

SAMPLE DESIGN

The sample design adopted for STATIN Labour Force surveys and its other social and demographic household surveys is one of the appropriate designs for large scale surveys. It is also referred to as the 'paired selection design', as **two** first stage Primary Sampling Units (PSUs) are selected from **each** stratum or Sampling Region.

First Stage - Selection of Primary Sampling Units (PSUs)

All dwelling units in Jamaica are assigned to Enumeration Districts (EDs) and it is these EDs that are used to form the Primary Sampling Unit (PSU) for the labour force sample.

Contiguous or adjoining EDs are joined to form Sampling Regions or strata of similar size. The EDs are joined in such a way that each sampling region: -

- (a) Is wholly contained within one of Jamaica's 14 parishes
- (b) contains approximately the same number of dwellings and,
- (c) is expected to be composed of similar dwelling units

Every attempt is made to construct purely urban or rural Sampling Regions. Obviously, the number of sampling regions will vary from parish to parish because of the unequal distribution of dwellings per parish. From each sampling region, two EDs are selected with probability proportionate to size (pps), using the number of dwellings as the measurement of size. The formation of a large number of sampling regions, and the selection of samples from each one ensures a more even distribution of the sample across all geographic and administrative areas. The sampling regions are updated at approximately every three to four year interval to account for movements in the population.

Second Stage – Selection of Dwellings

Within each of the PSUs selected from the master sample, the field staff compiles a list of all dwellings during house-to-house visits. From this list of all dwellings for each ED, 32 dwellings are selected as a systematic sample with a random start.

Four quarterly labour force surveys are conducted each year in January, April, July and October using a panel formation. The 32 dwellings selected from each selected PSU are divided into 8 panels of 4 dwellings each. Panel designed surveys are considered useful when:

- (i) Several rounds of data collection are needed to measure changes over time
- (ii) It is necessary to collect easily accessible information which can be reported accurately
- (iii) It is not necessary to follow movers from a dwelling since the incoming household serves as a replacement and
- (iv) It is necessary to minimize respondent fatigue

The 8 panels in the Master Sample are formed in a manner such that each panel is a systematic sub-sample of the Master Sample. If we label the panels A, B, C, D, E, F, G and H, then for the first survey the panels A, B, C and D are canvassed, for the second C, D, E and F, etc. It should be observed that the panels are repeated after one year, and that a half of each quarterly panel is repeated in successive surveys. The repeating of the panels after one year allows for annual comparison (most of the dwellings are repeated) while the repeating of a half of the panel between successive surveys allows for some measure of quarterly comparison since a half of the dwellings are repeated.

Survey Number	Panels
1	A B C D
2	C D E F
3	E F G H
4	G H A B
5	A B C D

Sample Size

The current labour force sample is 327 sampling regions or 654 PSUs. With 16 dwellings being canvassed in each survey, this means that a total of 10,464 households are visited during each labour force survey. This represents approximately 36,624 individuals or about one per cent of Jamaica’s population.

Weights

The weights applied to the labour force survey data include a Design weight, Non-Response Weight and a Post-Stratification Weight. The Design weight is the inverse of the probability of selection for the PSUs and the households, the Non-response adjustment factors are applied at the Enumeration District (ED) level, with adjustments being made for dwellings that did not respond. The Post-Stratification Weights are applied to raise the sample population to the ‘All Jamaica’ population, using the age/sex structure and Census population totals or inter censal estimates.

Reliability of the Estimates

The total error of the estimates from a survey is the difference between the estimate and the true population value that it estimates i.e. the sampling and non-sampling errors.

Sampling Error

The survey estimates of the labour force are based on a scientifically selected probability sample, rather than a census of the entire population. When a sample rather than the entire population is surveyed, there is a chance that the sample estimates may differ from the results obtained from a census of the population. The sample used was one of many possible samples, each of which could have produced different estimates.

The exact differences, or sampling error, vary depending on the particular sample selected, and its variability is measured by the standard error of the estimate. There is about a 95 per cent chance, or level of confidence, that an estimate based on a sample will differ by no more than 1.96 standard errors from the true population value because of sampling error. Analyses relating to the Labour Force Survey are generally conducted at the 95 per cent level of confidence.

Non-Sampling Error

Non-sampling errors will always occur whenever a survey is conducted. The inabilities to obtain information about all cases in the sample, errors in recording or coding the data are general examples of non-sampling error in a survey. Although these errors cannot be measured STATIN has implemented quality assurance procedures to reduce them in the survey. These include an intense training programme for the data collecting staff and the continuous encouragement of the respondents to participate fully and answer accurately to all the questions in the survey.

CONCEPTS AND DEFINITIONS

Labour Force

The total labour force from this survey includes:

- (1) All persons who were employed in any form of economic activity (to be defined later) for one hour or more during survey week. Prior to 1973, the cut-off used was eight hours.
- (2) All persons who had jobs but were absent from work during the survey week.
- (3) All persons who although they had no job, or worked less than one hour during the survey week, were looking for work. (The cut-off of eight hours for the survey prior to 1973 is also applicable here).
- (4) All persons who although not looking for work, wanted work and were in a position to accept work during the survey week.

The Employed

The employed comprises all persons in employment; that is all persons working during Survey Week, together with persons who had jobs but were not working during survey week. In this category would be included those persons who, although they had worked less than one hour in the Survey Week, nevertheless had jobs. Persons who worked for less than one hour during the Survey Week and who had no jobs, are excluded from this category.

Working during Survey Week

Persons working include those who:-

- (1) Worked at anytime for wages or salary, at time rates, at price rates, on commission, for tips, for board and lodgings, or for any other type of payment in kind.
- (2) Worked as trainees, such as nurses in training, or apprentices – persons at trade.
- (3) Worked for profit or fees in his business or on his own farm.
- (4) Worked without money, wages or salary, at tasks (other than their own housework or household tasks) which contributed to the operation of a farm or

business owned and operated for profit, by some member of his family (related by blood or marriage).

- (5) Spent some time in the operation of a business or profession even though no sales were made or professional services rendered, such as a doctor or lawyer spending time in his office waiting for clients.

Excluded from this category are persons who:

- (1) Worked without money or pay for a relative or other person at tasks which did not contribute to the operation of a farm or of a business, e.g. housewife, own gardening, odd jobs around the house or yard, such as painting the fence etc.
- (2) Worked without pay, either in cash or in kind as a volunteer, worked for service organization or church groups such as Red Cross, Boys Scout, Girl Guide, Society for the Blind, etc.

With Job, not working

This category includes all persons who had jobs but who, for some reason did not work during the Survey Week. This would include persons who:

- (1) Had jobs, but worked for less than one hour during Survey Week.
- (2) Did not work because of illness or temporary disability, but whose jobs were being held for them until their return. (If a respondent did not work because of the illness of another person, then he should be classified under "other" unless he was granted leave and/or was in receipt of pay during the period).
- (3) Were unable to work because of bad weather.
- (4) Did not work because they were on leave, including vacation leave, with or without pay, so long as their jobs were being held for them until their return.
- (5) Did not work because of some labour dispute, such as a strike or a lockout.
- (6) Were on short lay-off of not more than 30 days duration, with instructions to return to work at the end of the 30 days. (If the lay-off was for a longer period than 30 days then they should not be classified in this category).

The Unemployed

The unemployed comprises those persons “Looking for work” together with persons “Wanting work, available for work”. This latter category includes persons who were, during the Survey Week, actually engaged in home or other duties not classified as part of Economic Activity, but who were willing and able to accept work during the Survey Week. No attempt was made in this enquiry to isolate those persons who were willing to accept only certain types of jobs and who would, in fact, have refused other jobs if these were offered to them, as it is felt that it is not possible to obtain information of this sort with any degree of accuracy, from a survey of this nature.

Some concentration has been placed on the category of “The Unemployed”, however, and information such as the age groups into which they fall, the highest level of education attained, the duration of the last period of unemployment, together with attempts made, if any, to get a job, has been secured.

Looking for work

Persons not included in the category “Working” or “With job but not working”, who were looking for a job, are classified in this category. By looking for a job is meant, any positive attempt on the part of the respondent to seek a job. Such attempt may be:

- (1) Registration at any employment agency, either government or private.
- (2) Being on call as available for work, such as a nurse on the register as a private nurse.
- (3) Visiting job sites in search of a job.
- (4) Applying in person to prospective employers.
- (5) Putting an advertisement in any public press or place.
- (6) Writing letters of application.
- (7) Asking someone to try to find a job.
- (8) Making investigations with a view of starting own farm or business.

Persons in this category who were not working, or had no job and had made even one attempt during the week to look for a job, are included in this section.

First Seekers

This group is made up of all persons who, at the time of the Survey, had no previous industry or occupation and who were actively seeking their first job.

Housing Unit

The unit of enumeration is the household. Two concepts of the housing unit were considered. The concept recommended by the United Nations defines the **housing unit** as a structurally separate and independent place of abode. According to this definition, a private household consists of a group of persons who continue to occupy the whole or part of a housing unit and provide themselves with food or other essentials for living. An individual who lives alone in a separate housing unit or who, as a lodger, occupies a separate room (or rooms) in a part of a housing unit, is also a private (single person) household. Thus, an occupied housing unit may contain one or more households. On the other hand, it is possible for one household to occupy more than one housing unit, as in the case of members of a household who sleep in separate housing units but share meals.

For the 1991 Population Census the following definition was adopted and has been used for all household surveys conducted since then.

A Household consists of either one person who lives alone, or a group of persons who, as a unit, jointly occupies the whole or a part of a dwelling unit, who have common arrangements for house-keeping, and who generally share at least one meal. The Household may be composed of related persons only, of unrelated persons, or of a combination of both.

For purposes of the survey, a division into private and non-private households has been made. The following are some of the characteristics or distinctions in living arrangements, which were adopted to determine **private households**:

- (i) Occupants of a single housing structure who live together and eat together.
- (ii) Occupants of more than one housing structure, who live in a manner such that they share meals and the members of the subsidiary housing structure, have access to rooms in the main housing structure.
- (iii) Occupants of one of a series of self-contained flats under one or under several different roofs. By self-contained is meant having its own bathroom, toilet and kitchen facilities.
- (iv) Occupants of a room or number of rooms rented to a person or group of persons, "unrelated" to the occupants of the other rooms, provided that the group of persons comply with the definitions of a household given above; that is, that they live together and share meals together.
- (v) An occupant of a room in a housing structure, in the capacity of a lodger, who does not share meals with the other occupants and who has a separate private entrance to his room.

- (vi) An occupant of an out-building, who does not share meals with the occupants of the main household. Such a person may or may not be employed to work in the main household. In the case of an employee who does not live in the building occupied by the main household, but who does, in fact, share meals with the main household, the employee is considered as constituting a part of the main household, providing the building occupied by the employee is within the compound of that occupied by the main household.

In regards to **non-private households**, on the other hand, the following definition may be made to apply: A non-private household comprises all occupants who live collectively for disciplinary, health, educational, religious, military work, or other reasons. By living collectively is meant that they usually eat common meals and share common domestic services.

Dwelling

A Dwelling is a building or separate and independent part of a building, in which a person or group of persons lived at the time of the survey. It therefore represents the living quarters of the household.

The essential features of a dwelling are 'separateness and independence'. An enclosure is separate if surrounded by walls or other forms of partitioning, covered by a roof, so that a person or group of persons can isolate themselves from other persons for purposes of sleeping, preparing and sharing meals. It is independent when it has direct access from the street or common landing, staircase, passage or gallery, allowing occupants to enter and leave it without passing through any other person's accommodation. Thus, to be qualified as a dwelling, the living quarters must satisfy both criteria, separateness and independence.

Occupiers of a dwelling unit must have free access to the street by their own separate and independent entrance(s), without having to pass through the living quarters of another household.

A private dwelling represents the living quarters of a private household; a Non-private dwelling, the living quarters of a non-private household. Non-private dwellings are found most frequently in institutions such as homes for the aged, orphanages, prisons and reformatories, sanatoria, religious cloisters, military barracks, convents, monasteries, as well as school dormitories, work camps, hotels and rooming houses (where a rooming house is defined for purposes of the survey as a dwelling in which there are six or more paying boarders and lodgers).

Non-private dwellings are, by their nature, not always susceptible to sampling, if useful results are to be outlined. Because only a relatively small proportion of the population occupies non-private households, this group is usually ignored in most household sample surveys. However, the limitation of household surveys to private households cannot produce true national totals or averages, since the sample will not be representative of the entire population. Accordingly, it has been considered not expedient and necessary to derive estimates of some characteristics of the population in non-private households.

Outside the Labour Force

All persons 14 years and older who were not classified as employed or unemployed, are considered to be 'outside the labour force'. Included in this category are full-time students, persons engaged in home duties, persons incapable of working, and persons not wanting work or not available for work.

Participation Rate

The participation rate is the labour force as a percentage of the population 14 years and older.

The Job Seeking Rate

The job seeking rate is the percentage of the Labour Force **actively** seeking work. The Labour Force includes:

- 1) The Employed, including persons who were absent from their jobs during survey week.
- 2) The Unemployed, comprising:-
 - i) Persons who had no job but were looking for work.
 - ii) Persons who, although not looking for work, wanted work and were in a position to accept work.

In computing this rate, category 2 ii) is excluded from the Labour Force. Thus, the Job Seeking Rate measures what the unemployment rate would have been if only active seekers were considered to be unemployed.

Underemployment

Underemployment (Time Related) occurs when employed persons would like to work more hours, at the prevailing wage rates, than they actually work and are actively seeking and available to work those additional hours. Therefore, in order to be classified as underemployed, one must have **worked less than 35 hours per week** in the reference period, be **available to work additional hours** and **looking for additional hours of work**.

Greater Kingston Metropolitan Area (GKMA)

The Greater Kingston Metropolitan Area (GKMA) consists of all EDs included the Kingston Metropolitan Area (KMA) plus all EDs included in the areas of Spanish Town and Portmore. The KMA originally included Kingston and urban St. Andrew. This grouping was later expanded for the Consumer Price Index (CPI) to include Spanish Town (1975) and Portmore (1984). Spanish Town was included because its price ranges were considered similar to that of Kingston and St. Andrew while at the start of the Portmore housing development, the area was considered a dormitory of the KMA with the residents living there while carrying out all their major activities in urban Kingston and St. Andrew.

Other Urban Centres

The group Other Urban Centres (OUC) includes all other urban areas in Jamaica which are not included in the GKMA. The GKMA plus OUC constitute the urban areas of Jamaica.

Rural Areas

Rural Areas is defined as all other geographical areas not defined as urban.

ESTIMATION PROCEDURES

The sampling regions being of equal size and the fact that the probability of selection of the second stage units is equal in all strata, simplifies the estimation formulae as shown below.

Notation:

Strata (sampling regions)	L
Sub-units (dwellings) in sampling regions	M (same for all regions)
Number of first stage units (EDs) selected from a sampling region	2 (same for all regions)
Number of second stage units (dwellings) drawn from one selected ED	m (same for all EDs)
Unit Value for the "j th " sub-unit in the "i th " primary unit (ED)	Y_{ij}
Sample mean for the "i th " selected ED in the "s th " region	\bar{Y}_{is}
Sample mean for the "s th " region	\bar{Y}_s

The Sample Mean is given by the formula:-

$$\bar{Y} = \sum_{s=1}^L \sum_{i=1}^2 \sum_{j=1}^m \frac{Y_{ij}}{L \times 2m}$$

Where:

\sum represents "summation"

The variance of the Sample Mean (the square root of which is called the Standard Error) is given by the formula

$$V(\bar{Y}) = \frac{1}{4L^2} \sum_{s=1}^L (\bar{Y}_{1s} - \bar{Y}_{2s})^2$$

The above simple formulae hold good only when:-

- (a) the sampling regions are of approximately equal size in terms of the second stage units, i.e. dwellings;
- (b) two first stage units, i.e. PSUs are selected from each sampling region with probability proportional to their size (in terms of the second stage units) with replacement;
- (c) the design is self-weighting, that is, the probability of selection of a second stage unit is the same for all units in the population, which in effect means a uniform overall sampling fraction for all regions with equal number of second stage units being selected from first stage units;

The percentage Standard Errors of Employment and Unemployment rates by sex are presented in the table below.

Rates	Period	
	October 2015	October 2016
Both Sexes		
Employment Rate	86.5	87.1
Relative Standard Error	0.54	0.5
Unemployment Rate	13.5	12.9
Relative Standard Error	3.48	3.5
Males		
Employment Rate	90.5	91.1
Relative Standard Error	0.54	0.5
Unemployment Rate	9.3	8.9
Relative Standard Error	5.22	5.4
Females		
Employment Rate	81.5	82.5
Relative Standard Error	0.91	0.9
Unemployment Rate	18.5	17.5
Relative Standard Error	4.03	4.1

MEASURING UNDEREMPLOYMENT – TECHNICAL NOTES

CONCEPTS

Underemployment

Underemployment (Time Related) occurs when employed persons would like to work more hours, at the prevailing wage rates, than they actually work and are actively seeking and available to work those additional hours. Therefore, in order to be classified as underemployed, one must have **worked less than 35 hours per week** in the reference period, be **available to work additional hours** and **looking for additional hours of work**.

STATIN, on the recommendation of the International Labour Organization (ILO), through its Harmonization Project, adopted the use of 35 hours per week as proxy for fulltime employment thus, working less than 35 hour per week, **involuntarily**, may be classified as part-time work.

It must be noted that, the **reason** for working less than 35 hours per week must be taken into account. If a person works less than 35 hours per week because he, for example, did not want to work more hours, it is clear that this is voluntary and not for **economic reasons**. On the other hand, if a person reported that only part-time work was available, he may be classified as underemployed.

In January 2010 a question was added to the Jamaica Labour Force questionnaire to capture those persons who looked for additional work. Consequently, information on underemployment may be computed. It was also assumed that those persons who sought additional hours of work, during the four weeks up to and including the reference week were available for additional hours of work. Prior to October 2011, only data on Employment, Unemployment and Persons Outside the Labour Force were published.

Estimates for Underemployment have been calculated for the period January 2014 to October 2015. It should be noted also that, due to the small numbers of reported cases, the categories for, Employment Status, Age and Industry have been aggregated into larger/wider groups as follows:

Employment Status

Paid Employee
Own Account Worker
Other Worker

Paid Employee: The person may be a paid employee of Central or Local Government - Any Ministry or Department of Government or any Parish Council; Government Agencies - Statutory Bodies, Board or Agencies of Government; Private Sector Business - Privately owned businesses in any type of economic activity.

Own Account Worker: This includes any person who operated a farm or a business (for profit), who did not employ any paid help. If the farm or business operator had the help of unpaid workers

then he should still be classified as "Own account worker". However, if he had both paid and unpaid help, he should be classified as "Employer".

Other Worker: Employer i.e. any person who operated his (or her) own farm or business (for profit), and who worked with paid help. Also "Unpaid Family Worker" i.e. all workers who worked either on a farm or in some economic activity, but without expecting to or receiving any payment in cash or kind. An Unpaid Worker is usually related to the individual with whom he works (by blood or marriage).

Age Groups

The standard age groups normally used were regrouped into the following groups `14-24`, `25-44`, `45-64` and `65+` .

Industry Groups

The standard Industry groups used were regrouped into the following groups.

Agriculture, Hunting, Forestry & Fishing
Other Goods Producing Sectors
Service Producing Sectors

Other Goods Producing Sectors include Mining, Construction and Manufacturing.

Service Producing Sectors include Financing, Ins., Real Est. & Business Services , Wholesale & Retail, Hotels & Restaurants & Transport ,Education, Health & Social Work, Public Administration & Defence, Compulsory Social Security and Private Households with Employed Persons.

INFORMAL EMPLOYMENT – TECHNICAL NOTES

International Statistical Definition of the Informal Employment

At the 15th International conference of Labour Statisticians (ICLS) a conceptual framework for defining informality was developed. It defined employment in the informal sector in terms of production units or enterprises. According to Hussmanns (2004) in applying this definition the informal sector consist of household enterprises or unincorporated enterprises owned by households that are characterised by:

- Small size in terms of employment i.e. having a number of employees below a certain threshold
- Non-registration of the enterprise or its employees.
- Engagement in non-agriculture activities

At the 17th ICLS in 2002, the ILO proposed major changes to the definition of the informal sector. One of the major changes was to define the informal sector according to the employment characteristics of the worker, moving away from the 15th ICLS. Accordingly, the 17th ICLS defined informal employment as comprising the total number of jobs, whether carried out in formal or informal enterprises or households during a given reference period.

Type of production unit is defined in terms of legal organization and enterprise related characteristics and are classified into formal sector enterprises, informal sector enterprises and households.

Type of job is defined in terms of status in employment and other job-related characteristics according to their formal or informal nature

Informal Employment Framework

The methodology used by the Statistical Institute of Jamaica (STATIN) to estimate the size of the informal sector closely followed the definition which was proposed by the 17th ICLS and focused on the main job of the respondents. The investigation of informal employment by STATIN was drawn from information garnered from a new module which was specially developed and attached to the quarterly Labour Force Survey (LFS) to capture and measure informality. The module was developed in collaboration with the ILO Sub-regional Office in the Caribbean as part of a project to produce a harmonize Labour Force Survey questionnaire for the Caribbean.

Keeping as close to the conceptual framework of the informal sector by the ILO, informal employment is defined only in respect of non-agriculture activities as it was decided that informal activities in the agriculture sector was difficult to estimate. Accordingly, a person whose main job is not in agriculture or domestic employment is counted as working in the informal sector if his or her present job satisfies any one of the following conditions:

- All own-account workers and employers who own informal enterprises

- All contributing family members
- All employees in jobs where National Insurance Scheme (NIS) contribution is not deducted from their wages.

To derive the different categories of workers a number of steps were followed. Firstly since only persons who are employed can be classified as being in informal employment, the employment status of the respondents was determined. Secondly, only persons who were engaged in non-agriculture activities were included. Domestic helpers employed by households were also excluded from the data as they are in an independent category that falls under neither the formal nor the informal sector. Thirdly, if respondents failed to answer any of the questions or answered “I don’t know” to the questions that are used to classify them then they would be placed into the unclassified category. Finally, persons are then classified into formal or informal employment based on the above definitions. For the remainder of the report, unless stated otherwise, the term “informal employment” excludes all domestic workers and workers in the agriculture sector.