follow-up the emergence or disappearance of activities from their sources

8.3 Display and publish outputs

IIP results displayed by:

- Smart statistical systems.
- IIP report and bulletin.
- Periodic press releases that review the highlights of the survey.

8.4 Data review

- The data that is published is primary data and is subject to modification according to the data reviews policy followed at the Dubai Statistics Center.
- Audit analysis is performed before the publication of each new release
- Review the data analysis is performed in the event of a new access data related to the same reference year for the publishing process.

Ninth: Main Definitions

Data Collection Sources:	It is the places where the production of materials, goods and industrial services is handled.
Index of industrial production:	Index that measures the relative changes and reflects the development that occurs in the volume of production of materials and commodities.
Industrial Production:	It is the process of converting raw materials (inputs) into consumables in their final form in the form of commodities (outputs) in order to achieve a material return for the facility.
Laspeyres Formula:	The mathematical equation (developed by Statistician Laspeyres) which calculates the index by using the price levels weighted by the base quantities (weights).
Production Values:	It is the amount of materials and goods that are produced.
Manufacturing:	Physical and chemical transformation of materials, items, or ingredients to form new products and materials. The transferred materials are mostly raw materials from agriculture, mining, quarrying or products of other manufacturing industries, specialized maintenance of industrial and commercial machinery and equipment. Repairing such is within the manufacturing industry, but the repair of computers and personal and household commodities not considered within the manufacturing industry. Assembling parts resulted by manufacturing industries is considered a manufacturing industry.
Base Period:	The period that compared to the current period.
Weights:	It represents the relative distribution of manufacturing industries values within the country according to the main categories, sections, and groups that are components of commodities according to the International Standard

Base Values:

Industrial Classification of All Economic Activities, Rev.4. The weights used in calculations that use the Laspeyres Equation.

Commodity Frame:

The period that compared to the current period.

The category of commodities that are part of the production values system classified according to the International Standard Industrial Classification of All Economic Activities, Rev.4.

International Standard Industrial Classification for All Economic Activities (ISIC):

The international reference for productive activities. The main purpose of this classification is to provide a range of categories for activities that can used to collect and classify statistics according to these activities in a format designed for the purpose of economic analysis. Classification consists of a coherent and consistent structure of economic activities based on an internationally agreed-upon set of concepts, definitions, principles and classification rules.

Tenth: Improvement plans

- Working to increase the coverage of the IIP shall to include all industry sectors.
- Follow up on new international classifications, instructions and methodologies.