Rwanda - Rwanda Post Enumeration Survey 2012

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Overview

Identification

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rwa-nisr-rpes-2012-v1

Version

VERSION DESCRIPTION
v1: Edited anonymous dataset for public distribution

PRODUCTION DATE
2013-04

Overview

ABSTRACT
It has been a long tradition in Rwanda to conduct a Post Enumeration Survey (PES) following the Population and Housing Census. The first of such surveys was conducted following 1991 Census, the methodology of which has been documented and widely disseminated internationally as an example of a successful PES in developing countries. The Second PES was conducted following the 2002 Population and Housing Census.

The general objective of this Post Enumeration Survey (PES) was to evaluate coverage and content errors of the 2012 Population and Housing Census data, while specific objectives are the following:

·Measuring census coverage classified by individual sex, age and residence type (urban and rural);

·Measuring the contents errors pertinent to a number of selected important census variables, namely sex; age; the ability to read and write in different languages; marital status and the type of sanitation facilities available to the households.

KIND OF DATA
Sample survey data [ssd]

UNITS OF ANALYSIS
The unit of RPES analysis was member of private household.

Scope

NOTES
The themes of thsis study include: Characteristics of household members (sex, ages), their relationship, residence status, literacy, marital status, moving status, and type of toilet facility.

KEYWORDS
Post Enumeration Survey, Rwanda

Coverage

GEOGRAPHIC COVERAGE
National coverage

UNIVERSE
The study covered all sampled private households.

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
National Institute of Statistics of Rwanda	Ministry of Finance and Economic Planning

OTHER PRODUCER(S)

Name	Affiliation	Role

FUNDING

Name	Abbreviation	Role
Government of Rwanda	GoR	Financial support
One UN	One UN	Financial assistance
United Nations Population Fund	UNFPA	Financial assistance
United Nations Children's Fund	UNICEF	Financial assistance
UKaid		Financial assistance
World Bank	WB	Financial assistance
European Union	EU	Financial assistance
UN Women		Financial assistance
United Nations Development Fund	UNDP	Financial assistance

OTHER ACKNOWLEDGEMENTS

Name	Affiliation	Role
Local Government	Ministry of Local Government	Awareness and mobilisation

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
National institute of Statistics of Rwanda	NISR	Ministry of Finance and Economic Planning	Stady description

DATE OF METADATA PRODUCTION
2015-03-27

DDI DOCUMENT VERSION
v1

DDI DOCUMENT ID
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Sampling

Sampling Procedure

Conceptually, the PES involves two samples, named the "population" P sample and the "Enumeration" E sample. The P sample consists of the PES sample of segments (Enumeration Areas, EA's) drawn from the same target population, but independently from the census, for the purpose of estimating census omissions when compared to Census records. The E sample is drawn from the cases already enumerated in the Census, but selected for independent re-enumeration for the purpose of estimating census erroneous inclusions when compared to the original Census records. Although the E sample may be separate from the p sample, in practice it is made to overlap completely with the P sample to reduce costs and improve the precision of the estimates. The E sample then consists of the same EA's selected for the PES. A two-way match is conducted between the P sample and the E sample to identify both the omissions and erroneous inclusions. The matching also produces estimate of matched population required in the dual-system estimator of the true population.

The Enumeration Areas, as defined in the mapping operation implemented prior to the 2012 Census, is the Primary Sampling Unit (PSU), while the private household is the Ultimate Sampling Unit (USU). As all Six households included in the sample EA's are included in the sample with certainty, the selection probability of a household is exactly equivalent to the selection probability of the corresponding EA. The EA's list created during the mapping stage constitutes the frame of the EA's. Beside the geographic specification the frame includes estimates of the number of households and the number of the population in each EA. The total number of EA's in Rwanda is 16716 with an average size of 128.6 households each. The size dispersion of EA's is nearly moderate, the standard deviation is about 35.2 households and the coefficient of variation is 27.3 percent. About 80.1 percent of EA's are between 90 and 180 households, while only 1.9 percent of EA's are as small as 60 households or less, there exists about 1 percent of EA's sized 210 or more households.
The normal choice of stratifying variable is the type of residence place (urban, semi-urban, and rural), previous PES surveys in Rwanda (1991 and 2002) exhibit disparity of net coverage error rate between urban and rural. In addition to such explicit stratification of the sampling frame, an implicit stratification based on geographic proximity is also introduced during the sampling selection operation.
The literature review of previous Post Enumeration Surveys carried out in Rwanda (1991, 2002) has revealed that the adopted sample size was 120 EA's for both indicated surveys. As such it was deemed appropriate and logical to maintain this size of the sample for the present PES. Nonetheless, the sample size was independently calculated based on anticipated coverage rate of 97%, deff =2, confidence coefficient of 95%, relative error margin within 10%, and average size of EA of about 128.6 households and about 600 persons and the number of strata is 3, the resulting sample is about 124 EA's which is only 4 EA's greater than the adopted sample size for the present PES. In case of higher coverage rate the relative error margin would be slightly greater than the assumed level of 10%.
The sample was allocated over the strata in such a way that: Urban sample is 40 EA's and Semi-urban sample is 35 EA's.

Deviations from Sample Design

The standard deviation is about 35.2 households.

Response Rate

The response rate of listed households exceeds 99 percent at the national level.

Weighting

To obtain unbiased estimates from the PES data it has been necessary to apply appropriate weights to the sample data based on the probabilities of selection. It was also important to calculate measures of sampling variability for Census coverage and content estimates.
In order to avoid producing biased sample estimates, it was necessary to multiply the data by a sampling weight, or expansion factor. The basic weight for each sample household member was equal to the inverse of his/her probability of selection. As indicated before, since all households and household members were included in the PES Sample with certainty, the selection probability of a certain EA was exactly equivalent to the selection probability of a certain household and a household member within this EA.

Questionnaires

Overview

The PES questionnaire has been designed in conformity to procedure C of coverage analysis (see the final report P3). It is also consistent with the Dejure enumeration basis of the 2012 Population and Housing Census. It includes information needed to estimate non-movers, in-movers, out-movers, correct enumeration and erroneous enumeration. Provisions are made to record the result of matching operation.
Concerning content analysis, the questionnaire comprises several census data items that are compared with collected Census data in order to measure the extent of variability between PES responses and the corresponding census responses. These data items include sex, age, marital status and the ability to read and write in any or more of several languages. At the household level, information on the type of bathing facility has also been collected. It is worth noting that the definitions and categories of selected census variables used in the PES are identical to that applied in the Census. In addition to the cover page containing identification data, the questionnaire is organized into four sections: the first deals with non-movers and inmovers, while the second is devoted to out-movers, the third handles information on correct/erroneous enumeration. The last section is designated to the type of bathing facility available to the household. The questionnaire has been designed to be compatible with the recommendation of the UN Statistical Division: Post Enumeration Surveys, Operational guidelines-April 2010.

Data Collection

Data Collection Dates

Start	End	Cycle
2012-09-16	2012-09-30	N/A

Data Collection Mode

Face-to-face [f2f]

Data Collection Notes

The field work started with listing operation where two lists were completed: a list of EA boundaries and roads and list of housing units and households, the later list was considered a basis for monitoring the fieldwork on a daily basis. The listing operation was finalized in the first three days, while the entire fieldwork period extended to slightly more than two weeks. The PES reference date is the night of 22/23 of September 2012. Quality checks of completed questionnaires have been performed on a continuous basis and by different levels of field personnel including field editor, team leader and zonal supervisor. On the basis of the household list, the response rate of listed households exceeds 99 percent at the national level.

Questionnaires

The PES questionnaire has been designed in conformity to procedure C of coverage analysis (see the final report P3). It is also consistent with the Dejure enumeration basis of the 2012 Population and Housing Census. It includes information needed to estimate non-movers, in-movers, out-movers, correct enumeration and erroneous enumeration. Provisions are made to record the result of matching operation.
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Data Collectors

Name	Abbreviation	Affiliation
National Institute of Statistics of Rwanda	NISR	Ministry of Finance and Economic Planning

Supervision

For the purpose of ensuring close supervision of the field work, the country has been divided into five zones, each coincide with the whole province, a big segment of one province or several segments of neighboring provinces. The Country has been segmented into above zones depending on the sample size and its spread inside the zone. The field work started with listing operation where two lists were completed: a list of EA boundaries and roads and list of housing units and households, the later list was considered a basis for monitoring the fieldwork on a daily basis. The listing operation was finalized in the first three days, while the entire fieldwork period extended to slightly more than two weeks.
Quality checks of completed questionnaires have been performed on a continuous basis and by different levels of field personnel including field editor, team leader and zonal supervisor.

Data Processing

Data Editing

Based on the questionnaire design a CSPRO Computer Program has been designed to capture the RPES data. Data entry was carried out in two computers where questionnaires for different provinces were entered subsequently. Data entry were performed in parallel with the matching operation where the questionnaires for which the matching status of all household members has been judged as “Matched” were entered before starting the reconciliation visits , otherwise data entry was performed after contacting the household through phone calls and/or reconciliation visits to settle down the suspicious cases.Upon the completion of data entry for each province, a SPSS file was created for the purpose of result extraction. However, an intensive data editing was carried out on the SPSS file prior to result extraction. Range as well as consistency checks were carefully performed with special consideration given to the residence status at the time of the Census as well as matching status variables. The province-specific clean data files were concatenated so as to produce a single data file for the whole country, on which basis the results of census coverage and content errors have been generated.

Data Appraisal

Estimates of Sampling Error

The standard error, or square root of the variance, is used to measure the sampling error. The variance estimator should take into account the different aspects of the sample design, such as the stratification and clustering. Avoiding the time and effort requires developing custom variance program, and using an available software package to tabulate the sampling errors. One such software package available for calculating the sampling errors for survey data from stratified cluster sample design such as the present survey is Complex Sample module of SPSS, which is menu-driven and user-friendly. It was used to calculate sampling errors of totals, means, proportions, and other ratios. It produced subpopulation estimates for each category of a classification variable, and these variables were crossclassified. For each estimate, Complex Sample calculates the standard error, coefficient of variation (CV), a 95 percent confidence interval and the design effect (deff). This software package uses an ultimate cluster variance estimator.

File Description

Variable List

Related Materials

Questionnaires

POST ENUMERATION SURVEY QUESTIONNAIRE

Title	POST ENUMERATION SURVEY QUESTIONNAIRE
Author(s)	National Institute of Statistics of Rwanda
Date	2012-09-03
Country	Rwanda
Language	English
Publisher(s)	NISR
Description	This is the questionnaire for the survey
Filename	PES_Ques_Eng.pdf

IBARURA GENZURA RYA NYUMA Y’IBARURA RUSANGE RY'ABATURAGE N'IMITURIRE 2012

Title	IBARURA GENZURA RYA NYUMA Y’IBARURA RUSANGE RY'ABATURAGE N'IMITURIRE 2012
subtitle	Urutonde rw'Ibibazwa
Author(s)	National Institute of Statistics of Rwanda
Date	2012-09-03
Country	Rwanda
Language	Kinyarwanda
Publisher(s)	NISR
Description	This is the questionnaire for the survey
Filename	PES_Ques_Kinya.pdf

Reports

Post Enumeration Sarvey

Title	Post Enumeration Sarvey
Author(s)	NISR
Date	2014-01-01
Country	Rwanda
Language	English
Publisher(s)	NISR
Description	This is the final report of PES

	Table of Contents
	Foreword.....v
	Executive Summary x
	Introduction 1
	Chapter 1: Survey methodology 3
	1.1 Procedures of coverage analysis in a PES. 3
	1.2 Questionnaire design 4
	1.3 Pilot Survey 5
	1.4 Sample design, weighting and estimation methods..... 5
	1.5 Training Manual Preparation 11
	1.6 Recruitment and training of field personnel 11
	1.7 Data collection 11
	1.8 Matching operations 12
	1.9 Field reconciliation visits and telephone contacts 14
	1.10 Data entry, editing and result extraction 14
	Chapter 2: Evaluation of census coverage 16
	2.1 Definitions of relevant concepts 16
	2.2. Net Coverage Rate 17
Table of contents	2.3 Census Omissions Rate 18
	2.4 Match Rate 19
	2.5 Rate of Erroneous Inclusions 20
	2.6 Gross Coverage Error Rate per Unit Enumeration 21
	Chapter 3: Evaluation of content error 23
	3.1 Measures of Content Error 23
	3.2 Main findings of Content error evaluation 24
	3.2.1 Sex 24
	3.2.2 Age 25
	3.2.3 Marital status: 25
	3.2.4 The ability to read and write in different languages: 25
	3.2.5 Type of bathing facility available to household: 26
	ANNEX I: Survey Questionnaire 32
	ANNEX II: Estimates, Sampling Error, Confidence Interval, Coefficient of Variation and Design effects of Coverage Measures 37
	ANNEX III: Formulae of Estimating Confidence Interval of Content Error Measures 42
	ANNEX IV: The total estimates along with precision values of various data items incorporated in measuring the coverage error 44
	REFERENCES 61
Filename	RPHC4_Post_Enumeration_Survey.pdf

Technical documents

POST ENUMERATION SURVEY

Title	POST ENUMERATION SURVEY
subtitle	Boundary listing Form
Author(s)	NISR
Date	2012-08-20
Country	Rwanda
Language	English
Publisher(s)	NISR
Description	This is the the boundary listing form
Filename	PES_form_Boundary listing_eng.pdf

GENZURA RYA NYUMA Y’IBARURA RUSANGE

Title	GENZURA RYA NYUMA Y’IBARURA RUSANGE
subtitle	IMBIBI Z’AGAPANDE K’IBARURA GENZURA
Author(s)	NISR
Date	2012-08-20
Country	Rwanda

Language	Kinyarwanda
Publisher(s)	NISR
Description	This is the boundary listing form
Filename	PES_form_Boundary listing_kiny.pdf

POST ENUMERATION SURVEY

Title	POST ENUMERATION SURVEY
subtitle	Listing Form of household
Author(s)	NISR
Date	2012-09-20
Country	Rwanda
Language	Kinyarwanda
Publisher(s)	NISR
Description	This is the listing form of household
Filename	PES_form_household listing_kinya.pdf

IBARURA GENZURA RYA NYUMA Y'IBARURA RUSANGE

Title	IBARURA GENZURA RYA NYUMA Y'IBARURA RUSANGE
subtitle	INGO ZO MU GAPANDE K'IBARURA
Author(s)	National Institute of Statistics of Rwanda
Date	2012-09-20
Country	Rwanda
Language	English
Publisher(s)	NISR
Description	This is the household listing form
Filename	PES_form_household listing_eng.pdf

IBARURA GENZURA RYA NYUMA Y'IBARURA RUSANGE

Title	IBARURA GENZURA RYA NYUMA Y'IBARURA RUSANGE
subtitle	AHO UMUHANDA UHEREREYE N'IBIWURANGA MW'ISUZUMA RY'IBARURA RUSANGE
Author(s)	NISR
Date	2012-08-20
Country	Rwanda
Language	Kinyarwanda
Publisher(s)	NISR
Description	This is the road listing form for the survey
Filename	PES_form_Road listing _kinya.pdf

POST ENUMERATION SURVEY

Title	POST ENUMERATION SURVEY
subtitle	LOCALIZATION AND IDENTIFICATION OF ROAD
Author(s)	NISR
Date	2012-08-20
Country	Rwanda
Language	English
Publisher(s)	NISR
Description	This is the road listing form_eng
Filename	PES_from_Road listing_eng.pdf

IBARURA RUSANGE RYA KANE RY'ABATURAGE N'IMITURIRE ISUZUMA RYA NYUMA Y'IBARURA/IBARURAGENZURA

Title	IBARURA RUSANGE RYA KANE RY'ABATURAGE N'IMITURIRE ISUZUMA RYA NYUMA Y'IBARURA/IBARURAGENZURA
subtitle	AGATABO K'AMABWIRIZA Y'UMUKARANI W'IBARURA
Author(s)	NISR
Date	2012-08-20
Country	Rwanda
Language	Kinyarwanda
Publisher(s)	NISR
Description	This is the manual for enumerators

Table of contents

IBIRIMO ii
IRIBURIRO 1
UMUTWE WA MBERE: INTEGO, AMATEGEKO AGENGA UBU BUSHAKASHATSI N?IMITUNGANYIRIZE YABWO 1
1. 1 INTEGO 1
1.1.1 Intego rusange 1
1.2. AMATEGEKO AZAKURIKIZWA 1
1.3. IMITUNGANYIRIZE RUSANGE Y?ISUZUMA RY?IBARURA 2
1.4. IMITUNGANYIRIZE Y?IBARURA MURI BURI GACE K?IGIHUGU 2
UMUTWE WA KABIRI: GUSOBANURA AMAGAMBO Y?IBANZE AZAKORESHWA 3
2.1. ISUZUMA RYA NYUMA Y?IBARURA RUSANGE RY?ABATURAGE N?IMITURIRE NI IKI? 3
2.2 INZU 4
2.3 URUGO RUSANZWE 4
2.4 NYIR?URUGO 4
2.5. IJORO RY?ISUZUMA RY?IBARURA 5
2.6 IBINDI BYICIRO BYIHARIYE BIZABARURWA: 6
UMUTWE WA GATATU: AMABWIRIZA RUSANGE 7
3.1. INSHINGANO Z?ABAKOZI BATANDUKANYE BAZAKORA MU ISUZUMA RY?IBARURA RY?AHAKORERWA IMIRIMO 7
3.1.1. Inshingano z?umugenzuzi w?udupande tw?ibarura 7
3.1.2 Uruhare rw?umugenzuzi w?udupande tw?ibarura 7
3.1.3. Inshingano z?ingenzi z?umukarani w?ibarura ni izi zikurikira: 8
3.2. IMYITWARIRE Y?UMUKARANI W?IBARURA 8
3.3: IBIKORESHO BY?UMUKARANI W?IBARURA 9
3.4. IMBIBI Z?AGAPANDE K?IBARURA N?UKO IKARITA Y?AGAPANDE K?IBARURA IKORESHWA 10
3.4.1. Amabwiriza ngenderwaho mu gukora urutonde rw?ingo 10
3.4.2 Uko ikarita y?agapande k?ibarura ikoreshwa 13
UMUTWE WA KANE: KUBARURA INGO NO GUSHYIRA I NIMERO KU MAZU NO KU NGO 17
4.1. GUSHYIRA INIMERO KU MAZU NO KU NGO 17
4.2. KWANDIKA AMAZU N?I NGO 18
4.3. URUGO RUSANZWE 18
4.3.1. Inzu ituwe n?urugo rumwe: 18
4.3.2. Inzu imwe ituwe n?ingo nyinshi: 18
4.3.3. Inzu nyinshi zituwe n?urugo rumwe 19
4.3.4. Inzu nyinshi zituwe n?ingo nyinshi 21
UMUTWE WA GATANU: UBURYO BWO KUZUZA INTONDE Z?IBIBAZWA MU ISUZUMA RY?IBARURA 23
5.1. INSHINGANO ZIHARIYE Z?UMUKARANI W?ISUZUMA RY?IBARURA 23
5.1.1 KWIMENYEKANISHA 23
5.1.2 IBYO UMUKARANI W?IBARURA AGOMBA KWIRINDA 23
5.2 UBWOKO BW?URUTONDE RW?IBIBAZWA ..... 23 iii iii
5.2.1. Urutonde rw?ibibazwa rwagenewe ingo zisanzwe 23
5.3. KUZUZA URUTONDE RW?IBIBAZWA 24
5.3.1. IGIKA L: AHO URUGO RUHERERE YE N?IBIRURANGA 24
5.3.2. IGIKA S: KUZUZA IMBONERAHAMWE Y?URUGO 28
5.3.3. IGIKA P: IMITERERE YA BURI MUNTU URI MU RUGO 30
5.3.4. IGIKA H: KUZUZA IBIBAZO BIJYANYE N? IMITURIRE 35
5.3.5. IGIKA O: ABIMUTSE CYANGWA ABAPFUYE NYUMA Y?IBARURA 35
IMIGEREKA 39
UMUGEREKA WA I: AMWE MU MATEKA Y?URWANDA (1865-2012) 51

Filename	PES_manual_agatabo k'amabwiriza y'umukarani w'ibarura_kinya.pdf

POST ENUMERATION SURVEY

Title	POST ENUMERATION SURVEY
subtitle	NISR MATCHING MANUAL
Author(s)	NISR
Date	2012-08-20
Country	Rwanda
Language	English
Publisher(s)	NISR
Description	This is the maching manual used during the PES analysis
Filename	PES_manual_MATCHING_eng.pdf