The Uganda National Panel Survey (UNPS) 2015/2016

Basic Information Document (BID)

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Acronyms

EA	Enumeration Area
GoU	Government of Uganda
GPS	Global Positioning System
HHID	Household identification code
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification
LC1	Local Council 1
LSMS-ISA	Living Standards Measurement Study – Integrated Surveys on Agriculture
NAADS	National Agricultural Advisory Services
NDP	National Development Plan
NDS	National Development Strategy
NSDS	National Service Delivery Surveys
PID	Person Identification code
PSID	Panel Study of Income Dynamics
UBOS	Uganda Bureau of Statistics
UDHS	Uganda Demographic and Health Survey
UNHS	Uganda National Household Survey
UNPS	Uganda National Panel Survey
UMPC	Ultra Mobile Personal Computer
CAPI	Computer Assisted Personal Interviews
CWEST	Capture With Enhance Survey Technology

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1 Overview

Uganda has experienced strong economic growth over the past two decades, and has made great strides towards improving the quality of life and access to services. In order to continue promoting pro-poor economic growth, the Government of Uganda (GoU) developed the National Development Plan (NDP) and a Joint Budget Support Strategy as part of the implementation of the National Development Strategy (NDS).

The GoU recognizes the need for adequate data collection to effectively monitor outcomes of the National Development Strategy (NDS). For this purpose, the Uganda Bureau of Statistics (UBOS) is implementing the Uganda National Panel Survey (UNPS) program, with financial and technical support from the Netherlands Government, and the World Bank Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) project.

The UNPS is a multi-topic household survey that commenced in 2009/10. One of the primary uses of the UNPS is to inform policymaking in advance of the Budget, through descriptive reports that are made ready in time for the initial work on sector budget framework papers. In order to measure social and economic dynamics, the UNPS 2009/10 was followed by additional rounds of data collection in 2010/11, 2011/12 2013/14 and 2015/16.

1.1 Survey Objectives

The UNPS aims at producing annual estimates in key policy areas; and providing a platform for experimenting with and assessing national policies and programs. Explicitly, the objectives of the UNPS include:

1. To provide information required for monitoring the National Development Strategy, of major programs such as National Agricultural Advisory Services (NAADS) and General Budget Support, and also to provide information for the compilation of the National Accounts (e.g. agricultural production);
2. To provide high quality nationally representative information on income dynamics at the household level as well as information on service delivery and consumption expenditure estimates annually; to monitor poverty and service outcomes in interim years of other national survey efforts, such as the Uganda National Household Survey (UNHS), Uganda Demographic and Health Survey (UDHS) and National Service Delivery Surveys (NSDS);

3. To provide a framework for low-cost experimentation with different policy interventions to e.g. reduce teacher absenteeism, improve ante-natal and post-natal care, and assess the effect of subsidies on agricultural inputs among others;
4. To provide a framework for policy oriented analysis and capacity building substantiated with the UGDR and support to other research which feed into the Annual Policy Implementation Review; and
5. To facilitate randomized impact evaluations of interventions whose effects cannot currently be readily assessed through the existing system of national household surveys.

1.2 Survey Design

The UNPS is carried out over a twelve-month period (a "wave") on a nationally representative sample of households, for the purpose of accommodating the seasonality associated with the composition of and expenditures on consumption. The survey is conducted in two visits in order to better capture agricultural outcomes associated with the two cropping seasons of the country. The UNPS therefore interviews each household twice in a year, in visits approximately six months apart.

In 2009/10, the UNPS set out to track and interview 3,123 households that were distributed over 322 Enumeration Areas (EAs), selected out of 783 EAs that had been visited during the Uganda National Household Survey (UNHS) in 2005/06. The distribution of the EAs covered by the 2009/10 UNPS was such that it included all 34 EAs in Kampala District, and 72 EAs (58 rural and 14 urban) in each of the other regions i.e. Central excluding Kampala, Eastern, Western and Northern which make up the strata.

Within each stratum, the EAs were selected with equal probability with implicit stratification by urban/rural and district (in this order). However, the probabilities of selection for the rural portions of ten districts that had been oversampled by the UNHS 2005/06 were adjusted accordingly. Since most IDP (Internally Displaced People) camps in the Northern region are currently unoccupied, the EAs that constituted IDP camps were not part of the UNPS sample. This allocation allows for reliable estimates at the national, rural-urban and regional levels i.e. at level of strata representativeness which includes: (i) Kampala City, (ii) Other Urban Areas, (iii) Central Rural, (iv) Eastern Rural, (v) Western Rural, and (vi) Northern Rural.

In the UNPS 2010/11, the concept of Clusters instead of EAs was introduced. A cluster represents a group of households that are within a particular geographical area up to parish level. This was done due to split-off households that fell outside the selected EAs but could still be reached and interviewed if they still resided within the same parish as the selected EA. Consequently, in each subsequent survey wave, a subset of individuals was selected for tracking (see section 4.1 for details).

The UNPS is part of the long term Census and Household Survey Program hence questionnaires and the timing of data collection are coordinated with the current surveys and census implemented by UBOS. In order to achieve its multiple objectives, the UNPS comprises a set of survey instruments, namely:

- Household Questionnaire,
- Woman Questionnaire,
- Agriculture Questionnaire, (administered to the subset of UNPS households engaged in agricultural activities) including a separate Livestock component starting in 2011/12,
- Community Questionnaire, and
- Market Questionnaire (not conducted in 2011/12 or 2013/14 or 2015/16).

1.3 Sample Refresh

Starting with the UNPS 2013/14 (Wave 4) fieldwork, one third of the initial UNPS sample was refreshed with the intention to balance the advantages and shortcomings of panel surveys. Each new household will be visited for three consecutive waves, while baseline households will have a longer history of five or six years, given the start time of the sample refresh. This same sample was used for the UNPS 2015/16 (Wave 5)

Once a steady state is reached, each household will be visited for three consecutive years, and at any given time one third of the households will be new, one third will be visited for the second time, and one third for the third (and last) time. The total sample will never be too different from a representative cross-section of the country, yet two-thirds of it will be a panel with a background of a year or two.

New households were identified using the updated sample frames developed by the UBOS in 2013 as part of the preparations for the 2014 Uganda Population and Housing Census.

1.4 Adopting the Dynasty Management System

Individuals and households have been retroactively grouped into “dynasties.” The focus is on interviewing and tracking *individuals*. Households are more accurately regarded as temporal constructs of individuals and are more aptly referred to as *household interviews*. Such a system allows data users to define their own criteria for household continuity across waves.

Each dynasty begins with one baseline household and includes all subsequent households that stem from it, as well everyone that lives in any of those households. Note that new EAs and households resulting from the panel refresh exercise are considered the first, or original, household of their respective dynasties. Each wave, household interviews uniquely identify a set of temporary conditions and composition, and so each household+wave pair has a unique household identification number (HHID). Every individual in the study has been assigned a unique personal identification number that fits within the dynasty system – this PID indicates the dynasty the individual initially belongs to, but does not provide any location-related information on the individual. Variables are provided this wave to clearly link new and old HHIDs and PIDs. The new IDs will not change for the duration of UNPS.

2 Survey Questionnaires – Review of Sections

As mentioned earlier, the UNPS had six questionnaires namely: Household Questionnaire; Woman Questionnaire; Agriculture & Livestock Questionnaire; Fisheries Questionnaire; Community Questionnaire and Market Questionnaire. Each of these questionnaires is divided into a number of sections and the number of questions in each section varies accordingly.

During the UNPS 2009/10 data collection, all the questionnaires were administered on paper. Starting with the 2010/11 wave of data collection, the Household and Woman questionnaires were administered using Computer Assisted Personal Interview (CAPI) software - CWEST application. The questionnaires were preloaded onto Ultra-Mobile Personal Computers (UMPCs) which capture the data directly during interviews eliminating the need for field data entry. In 2011/12, the Agriculture and Community questionnaires were also transitioned to CAPI, using the SurveyBe application. It should be noted that in 2013/14 and 2015/16, all questionnaires were administered using the CAPI software except the Fisheries and Market Questionnaires which were not administered.

2.1 Explanatory notes by Section – Household Questionnaire

Since the survey is conducted in such a way that two visits are made to each household over the 12 months period, for half the number of households in the EA, only the household roster information (Section 2) of the Household Questionnaire is collected during Visit 1. In such cases, the rest of the Household Questionnaire was completed approximately six months later during Visit 2 (see section 4 Field Work Organization for details). Sections 7, 13, and 18 were not administered during Wave 4 or 5. In various sections – housing and water conditions, education – response codes were revised to match those in UNHS 2012/13 and Census 2014.

As part of quality assurance during the Wave 5 data collection, information for key variables from the previous waves was also preloaded in the application to allow for verification of the information collected during the interview. The variables used included the (name, age, marital status, etc.) at individual level and (household enterprises that existed, assets owned, etc.) were some of the household level variables that were used.

Section 1A: Household Identification Particulars

Information in this section was provided to the field teams by the staff at the Headquarters (HQ) before starting data collection including the names and codes pertaining to the selected Enumeration Areas (EAs). An EA generally does not have its own name but is commonly known by the name of the Local Council 1 (LC1) that it is associated with.

Section 1B: Staff Details and Survey Time

This section comprises of details on particulars of team leader and interviewers, time taken to conduct interviews and the date on which the household questionnaire was administered in full. Information on the Visit during which the questionnaire was administered is also included.

In the data, Sections 1A and 1B have been consolidated, and a number variables are not disseminated to maintain the confidentiality of respondents. The public dataset includes a few additional variables for user reference, including variable *rotate*, which indicates whether the household was interviewed 2011/12 (='1') or whether the household was rotated in in 2013/14 (=0).

Section 2: Household Roster

The purpose of this section is to:

(i) Identify all persons who are members of the household;

(ii) Provide basic demographic information such as age, sex and marital status of each household member; and

(iii) Identify any changes in household members' composition between the first and second visits

The respondent for this section was mainly the household head. In the absence of the household head the next person who is acting as household head would be interviewed. ***It was a requirement that respondents must be a usual member of the household and should be capable of providing all the***

necessary information about other members of the household. Other household members also provide information or details on particular questions concerning them if present at the time of the visit.

In UNPS 2015/16, a **household** was defined as a group of people who ***normally*** live and eat their meals together for at least 6 months of the 12 months preceding the interview. Therefore, the member of the household is defined on the basis of how long they have lived in the household.

In this section information on each household member's relationship to the household head is also collected. There was some variation of how "child" was interpreted during data collection. It was intended to include everyone that the household head and spouse identify as their children – whether they are their biological children, step-children, adopted, etc. In practice most interviews limited the scope of "child" to include only biological children of the household head; in such cases, step children (the spouse's children) any adopted children, etc. are indicated as "other relative" on the roster.

Section 3: General Information on Household Members

This section captured general information on all usual and regular members of the household specifically on:

(i) Basic information on the parents of all household members (under 18 years), even if they do not live in the same household.

(ii) The salient moves (migration status) made by members of the household.

(iii) Malaria indicators: use and treatment of mosquito nets.

These questions applied to all members of the household. To the extent possible, each person was asked directly. If someone was not available or too young to answer then the household head, spouse, or another well-informed member of the household would answer these questions.

Section 4: Education

The purpose of this section was to measure the level of education or formal schooling of all household members and the educational expenditures associated for each individual. The minimum respondent age for this section was decreased to age 3 years and above, to capture early childhood education (pre-school). Information was mainly collected on (i) the literacy status of household members – i.e. member of the household who could read and write; (ii) the educational attainment of each respondent and the type of school attended; and (iii) amount spent on education of household members during the past 12 months.

Section 5: Health

This section collected information on illness and injuries among household members during the past 30 days, use of health facilities and medical expenses for treating the illnesses or injuries. The respondents for the section were all members of the household, but parents or a knowledgeable adult could answer for young children.

Section 6: Child Nutrition and Health

These questions were asked with a view of obtaining a better understanding of the child's nutritional status, vaccinations, etc. Only children aged from 0 to 59 months and living with a mother or caretaker in the sampled households are eligible for the questions. The questions were answered by the mothers /caretakers of the children because they are considered more knowledgeable about the children. Height and weight measurements were obtained for all children aged 6 to 59 months using anthropometric equipment.

Section 8: Labour Force Status

This section starts with a screen to determine which respondents should be asked about employment and which should be asked the questions that address labor force participation, unemployment, and job search. It also determines the reason for absence for those people who had a job or business but were not at work during the previous week. All household members aged ten (10) years and older were classified into three broad groupings i.e. employed, unemployed, and not in the labor force.

Employed persons were defined as those who were working at a paid job or business or who were working unpaid at a household business or farm **for at least one hour during the reference week**, or who did not work during the reference week but held a job or had a business from which they were temporarily absent.

Unemployed persons were classified as those individuals who did not work at all during the reference week and who were not absent from a job, but who actively looked for work during the past four weeks and were available to work in the reference week. Persons who were on laid-off from a job to which they expected to return and were available to work during the reference week are also classified as unemployed, even if they did not actively look for work. The sum of the employed and the unemployed constituted the **labor force**. (*Persons **not in the labor force** were those who were neither employed nor unemployed. They did not work, they were not absent from work and they did not actively look for work in the past four weeks).*

Section 9: Housing Conditions, Water and sanitation

Data from this section was aimed at measuring the socio-economic status of household by assessing the quality of housing occupied. Information was collected on the type of dwelling, occupancy status, the physical characteristics of the dwelling, and access to basic services (including water, electricity and sanitation). A dwelling was defined as a building or a group of buildings in which the household lived. It could be a hut, a group of huts, a single house, a group of houses, an apartment, several one-room apartments, etc.

Section 10: Energy Use

Information obtained in this section aimed at measuring the access and utilization of energy fuels, especially for lighting and cooking.

Section 11: Other Household Incomes

This section gathered information on income transfers i.e. all incomes of household members other than that from paid and/or self-employment during the past 12 months.

Section 12: Non-agricultural Enterprises/Activities

This section collected information on the presence of non-agricultural household enterprises. It includes information on income and employment derived from non-agricultural household enterprises and identifies the household member responsible for each enterprise in terms of decision making and the allocation of income generated. It also covered the involvement of household enterprises in the credit market. The respondent for each enterprise was a member of the household most knowledgeable about the activities of the enterprise.

An enterprise was defined as any undertaking which is engaged in the production and/or distribution of some goods and/or services meant mainly for the purpose of sale, whether fully or partly.

Section 14: Household Assets

This section aimed at collecting data to estimate the value of household, farm and non-farm enterprise assets. It also collected information on ownership of assets.

Section 15: Household Consumption Expenditure

This section covered expenditures of the household with different reference periods depending on the frequency of purchases. It is separated into six parts which include: (a) number of household members

present for meals; (b) food, beverages and tobacco consumed; (bb) food fortification; (c) non-durable goods and frequently purchased services; (d) semi-durable and durable goods and services; and (e) non-consumption expenditure.

The major emphasis of the section was mainly on consumption and not monetary expenditures. Although the two are very close, they are not the same. Household consumption expenditures in cash, kind or through barter were recorded for the household only. For bartered items the value of the item paid for (not the value one got in exchange) was recorded. Food, beverages or tobacco served to other members and guests in the household during the reference period were also included. The respondent for this section was the person (household member) who managed the household budget and was the best informed about the household's consumption expenditure.

Section 16: Shocks and Coping Strategies

Shocks were defined as events that happen suddenly. Usually they have a marked beginning and end. While they last for a short time, a few days or weeks, usually their effects are felt for a longer time. It was noted that a shock can be household specific or community wide. Examples of shocks include floods, rebel raids, livestock disease, fire, etc. For example, petty theft of household property was not considered as a shock.

Section 17: Welfare Indicators and Food Security

The purpose of this section was to collect information on vital needs and living conditions of households during the last 12 months. It provided additional information to assess household welfare. **Food security** was defined as the availability of food and one's access to it. A household was considered food secure when its occupants did not live in or fear of starvation.

Section 19: Link with the Agriculture Questionnaire

The purpose of this section was to assist the enumerator in determining which households would require agriculture and/or livestock questionnaires.

Table 1 : Organization of the UNPS 2015/16 Household Questionnaire

Section	*Level of Observation*	*Data File*	*Key Identifiers*
Household Identification Particulars	Household	GSEC1.dta	HHID
Household Roster	Individual	GSEC2.dta	PID
General Information on Household Members	Individual	GSEC3.dta	PID
Education	Individual	GSEC4.dta	PID
Health	Individual	GSEC5.dta	PID
Child Nutrition and Health	Individual	GSEC6_1.dta	PID
Child Nutrition and Health cont'd	Treatment Type	GSEC6_3.dta	PID h6q23_1
Labour Force Status	Individual	GSEC8.dta	PID
Housing Conditions, Water and Sanitation	Household	GSEC9_1.dta	HHID
Amount of drinking water used per day	Household	GSEC9B._3	HHID
Energy Use	Household	GSEC10_1.dta	HHID
Energy Use cont'd	Stove Type	GSEC10_2.dta	HHID h10q8_1
Energy Use cont'd	Fuel Type	GSEC10_3.dta	HHID h10q13
Other Household Income in Past 12 months	Income Type	GSEC11_1.dta	HHID
Other Household Income in Past 12 months	Income Type	GSEC11_2.dta	HHID
Non-Agricultural Household Enterprises/Activities	Enterprise	GSEC12_1.dta	HHID
Non-Agricultural Household Enterprises/Activities	Enterprise	GSEC12_2.dta	HHID h12q3a
Household Assets	Asset Type	GSEC14.dta	HHID h14q2
Household Assets	Asset Type	GSEC14B.dta	HHID HHASH_ID
Number of people present for meals	Household	GSEC15A.dta	HHID
Household Consumption Expenditures – Food, Beverages and Tobacco (Last 7 days)	Consumption Item	GSEC15B.dta	HHID itmcd
Food Fortification	Consumption Item	GSEC15BB.dta	HHID h15bqid
Food Fortification	Household	GSEC15BB_2.dta	HHID
Food Fortification	Consumption Item	GSEC15BB_3.dta	HHID PID
Household Consumption Expenditures – Non-Durable Goods and Frequently Purchased Services (Last 30 days)	Consumption Item	GSEC15C.dta	HHID itmcd
Household Consumption Expenditures – Semi-durable and Durable Goods & Services (Last 365 days) & Non-Consumption Expenditures (Last 365 Days)	Consumption Item	GSEC15D.dta	HHID itmcd
Non-consumption expenditure	Consumption Item	GSEC15E.dta	HHID h15eq2
Shocks and Coping strategies	Shock Type	GSEC16.dta	HHID shock_code
Welfare and Food Security	Household	GSEC17_1.dta	HHID
Welfare and Food Security cont'd	Month of Shock	GSEC17_2.dta	HHID h17q10b
Welfare and Food Security cont'd	No Food Reason	GSEC17_3.dta	HHID h17q11b
Welfare and Food Security cont'd	Food Shock	GSEC17_4.dta	HHID HHFoodShockID
Link with the Agriculture Questionnaire Welfare ConsExp_2016	Household Welfare ConsExp_2016	GSEC19.dta Welfare ConsExp_2016	HHID hh hh

2.2 Explanatory notes by section – Agriculture & Livestock Questionnaire

The purpose of the agricultural and livestock modules in the household survey were to give a better descriptive picture of Uganda's farm and livestock economy, and deeper insight into factors affecting farm incomes. These would include the influence of farmers' resources and marketing opportunities on farm-household income, and some sense of how farmers' situations have changed in the past few years.

The agriculture module was administered in two visits to the selected households. During the first visit, agricultural production data was collected on the second cropping season of 2014 (July – December 2014) while the second visit collected data on the first cropping season of 2015 (January – June 2014).

The first agricultural season normally refers to the growing cycle of temporary crops that are planted and harvested in the first half of the year, occasionally extending up to the end of June. It thus covers the period from January to June. The second agricultural season is generally the period from July to December. It should be noted that seasons are directly related to rains and only indirectly related to the growing cycle of crops. The first rains are generally longer than the second rains. However, some areas in Uganda like the Karamoja region have only one significant agricultural season.

Section 1A: Household Identification Particulars

Information in this section was provided to the field teams by the staff at the Headquarters (HQ) before starting data collection including the names and codes pertaining to the selected Enumeration Areas (EAs). An EA generally does not have its own name but is commonly known by the name of the Local Council 1 (LC1) that it is associated with.

Section 1B: Staff details and survey time

The Supervisors and interviewers were all required to record their particulars in this section. Time taken to conduct interviews was also recorded. Note that when administering the questionnaire using CAPI, Sections 1A and 1B are skipped, as they are auto-filled using the same information provided in the Household Questionnaire.

Section 2: Current land Holdings and land that the household accessed through use rights

The purpose of this section was to have a complete list of all parcels owned and/or operated as well as those rented by the household during the second season of 2014 and the first cropping season of 2015. This section captures information in two parts; Section 2 part A captures information concerning current land holdings and section 2 part B captures information pertaining to land that a household accesses

through use rights. The questions were administered to households who had been involved in crop farming during the last completed and the current cropping seasons. Information was collected on agricultural land that these households had access during the reference period. Issues of land tenure status and land user rights were also investigated. All of Section 2 is administered together, during Visit 1.

Section 3A & 3B: Agricultural and labour inputs

This section collected information on non-labor and labor input applications at the parcel-plot level during the second cropping season (July-December 2014) and first cropping season (January –June 2015) in part A and B, respectively.

Section 4A & 4B: Crops grown and type of seeds used

The purpose of this section was to collect information on crop cover of parcels farmed by the household. Data was collected on crops planted by the household during the second cropping season (July-December 2014) and first cropping season (January –June 2015) on each plot in parcels accessed by the household through ownership or user rights, in part A and B, respectively.

This wave, coffee crops are differentiated by type (Arabica and Robusta) as they are usually cash crop and have different market prices.

Section 5A & 5B: Quantification of Agricultural Production

Information on agricultural production is collected at the parcel-plot-crop-production level separately for the second cropping season (July-December 2014) and second cropping season (January –June 2015) in part A and B, respectively. This section also collects data on how the household used the harvested produce.

Sections 6A, 6B & 6C: Livestock ownership

The data on the ownership of (i) cattle and pack animals, (ii) small animals, and (iii) poultry and other animals was solicited in sections 6A, 6B, and 6C, respectively. Each section collects information on the dynamics of household livestock ownership at animal-type level over a given reference period, earnings from animal sales, and expenditures on animal purchases. If the household cared for animals that belonged to others, interviewers were instructed to record only ownership, sales and purchases of animals the household was entitled to keep; for instance, the young goats or sheep that the household keeps in return for caring the flock.

Section 7: Livestock Inputs

The purpose of this section was to estimate expenditure on inputs of livestock i.e. the expenditures necessary to raise the animals. This ranges from breeding, feeding, watering, housing, and animal health expenses incurred to rear the animals.

Section 8: Livestock Products

This section collected information on the production and sales of livestock by-products. The reference period was last 12 months for livestock and three months for poultry (eggs). These are covered in different sections (8A-8E) including production of Meat, Milk, Eggs, Dung and Animal power respectively.

Section 9: Extension Services

The section collected information on agricultural technology and extension services. It covered access to extension services and demand for agricultural technology. Extension workers were defined as individuals employed by the government or non-governmental organizations who work as an agricultural development agents for contacting and demonstrating improved farming methods to farmers. They are responsible for organizing, disseminating, guiding and introducing technical methods in agricultural production directly to farmers, and for facilitating farmers coming into contact with cultivation methods to promote agricultural production.

Section 10: Farm Implements and Machinery

This section collected information on agricultural implements and machinery. It collects information in regard to ownership and estimated value both in cash and in-kind of the implements and it has a reference period of 12 months.

Section 11: Animal Groups

This section collected information regarding the use or sell of animal products such as dung as well as use of animal power in areas such as transport, draughting, etc.

Table 2 : Organization of the UNPS 2015/16 Agriculture & Livestock Questionnaire

Section	***Level of Observation***	***Data File***	***Key Identifiers***
Household Identification Particulars	Household	AGSEC1.dta	HHID
Current Land Holdings - 1st/2nd Visit	Parcel	AGSEC2A.dta	HHID parcel ID
Land That the Household Has Access Through Use Rights - 1st/2nd Visit	Parcel	AGSEC2B.dta	HHID parcel ID
Agriculture and Labour Inputs – 1st Visit	Parcel-Plot	AGSEC3A.dta	HHID parcel ID plot ID
Crops Grown and Types of Seeds Used – 1st Visit	Parcel-Plot-Crop	AGSEC4A.dta	HHID parcel ID plot ID crop ID
Quantification of Production – 1st Visit	Parcel-Plot-Crop	AGSEC5A.dta	HHID parcel ID plot ID crop ID Production ID
Agriculture and Labour Inputs – 2nd Visit	Parcel-Plot	AGSEC3B.dta	HHID parcel ID plot ID
Crops Grown and Types of Seed Used – 2nd Visit	Parcel-Plot-Crop	AGSEC4B.dta	HHID parcel ID plot ID crop ID
Quantification of Production – 2nd Visit	Parcel-Plot-Crop	AGSEC5B.dta	HHID parcel ID plot ID crop ID Production2 ID
Livestock Ownership – Cattle and Pack Animals	Livestock Type	AGSEC6A.dta	HHID LivestockID
Livestock Ownership – Small Animals	Livestock Type	AGSEC6B.dta	HHID ALiveStock_Small_ID
Livestock Ownership – Poultry and Others	Livestock Type	AGSEC6C.dta	HHID APCode
Animal group roster	Livestock Type	AGSEC7A.dta	HHID AGroup_ID
Livestock Inputs	Livestock Input Type	AGSEC7B.dta	HHID AGroup_ID
Livestock Products	Livestock Product	AGSEC8(A-C).dta	HHID AGroup_ID
Extension Services	Extension Source	AGSEC9A & B.dta	HHID a9q2
Farm Implements and Machinery	Implement item	AGSEC10.dta	HHID A10itemcod
Animal Power	Livestock Type	AGSEC11.dta	HHID AGroup_ID

2.3 Explanatory notes by section – Community Questionnaire

The community survey aimed at collecting information relating to communities residing in the sampled EAs. The administrative unit for collection of community data was mainly the LC1, although there were some specific questions on works and transport for the Sub-county Chief. The community survey information was collected by interviewing key informants within the institutions of interest. These included community members and heads of selected facilities.

Section 1: Community Identification Particulars

All the information in this section was obtained from headquarters by field teams before starting data collection. A provision was made to record details for each of the subsequent 4 sectors on which data was collected. These included names of respondents and responses status for each sector.

Section 2: Availability of services within the community

The purpose of this section was to obtain general information on the social infrastructure nearest to the community. Information was collected from community leaders. The facilities on which data was collected included schools/other education facilities, banks, markets, agricultural and fisheries services, police and army facilities, various types of health facilities, water and sanitation facilities as well as works and transport services .

Section 3: Education (Primary)

Information for this section was provided by a knowledgeable school official preferably the headmaster or someone nominated by him/her. Data was collected on both the most popular and the nearest primary schools. These schools on which data was collected were not necessarily located within the LC1 covered.

Section 4: Health services

In this section, information was collected on the most commonly used public or private health facilities. The respondent for this section was an authorized or knowledgeable health official at the facility preferably the in-charge of the facility. The health facility considered was a place that had qualified doctors/nurses/medical attendants for treating patients including dressing and emergency attention facilities and would in addition be selling medicines to patients. Individual doctors, practitioners, etc., doing only consultation, with very limited supply of medicines were excluded. However, Doctors with moderate treatment and medical attention facilities were included.

Section 5: Works and Transport

The respondent for this section was the sub-country chief. Information was mainly collected on the availability, use and maintenance of works and transport infrastructure.

Section 6: Community Characteristics, Groups, needs and resources

The respondent to this section is a group of community members. Information was collected on the number of households in the community and land use. Information is also collected on the different community groups, NGOs working within the community, the community needs, actions and achievements as well as communal resource management.

Table 3 : Organization of the UNPS 2015/16Community Questionnaire

Section	***Level of Observation***	***Data File***	***Key Identifiers***
Identification Particulars	EA	CSEC1.dta	Villagecode
Service Availability in LC1	Service type	CSEC 2a.dta	Villagecode CFService_ID
Client satisfaction with health facilities	EA	CSEC 2b_1.dta	Villagecode
Water and Sanitation	EA	CSEC2c_1.dta	Villagecode
Types of toilets in Community	Toilet facility type	CSEC2c_2.dta	Villagecode Toilet_Facilities_ID
Primary school identification and management	EA	CSEC3A_1.dta	Villagecode
Availability of Facilities at School	Facility type	CSEC3A.dta	Villagecode School_ID
Condition of toilets at the School	EA	CSEC3B_1.dta	Villagecode
Water facilities at the School	Water facility type	CSEC3C.dta	Villagecode Water_facilities_ID
Payment for Services by Parents/Guardians	Payment ID	CSEC3D.dta	Villagecode Payment_ID
Academic Performance of pupils in PLE	Year	CSEC3E.dta	Villagecode C3E_Year
Incidence of leaving school prematurely	Year	CSEC3F.dta	Villagecode C3F_Year
School meetings	Type of meeting	CSEC3G.dta	Villagecode SchoolMeeting_ID
Staffing at the School	Staffing position	CSEC3H.dta	Villagecode PositionID
Supervision/Monitoring of School during last 12 months	Supervisor/monitor	CSEC3I.dta	Villagecode School_Monitoring_ID
Problems/constraints faced by School	Problem type	CSEC3J.dta	Villagecode Problems_ID
Learner attendance, Teacher presence and qualifications and other classroom elements	Class	CSEC3K.dta	Villagecode Class_ID
Accountability in school	EA	CSEC3L_1.dta	Villagecode
Addressing absenteeism in school	EA	CSEC3M.dta	Villagecode
Health facility identification & management. Work at Night. Availability of equipment/ services.	EA	CSEC4A_1 & 4B_1.dta	Villagecode
Services offered by Health facility	Service type	CSEC4C.dta	Villagecode Healthservice_ID
Common diseases reported at Health facility	EA	CSEC4D.dta	Villagecode

Common diseases reported at Health facility	Disease type	CSEC4D_1.dta	Villagecode OtherDiseaseID
Common stock-outs reported by Health Facility	Drug supplies	CSEC4E.dta	Villagecode Common_Stock_ID
Items bought by patients visiting the Health facility	EA	CSEC4F_1.dta	Villagecode
Deliveries at the facility	EA	CSEC4G_1.dta	Villagecode
Validation of HMIS	Data element	CSEC4H.dta	Villagecode HSD_ID
Validation of HMIS	EA	CSEC4H_1.dta	Villagecode
Epidemic reporting	EA	CSEC4I_1.dta	Villagecode
General operations	EA	CSEC4J_1.dta	Villagecode
Sanitary Facilities Available at the Health Facility	Water facility type	CSEC4K.dta	Villagecode Health_Water_ID
Access to Water at the Health facility	EA	CSEC4K_1.dta	Villagecode
Factors Limiting provision of Health Services	Limiting factor	CSEC4L.dta	Villagecode limiting_ID
Supervision/Monitoring of Health Facility	Supervisor/monitor	CSEC4M.dta	Villagecode Supervisor_ID
Village Health Teams	EA	CSEC4N_1.dta	Villagecode
Staffing at the Health Facility	Positions	CSEC4O_2.dta	Villagecode position_ID
List of Medical Staff working at the Facility	Medical staff visit	CSEC4O.dta	Villagecode medical_staff_ID
Addressing absenteeism at the Facility	EA	CSEC4Q_1.dta	Villagecode
Accountability in the Health facility	EA	CSEC4P_1.dta	Villagecode
Works and Transport Respondent	EA	CSEC5Q_1.dta	Villagecode
Infrastructure availability and condition	Item type	CSEC5A.dta	Villagecode Infrastructure_ID
Maintenance and Repair of Infrastructure	Item type	CSEC5B.dta	Villagecode Infrastructure_ID
Funding for Maintenance of Roads/Bridges/Culverts	Item type	CSEC5C.dta	Villagecode Infrastructure_ID
Constraints faced in the maintenance/repair of roads	Item type	CSEC5D.dta	Villagecode Roads_ID
Accountability in the subcounty and rating of overall performance of the subcounty administration	EA	CSEC6F_1.dta	Villagecode
Community characteristics	Type	CSEC6A_1.dta	Villagecode

Community groups	Group code	CSEC6B.dta	Villagecode Community_groups_ID
NGOs in the community	ngo	CSEC6C.dta	Villagecode NGO_ID
Community Needs, Actions and Achievements	item	CSEC6D.dta	Villagecode community_needs_id
Communal Resource Management	resource	CSEC6E.dta	Villagecode Communal_Resource_ID

2.4 Explanatory notes by section – Woman Questionnaire

The intention of the Woman module in the household survey was to gather information relating to knowledge and contraceptive use among women as well as their birth history. This questionnaire was administered to all women in the households aged 15-49 years. Every effort is made to conduct the Woman's interview in private, with no other people present.

Section 1a: Household identification particulars

Using CAPI, the Woman Questionnaire is administered as a subset of the Household Questionnaire. Relevant variables needed to identify women in a household that are eligible to participate were essentially pre-loaded into the Woman Questionnaire via CAPI from the Household roster.

Section 2: Age and Marital status

Information on the woman's current age and current marital status was asked in this section. The interviewer would ask the respondent their current age; the age at first marriage; the age of the first partner when they first started living together and the woman's current marital status.

Section 3: Contraception

Information on contraceptives was collected by asking respondents about their knowledge and use of various methods that exist for avoiding or delaying pregnancy. The interviewers would ask the respondent if they are currently pregnant. The respondents were further asked if they have ever used each of the methods and which ones (if any) that they are currently using with their partner.

Section 4: Fertility

The purpose of this section was to obtain information on the birth history of respondents. Information was mainly collected on whether the respondent has ever given birth, the number of children ever born whether dead or alive, living with the respondent or away from the respondent, as well as birth information on last child born in the last five years (whether living or dead).

Section 5: Unmet need for family planning

This section collected information on the whether the woman wanted her current pregnancy as well as the woman's physical ability to get pregnant.

Table 4 : Organization of the UNPS 2015/16 Woman's Questionnaire

Section	Level of Observation	Data File	Key Identifiers
Section 1: Woman Identifier particulars	Individual	WSEC1A	HHID PID
Section 2: Age and Marital status	Individual	WSEC2	PID
Section 3: Contraception	Individual	WSEC3	PID
Section 4: Fertility	Individual	WSEC4	PID
Section 5: Unmet need for family planning	Individual	WSEC5	PID

3 Other related instructions/codes

3.1 Area Measurement using Global Positioning System (GPS)

The GPS was used to collect information on household location and to measure parcel area for land owned and/or operated by agricultural households located within the EA. The GARMIN 12 hand-held Global Positioning System (GPS) equipment was used. The GPS equipment is in principle a high precision digital watch combined with a signal receiver. Details on GPS equipment were well documented and rigorous training on use of GPS was given to the interviewers before actual data collection. With CAPI, GPS measurements could be recorded in one of two ways. Ideally, GPS devises were directly connected to the UMPCs via a Bluetooth connection, thus allowing the GPS coordinates to be automatically stored. In cases where the Bluetooth connection was not working, enumerators were responsible for reading the GPS coordinates manually and enter them into the CAPI-based interview program.

For a more detailed description of how the publicly-available GPS readings were constructed, see Annex 3 on Geospatial Variables.

3.2 Other Codes

There were a number of sections for which the respective codes could not fit within the cell/page where the question was located. For these questions, a separate code sheet was provided in the instructions manual. These code lists included:

- Reason for staying in the household for less than 12 months
- Highest level of education attained
- Current schooling status
- Ethnicity
- International Standard Classification of Occupations (ISCO)
- International Standard Industrial Classification (ISIC)
- Units of Quantity
- Crop Codes
- Condition and state of crops harvested

4 Field Work Organization

Prior to starting data collection, field staff were trained for a period of approximately four weeks with practical sessions to introduce the concept of CAPI (Computer Assisted Personal Interviews) using the CWEST newly developed dynasty system and SurveyBe software on the UMPCs. The structure of the implementation of the UNPS 2015/16 consisted of 9 mobile field teams, each of which comprised of a driver, a supervisor, and three enumerators. Each mobile team had a vehicle, UMPCs and GPS units, and anthropometric equipment (height and weight scales). All data was captured directly on the UMPCs using CWEST and SurveyBe. The data collected was electronically sent from the field at the conclusion of interviews for each EA.

The teams spend between two to three weeks collecting data during a trip each month. At the end of each trip, the teams report back to Headquarters for debriefing and discussion of any challenges. The main field work, which lasted from February 2015 to February 2016, comprised of two six-month phases. All households were visited once in each phase with exception of some split-off individuals identified in phase 1 who were visited only once in the 12-month period during phase 2. This was mostly due to issues related to tracking long-distance cases (see section 4.1 for details).

The fieldwork was designed in a two-phase format in order to accommodate the difficulties associated with solicitation of information on agriculture since Uganda has two agricultural seasons. The first season runs from February to July/August and the second from August/September to December. To collect accurate information for each of the two agricultural seasons and minimize recall associated with agricultural decisions that the survey seeks information on, the households with the exception of some split-off cases noted above, were visited twice in the course of 12 months.

In each cluster, during the Visit 1, the household questionnaire was fully administered to approximately half of the households randomly selected while only the roaster was updated for these households during visit 2. The other half of the sample in the cluster received only the household roster along with the first half of the agriculture questionnaire (if it was engaged in agricultural activities) in visit 1, while the rest of the household questionnaire and roster update were administered during visit 2. This organization attempts to ensure an even distribution of households that reported information on household consumption in each month of the main field work. Given the CAPI system being used, the information solicited from each household in visit 1 is uploaded for visit 2.

Each of the 9 teams was assigned a number of dynasties containing the households/individuals to be interviewed within a particular visit, based on when it was covered during the previous wave, after which they were re-visited after six months.

4.1 Tracking

Tracking considers the mobility of the target population, the success with which those who move are found and interviewed, and the number of refusals. In Wave 4, tracking was done at the individual-level. It aimed at locating members in the locations where they were last interviewed. If core members of a household had since moved, then they were targeted for individual tracking. However, no tracking was done for persons in had households that belong to the EAs used to refresh the sample.

Prior to the UNPS 2009/10 field work, 20% of households (two per EA) were randomly selected for purposes of tracking individuals that had moved from original locations since UNHS 2005/06. These were the only households tracked even if they had moved beyond their original EA/parish, they maintained the "target tracking" status during Wave 2 (2010/11), Wave 3 (2011/12) & Wave 4 (2013/14).

Households were defined as follows:

- ***Original households*** are those that are located in the same dwelling/location with household membership composition sufficiently similar to that at the baseline period (UNHS 2005/06). This usually, but not always, includes having the same household head as before, or a current household head that was previously a household member.

- **Movers/shifted households** are those that have moved from their original household to another location. In prior waves, movers were tracked and interviewed if they moved somewhere else within Uganda, even if they were *not* selected as part of the target tracking sample.

- ***Split-offs households*** are those where a member(s) of the original household split from the original household to form another, separate household. In prior waves, split-offs were only tracked and interviewed if they moved to somewhere else within Uganda and were previously selected as part of the target tracking sample. Split-offs could originate from both original and shifted households, though the only household members eligible for target tracking as split-offs were the household head and individuals related to them such as spouse, biological children, parents of the head or spouse, etc. (codes 1-7 of Section 2 Question 4 in the household questionnaire). Servants, other relatives and non-relatives (codes 8-96) were not tracked.

For Wave 4 fieldwork, the scope of target tracking was expanded to include:

- All households (original, movers or split-offs) that were interviewed during Wave 2 and/or Wave 3 and/or Wave 4 and still live in Uganda, regardless of location or distance from original household location.

- In those households, the only individuals marked for tracking are the previous wave's household head, spouse, and children over age 15. (See explanatory notes on Household Questionnaire, Section 2: Roster for further details on how children were defined.) Other household members were not tracked beyond their known location from the previous wave – they were only included in interviews if they still lived with one of these "core" members. "Previous wave" is defined as the last time that household was interviewed – in this case, Wave 4 (2013/14); in others Wave 3 (2011/12); and/or, Wave 2 (2010/11). If they were last interviewed in Wave 0 or Wave 1, they were excluded from the survey at this time.

- If the Wave 4 household itself is already a split-off from a prior original household and the head, spouse and children have not immediate relationship to the head, spouse or children of the original household, they are still considered core members and will be tracked.

- The one-third of the original sample households that have been rotated out as part of the panel refresh are no longer tracked or interviewed at all.

- The new one-third of the sample rotated in as part of the panel refresh is not tracked beyond their location indicated during the listing exercise in late 2013. However, if the entire household has shifted, then a tracking form should be filled (in case the household is tracked during the next wave). No "split-offs" are tracked for these households, thus new EAs have only one household interview per dynasty at the end of Wave 4.

Initial "tracking" of Households and Individuals

The target sample for Wave 5 was all the "core members" of households as defined above. The field teams attempted to locate or "track" these core members at their last known location. As the focus of the data collection is individuals, if none of the core members were residing at the last known location, then that household was not interviewed, even if other previous household members still lived there. On the other hand, if any of the core members still resided at that location, an interview was conducted. For each core member that had moved away, a tracking form was completed. Anytime a core member is located, either at their previously known or new location, then a household interview is started. Although the target sample comprises of only core members of each household, the overall household sample data includes

all persons that live with these core members during Wave 5. Failure to locate an individual could be due to shifting to an unknown location, refusal or death, among others.

Tracking Individuals

When a core member is not found at the known location, all the contact information about this split-off/mover as well information on their new location from their previous household members or any other knowledgeable person is gathered to enable full tracking. This information is filled in a CAPI questionnaire called the individual tracking form, which creates a location record for every individual that has to be tracked beyond the last-known location. Based on the details filled in this questionnaire, the mover is contacted if contacts were available, traced based on the location details and relevant information and then interviewed. The interviewed split-offs/movers along with all the members of the new household that they form or have joined at the time of the UNPS 2015/16 then became part of the UNPS sample. If they are “core members” of that household – head, spouse, or biological children – they will be interviewed in the subsequent waves of the UNPS, even if they shift to different locations.

5 Linking Data from all the Waves (UNHS 2005/06, UNPS 2009/10,UNPS 2010/11, UNPS 2011/12 , UNPS 2013/14 & UNPS 2015/16

The data from the UNHS 2005/06 sample comprising of 3,123 households and 322 EAs that were selected for purposes of the UNPS 2009/10 are already publicly available. In addition, data for UNPS 2009/10, 2010/11, 2011/12 and 2013/14 has also been made available to the public free of charge. For a more detailed explanation of those datasets, see the Basic Information Documents (BIDs) of those waves. For the purpose of documentation, the UNHS 2005/06 sub-sample that was selected for the UNPS is referred to as Wave 0.

Data across all waves can be linked through the unique household identifier (**HHID**), the unique individual identifier (**PID**), and the unique community identifier (**Villagecode**), respectively. Under the dynasty system, each household in each wave was given a unique HHID, and can be linked across waves using the HHIDs and PIDs. This can be done by using the previous wave's HHIDs and PIDs of any individual household member depending on the data user's objectives. Given the attrition at the household- and individual-levels, and the inclusion of new EAs, households, and individuals to the UNPS sample in accordance with the protocols described above, matching data across all waves at the household- and individual-levels will not be perfect.

6 References

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Annex 1. Codes for Unit of Quantity

No.	UNIT	CODE
1	Kilogram (kg)	01
2	Gram	02
3	Litre	03
4	Small cup with handle (Akendo)	04
5	Metre	05
6	Square metre	06
7	Yard	07
8	Millilitre	08
9	Sack (120 kgs)	09
10	Sack (100 kgs)	10
11	Sack (80 kgs)	11
12	Sack (50 kgs)	12
13	Sack (unspecified)	13
14	Jerrican (20 lts)	14
15	Jerrican (10 lts)	15
16	Jerrican (5 lts)	16
17	Jerrican (3 lts)	17
18	Jerrican (2 lts)	18
19	Jerrican (1 lt)	19
20	Tin (20 lts)	20
21	Tin (5 lts)	21
22	Plastic Basin (15 lts)	22
23	Bottle (750 ml)	23
24	Bottle (500 ml)	24
25	Bottle (350 ml)	25
26	Bottle (300 ml)	26
27	Bottle (250 ml)	27
28	Bottle (150 ml)	28
29	Kimbo/Cowboy/Blueband Tin (2 kg)	29
30	Kimbo/Cowboy/Blueband Tin (1 kg)	30
31	Kimbo/Cowboy/Blueband Tin (0.5 kg)	31
32	Cup/Mug (0.5 lt)	32
33	Glass (0.25 lt)	33
34	Ladle (100 g)	34
35	Table spoon	35
36	Tea spoon	36
37	Basket (20 kg)	37
38	Basket (10 kg)	38
39	Basket (5 kg)	39
40	Basket (2 kg)	40
41	Loaf (1 kg)	41
42	Loaf (500 g)	42
43	Buns (200 g)	43
44	Buns (100 g)	44

No.	UNIT	CODE
44	Buns (100 g)	44
45	Buns (50 g)	45
46	Bathing soap (Tablet)	46
47	Washing soap (Bar)	47
48	Washing soap (Tablet)	48
49	Packet (2 kg)	49
50	Packet (1 kg)	50
51	Packet (500 g)	51
52	Packet (250 g)	52
53	Packet (100 g)	53
54	Packet (Unspecified)	54
55	Fish – Whole (Up to 1 kg)	55
56	Fish – Whole (1 - 2 kg)	56
57	Fish – Whole (Above 2 kg)	57
58	Fish - Cut piece (Up to 1 kg)	58
59	Fish - Cut piece (1 - 2 kg)	59
60	Fish - Cut piece (Above 2 kg)	60
61	Tray of 30 eggs	61
62	Ream	62
63	Crate	63
64	Heap (Unspecified)	64
65	Dozen	65
66	Bundle (Unspecified)	66
67	Bunch (Big)	67
68	Bunch (Medium)	68
69	Bunch (Small)	69
70	Cluster (Unspecified)	70
71	Gourd (1 – 5 lts)	71
72	Gourd (5 – 10 lts)	72
73	Gourd (Above 10 lts)	73
74	Gologolo (4 - 5 lts)	74
75	Calabash (1 - 5 lts)	75
76	Calabash (Above 5 lts)	76
77	Jug (2 lts)	77
78	Jug (1.5 lts)	78
79	Jug (1 lt)	79
80	Tot (50 ml)	80
81	Tot (sachet)	81
82	Tot (Unspecified)	82
83	Tobacco leaf (Number)	83
84	Pair	84
85	Number of Units (General)	85
86	Acre	86
87	Other Units (Specify)	99

Annex 2. Crop Codes

Ser. no.	Crop name	Crop code		Ser. no.	Crop name	Crop code
1	Wheat	111		31	Oranges	700
2	Barely	112		32	Paw paw	710
3	Rice	120		33	Pineapples	720
4	Maize	130		34	Banana food	741
5	Finger millet	141		35	Banana beer	742
6	Sorghum	150		36	Banana sweet	744
7	Beans	210		37	Mango	750
8	Field peas	221		38	Jackfruit	760
9	Cow peas	222		39	Avocado	770
10	Pigeon peas	223		40	Passion fruit	780
11	Chick peas	224		41	Coffee all	810
12	Groundnuts	310		42	Cocoa	820
13	Soya beans	320		43	Tea	830
14	Sunflower	330		44	Ginger	840
15	Simsim	340		45	Curry	850
16	Cabbage	410		46	Oil palm	860
17	Tomatoes	420		47	Vanilla	870
18	Carrots	430		48	Black wattle	880
19	Onions	440		49	Other	890
20	Pumpkins	450		50	Natural pastures	910
21	Dodo	460		51	Improved pastures	920
22	Eggplants	470		52	Fallow	930
23	Sugarcane	510		53	Bush	940
24	Cotton	520		54	Natural forest trees	950
25	Tobacco	530		55	Plantation trees	960
26	Irish potatoes	610		56	Bamboo	970
27	Sweet potatoes	620		57	Other forest trees	990
28	Cassava	630				
29	Yam	640				
30	Coco yam	650				

Annex 3. Confidential Information, Geospatial Variables

The Uganda National Panel Survey (UNPS) collects confidential information on respondents. The confidential variables include (i) names of the respondents to the household and community questionnaires, (ii) village names, (iii) descriptions of household dwelling and agricultural parcel locations, (iv) phone numbers of household members and their reference contacts, (v) GPS-based household and agricultural parcel locations, (vi) names of field staff. To maintain the confidentiality of our respondents, certain parts of the UNPS database are not publicly available.

To enhance the use of UNPS data, a set of geospatial variables has been generated using the geo-referenced plot and household locations in conjunction with various geospatial databases that were available to the survey team. These include simple measures of distance, climatology, soil and terrain and other environmental factors. The variables are intended to provide some understanding of how geophysical characteristics vary across households and between communities.

All geospatial variables have been produced using the unmodified GPS data. Most of the underlying datasets are static (with exception of time-series), so the values should be largely unchanged relative to year 1, for non-mover households. Note that there may be some variation due to GPS data entry error, differences in data collection procedure, and technical limitations of the device. Geospatial variables are provided in the file UGA_HouseholdGeovariables_Y1.

UGA_HouseholdGeovariables_Y3

The household-level file, *UGA_HouseholdGeovariables_Y2,* contains a range of variables measuring (on the basis of the household dwelling) distance to other features, climatology, landscape typology, soil and terrain, and growing season parameters. The observations are uniquely identified by **HHID**.

This file also contains modified GPS coordinates, which enable users to generate their own spatial variables while preserving the confidentiality of sample households and communities. Following the method developed for the Measure DHS program, the coordinate modification strategy relies on random offset of cluster center-point coordinates (or average of household GPS locations by EA in the UNPS-Panel) within a specified range determined by an urban/rural classification. For urban areas a range of 0-2 km is used. In rural areas, where communities are more dispersed and risk of disclosure may be higher, a range of 0-5 km offset is used. An additional 0-10 km offset for 1% of rural clusters effectively increases the known range for all rural points to 10 km while introducing only a small amount of noise. Offset points

are constrained at the state level, so that they still fall within the correct state for spatial joins, although boundary precision may be an issue for clusters located very close to the border.

In this wave of panel data collection some households are tracked to a new location. These include both local and long-distance moves, although a majority of tracked households are within 5 km of the original location. The public coordinates for new locations that are within 5 km of the original household location remain unchanged (modified coordinates of original sample EA). The public coordinates of tracked households that are more than 5 km from original location are assigned a new offset location, according to the method described above. Additionally, the distance from original location is provided for tracked households with new locations.

The result is a set of coordinates, representative at the cluster level, that fall within known limits of accuracy. Users should take into account the offset range when considering different types of spatial analysis. Analysis of the spatial relationships between locations in close proximity would not be reliable. However, spatial queries using medium or low resolution datasets should be minimally affected by the offsets. Zonal statistics (average or range of values within an area corresponding to the known range) could help minimize the effect of offsets when combining with large scale data or high resolution grids with a high degree of local variation. .

Table: UGA_HouseholdGeovariables_Y3

Theme	Source	Dataset Title	Variable Name	Variable Type	Reference Period	Resolution	Description	Web
	AICD & RAFU	Household Distance to Main Road	dist_road	Continuous	N/A	N/A	Household distance to nearest international or national trunk road (functional class A, B)	
	CityPop and UBOS	Household Distance to Towns	dist_popcenter	Continuous	2011	N/A	Household distance to nearest town of >20,000 based on 2011 projections from UBOS	http://www.citypop.de/
	USAID FEWSNET	Household Distance to Key Market Centers	dist_market	Continuous	N/A	N/A	Household distance to nearest major market (FEWSNET key market centers)	http://www.fews.net/Pages/marketcenter.aspx?loc=3&gb=ug&l=en
	Tracks for Africa, PADKOS	Household Distance to Border Posts	dist_borderpost	Continuous	N/A	N/A	Household distance to nearest land border crossing on main road	http://tracks4africa.co.za/listings/
	UN COD-FOD	Household Distance to District Capital	dist_admctr	Continuous	N/A	N/A	Household distance to to the headquarter of the district of residence, according to 2006 district boundaries	http://cod.humanitarianresponse.info/
Climatology	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_1	Continuous	1960-1990	0.008333 dd	Average annual temperature calculated from monthly climatology, multiplied by 10 (°C)	http://www.worldclim.org/bioclim
	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_8	Continuous	1960-1990	0.008333 dd	Average temperature of the wettest quarter, from monthly climatology, multiplied by 10. (°C)	http://www.worldclim.org/bioclim
	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_12	Continuous	1960-1990	0.008333 dd	Total annual precipitation, from monthly climatology (mm)	http://www.worldclim.org/bioclim
	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_13	Continuous	1960-1990	0.008333 dd	Precipitation of wettest month, from monthly climatology (mm)	http://www.worldclim.org/bioclim
	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_16	Continuous	1960-1990	0.008333 dd	Precipitation of wettest quarter, from monthly climatology (mm)	http://www.worldclim.org/bioclim
Landscape Typology	ESA and UC Louvain	GlobCover v 2.3	fsrad3_lcmaj	Categorical	2009	0.002778 dd	Majority landcover class within approximately 1km buffer	http://ionia1.esrin.esa.int/
	ESA and UC Louvain	GlobCover v 2.3	fsrad3_agpct	Continuous	2009	0.002778 dd	Percent under agriculture within approx 1 km buffer	http://ionia1.esrin.esa.int/
	IFPRI	IFPRI standardized AEZ based on elevation, climatology	ssa_aez09	Categorical		0.008333 dd	Agro-ecological zones created using WorldClim climate data and 0.0833dd resolution LGP data from IIASA.	http://harvestchoice.org/production/biophysical/agroecology

Theme	Source	Dataset Title	Variable Name	Variable Type	Reference Period	Resolution	Description	Web
Soil & Terrain	NASA	SRTM 90m	srtm_uga	Continuous		0.000833 dd	Elevation (m)	ftp://xftp.jrc.it/pub/srtmV4/arcasci/
	USGS	Slope (percent)	slopepct_uga	Continuous		0.008333 dd	Derived from 90m SRTM, aggregated to 1km block	http://pubs.usgs.gov/of/2007/1188/, data provided USGS upon request
	AfSIS	Topographic Wetness Index	twi_uga	Continuous		0.000833 dd	Downloaded from AfSIS website. Derived from modified 90m SRTM. Local upslope contributing area and slope are combined to determine the potential wetness index: WI = ln (A s / tan(b)) where A s is flow accumulation or effective drainage area and b is slope gradient.	http://www.ciesin.columbia.edu/afsis/bafsis_fullmap.htm#
	LSMS-ISA	Terrain Roughness	srtm_uga_5_15	Categorical		0.000833 dd	Derived from 90m SRTM using 15 Meybeck relief classes and 5x5 pixel neighborhood	
	FAO	Harmonized World Soil Database	SQ1	Categorical		0.083333 dd	Nutrient availability	http://www.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/
	FAO	Harmonized World Soil Database	SQ2	Categorical		0.083333 dd	Nutrient retention capacity	http://www.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/
	FAO	Harmonized World Soil Database	SQ3	Categorical		0.083333 dd	Rooting conditions	http://www.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/
	FAO	Harmonized World Soil Database	SQ4	Categorical		0.083333 dd	Oxygen availability to roots	http://www.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/
	FAO	Harmonized World Soil Database	SQ5	Categorical		0.083333 dd	Excess salts	http://www.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/
	FAO	Harmonized World Soil Database	SQ6	Categorical		0.083333 dd	Toxicity	http://www.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/

Theme	Source	Dataset Title	Variable Name	Variable Type	Reference Period	Resolution	Description	Web
	FAO	Harmonized World Soil Database	SQ7	Categorical		0.083333 dd	Workability (constraining field management)	http://www.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/
Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	anntot_avg	Continuous	2001-2010	0.1 dd	Avg 12-month total rainfall (mm) for Jan-Dec	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	wetQ_avg	Continuous	2001-2010	0.1 dd	Avg rainfall (mm) in wettest quarter within Jan-Dec, or Jan-Jun for bimodal	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	wetQ_avgstart	Continuous	2001-2010	0.1 dd	Avg start of wettest quarter in dekads 1-36, where first week of January = 1	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	anntot_2011	Continuous	2011	0.1 dd	12-month total rainfall (mm) in Jan-Dec, starting January 2011	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	wetQ_2011	Continuous	2011	0.1 dd	Rainfall (mm) in wettest quarter within Jan-Dec 2011, or Jan-Jun for bimodal	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	wetQstart_2011	Continuous	2001-2010	0.1 dd	Start of wettest quarter in dekads 1-36, where first week of January 2011 = 1	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	wetQ2_avg	Continuous	2001-2010	0.1 dd	Avg rainfall in wettest quarter in second growing season Jul-Dec, bimodal only	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	wetQ2_avgstart	Continuous	2011	0.1 dd	Avg start of wettest quarter in second growing season in dekads, bimodal only	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	wetQ2_2011	Continuous	2011	0.1 dd	Rainfall (mm) in wettest quarter in second growing season of 2011, bimodal only	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/
	NOAA CPC	Rainfall Estimates (RFE)	wetQ2start_2011	Continuous	2011	0.1 dd	Start of wettest quarter in second growing season in dekads 19-36, bimodal only	ftp://ftp.cpc.ncep.noaa.gov/fews/newalgo_est_dekad/

Theme	Source	Dataset Title	Variable Name	Variable Type	Reference Period	Resolution	Description	Web
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	rf_regime	Categorical	2001-2010	0.004176 dd	District-level assignment of predominantly bi-modal or uni-modal growing season, derived from phenology data	
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	eviarea_avg	Continuous	2001-2010	0.004176 dd	Avg total change in greenness in main, or first, growing season, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	evimax_avg	Continuous	2001-2010	0.004176 dd	Avg EVI value at peak in main, or first, growing season, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	grn_avg	Continuous	2001-2010	0.004176 dd	Avg onset of greenness increase in day of year 1-356, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	sen_avg	Continuous	2001-2010	0.004176 dd	Avg onset of greenness decrease in day of year 1-356, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	eviarea_2011	Continuous	2011	0.004176 dd	Total change in greenness within main, or first, growing season 2011	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	evimax_2011	Continuous	2011	0.004176 dd	EVI value at peak of greenness within main, or first, growing season 2011	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	grn_2011	Continuous	2011	0.004176 dd	Onset of greenness increase in day of year in 2011, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	sen_2011	Continuous	2011	0.004176 dd	Onset of greenness decrease in day of year in 2011, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	eviarea2_avg	Continuous	2001-2010	0.004176 dd	Avg total change in greenness in second growing season, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	evimax2_avg	Continuous	2001-2010	0.004176 dd	Avg EVI value at peak in second growing season, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005

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	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	grn2_avg	Continuous	2001-2010	0.004176 dd	Avg onset of greenness increase in second growing season, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	sen2_avg	Continuous	2001-2010	0.004176 dd	Avg onset of greenness decrease in second growing season, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	eviarea2_2011	Continuous	2011	0.004176 dd	Total change in greenness within second growing season of 2011	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	evimax2_2011	Continuous	2011	0.004176 dd	EVI value at peak of greenness within second growing season of 2011	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	grn2_2011	Continuous	2011	0.004176 dd	Onset of greenness increase in second growing season of 2011, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005
	NASA / Boston University	MOD12Q2 Land Cover Dynamics (PHENOLOGY)	sen2_2011	Continuous	2011	0.004176 dd	Onset of greenness decrease in second growing season of 2011, avg by district	ftp://e4ftl01.cr.usgs.gov/MOTA/MCD12Q2.005