

# Non-Coverage Rates in Official Labour Force Surveys: Experiences in Jamaica

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## 1. Introduction

In this paper, it is proposed to study Non Coverage Rates, NCR(s) in the Labour Force Surveys or in the surveys for which the sampling frame of Labour Force Surveys served as basis. These are undertaken by the official statistical agency in Jamaica. From the economic point of view, Jamaica represents the middle income group, the annual Gross National Product (GNP) per capita being US \$s 1490.(1)

## 2. Concept of the terms Non Coverage and Non Sampling Errors (NSE)

The concept of the term ‘Non Coverage’ is the one adapted by Kish. To quote him “..non-coverage refers to the negative errors of failure to include elements that would properly belong to the sample” (2)

As regards non-sampling errors, theoretically, all the errors which fall outside those caused by the fact that a sample as against a population, is used for estimating the parameters can be considered as non sampling errors. These may consist of, for example, exclusion of some units from sampling frame or inclusion of some units more than once in the sample. It may be noted that inclusion of some units more than once in a sample may introduce some bias in the estimation of parameters. This bias may be tolerated if there is no alternative. For example when the sampling frame is small. However, if the sampling frame is large enough i.e. when the population size (N) is sufficiently large in comparison to the sample size (n), then the method of sampling without replacement may be advisable. Concerning the term Non Response, this is used in the same sense as the statistical dictionary published for ISI defines it: “..in sample surveys, the failure to obtain information from a designated individual for any reason (death, absence, refusal to reply ) is often called a non-response and the proportion of such individuals of the sample aimed at is called non-response rate” (3). Therefore, non-responses can be considered as part of the much wider NSEs.

## 3. Noncoverage in surveys in Jamaica

To study non-coverage in surveys in Jamaica, data from the series of Jamaica Survey of Living Conditions (JSLC) is being used (4). Sample for the JSLC is derived from the wider sample used for the Labour Force Survey and forms about a quarter of the latter. At this instance, some reflections on the terms ‘Non-Response/Non-interview Rates’ as used in JSLC reports are in order. In the reports, the categories of ‘Dwelling vacant/closed’, ‘Refusals’ and ‘Rejected in data cleaning’ were combined together and commonly branded as ‘Non-Response/Non-Interview Rates’ but not all these rates consist of non-responses in the proper meaning of the term. Instead these can be termed as ‘Non-Coverage Rates’ because of the following reasons. Firstly, cases where the sample units could not be contacted for one reason or the other and a reading of the available data suggests that these form the largest category of the non-covered rates. Secondly, cases where the sample units refused to answer the questionnaire even when they were contacted and these form the second largest category in the JSLC(s) and; finally, cases where the sample units could not be included in the tabulation because of inconsistency / errors in the obtained responses. These errors are minimal and have in fact disappeared over time. It can be said that non-contact cases consist of those where the sample unit i.e. the dwelling, was closed /vacant/demolished/ merged with another dwelling or where the larger unit, the Enumeration District (ED), in which the dwelling was included, was not canvassed owing to violent activities. There are reasons to assume that the category (i.e. non-canvassing due to violent activities) contributed very little to the over-all category of non-contacts. This is because the violence affects only certain sections in the country (and that too at certain times) and the chances of sampled ED(s) being violence ridden ED(s) at the time of the survey might indeed be minimal. If the above assumption is true, the major component of non-

contact cases should consist of those cases where the sample units were vacant /demolished /closed or merged. This phenomenon points to the fact that the sample units were drawn from an outdated sample frame. Obviously, the solution is to upgrade the sample frame on a timely and regular basis. In this connection it is worth mentioning that an outside expert once suggested that the sampling frame be upgraded once in two years (5). Apparently, the suggestion is still valid.

#### **4. Some background variables explaining refusals in sample surveys in Jamaica**

By 'refusals' we mean cases that refused to answer the whole questionnaire. This sub sample is different from the main body of respondents whose members may refuse to answer a few selected questions and are classified as such elsewhere. It will not be possible to know the personal background (in terms of age, education and occupation etc) because there was no contact between the refusing sample and the interviewer. However, some broad background of the area (sub unit) within the country (full unit) can be related to the refusal rate prevailing in that area. Statistically speaking, it involves correlating some social/economic variables of the area with the proportion of refusals in the area.

#### **5. Variables explaining the refusals in Jamaica**

For the years under consideration i.e.1990-99 period, the refusal rates for the individual areas are not available in the official publications. However, for 1987 Labour Force surveys, the sampling expert provides refusals data for 14 Parishes in his note, the Parish being the unit by which the country is divided for administrative purposes. An ideal analysis would be to compare the refusal rate with the standing of the area on a comprehensive index representing various Socio-economic (SE) variables. However, in the absence of availability of reliable data on different SE variables to construct such an index, we have correlated refusal rates with the levels of urbanization and illiteracy prevailing in the Parishes. The analysis shows that on the surface of it, there appears to be some association between refusal levels on the one hand and urbanisation and literacy levels on the other. The conclusion is that, in general, refusal levels are low where the urbanisation and literacy levels are low. This result of apparent association between the variables (at least in the Capital region) is also shared by officials of the conducting agency, an impression based on their experience in the field. The officials also expressed the view that the refusal rates are high in (economically) affluent sections, especially in urban areas, although concrete empirical data cannot be established confirming this view. Therefore taking the Labour Force survey conducted by the official statistical agency in April 1987 as a case in point, the conclusion is that the refusal rates had a tendency to be correlated with higher urbanisation and higher literacy levels in Jamaica.

#### **6. Conclusion**

In Jamaica, the updating of sample frame was not timely, resulting in greater proportion of non-coverage of sample units. Refusal rates were relatively higher among literate sections, especially in urban areas.

#### **NOTES**

1. United Nations Development Programme (UNDP)., Human Development Report 1994 New York 1995
2. Kish, Leslie, Survey Sampling New York 1995 p 529
3. Marriot, F H C A Dictionary of Statistical Terms Harlow 1991 p 144
4. Planning Institute of Jamaica (PIOJ) and Statistical Institute of Jamaica (STATIN). Jamaica Survey of Living Conditions (JSLC) 1999 and other years Kingston.
5. Murthy, P. B. K., Labour Force Surveys: An Overview of the Surveys note prepared for STATIN 1987 page 5

#### **RESUME**

En jamaïque, la revision du cadre des unités échantillonnées dans les délais (une fois en 2 ans) n'avaient pas eu lieu. Cet délais a comme le resultat d'un non-couverture d'une partie de la population. Les taux de refus étaient élevés chez la population qui sait lire et écrire, surtout dans les centres urbaines.