



الهيئة العامة للإحصاء
General Authority for Statistics

Methodology of Labor Market Statistics

Q3 – 2022





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Introduction:

The Labor Market Statistics Publication is one of the important statistical products issued by the General Authority for Statistics (GASTAT). It is a quarterly publication that collects its data from two sources; First source: the survey (the Labor Force Survey), and the second source: the data of administrative records of the authorities concerned with the labor market (the Ministry of Human Resources and Social Development, the General Organization for Social Insurance, and the National Information Center). This publication, in addition to the rest of the statistical products issued by the authority, contributes to support decision and policy makers, and it includes: statistics of employees and job seekers based on many basic variables according to the administrative distribution of the Kingdom's regions such as: nationality, gender, age groups, and educational level, in addition to the main indicators extracted from the labor force survey estimates such as unemployment rates, labor force participation, employment, and others indicators.

The Labor Market Statistics Publication is an extension of the Labor Force Survey report, which began to be issued annually in 1999 and continued as an annual publication until 2007, then turned into a semi-annual publication and became a quarterly publication starting from the second quarter of 2016. In the fourth quarter of 2016, it was developed to be a publication that collects the survey results with the administrative records of the authorities concerned with the labor market in the Kingdom under the name (Labor Market Statistics Publication).

The importance of this publication stems from the fact that it provides comprehensive statistics on the labor market in the Kingdom of Saudi Arabia and contributes to building a statistical database for the labor market that can be used in preparing and planning future, social, and economic development programs in the Kingdom.

The General Authority for Statistics extends its thanks and appreciation to all partners and clients from the authorities concerned with the labor market in the Kingdom for their cooperation in the completion of the labor market statistics publication. It also extends its thanks to the heads of households for their response to enumerators and answering the labor force survey questionnaire, as their cooperation had the greatest impact in completing the data collection processes in the survey.

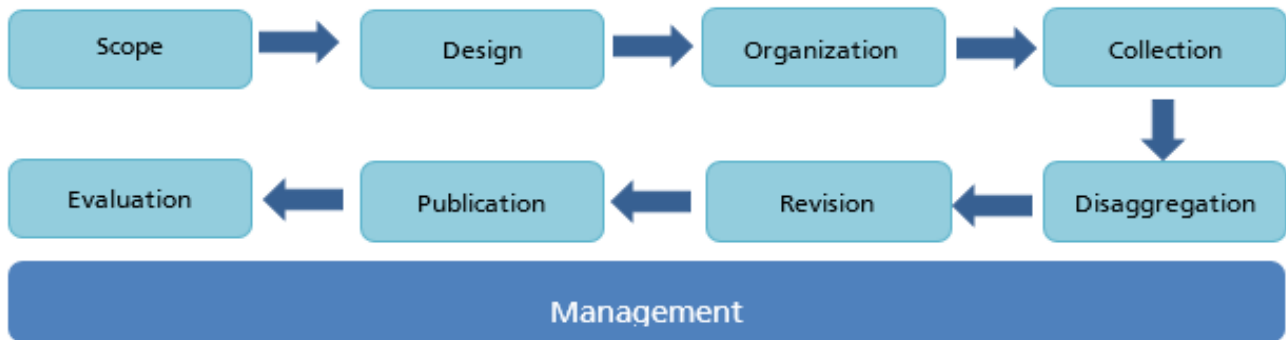
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The General Authority for Statistics



Methodology:

GASTAT implements all its statistical works in accordance with a unified methodology that compiles with the nature of each statistical product. It relies on the Manual of the Statistical Procedures which conforms with the procedures adopted by the international organizations. The statistical product goes through eight inter-connected stages, in addition to a ninth stage (the comprehensive "management" stage), which are as follows:



The first three stages: (Scope, design, and organization) are collaborative stages between GASTAT and its partners from the different developmental entities. However, the fourth stage (Data collection) is a collaborative stage between GASTAT and the statistical community either households or establishments, to complete data and information. On the other hands, the rest of the stages are considered statistical stages carried out by GASTAT, including (Disaggregation, revision, and publication). After that, the eighth stage (Evaluation) is done through collaboration with clients again, whereas the (Management) stage is an administrative and organizational stage that relates to all stages. These stages have been applied on the labor market statistics as follows:

1. First stage: The scope:

The first step in the process of producing Labor Market Statistics, it is also the first collaborative stage between GASTAT and the labor market group which includes the Ministry of Human resources and Social Development, General Organization of Social Insurances, and Human Resources Development Fund, in addition to the National Information Center, private sector, and the academic sector. Many workshops and meeting have been held between GASTAT and these organizations to understand their needs and requirements as they are considered data providers and users at the same time.



The feedback of these organizations has been taken into consideration to assure the achievement of all “Labor Market Statistics” objectives which can be summarized in:

- 1 Supporting decision and policy makers, researchers, and those who are interested in getting up-to-date and comprehensive statistics related to the labor market in Saudi Arabia.
- 2 Empowering public and private sectors to investigate the labor market changes and get use of them.
- 3 Providing the academic sectors with the requirements of social and economic studies and research.
- 4 Providing up-to-date statistics on:
 - Unemployment rate according to many variables.
 - Unemployed individuals and labor force according to many variables.
 - Employment according to many variables.
 - Labor Force Participation rate and employment to working age population rate.
 - Average wages and average working hours.
 - Job seeking method, period of unemployment, and previous work and training experiences.

In this stage, we ensure that all published statistics contribute to meeting the requirements of Saudi Vision 2030. They also must cover the regional requirements such as the requirements of GCC-STAT, and other international requirements such as the International Labor Organization (ILO).

2. Second stage: The design:

The stage of designing the statistical work as it is considered a whole product. Through this stage, the statistical community is determined, statistical framework, survey sample, and questionnaire are designed, methods and tools of data collection are identified, and sampling units are specified. Partners collaborate in all these procedures to benefit from their feedbacks, so that all requirements can be achieved within the statistical product.

The most important outputs of this stage are:

2.1. Statistical community:

Statistical community of labor market statistics consists of all individuals (Saudis and non-Saudis) who habitually live in Saudi Arabia.

2.2. Statistics sources:

Labor market statistics data are based on two main sources to provide comprehensive information on the Kingdom of Saudi Arabia labor market conditions. They include statistics from the Labor Force Survey (household survey) which GASTAT conducts quarterly. They also include quarterly data from administrative records of related governmental entities. GASTAT currently releases indicators from these two data sources separately, so that data from each source can be released as soon as it is ready.

2.2.1. First source of labor market statistics: Labor Force Survey

It is a multiple mode household survey conducted by GASTAT under the social statistics category. Information is collected by contacting a sample of households from all administrative regions of Saudi Arabia and



completing an electronic questionnaire that includes several questions asked about household members. The survey is conducted in both CATI and CAPI mode. This survey provides estimates and indicators of labor force characteristics of all persons 15 years and above who live in Saudi Arabia, including key indicators of labor market such as the unemployment rate and the labor force participation rate.

2.2.2. Second source of labor market statistics: Administrative records

These data are recorded and updated data and information of governmental entities that are related to labor market. They result from the official electronic registration and documentation operations of these entities. Ministry of Human Resources and Social Development, General Organization of Social Insurance, and the National Information Center periodically provide GASTAT with their recorded data through the electronic linkage, as these entities are considered key references of workers data in both the public and private sectors in Saudi Arabia.

The following table shows the type of data provided by each entity from the labor market statistics sources:

Data Source	Entity	Data and Indicators
Labor Force Survey	General Authority for Statistics	Estimates of labor force, unemployed individuals, and key labor force indicators including the unemployment rate, the participation rate, and the employment-to-population ratio.
Administrative records	Ministry of Human resources and Social Development	Government sector workers.
	General Organization of Social Insurances	Participants on the job who are subject to social insurance laws and regulations in the private and government sector, and those who stop participating in social insurance in the quarter according to gender, nationality, and reason for stoppage.
	National Information Center (NIC)	Domestic workers.

2.3. Terminologies and concepts of labor market statistics

2.3.1. Terminologies and concepts of the Labor Force Survey (First source of labor market statistics)

2.3.1.1. Survey statistical framework

In Q4 2021, a sample redesign was introduced as part of a broader transformation of the LFS. The frame for the redesigned sample is the list of dwellings created via a comprehensive canvassing of dwellings in 2020 in preparation for the Census of Population originally planned for 2020. The canvassing was of all buildings, with designation of type, for example residential or business. The 2020 Census canvassing obtained the



telephone number and ID number of the head of household of all occupied residential dwellings. The LFS frame consists of all residential dwellings at the time of the 2020 Census Canvassing, whether occupied, vacant or under construction. This frame is used for the Q2 2022 sample selection.

2.3.1.2. Sample of Dwellings

A sample of dwellings was chosen from the frame. The sample was drawn from all dwellings, regardless of their status as occupied, vacant or under construction at the time of the 2020 Census Canvassing. Details of the sampling methodology as presented in section 2.11.

The choice of the dwelling as the sampling unit represents a departure from previous sample design, in which the household was the sampling unit. Dwellings represent a more stable unit for sampling purposes.

2.3.1.3. 2.3.1.3 Administrative Region:

It is part of the Kingdom of Saudi Arabia and its administration is supervised by a government agency directly affiliated with the Ministry of Interior, such as the Riyadh region and the Makkah region. In each administrative region there is a city that is the seat of its emirate.

2.3.1.4. 2.3.1.4 Governorate:

It is part of the administrative region and is considered the first administrative level within its components and is affiliated to it administratively, such as Al-Kharj Governorate, which is affiliated to the Riyadh region.

2.3.1.5. 2.3.1.5 The Center:

It is the administrative authority affiliated to the governorate, such as Al-Hayathim Center affiliated to Al-Kharj Governorate, and some of them follow the headquarters of the Emirate directly, such as the Irtah Center directly affiliated to the Emirate of Riyadh Region.

□ Population name:

It is every place that has a fixed population such as a city, a village, or a farm, or a non-fixed one, such as a water resource.

2.3.1.6. 6.1.3.2 The City:

According to the population census, every population name that has a municipality or whose population exceeds (5000) people is considered a city.

2.3.1.7. 2.3.1.7 Neighborhood:

It is a part of the city that includes a set of national addresses, streets, and roads. It has a well-known name and is often surrounded by main streets that separate it from other neighborhoods. The neighborhoods have been given numbers at the city level starting with the number (001) and ending with the number of the last neighborhood in the city. The divisions of neighborhoods have been approved According to the divisions followed by the secretariats and municipalities.

2.3.1.8. 2.3.1.8 The Village:

According to the population census, a village is a place that has a fixed population, has a recognized name, and has a population of less than 5,000 people.



2.3.1.9. 2.3.1.9 National address:

It is a system that was developed by the Saudi Postal Corporation (Sobol), relying entirely on geographic information systems, through which a special number was created for each piece of land (building or vacant land) and it was linked to spatial coordinates, and this number is used to access each piece easily through various technical map applications.

2.3.1.10. 2.3.1.10 Building:

It is every self-contained structure that is fixed to the ground permanently or temporarily and consists of one or more rooms and has an entrance or several entrances that lead to all its contents. The building may be for economic, social or religious activity such as house, villa, mosque, tent, school , hospital.

Noting that the building's appurtenances, such as the garage, the shop, and the villa's appendage, are not considered separate buildings, just as the buildings of bridges, electric rooms, engine rooms, and water pumps are not considered unless any of these sites are used for housing at the time of enumeration. Also, buildings under construction are not considered within the buildings. Unless bases, foundations and walls are erected.

2.3.1.11. 2.3.1.11 Real Estate Unit:

It is a building or part of a building that has a separate door, whether it is intended for housing or work, housing and work, or a public housing, and it may be vacant or under construction.

2.3.1.12. 2.3.1.12 The dwelling:

It is a building or part of a building originally intended for the residence of one or more households and has a separate door whether at the time of the visit it is occupied by one or more households or vacant, and it may contain one or more establishments, and there may be one household and one establishment at the same time, and the dwelling may consist of one room or more. And according to the census, every real estate unit inhabited at the time of enumeration is considered a dwelling, even if it was not originally built for housing, such as shops.

The types of dwellings are:

- A building originally constructed for the use of households like villa or popular house.
- Part of a building, such as an apartment, a floor, or a separate room (such as rooms built on rooftops).
- A mobile building, such as the tent, the nest, and the barn.
- A building that is occupied at the time of enumeration by a family and is no longer a place of residence, such as a shop, factory, school, workshop, bakery, restaurant and many work sites in which its workers live.

2.3.1.13. Household

A person or a group of persons – with or without kinship binding them to one another – who live within the sampled dwelling during the enumeration. The household includes:

- 1- Saudi and non-Saudi nationals who usually live at the dwelling but were temporarily absent while the survey was conducted (abroad or in the kingdom). For example: businessmen, tourists, people who



are travel for medication, students on scholarship beyond the borders of the kingdom.

- 2- Individuals who usually live at the dwelling but have been absent while the survey was conducted for taking night shifts, such as guards, physicians, nurses, airport staff and fishers.
- 3- Domestic workers such as servants, drivers and the like who are living within the sampled dwelling. These individuals may have separate living quarters withing the dwelling.

2.3.1.14. Head of household

It refers to the person regarded by the household members as its chief member. Usually, she/he is responsible for the household and his/her age must not be under (15) years old. If the household consists of children and their mother, and they are cared for by a relative who does not live with them, such a relative shall not be deemed as the head of the household, nor shall she/he be recorded as one of its members, since she/he shall be recorded with his/her own household. In this case, the mother shall be deemed as the head of the household.

2.3.1.15. Work:

Work includes any activity performed by individuals for the purpose of producing goods or providing services intended for the use of others with the aim of obtaining wages or profit.

Work is defined regardless of its formal or informal nature or the legality of the activity performed. Work excludes activities that are not related to the production of goods or the provision of services and do not aim to achieve material benefit for the individual or the household.

2.3.1.16. Employed Persons

Persons (15 years and over) who during the reference period (the previous seven days):

- Worked for at least one hour in return for a salary or profit (in cash or in kind) as an employee, as an employer, or working for themselves.
- Or who assisted a family member for at least an hour, with or without pay, in any type of business or on a farm belonging to a family member.
- Or who were temporarily absent from their work for the whole week due to leave, sickness, or any other reason, and who will return to it again.
- Or individuals with seasonal jobs during the period that is considered off-season if they continue to perform some of the tasks and duties of the job

The definition includes students, job seekers, retirees, housewives, etc. who worked during the seven days prior to the date of interview for at least one hour, noting that this does not include unpaid housework such as cooking and washing done by a housewife or household maintenance work performed by a family member.

2.3.1.17. Unemployed persons

The unemployed comprise all persons of working age (15 years and older) who were:

- Without work during the reference period, i.e., were not in paid employment or self-employment
- Currently available for work, i.e., were available for paid employment or self-employment in the week





preceding the interview or in the two weeks following the interview; and

- Seeking work, i.e., had taken active measure during the previous four weeks to seek paid employment or self-employment.

Future starters, that is, persons who did not look for work but have a future job start are also counted as unemployed.

2.3.1.18. Unemployed persons with previous work experience

Unemployed persons (15 years and above) who at some prior time had been employed – that is previously had a paid job or business.

2.3.1.19. Persons in the Labor force

The labor force (formerly known as the economically active population) is the sum of the number of persons employed and the number of persons unemployed. As such the labor force includes all persons contributing or wanting to contribute to the production of commodities and services during the survey reference period.

2.3.1.20. Persons out of the labor force.

Persons outside the labor force (formerly known as the Inactive Population) are persons 15 years and above, who are neither employed nor unemployed. It includes persons do not work, do not seek a job, are unable to work, or are not available to work during the survey reference period. Examples include Full-time students not seeking part-time work, persons not available to work due to providing care to other family members (child-care or elder-care), pensioners who do not work, individuals who are unable to work because of disabilities. It includes persons who are on the margins of the labor force, for example discouraged workers, persons who want work but have given up looking for work because they believe no suitable work is available

2.3.1.21. Main occupation

The main type of occupation practiced by the employed person during the reference time. This depends on the specific duties or functions of the person's job.

2.3.1.22. Economic activity

The main activity of the establishment or business in which a person worked during the reference period. The branch of economic activity of a person depends on the characteristics of the economic unit in which the person works.





2.3.1.23. Type of sector

A sector is the entity for which the employed person has been working according to the estimates of the labor survey; it is divided into:

- 1 **Public sector:** it includes all government entities such as ministries, authorities, government institutions, municipalities, schools, universities, institutes, government hospitals, military sector, government banks like (social development bank, agricultural bank) and development funds. It also includes establishments that produce goods and services and totally owned (i.e., ownership of 50% or more) by the government and supervised by the government such as (Saudi Airlines, Saudi railways Organization, and ARAMCO).
- 2 **Private sector:** it includes all establishments that work in commercial and productive businesses, and market- oriented services that are owned by companies and individuals (companies, institutions, shops, small enterprises...etc.) either formal or informal, organized, or unorganized. These establishments are not totally owned by the government (or only partially owned by the government, with less than 50% ownership). The institutional sector that includes all self-employed individuals and employers is the private sector.
- 3 **Agricultural sector:** It includes the unorganized sector of farms, animal husbandry, and hunting activities owned by individuals and families. However, it does not include the organized sector of agricultural and animal husbandry activities owned by private companies.
- 4 **Non-Profit Organizations Sector:** Non-governmental non-profit organizations and authorities which provide the community with goods or services for free or at a nominal price, such as charities and vocational authorities.
- 5 **Domestic Workers Sector:** Individuals who provide a household with services for a salary and live with it, such as the female domestic worker, driver, gardener, and building guard who lives with in the household.
- 6 **Regional and international organizations and institutions.**
- 7 **Other unclassified sectors.**



**2.3.1.24. Indicator definitions:**

Indicator	Definition
Unemployment rate	The unemployment rate is calculated by expressing the number of unemployed persons as a percentage of the total number of persons in the labor force.
Labor force participation rate	An indicator that is calculated by expressing the number of persons in the labor force as a percentage of the working-age population 15 years and over.
Employment-to-population ratio	An indicator that is calculated by expressing the number of persons employed as percentage of the total population 15 years and over.
Employment rate	It is an indicator that is calculated by expressing the number of persons employed as percentage of the of the total number of persons in the labor force.
Average weekly working hours of paid employees	Measures the average weekly working hours of workers (15 years and over), which is the total number of working hours of employees divided by the total number of employees.
Average monthly wage per paid employees	An indicator that measures the average monthly salary of the employed persons with paid jobs (15 years and above), i.e., total monthly salary of employees divided by the total number of employees. This measure is based on only those employees reporting their salary.

In reporting these indicators, GASTAT provides a breakdown for the following age groups of the population aged 15 and above: Youth (15-24), Core Working Age (25-54) and population age 55 and over.



GASTAT has relied on the approved formulas of the UN international standards that are compiled with the International Labor Organization (ILO). The indicators are calculated as follows:

Indicator	Calculation formula
Total labor force	$= (\text{Number of Employed} + \text{Number of Unemployed})$
Unemployment rate	$= 100 \times \left(\frac{\text{Number of Unemployed}}{\text{Total Labor Force}} \right)$
Unemployment rate for males	$= 100 \times \left(\frac{\text{Number of Unemployed Males}}{\text{Total Labor Force Males}} \right)$
Unemployment rate for females	$= 100 \times \left(\frac{\text{Number of Unemployed Females}}{\text{Total Labor Force Females}} \right)$
Employment rate	$= 100 \times \left(\frac{\text{Number of Employed}}{\text{Total Labor Force}} \right)$
Employment rate for males	$= 100 \times \left(\frac{\text{Number of Employed Males}}{\text{Total Labor Force Males}} \right)$
Employment rate for females	$= 100 \times \left(\frac{\text{Number of Employed Females}}{\text{Total Labor Force Females}} \right)$
Labor force participation rate	$= 100 \times \left(\frac{\text{Total Labor Force}}{\text{Total Population 15 and over}} \right)$
Labor force participation rate for males	$= 100 \times \left(\frac{\text{Total Labor Force Males}}{\text{Total Population 15 and over Males}} \right)$
Labor force participation rate for females	$= 100 \times \left(\frac{\text{Total Labor Force Females}}{\text{Total Population 15 and over Females}} \right)$
Employment-to-population ratio	$= 100 \times \left(\frac{\text{Number of Employed}}{\text{Total Population 15 and over}} \right)$
Employment-to-population ratio for males	$= 100 \times \left(\frac{\text{Number of Employed Males}}{\text{Total Population 15 and over Males}} \right)$
Employment-to-population ratio for females	$= 100 \times \left(\frac{\text{Number of Employed Females}}{\text{Total Population 15 and over Females}} \right)$





Based on the international standards that Saudi Arabia is committed to, and applied to the G-20 countries:

- Indicators of Labor Force Participation rate, employment rate, unemployment rate, employment to population ratio, average weekly working hours, and average monthly wages of employees are all based on the estimates of the Labor Force Survey, which is a household survey conducted by GASTAT through contacting households to complete the survey questionnaire.
- Data from administrative records can be used to produce several indicators for the labor market, but they are not used statistically to measure employment, unemployment, or labor force participation or corresponding rates.
- Commitment to these standards will facilitate international comparisons between countries in labor market indicators.

2.3.1.25. Introduction of new age groups for Labor Market reporting and analysis

Beginning with the Q3 2021 release, GASTAT introduced three age-groups of the population that are of analytical interest in the examination and interpretation of labor market conditions. These groups are:

- Youth, persons aged 15 to 24 years
- Core working-age population, persons aged 25 to 54 years, and
- Persons who are 55 years and older.

Labor market conditions differ for these age groups. For this reason, these groups are of interest to policy makers in developing policies targeted to different segments of the working age population.

Youth: Within the youth group, one can define two sub-groups for which labor market conditions are markedly different.

- **Youth (15 to 19 years).** Many persons between 15 to 19 years of age are students. Those participating in the labor force, would typically be interested in part-time work, but there can be a temporary influx of students into the labor force in search of jobs between school terms.
- **Youth (20 to 24).** Youth aged 20-24 are a mixture of those still pursuing studies as well as youth who have completed their education and are making the transition into the labor force.

Core working age population: Persons aged 25 to 54 years.

Persons aged 55 and over: In this age group, there is declining participation in the labor force. As the age increases within this group, more persons have retired or withdrawn from the labor force. Persons still participating in the labor force in this age group are mostly employed persons, with few people looking for work. Those not working are mostly out of the labor force, i.e., not actively looking for work.



2.3.2. Concepts related to administrative records available at government agencies (the second source of Labor Market statistics):

2.3.2.1. Workers (based on the administrative records):

All working individuals subjected to approved regulations and laws from the regulatory entities of labor market are registered in the administrative records. Workers can be classified in the administrative records based on the regulations and laws they are subjected to as follows:

- Saudi workers subjected to the laws and regulations of the civil services and working at all governmental institutions and bodies, in other words, workers who hold jobs that are considered within the general budget of the country, also subjected to the civil retirement system (males or females) employees, as well as non-Saudi contractors who fill these positions in accordance the regulations of non-Saudi employment.
- Participants on the job who are subject and regulations of social insurance as well as labor system, which includes Saudis and non-Saudis
- Domestic workers: non-Saudi workers of both genders who work in houses, including servants, cleaners, cooks, waiters, drivers, guards, nurses, and private teachers.

Data of workers in Labor Market statistics which were derived from administrative records do not include the following categories:

- 1 Workers of military and security sectors
- 2 Workers who are not registered in the civil service and social insurance records, which include:
 - Saudis working for their own businesses and are not subjected to the labor regulations, also, not registered in social insurance, such as those who work in delivery through electronic apps
 - Saudi employers who work in establishments not registered in the social insurance
 - Non-Saudi staff working in foreign international, political, or military missions.
- 3 Non-Saudi employees who come to the Kingdom for work that normally takes less than three months.

2.4. Statistical classifications used:

Classification is identified as an organized group of related categories which are used to collect data according to similarity. Classification is the base for data collection and dissemination in various statistical fields, such as: (economic activity, products, expenses, occupations, or health, etc.). Classifying data and information helps to put them in meaningful categories to produce useful statistics. In fact, data collection requires an



accurate organization based on their common features to create reliable and comparable statistics. Labor market statistics are based on the international standards of data collection and classification and rely on the following classifications:

2.4.1. National guide for countries and nationalities:

It is an international and unified classification that covers countries and their affiliated territories and is based on ISO (country code 3166). The classification gives codes to countries and their affiliated territories. Using these codes and numbers instead of the country name is more beneficial for statistical purposes in which it saves time and avoids any errors. The classification is used in the Labor Force Survey to classify Saudi or non-Saudi individuals.

2.4.2. Saudi classification educational level and field of study:

GASTAT surveys, including the Labor Force Survey classify education activities and education levels of persons according to the International Standard for Classification of Education (ISCED11), the reference for organizing educational programs and related qualifications based on the education levels and fields. It covers all the educational programs, levels and methods, of learning as well as all the educational stages from kindergarten until higher education. Educational programs in the Kingdom have been mapped into the international classification, and this classification is used in the Labor Force Survey to classify individuals 15 years and above according to levels of education participation and attainment, and field of study for advance levels of education.

2.4.3. Saudi classification of professions:

Occupation refers to the kind of work performed in a job. A job being all the tasks carried out by a particular worker to complete his or her duties. An occupation is a set of jobs that are sufficiently similar in work performed. Kind of work is described in terms of tasks, duties, and responsibilities. Occupations are generally homogeneous with respect to skill type and skill level.

ISCO is the statistical classification system used in the Labor Force Survey to classify jobs by occupation, based on information collected on principal responsibilities and duties of the job.

2.4.4. The National Classification of the Economic Activities (ISIC4):

The [National Classification of the Economic Activities](#) is based on ISIC4 international classification which is the reference of the productive activities. This classification is used in the Labor Force Survey to identify the main economic activity of the establishment or business where an individual works.

The branch of economic activity of a person depends on the characteristics of the economic unit in which the person works.

2.5. LFS Questionnaire design

The LFS questionnaire has been prepared and designed by labor force survey specialists in the General Authority for Statistics (GASTAT). When designing the form, the international recommendations and standards issued by the International Labor Organization (ILO) of labor force surveys have been taken into consideration. The questionnaire was presented to the ILO experts during their visit to the Authority and to



the relevant bodies as well to consider their feedback and observations. The questions were formed in a specified and unified way between researchers.

Some modifications were introduced to the LFS questionnaire when the data collection methodology was changed for Computer-assisted personal interviewing (CAPI) to Computer-assisted telephone interviewing (CATI), at the beginning of the COVID19 pandemic in 2020, when the conduct of household surveys via persons visits and face-to-face interviews was no longer feasible. The change to CATI mode of collection, with telephoning interviewing from a central call center necessitated changes to the questionnaire to reduce the interview length to make it more suitable to a telephone interview.

Since then, the LFS questionnaire has undergone a few incremental improvements. A number of these were to address recommendations stemming from the SMO audit of the survey in 2021. The most recent changes were introduced in Q4 2021 and continue to be used in Q2 2022.

A summary of the most recent changes is included in this section. The LFS is currently undergoing a transformation, and one element of the transformation will be to examine the need for further revisions to the questionnaire to bring it in alignment with latest ILO recommendations and International Best Practices of Eurostat, and other leading countries including the US, Canada, and UK, as well as to address any special requirements specific to the KSA context of the KSA labor market.

The questionnaire was divided into six sections based on the topic to increase its efficiency in achieving the technical specifications of the data collection

Introductory data	Characteristics of household individuals (all household individuals)	Economic data of individuals (15 years and over)	Job search and availability to work (unemployed individuals, 15 years and over)	COVID-19 pandemic	Result of the contact
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Examples of what was included in the form of the Labor Force Survey (the first source of the labor market statistics):

Name of the individual, gender, relationship with the head of the household, nationality, age, marital status, educational status and specialization for holders of secondary education and above, employed persons and those absent from work during the previous 7 days, job seekers, method of job seeking, reasons for not looking for a job, duration of job seeking, the availability to work, previous work experience, reasons for leaving the previous job, occupation, name of the employer, type of sector, economic activity, work status, average monthly salary per employed persons, average actual and usual hours worked at the main job, and second job for multiple job holders,.

The full questionnaire can be viewed and downloaded via the official website of GASTAT [Questionnaire](#)

After the survey questionnaire was approved, it was converted into an electronic form that can be used for computer-assisted collection – whether CATI or CAPI. Currently data collection is via CATI and CAPI. CATI



data collection is carried out in a centralized Call Center at GASTAT. A computerized data collection system has been developed which is characterized by the following:

- 1) Ability of supervisors to Review the researcher's work on a sample basis.
- 2) A telecommunications system (Cisco Jabber), that manages the telephone network and call features to facilitate contact with sampled households.
- 3) Use of the electronic CATI LFS questionnaire, to collect high quality data, through use of data auditing and navigation rules (to automatically detect input errors and illogical inputs the moment the data is completed).
- 4) Communication between the supervisory groups by sending and receiving notes with the researcher.

2.6. Methodology for Development and Testing of Questionnaire changes

As described above, the Labor Force Survey questionnaire content is determined by GASTAT. The needs for introduction of new questions or changes to existing questions are considered to keep the LFS questionnaire aligned to ILO standards and guidelines, other international best practices, and to consider the information needs of government departments, the principal users of the data.

Questionnaire changes are thoroughly vetted and tested before being introduced, via the following procedures:

- 1 **Drafting of Questions.** Questions are drafted for the identified new content areas. ILO standards and international best practices are considered in this step, while also consideration of what adaptations to the local KSA context may be needed.
- 2 **Cognitive Testing.** Cognitive testing is carried out by the GASTAT **Center for Questionnaire Development**. A small sample of persons is chosen to participate in the cognitive testing. Often past survey respondents are chosen, with a profile that is relevant to the new questions under study. For example, if the questions pertain to informal work, persons who worked in jobs likely to be informal would be chosen for the cognitive testing. The cognitive testing methodologies involve use of experienced interviewers trained in the cognitive testing procedures. They ask the respondents the new questions, and then ask about the respondent's understanding of the question, the information they were being asked to provide, and the ability or difficulties if any in providing the requested information (such as recall of information, etc.). Based on this feedback, modifications are made to the questions to make them clearer and easier to respond to.
- 3 **Development of CATI Instrument.** The questionnaire changes are then specified to and implemented in the CATI version of the questionnaire by the IT department. The LFS department does desktop testing of the new instrument to confirm the logical flow and appearance of the questions is correct.
- 4 **Operational Testing.** A small test of the new questionnaire is carried out on a sample of households. This tests all the operations involved in the collection and production of files for processing of the data. Analysis of the data is also carried out to verify that the responses to the questions are as



expected. The operational tests are not large enough to detect differences in the data, for example between a previous and new version of the questionnaire, but they ensure that operationally the questionnaire changes have been implemented in accordance with specifications, and the new data are introduced without causing problems to existing collection and processing of the data.

2.7. Questionnaire Changes introduced in Q4 2021

In Q4 2021, three changes were made to the questionnaire as follows:

2.7.1. Job search

Persons without a job or business are asked questions on what actions they have taken to look for work or start a business within the last 4 weeks. Beginning in Q4 2021, respondents are read a list of actions, and in turn answer yes or no to each. In the past, respondents were asked to “volunteer” what job search methods they engaged in. Both methods conform to ILO standards and definitions. The new method is designed to yield better data on the methods used which is of policy interest.

2.7.2. Informal Work

In recent years, a new set of questions was introduced to measure informal work. This module has been included on an annual basis in the Q4 survey. Work has been done on the module to ensure that the questions comply with international standards then the set of questions were reintroduced in Q4 2021 and in all future quarterly surveys. .

The questions are aligned to ILO concepts and definitions of informal sector and informal employment as follows:

- **Employment in the Informal sector:** workers whose job is at an enterprise in the informal sector, where the **Informal sector** comprises unincorporated enterprises that produce at least partly for the market and are not registered. It excludes households that produce exclusively for own final use, subsistence agriculture, construction of own dwellings, etc.
- **Informal employment:** Employees in a job not protected by national labor legislation such as: social security or pension scheme, and not entitled to certain employment benefits, such as paid annual vacation and paid sick leave. Also included are Entrepreneurs in a unit of production that is considered informal, where entrepreneurs refer to employers, members of producers' cooperatives and own account workers (only if what is produced is for sale); and contributing family workers.

2.7.3. Time related Underemployment

This is a measure of persons working part-time for economic reasons, who want to work extra hours for pay or profit, and who are available to work extra hours.





2.8. Identifying required data from administrative records:

The administrative records data (the second source of the labor market statistics): GASTAT publishes administrative-based data labor market compiled automatically from government entities. The data includes the main data of employees, as follows:

- 1 **Data from the Ministry of Human Resources and Social Development (MHRSD):** Includes data on employees subjected to Civil Service regulations and policies according to several variables.
- 2 **Data from General Organization for Social Insurance (GOSI):** Includes data related to those who are registered and are working, who are
- 3 subjected to GOSI's regulations and policies according to several variables.
- 4 **Data from the National Information Center (NIC):** It includes data related to domestic workers, according to several variables.

These data are published on a quarterly basis in a separate release from the LFS survey results.

2.9. Coverage:

2.9.1. Spatial coverage:

The labor market statistics are produced for the 13 Administrative Regions of Saudi Arabia. The regions are Riyadh, Makkah, Madinah, Qassim, Eastern Region, Asir, Tabuk, Hail, Northern Borders, Jazan, Najran, Al-Baha and Al-Jouf.

For the Labor Force Survey, the sample is designed to include a representative sample from each region with a sample size sufficient to produce reliable estimates for the region (see section 2.11.4).

The administrative-based data include the entire population of Saudi Arabia whose data is documented in the records of relevant government entities, and these are also released with breakdowns by the 13 Administrative Regions.

2.9.2. Temporal coverage:

The Labor Force Survey data (the first source of the labor market statistics) are based household members, their demographic, social and economic characteristics, as follows:

- 1) Data on the number of household members and their demographic characteristics is based on the date of the household contact and interview of household members.
- 2) Data to classify persons as employed or not are based on the seven days prior to the household contact and interview.
- 3) Data on job search activity are based on the four weeks prior to the household contact and interview, which means the last full four weeks preceding the household contact (from Sunday of the first week to the Saturday of the last week).
- 4) Data on employment availability is based on the seven days prior to the contact, or the following two weeks (the two weeks following the date of the contact, from Sunday of the first week to Saturday of the second week).



- 5) Data of enrollment in training programs is based on the seven days prior to the household contact for people aged 15 years and above.

The data from administrative records (the second source of the labor market statistics) is based on the last day of each Gregorian quarter of each year.

2.10. Labor Force Survey Statistical framework:

- The LFS sample frame comprises a list of all residential dwellings in KSA constructed in 2020 in preparation for the Census of population. The frame includes identification of the building, dwelling identifiers, and for dwellings occupied in 2020 when the list was prepared, the telephone number and head of household ID of occupied residential dwellings.
- The lists, maps and analytical specifications of the units have been developed to select a sample of dwellings.
- The required metadata has been identified to create the statistical framework and the testing framework and verify its validity and use for the current survey cycle.

The target population for the KSA Labor Force Survey (LFS) remains the non-institutional civilian population (15 years and over) residing in private dwellings. The eligibility criteria for the non-Saudi households is that they have been in the Kingdom for at least six months. It should be emphasized that the sampling unit is the dwelling and the household occupying the dwelling is the unit of observation, i.e., data are collected from the households occupying the dwelling.

2.11. Sample Design:

The Labor Force Survey sample was redesigned and the introduction of the new sample design began in Q4 2021. As explained below, the final feature of the new design – sample rotation – was fully implemented in Q1 2022.

Major features of the redesigned sample are described below:

2.11.1. Adoption of dwelling as second-stage sampling unit

The choice of second-stage sampling unit is a fundamental feature that has implications not only on the design of the sample but also on the data collection procedures.

In the old design, household were the second-stage sampling unit. Household are the residents of occupied dwellings. However, if the household and not the dwelling is the sampling unit, when a household moves, it should remain in the sample. Movements of households since the time of creation of the frame and when a household gets sampled create problems being able to contact the household, as well as complexities in estimation, as household may become stratum jumper – they may no longer belong to the stratum in which they were originally selected. Also changes in household composition over time adds to the complexity of this approach. As a fundamental change in the sample design, the dwelling was adopted as the second-stage sampling unit.

2.11.2. Stratification



In the old design there were 55 strata. The 13 Administrative Regions formed primary strata, and these were further sub-divided based on the degree of urbanization (urban, semi-urban, rural), with about 3 sub-strata per region.

In the new design, the existing starting point for stratification was the strata under the old design. Deeper geographic stratification was introduced using municipalities as strata.

The new design has 350 strata.

A primary benefit of stratification is that it eliminates all the between strata variation in the survey estimates. The ideal in stratification is to have homogeneity within strata and heterogeneity between strata for the characteristics of interest. To the degree to which that is achieved, stratification is a very powerful means of reducing the variance in the survey estimates.

To carry out “optimal” stratification, one would want to form strata using detailed Census data on the characteristic of the population. Since the latest Census information available at the time of redesign of the sample was the from 2010 Census, it was decided to form strata instead based on deep geographical stratification.

An added benefit of the deep geographic stratification adopted is to ensure a good geographic distribution of the sample.

2.11.3. Allocation of the Sample

In the old sample design, the allocation of the sample was a compromise between requirements for national and regional data. The optimal allocation for national estimates is a proportional allocation where the sample size for each region is proportional to its share of the total population of the Kingdom. While best for national estimates, such an allocation is not good for regional estimates, as smaller regions would not have sufficient sample sizes to yield reliable data. A sample allocation that ensures all regions have a sufficient sample to yield reliable estimates is needed., while also not abandoning the desirability of the proportional allocation for the national estimates. Such a compromise allocation was a feature of the old design and is also a feature of the new design.

In the new design, the allocation of sample to regions was based on the square root of the proportion of the total population. This is a commonly used method to satisfy requirements for both regional and national data.

2.11.4. Determination of Sample Size

In the old design the sample size was about 53,360 households. A consideration in the sample redesign was the new sample design should be cost neutral in terms of ongoing collection costs. The introduction of sample rotation (see 2.11.6), will lower the per unit collection costs.

These cost efficiencies allowed for an increase in sample size, while keeping overall data collection costs the same. These considerations allowed for an increase in the overall sample size to 80,000 dwellings.

2.11.5. Choice of and Sampling of Primary Sampling Unit (PSU)

In the old design, 2010 Census enumeration areas (EA) were adopted as PSUs. In the new design 2020 Census preparation enumeration areas were taken as PSUs, with the exception that larger EAs were split, to





avoid the situation where large EAs would have been selected in the sample with certainty.

The next decision was the degree of clustering of the sample within PSUs. In the old sample design, 40 households were selected per PSU. In the sample redesign, the cluster size was reduced to 13-14 dwellings per PSU. This resulted in a less clustered, more efficient design. The rationale for the choice of 13 dwellings per PSU is related to sample rotation and is discussed later.

The sampling of PSU and dwellings was done by a randomized probability proportional to size (RPPS), systematic sample of the list of PSUs within each stratum, using the sampling rates based of the sample allocation and sample size determinations. The random start used for systematic sampling determines both the PSUs selected as well as the dwellings selected within PSUs. New samples of dwellings within PSUs are selected as needed simply by advancing the random start.

Under the new design, 6,016 PSUs were selected.

2.11.6. Sample Rotation and Assignment of Rotation Groups

A feature re-introduced in the new design is sample rotation, as this feature was previously used since 2017 and stopped in the second quarter of 2020 when changing the method of data collection to computer-assisted telephone interviews (CATI). Sample rotation means that dwellings remain in the sample for 4 consecutive quarters, and each quarter 25% of the sample consists of birth dwellings in the sample for the first time, and 75% of the sample are retained dwellings – that is dwellings already sampled from the previous quarters.

The principal rationale for a rotating sample design is to reduce the variance of estimates of quarter-to-quarter changes. In any continuous survey, the estimates of change from one time period to the next are one of, if not the most important, estimates.

The rotating sample design reduces the variance in the estimates of change, due to the positive correlation in response of the same respondents from one quarter to the next.

Reduction of the variances on estimates of change will increase the power of the survey to detect statistically significant changes from quarter to quarter and will also reduce the volatility and quarter-to-quarters fluctuations in the time series.

To implement sample rotation, sampled PSUs within strata were randomly assigned a rotation number of 1,2,3 or 4, which determine the sample rotation.

Once the sample design is fully “phased-in” in Q1 of any year, dwellings from the previous quarter with rotation number 1 will be dropped and replaced by a new sample of dwellings with rotation number 1. Similarly, in Q2 of every year, a fresh sample of dwelling with rotation number 2 will be introduced (replacing the rotation number 2 dwellings from the previous quarter which “rotate out” of the sample.)

2.11.7. Phase-in of Sample rotation

Q4 2021 represents the first quarter for the new sample design – and the start of a phase-in of the rotation design. In Q4 2021, a fresh sample of dwellings was introduced for all rotation groups: 1,2,3 and 4. In Q1 2022, dwellings from the Q4 sample in rotation group 1 were dropped and replaced by a fresh sample of dwellings for Q1. The sampled dwellings for the other rotation groups remained. Same in Q2 2022, dwellings





from the Q1 sample in rotation group 2 were dropped and replaced by a fresh sample of dwellings for Q2. The sampled dwellings for the other rotation groups remained.

In Q2 2022, a 75% sample overlap between the Q1 2022 and Q2 2022 samples is achieved, however the sample is not fully phased-in because 25% will be in the sample for the 1st time and 25% will be in the sample for the 2nd time and 50% will be in the sample for the third time.

This pattern will continue each quarter in 2022, with the sample from one rotation group being replaced. The sample becomes fully “phased-in” in the next quarter (Q3 2022) when 25% of the sample will be new dwellings, 25% will be in the sample for the 2nd time, 25% is in the sample for the 3rd time, and 25% is in the sample for the 4th time.

2.11.8. CAPI operations

Since the sample frame is based on a 2020 dwelling list, a CAPI light program has been introduced to update the sample of dwelling selected each quarter for Q4 2021 and Q1 2022. Starting from Q2 2022, a CAPI operation is conducted on a subsample of dwellings. CAPI Light and CAPI are described in the data collection section.





2.11.9. Summary of main features of the redesigned LFS Sample

Table 2-1 below summarizes the main features of the Redesigned LFS sample in comparison to the old sample design

Table 2-1 Key features of the Redesigned Labor Force Survey

Key design features	Before	After	Impact / Rationale	
• Deep stratification	55	350	• Reduced variance both at national and regional level	Immediate impact, Q4
• Reduced clustering	40	13		
• Oversampling of smaller Regions			• Ensure reliability of regional data (similar measures taken under old design)	
• Dwelling unit (DU) as the sampling unit at the 2nd stage of sampling; all households (HHs) within occupied DUs interviewed	Primary: EA Secondary: HH Observation Unit: HH	Primary: PSU (EA/Split-EA) Secondary: DU Observation Unit: HH	• DU more stable sampling Unit and provides better coverage	
• Rotating sample design with 75 percent overlap between consecutive quarters	No rotation	25% rotation	• More efficient estimation of change between two consecutive quarters	Cost efficiency gains seen in Q1 onwards
• Increase in sample size	53,360 (HH)	80,029 (DU) ~62,000 (HH)	• Enabled through cost efficiency gains due to sample rotation; Reduced variance (more reliable)	
• CAPI light field operation to update occupancy status and contact information for sampled dwellings	NA	Yes, in Q4 2021 and Q1 2022	• Increase in survey coverage and response rates	
• CAPI field operation on a subsample	NA	Yes, from Q2 2022	• Increase in survey coverage and response rates •	
EA – Census Enumeration Area, HH – Household, DU – Dwelling Unit				

**Table 2-2: The Sample Sizes by Regions – Redesigned Sample and Old Design Sample**

Region	Sample Size	
	Redesigned Sample (Dwelling Units)	Old Sample (Households)
Ar Riyad	12,103	8,280
Makkah Al Mukarramah	13,531	9,680
Al Madinah Al Munawwarah	6,838	3,680
Al Qaseem	5,373	2,640
Eastern Region	9,450	6,720
Aseer	6,978	3,600
Tabuk	4,537	2,920
Hail	3,649	2,600
Northern Borders	2,464	2,800
Jazan	5,377	2,840
Najran	3,191	2,560
Al Bahah	3,482	2,400
Al Jawf	3,100	2,640
KSA	80,072	53,360

Sample units in the Labor Force Survey:

The Primary Sample Unit (PSU) is now the enumeration area (EA) or a split of the enumeration area when the enumeration area size is large. The PSUs are the first stage units in the sample design. The dwellings within the PSUs are now the secondary and the final sample units. The households living in the dwellings are the observation units for the survey.



3. Third stage: Organization:

It is the last stage of the preparation that precedes the process of household contacts and data collection. The work procedures required for the preparation of the labor market statistics have been prepared in this stage. It will begin from the next stage "collection stage" and will end with the "assessment stage". In addition, the procedures are organized and collected, and its appropriate order is determined in order to reach a methodology that achieves the objectives of the labor market statistics. At this stage, the procedures that were done in the preparation of the previous version of the labor market statistics were reviewed to develop the work procedures in this version. These procedures were also described and documented to facilitate the updates in the future cycles. Furthermore, the statistical work procedures were tried and tested to ensure that they meet the requirements of the preparation of the labor market statistics in its final form. Then, the procedures of the statistical work are approved, and the road map of the implementation is developed.

Testing the efficiency of input systems and the process of transmission, synchronization, and review of data, which is carried out through tablets or desktops of the labor force survey, is one of the most important procedures at this stage.

4. Fourth Stage: Collection

4.1. Labor Force Survey Data Collection

4.1.1 CAPI operations

As explained in a previous paragraph, initially CAPI light operation is introduced to update sampled dwellings list in Q4 2021, then in Q2 2022 a full CAPI operation is implemented on a sub sample of dwellings.

CAPI field staff visit each sampled dwelling, and update its status as occupied, vacant, under construction, demolished, or out-of-scope for the LFS. Out-of-scope dwellings are ones where all occupants are not part of the LFS target population – for example all occupants are foreign diplomats or family members, or the dwelling is used solely for business purposes and no persons reside there.

Distinguishing between occupied and vacant dwellings may require multiple visits to a dwelling to find someone at home.

For occupied residential dwellings, a CAPI questionnaire is completed, including head of household ID and telephone number, completion of a roster of household members, and all information required for the LFS survey..

CAPI questionnaires are sent back to headquarters daily, and appended with CATI questionnaires to constitute the daily households surveyed for each day using to collection mode.

The CAPI exercise has contributed to improving the coverage of the LFS and the response rate, by first identifying all occupied dwellings, and by providing up-to-date contact information for them.

One finding from CAPI light was that the 2020 Census frame had a higher vacancy rate than expected. The CAPI light exercise has succeeded in lowering the vacancy rate from that in the 2020 Sampling Frame,



thereby increasing coverage in the redesigned Labor Force Survey.

All first-time in-sample dwellings were included in CAPI light or CAPI. In Q4 2021, as the new sample was being introduced, all 80,000 dwellings were sent for CAPI light. In Q2 2022, when CAPI operations starts, birth dwellings, representing 25% of the total sample, were included in CAPI plus cases such as dwellings where the occupant has moved, and contact information needs to be obtained on the new occupants.

An intermediate step before CATI collection involves obtaining further information from NIC on the household members, based on the head of household ID. This procedure helps to ensure completeness of the roster of household members, and provides some of their demographic information, so that it does not have to be collected directly from respondents, thereby reducing the length of interview and respondent burden.

4.1.2 CATI operations

Researchers work in the CATI call center. When a researcher finishes one case, he/she is assigned the next household in the queue maintained by the case management system. When a household is contacted, the researcher follows a protocol that includes self-introduction, clarifying the reason for the call, giving an overview of the survey and its objectives, and obtaining the respondent's permission to continue with the interview. If the respondent is unavailable to complete the questionnaire when initially contacted, a best time to call back is obtained.

4.1.3 Recruitment of researchers

The candidates working as researchers (interviewers), who contact the households to collect data for the Labor Force Survey, were selected according to several practical and objective criteria related to the nature of work, such as:

- Education level.
- Previous experience in labor force survey and other household surveys.
- Personal qualities, such as: good conduct, medical and psychological fitness with no sensory disability.
- Not less than 20 years old.
- The candidate must pass the training program of the Labor Force Survey.

4.1.4 Training of Researchers

All candidates (employees of the authority, collaborators from employees of some government agencies) were qualified and trained to work in collecting survey data through special training programs, according to the following:

- Holding a training program for researchers that included providing guidance and awareness lectures, during which the instruction manual is explained, the survey objectives and data collection method are defined, and a detailed explanation of all the questionnaire questions.
- Two separate trainings were conducted for CATI and for CAPI.
- Conducting a practical application on how to complete the CATI and CAPI survey form.





The performance of the researchers was also tested during the training, their performance was evaluated, and the extent of their understanding of the questionnaire was verified before starting the communication and data collection process.

4.1.5 On-line edits during data collection

Edit rules are built into the questionnaire to ensure the consistency, accuracy and logic of the data collected. These were built by linking the logical relationship between the answers to different questions and variables to help the researcher to detect any error directly when completing data with the household. For example, if a person with primary level of education later reports an occupation that requires advanced education, such as a brain surgeon, this triggers an error message, which needs to be resolved between the researcher and respondent before continuing with the interview. Such on-line editing can significantly improve the quality of the data collected by resolving discrepancies directly with the respondent.

4.1.6 Monitoring and Supervision

Calls with households are recorded, and supervisors listen to a sample of calls to ensure that researchers are following proper procedures in asking the questions and in correctly completing the questionnaire based on the responses provided. Ten percent of households are monitored in this fashion. Feedback is provided to researchers by the supervisors, to improve their work. In cases where the interview has not been conducted correctly, then the household is recontacted to clear up problems with the original interview.

In addition to this procedure, several reports are produced giving rates of missing or erroneous data by researchers. These are used in training of researchers. Researchers with consistent performance problems are replaced.

4.2. Access to data from administrative records (second source of Labor market statistics):

GASTAT has coordinated with the government entities concerned with the Labor market to obtain data on

The training programs that have been provided to researchers assigned to all Labor Force Survey data include conceptual and practical lectures on the technical, administrative and awareness materials used in the data collection processes. Researchers are also introduced to the survey objectives and data collection method. The training programs also include a detailed explanation of all the questionnaire questions, and the technical tasks, and administrative, as well as training on methods of communicating with data providers and how to submit questions in record time.

Labor market statistics. Such data include data of workers, based on data of administrative records. These data are preserved in the databases of the Authority and are audited and reviewed according to the scientific statistical method and generally quality criteria in coordination with the source of the data.

5. Fifth Stage: Disaggregation:

During this stage, raw data are disaggregated based on the classification and coding inputs completed during the data collection process, according to the Saudi Vocational Classification based on The International Classification, The National Classification of Economic Activities, The National Manual of Countries and Nationalities based on The International Manual, and Majors and Education Levels Manual based on (ISCED). During disaggregation process, other classifications and coding are also used, such as: data distribution at administrative regions level, qualitative and descriptive classification in terms of gender determination, individual's marital status, or quantitative classification such as income groups.

Specialists of the Labor Force Statistics Department have processed and analyzed data in this stage, and this step was based on the following measures:

- Sort and arrange data in groups or different categories in a serial order
- Summarize detailed data into main points or main data
- Linking between many parts of data and make them connected
- Process incomplete or missing data
- Process illogical data
- Create survey weights
- Converting data into statistically significant data
- Organize, display and interpret data

5.1 Weighting of Survey Data

After processing the data collected from the respondent households, the next step is the weighting of the survey data. Weighting is a critical step required to produce survey estimates. Survey estimates, for a characteristic of interest, are generated by weighted counts of respondents possessing the characteristic.

There are four steps involved in the weighting of the survey data as follows:

Design weight

Design weights account for the different probabilities of being sampled. The sample design is self-weighting at the level of Administrative Region. This means that all dwellings in the Administrative Region have the same probability of being selected in the sample. The design weight is the inverse of the probability of selection. That is if the probability of selection in a region is $1/200$, then the design weight for the Administrative Region would be 200. All respondent households (and persons within) in the region receive the design weight for the region.

Nonresponse weights

All surveys experience nonresponse. Nonresponse is usually compensated for by means of a weight adjustment. The nonresponse adjustment factor is typically applied at a low level such as the PSU, and this



is the level at which it is applied in the Labor Force Survey. Within a PSU, the nonresponse adjustment factor is simply:

Nonresponse adjustment factor = (number of in scope households in the PSU) / (number of responding households in the PSU)

If the nonresponse adjustment factor in a PSU is greater than 3, then the cell for doing the non-response adjustment is collapsed. A nonresponse adjustment factor of 3 is equivalent to a 33% response rate in the cell. In such cases it is better to spread the nonresponses adjustment over a wider sample, rather than have high weights within the PSUs in question. In such cases, the nonresponse adjustment cell is collapsed into two cells for the entire stratum, defined by households with odd versus even rotation numbers. The adjustment factor for each of these cells was defined similarly as the number of in scope households in the cell divided by the number of respondent households in the cell.

Calibration weights

Calibration is the final step in the weighting. In this step, the weights of sample are adjusted so that the survey estimates of population agree with external population estimates.

As part of the LFS transformation, since Q2 2021 a raking ratio methodology has been used for the final stage calibration step. In Q4 2021 and moving forward the following population controls will be used for the calibration step:

Dimension 1 (National Controls):

Cross-classification of 5-year Age-Groups × Gender × Nationality,

Dimension 2 (Regional Controls):

Administrative Region (13) × 3 Age-Groups (less than 15, and 15-24, 25+) × Gender × Nationality

For dimension 1, the 5-year age groups, are as follows: {0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, and 65+}.

The calibrated weights (also known as final weights) are assigned to the persons enumerated from the respondent households. The final weights are then used to create tables of the required indicators.

The raking ratio methodology works by first applying the national controls. The resultant weights are input into the next step – the application of the regional controls. Alternative application of the controls to the interim weights is applied iteratively until the calibration weights converge to the point of agreement within a specified level of tolerance with both sets of calibration controls

The calibration step reduces the variance of the survey estimates, by eliminating any sampling error in estimates of the population totals. Instead, the estimates of population totals agree with the external population controls.

Population projections

It is worth noting that the underlying assumption in the variance estimation is that the external population estimates are free of error. Currently, this is a very strong assumption. In KSA, the population estimates are known to be still a work-in-progress. The Population Division of GASTAT is researching the development of



improved estimation methodologies making greater use of administrative data.

Then new population projection approach applied from Q2 2022 is based on the Cohort Components Method. This method starts from population of the previous midyear (midyear 2021) then adding birth and net migration flow minus the death occurred between the two dates. This is applied at the national level. To have the projection at the regional level, a ratio method is used by region, age group, nationality, and gender. GASTAT website provides more details on the population projection methodology.

Relief to these problems lies ahead when the results of the 2022 Census become available, and improved population estimates will be available for use in the final stage calibration step.

5.2 Estimation of sampling errors

After weighting, the next step is to produce estimates of sampling errors. These are calculated using replication methodologies. Procedures to apply these methodologies exist in statistical software tools such as SAS.

In Q2 2021 and Q3 2021 the jackknife method of replication was used, where the number of replicates was equal to the number of PSUs minus one. From Q4 2021 and onward, with the introduction of the new design, there are far more PSUs making the jackknife method computationally cumbersome. Hence the BRR method has been adopted where the number of replicates needed is 352—the smallest multiple of 4 greater than or equal to number of strata (350).

Several quality indicators including Coefficients of Variation (CVs), design effects, confidence intervals, response rates and slippage rates are being produced for the key survey indicators. At this juncture, these are being monitored internally by GASTAT. Plans are to produce reports summarizing such quality measures for the transformed survey after a period dedicated to internal monitoring and analysis.

6. Sixth Stage: Revision:

First: Data Outputs Validation

In addition to the data processing and tabulation in the fifth stage to check their accuracy, all the outputs are stored and uploaded to the database after being calculated by GASTAT to be reviewed and processed by specialists in Labor Force Statistics through modern technologies and software designed for this purpose.

Second: Dealing with confidential data

According to the Royal Decree No. 23 dated 07-12-1397, data must always be kept confidential, and must be used by GASTAT only for statistical purposes. Therefore, the data are protected in the data servers of the Authority.

Under no circumstances can that be allowed to disclose about any data of the households or their members. It is worth mentioning that the publications are statistical tables at the level of Saudi Arabia and its administrative regions and main cities by demographic characteristics.

7. Seventh Stage: Publication:

First: Preparation and Process of the Results Designed for Publishing

During this stage, GASTAT downloaded the data's results from the database of surveys of Labor force. Moreover, it organized and reviewed the data of administrative records included in the Labor Market Statistics Bulletin. Then, the publication tables and graphs of data and indicators, metadata, and methodology were prepared and processed to be prepared in both languages English and Arabic.

Second: Preparing Media Kit and Announcing Publication Date

The publication date of the bulletin is already set up by GASTAT on its official website at the beginning of the Calendar Year. During this period, the Authority is preparing the media kits to announce the date of releasing the bulletin through media in addition to its various platforms in social networking sites. The bulletin will be published firstly on GASTAT's official website in different formats, such as open data in Excel format to be easily reached for all clients and those who are interested in the Labor market in general. It will be uploaded on the website's statistics library as well.

GASTAT uses the Special Data Dissemination Standard (SDDS) issued by the International Monetary Fund. According to this Standard, all statistics agencies are required to publish data on employment, unemployment, and wages on a quarterly basis, and with a delay of not more than one quarter (90 days) after the end of the reference quarter. If the data are from different source, they may be published in a different frequency.

Third: Communicating with clients and providing them with the bulletin's results

One of GASTAT's objectives is to better meet its clients' needs, so it immediately provides them with the bulletin's results once the labor Market Statistics Bulletin is published. It also receives questions and inquiries of the clients about the Bulletin and its results through various communication channels, such as:

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

8. Eighth Stage: Assessment:

All GASTAT's clients who used the results of the Bulletin will be contacted again in order to assess the entire statistical process. This is done for improvement purposes in order to obtain high-quality data. The improvements include methodologies, procedures and systems, statisticians' skill level, as well as statistical work frameworks. The participatory stage is carried out with the data users and Authority's clients according to the following steps:

**First: Collection of Measurable Assessment Inputs**

The most important comments and notes are collected and documented from their sources in different stages, for example comments and notes given by data collectors and their supervisors. Also, notes written by specialists responsible for reviewing, auditing, and analyzing data collected from the team or administrative regions. Finally, comments and notes collected and documented by data users after publishing the Bulletin, or social media comments and clients' feedback that sent to the Authority through its main channels.

Second: Assessment

The assessment is done by analyzing collected evaluation inputs and comparing the results of this analysis with the ones expected previously. Therefore, a few possible improvements and solutions are identified and discussed with specialists, experts, and concerned partners of labor market community. During this step, clients' performances and satisfaction levels of using the results of labor market statistics are measured. It is worth mentioning that based on these procedures, the recommendations for obtaining high quality data for the next labor market statistics are agreed upon.

9. Ninth Stage: Management:

It is a comprehensive stage required to carry out each phase of the labor market statistics production. During this stage, the plan of production is developed, which includes the feasibility study, risk management, financing methods, in addition to expenditure mechanisms. The plan also covers the development of performance indicators, quality criteria, and manpower map required for production. Through this plan, the implementation process of the tasks assigned to different departments at each stage will be followed up and reported to ensure that GASTAT meets its clients' requirements.



Appendix A: Q3 2022 Questionnaire Flow Charts

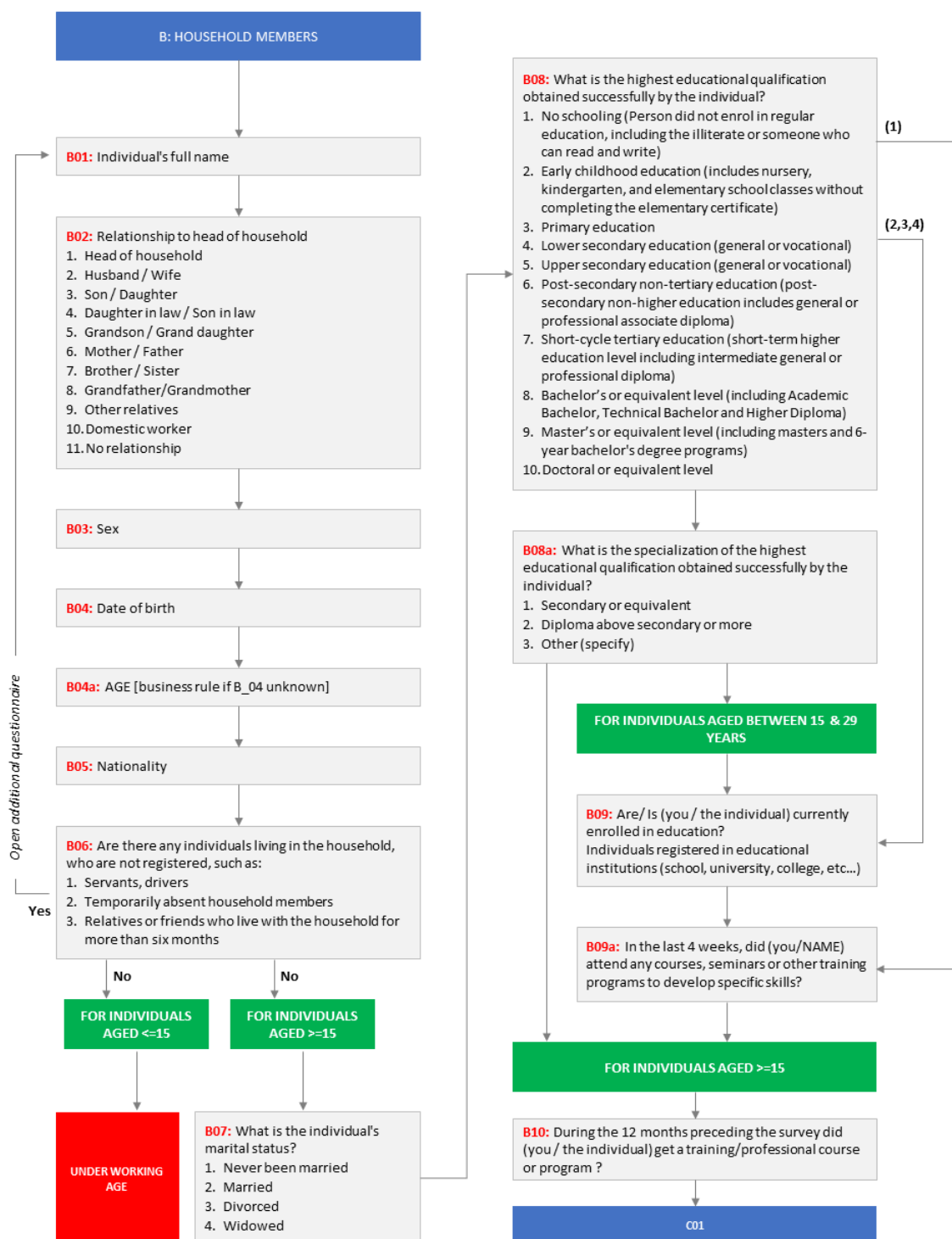
The diagram illustrates a sequence of overlapping screenshots of a Google Forms survey titled "Formulário de Avaliação de Desempenho - CA7001". The screenshots are arranged in a cascading fashion from top-left to bottom-right, representing a timeline of responses. To the right of each screenshot is a label indicating the section and a time point: "Section B A - 1", "Section C A - 2", "Section D A - 3", and "Section G A - 4".

The screenshots show the following questions and answers:

- Section B (A - 1):**
 - Question 1: Nome do(a) nome (nome completo) - Answer: [Redacted]
 - Question 2: Sexo - Answer: [Redacted]
 - Question 3: Idade - Answer: [Redacted]
- Section C (A - 2):**
 - Question 4: [Redacted]
 - Question 5: [Redacted]
 - Question 6: [Redacted]
 - Question 7: [Redacted]
 - Question 8: [Redacted]
 - Question 9: [Redacted]
 - Question 10: [Redacted]
 - Question 11: [Redacted]
 - Question 12: [Redacted]
 - Question 13: [Redacted]
 - Question 14: [Redacted]
 - Question 15: [Redacted]
 - Question 16: [Redacted]
 - Question 17: [Redacted]
 - Question 18: [Redacted]
 - Question 19: [Redacted]
 - Question 20: [Redacted]
 - Question 21: [Redacted]
 - Question 22: [Redacted]
 - Question 23: [Redacted]
 - Question 24: [Redacted]
 - Question 25: [Redacted]
 - Question 26: [Redacted]
 - Question 27: [Redacted]
 - Question 28: [Redacted]
 - Question 29: [Redacted]
 - Question 30: [Redacted]
 - Question 31: [Redacted]
 - Question 32: [Redacted]
 - Question 33: [Redacted]
 - Question 34: [Redacted]
 - Question 35: [Redacted]
 - Question 36: [Redacted]
 - Question 37: [Redacted]
 - Question 38: [Redacted]
 - Question 39: [Redacted]
 - Question 40: [Redacted]
 - Question 41: [Redacted]
 - Question 42: [Redacted]
 - Question 43: [Redacted]
 - Question 44: [Redacted]
 - Question 45: [Redacted]
 - Question 46: [Redacted]
 - Question 47: [Redacted]
 - Question 48: [Redacted]
 - Question 49: [Redacted]
 - Question 50: [Redacted]
 - Question 51: [Redacted]
 - Question 52: [Redacted]
 - Question 53: [Redacted]
 - Question 54: [Redacted]
 - Question 55: [Redacted]
 - Question 56: [Redacted]
 - Question 57: [Redacted]
 - Question 58: [Redacted]
 - Question 59: [Redacted]
 - Question 60: [Redacted]
 - Question 61: [Redacted]
 - Question 62: [Redacted]
 - Question 63: [Redacted]
 - Question 64: [Redacted]
 - Question 65: [Redacted]
 - Question 66: [Redacted]
 - Question 67: [Redacted]
 - Question 68: [Redacted]
 - Question 69: [Redacted]
 - Question 70: [Redacted]
 - Question 71: [Redacted]
 - Question 72: [Redacted]
 - Question 73: [Redacted]
 - Question 74: [Redacted]
 - Question 75: [Redacted]
 - Question 76: [Redacted]
 - Question 77: [Redacted]
 - Question 78: [Redacted]
 - Question 79: [Redacted]
 - Question 80: [Redacted]
 - Question 81: [Redacted]
 - Question 82: [Redacted]
 - Question 83: [Redacted]
 - Question 84: [Redacted]
 - Question 85: [Redacted]
 - Question 86: [Redacted]
 - Question 87: [Redacted]
 - Question 88: [Redacted]
 - Question 89: [Redacted]
 - Question 90: [Redacted]
 - Question 91: [Redacted]
 - Question 92: [Redacted]
 - Question 93: [Redacted]
 - Question 94: [Redacted]
 - Question 95: [Redacted]
 - Question 96: [Redacted]
 - Question 97: [Redacted]
 - Question 98: [Redacted]
 - Question 99: [Redacted]
 - Question 100: [Redacted]
- Section D (A - 3):**
 - Question 101: [Redacted]
 - Question 102: [Redacted]
 - Question 103: [Redacted]
 - Question 104: [Redacted]
 - Question 105: [Redacted]
 - Question 106: [Redacted]
 - Question 107: [Redacted]
 - Question 108: [Redacted]
 - Question 109: [Redacted]
 - Question 110: [Redacted]
 - Question 111: [Redacted]
 - Question 112: [Redacted]
 - Question 113: [Redacted]
 - Question 114: [Redacted]
 - Question 115: [Redacted]
 - Question 116: [Redacted]
 - Question 117: [Redacted]
 - Question 118: [Redacted]
 - Question 119: [Redacted]
 - Question 120: [Redacted]
 - Question 121: [Redacted]
 - Question 122: [Redacted]
 - Question 123: [Redacted]
 - Question 124: [Redacted]
 - Question 125: [Redacted]
 - Question 126: [Redacted]
 - Question 127: [Redacted]
 - Question 128: [Redacted]
 - Question 129: [Redacted]
 - Question 130: [Redacted]
 - Question 131: [Redacted]
 - Question 132: [Redacted]
 - Question 133: [Redacted]
 - Question 134: [Redacted]
 - Question 135: [Redacted]
 - Question 136: [Redacted]
 - Question 137: [Redacted]
 - Question 138: [Redacted]
 - Question 139: [Redacted]
 - Question 140: [Redacted]
 - Question 141: [Redacted]
 - Question 142: [Redacted]
 - Question 143: [Redacted]
 - Question 144: [Redacted]
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 - Question 146: [Redacted]
 - Question 147: [Redacted]
 - Question 148: [Redacted]
 - Question 149: [Redacted]
 - Question 150: [Redacted]
 - Question 151: [Redacted]
 - Question 152: [Redacted]
 - Question 153: [Redacted]
 - Question 154: [Redacted]
 - Question 155: [Redacted]
 - Question 156: [Redacted]
 - Question 157: [Redacted]
 - Question 158: [Redacted]
 - Question 159: [Redacted]
 - Question 160: [Redacted]
 - Question 161: [Redacted]
 - Question 162: [Redacted]
 - Question 163: [Redacted]
 - Question 164: [Redacted]
 - Question 165: [Redacted]
 - Question 166: [Redacted]
 - Question 167: [Redacted]
 - Question 168: [Redacted]
 - Question 169: [Redacted]
 - Question 170: [Redacted]
 - Question 171: [Redacted]
 - Question 172: [Redacted]
 - Question 173: [Redacted]
 - Question 174: [Redacted]
 - Question 175: [Redacted]
 - Question 176: [Redacted]
 - Question 177: [Redacted]
 - Question 178: [Redacted]
 - Question 179: [Redacted]
 - Question 180: [Redacted]
 - Question 181: [Redacted]
 - Question 182: [Redacted]
 - Question 183: [Redacted]
 - Question 184: [Redacted]
 - Question 185: [Redacted]
 - Question 186: [Redacted]
 - Question 187: [Redacted]
 - Question 188: [Redacted]
 - Question 189: [Redacted]
 - Question 190: [Redacted]
 - Question 191: [Redacted]
 - Question 192: [Redacted]
 - Question 193: [Redacted]
 - Question 194: [Redacted]
 - Question 195: [Redacted]
 - Question 196: [Redacted]
 - Question 197: [Redacted]
 - Question 198: [Redacted]
 - Question 199: [Redacted]
 - Question 200: [Redacted]
- Section G (A - 4):**
 - Question 201: [Redacted]
 - Question 202: [Redacted]
 - Question 203: [Redacted]
 - Question 204: [Redacted]
 - Question 205: [Redacted]
 - Question 206: [Redacted]
 - Question 207: [Redacted]
 - Question 208: [Redacted]
 - Question 209: [Redacted]
 - Question 210: [Redacted]
 - Question 211: [Redacted]
 - Question 212: [Redacted]
 - Question 213: [Redacted]
 - Question 214: [Redacted]
 - Question 215: [Redacted]
 - Question 216: [Redacted]
 - Question 217: [Redacted]
 - Question 218: [Redacted]
 - Question 219: [Redacted]
 - Question 220: [Redacted]
 - Question 221: [Redacted]
 - Question 222: [Redacted]
 - Question 223: [Redacted]
 - Question 224: [Redacted]
 - Question 225: [Redacted]
 - Question 226: [Redacted]
 - Question 227: [Redacted]
 - Question 228: [Redacted]
 - Question 229: [Redacted]
 - Question 230: [Redacted]
 - Question 231: [Redacted]
 - Question 232: [Redacted]
 - Question 233: [Redacted]
 - Question 234: [Redacted]
 - Question 235: [Redacted]
 - Question 236: [Redacted]
 - Question 237: [Redacted]
 - Question 238: [Redacted]
 - Question 239: [Redacted]
 - Question 240: [Redacted]
 - Question 241: [Redacted]
 - Question 242: [Redacted]
 - Question 243: [Redacted]
 - Question 244: [Redacted]
 - Question 245: [Redacted]
 - Question 246: [Redacted]
 - Question 247: [Redacted]
 - Question 248: [Redacted]
 - Question 249: [Redacted]
 - Question 250: [Redacted]
 - Question 251: [Redacted]



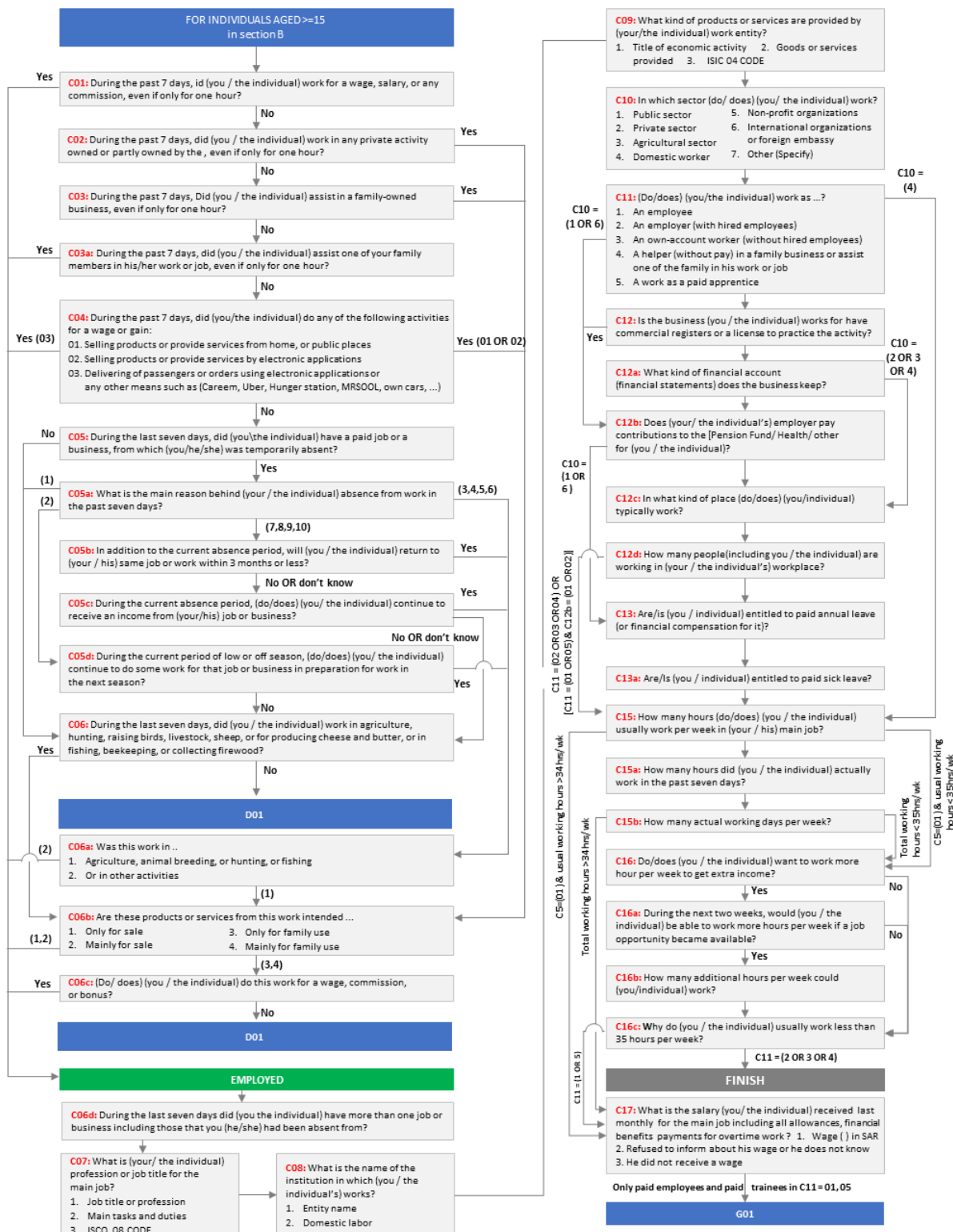
SECTION B - FLOW CHART





Note: for questions C01 to C05a and question C06d, the past 7 days are meant as the 7 days before the interview date

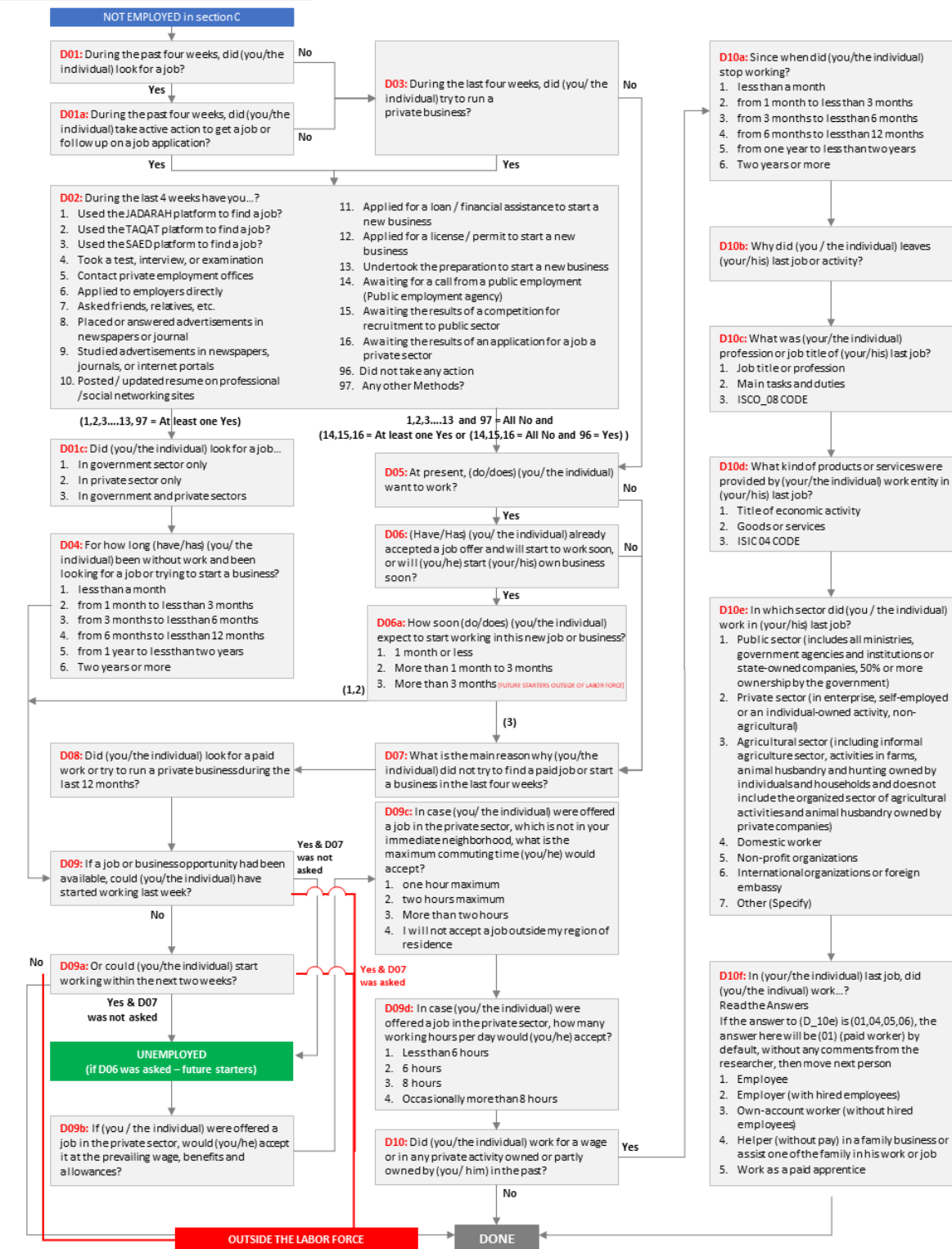
SECTION C - FLOW CHART





Note 1: for questions D01 to D03 and question D07, the past 4 weeks are meant as the 28 days before the interview date
 Note 2: for questions D09a, the upcoming 2 weeks are meant as the 14 days after the interview date

SECTION D - FLOW CHART





SECTION G - FLOW CHART

