

NATIONAL BUREAU OF STATISTICS

Basic Information Document

National Panel Survey (NPS 2019-2020)
Extended Panel with Sex-Disaggregated Data

September, 2021

2019-2020

[UNITED REPUBLIC OF TANZANIA]

ACRONYMS

BHPS	-	British Household Panel Survey
BID	-	Basic Information Document
CAPI	-	Computer-Assisted Personal Interviewing
DEFF	-	Design Effect
EA	-	Enumeration Area
GPS	-	Global Positioning System
HHID	-	Household Identification
ILO	-	International Labour Organisation
ISIC	-	International Standard Industry Codes
JMP	-	Joint Monitoring Plan
LSMS-ISA	-	Living Standards Measurement Study-Integrated Surveys on Agriculture
MKUKUTA	-	National Strategy for Growth and Reduction of Poverty
MMMP	-	Monitoring Master Plan
NBS	-	Tanzania National Bureau of Statistics
NGO	-	Non-Governmental Organization
NPS	-	Tanzania National Panel Survey
PSID	-	Panel Study of Income Dynamics
SACCO	-	Savings and Credit Cooperative Organization
SDD	-	Sex Disaggregated Data
SE	-	Standard Error
TASCO	-	Tanzania Standard Classification of Occupation
UNICEF	-	The United Nations Children's Fund
VEO	-	Village Executive Officer
WHO	-	The World Health Organization

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Background

The National Panel Survey (NPS) was originally launched in Tanzania in 2008, with support from the Living Standards Measurement Survey – Integrated Surveys on Agriculture [LSMS-ISA¹] program at the World Bank and other donors. Four rounds of the NPS have been implemented by the Tanzania National Bureau of Statistics (NBS). The first round of the survey was conducted in 2008/09, the second round in 2010/11, the third round in 2012/13 and the fourth round in 2014/15.

In the 2014/15 round, the NPS sample consisted of a combination of the original NPS sample and a new sample. A nationally representative sub-sample was selected from round three to continue as the “Extended Panel”, while an entirely new sample, “Refresh Panel”, was selected to also represent national and sub-national domains. The NPS 2019/20 with sex-disaggregated data (NPS-SDD 2019/20) is an off-shoot survey undertaken by following the entire NPS 2014/15 “Extended Panel” sample. The NPS-SDD 2019/20 is the first Extended Panel with sex-disaggregated data survey, collecting information on a wide range of topics including agricultural production, non-farm income generating activities, individual rights to plots, consumption expenditures, and a wealth of other socioeconomic characteristics.

The main objective of the NPS-SDD 2019/20 is to add to and improve individual-level data availability broadly in education, health, time use and labour, asset ownership and rights particularly on dwelling, land, consumer durables (mobile phones) and financial assets. The NPS-SDD 2019/20 interviewed all eligible households and household members making up the Extended Panel cohort utilizing the NPS instruments and protocols with applicable revisions. Additionally, information on sex-disaggregated data will add value in the analysis of intra-household dynamics and will reveal a more refined picture of welfare in Tanzania.

The Tanzania NBS was advised on technical issues related to survey design and implementation by the NPS Technical Committee, which included representatives from line ministries, such as the Ministry of Agriculture, Food Security and Cooperatives, and the Ministry of Finance. Funding for the NPS-SDD 2019/20 was provided by the World Bank through the LSMS-ISA program.

This document describes fundamental aspects of the NPS-SDD 2019/20, including the set of survey instruments, sample design, survey implementation, and the resulting data sets.

¹ The Living Standards Measurement Study (LSMS) is an ongoing research initiative within the Development Research Group of the World Bank with the goal of promoting and improving the collection of household level data in developing countries around the world. Further information can be found at www.worldbank.org/lms. The LSMS-ISA project supports governments in seven Sub-Saharan African countries to generate nationally representative, household panel data with a strong focus on agriculture and rural development. Further information can be found at www.worldbank.org/lms-isa.

Survey Instruments

The NPS-SDD 2019/20 consists of four survey instruments: a Household Questionnaire, Agriculture Questionnaire, Livestock Questionnaire, and a Community Questionnaire.

The Household Questionnaire is comprised of thematic sections. A detailed description of the contents of the questionnaire can be found in Table 1. This questionnaire allows for the construction of a full consumption-based welfare measure, permitting distributional and incidence analysis. Data within the household instrument is structured around a household panel survey, and will add additional living standards measure in the form of sex-disaggregated data, this additional level of information will add value in the analysis of intra-household dynamics and revealing a more refined picture of welfare of Tanzania. To protect the confidentiality of respondents, sensitive information has been masked in or removed from the public household data files.

HOUSEHOLD QUESTIONNAIRE:

Section A:	Household Identification
Section B:	Household Member Roster/ Land Plot Roster
Section C:	Education
Section D:	Health
Section E:	Labour
Section F:	Food Consumed Outside the Household
Section G:	Subjective Welfare and Crime
Section G1:	Plot Details / Individual Rights to Plots
Section G2:	Financial Assets
Section G3:	Mobile Phone Ownership
Section H:	Food Security
Section I:	Housing, Water, and Sanitation / Handwashing
Section J:	Consumption of Food Over Past One Week
Section K:	Non-Food Expenditures – One Week/One Month
Section L:	Non-Food Expenditures – Twelve Months
Section M:	Household Assets
Section N:	Family / Household Non-Farm Enterprises
Section O:	Assistance and Groups
Section P:	Credit
Section Q:	Finance
Section R:	Recent Shocks to Household Welfare
Section S:	Deaths in Household
Section U:	Household Re-contact Information / Filters
Section V:	Anthropometry
Section WQT:	Water Quality Testing

The NPS Extended Panel also includes a robust instrument on household agriculture activities (detailed in Table 2). It offers an essential data source to understand the dynamic role of agriculture to household welfare. Agriculture information is collected at both the plot and crop level on inputs, production and sales, consistent with key phases in the agricultural value chain.

AGRICULTURE QUESTIONNAIRE:

Section 02:	Plot Roster
Section 03:	Plot Details
Section 04:	Annual Crops By Plot
Section 05:	Annual Crop Production and Sales
Section 06:	Permanent Crops By Plot
Section 07:	Permanent Crops Production and Sales
Section 10:	Processed Agricultural Products & By-Products
Section 11:	Farm Implements and Machinery
Section 12:	Extension

The NPS Extended Panel likewise recognizes the importance of livestock activities to many households. As with the integrated instrument on agriculture, the NPS contains a robust instrument to capture details on these activities. The Livestock Questionnaire is administered to all households

LIVESTOCK QUESTIONNAIRE:

Section 02:	Livestock Stock Ownership
Section 03:	Animal Health
Section 04:	Feed, Water, Housing, Breeding
Section 4A:	Livestock Extension services
Section 05:	Livestock Labour
Section 06:	Milk
Section 07:	Animal Power and Dung
Section 08:	Other Livestock Products

participating in these activities and asks about the inputs, outputs, labour, and sales related to these activities. Table 3 provides a more comprehensive list of the sections found within the Livestock Questionnaire.

The Community Questionnaire collects information on physical and economic infrastructure and events in surveyed communities². Responses to the community questionnaire are provided through a group discussion among key informants within the community.

COMMUNITY QUESTIONNAIRE:

Section CA:	Community Identification
Section CB:	Access to Basic Services
Section CC:	Investment Projects
Section CD:	Land Use
Section CE:	Demographics, Land, and Livestock
Section CF:	Market Prices
Section CG:	Local Units

Each of the NPS questionnaires were developed in collaboration with line ministries and donor partners, including the Technical Committee, over a period of several months. The NBS solicited feedback from various stakeholders in regards to survey content and design paying due consideration to comparability with previous panel rounds.

It is important to note that question numbers might be non-sequential at times in the survey instruments because the questions in a section were not renumbered when questions were deleted from that section between the third and fourth round. The same question and section numbers were maintained from earlier rounds for consistency. Additionally, questions that were added in between rounds were given a letter suffix to distinguish them (i.e. 75a, 75b, etc.).

² Note that this is not a “community” in the sociological sense, but rather a mechanism to collect information about the areas where the households selected for the survey are located. In most rural areas, enumeration areas (EAs) are defined by village boundaries and therefore community refers to the village. In urban areas the distinction is less clear, and occasionally single community questionnaires were administered to adjoining EAs. Therefore, the number of EAs and community questionnaires will not be identical.

Sample Design

The sample design for the NPS-SDD 2019/20 targeted the sub-sample of households from the initial NPS cohort originating in 2008/09 and subsequently surveyed in all four consecutive rounds, considered the “Extended Panel”. This consisted of 989 households from the NPS 2014/15 sample to be tracked and interviewed in the NPS-SDD 2019/20.

It is worth mentioning that the sample design included complete households that could not be interviewed in NPS 2014/15, *excluding* those households that had refused to be interviewed in NPS 2014/15. This constituted an additional 8 households. Individuals meeting the eligibility requirement that were interviewed as part of the NPS 2012/13, but were not located and interviewed during the NPS 2014/15, were also included in this round if located. Additionally, individuals from NPS 2014/15 who moved into another household were also included. This constituted an additional 158 individuals assigned to their last known associated household.

The eligibility requirement for inclusion in the NPS is defined as any household member aged 15 years and above, excluding live-in servants. Households with at least one eligible member were completely interviewed, including any non-eligible members present in the household. Any household or eligible members that had either moved or split away from a primary household were tracked and interviewed in their new location.

Additionally, the final sample for NPS-SDD 2019/20 included any resulting split-off households identified during data collection (i.e. a previous NPS member who had moved or started another household). Ultimately, the final sample size for NPS-SDD 2019/20 was 5,587 individuals in 1,184 households.

Implementation

Preparations:

The main training for the field team supervisors and enumerators took place in Dar es Salaam in January 2019 over a period of three weeks. During this time, the field staff spent one week on the Household Questionnaire, and a week and a half on the Agricultural Questionnaire, Livestock Questionnaire, and tracking forms. The last five days of the training were devoted to field practice. Field practice were conducted in Dar es Salaam and Pwani regions, where selected households from the previous rounds of the NPS were revisited to provide the team enumerators and supervisors practice with conducting tracking during fieldwork. After the fieldwork, extensive discussion and revisions were conducted with the participation of all team supervisors.

Over the training period, one test was administered to the field teams. The goal was to gain feedback from the training sessions and to select the qualified enumerators. Overall, there were 16 enumerator candidates, with 12 being selected. Interviewer manuals were developed with detailed instructions for field staff during training and as the main reference guide for the survey over the course of the fieldwork. At the end of the training, the enumerators were each provided with an interviewer manual in Kiswahili.

Field Work:

The main tracking fieldwork began in the last week of January 2019 and was completed in mid-January 2020, with an addition of one month of tracking fieldwork in March - April 2020. The survey was primarily implemented by four mobile field teams, each composed of: one supervisor, three enumerators, and one driver. Three mobile field teams were responsible for different regions on the mainland and one team was responsible for all of Zanzibar.

Field teams visited each tracking case for between 2-3 days for both new and extended panel clusters. The questionnaires were administered to the selected households over the course of that time. This allowed the field team to make return visits to the household to complete the entire Household Questionnaire, Agriculture Questionnaire for farming households, and Livestock Questionnaire, for households engaged in livestock activities. To ensure the depth and quality of each section of the survey, the questionnaire was administered across multiple respondents to the respondent most knowledgeable about each topic. For all of the sampled tracking households, areas of all owned and/or cultivated agricultural plots were measured via GPS unless the household refused, the terrain was too difficult, or if the plot was more than 1 hour from the location of the household. Anthropometric measurements were taken for all individuals that were at home, not too ill, and willing to participate.

Tracking:

Tracking consisted of three stages: (1) determining the current status of the households and members of the households from the previous survey; (2) determining the location of any households that have moved together with all its members to a new location; and (3) determining the location of any eligible members who have moved from their household from either all rounds of the NPS to a new location. Eligibility for tracking of households and members was determined prior to the implementation of the survey. Members eligible for tracking were those over the age of 15 and who are not a live-in house servant. Any panel members not meeting these criterion were not tracked and were only included in the data when located and interviewed with an eligible member. Furthermore, households eligible for tracking must have moved to a new location *within* Tanzania. If a household moved to a different country, it was not tracked.

If an entire household had moved from the original residence, teams were required to complete a “T-1” form designed to capture relevant information from key informants on the whereabouts of the household. The T-1 form contains information that would enable tracking of household to its new location. If a member or members of the household have moved from the original household, a “T-2” form was completed by the teams. Similar to the T-1, a T-2 form contains information on the location of the member(s) who have moved from the household. Once the tracking targets had been located, teams were required to interview the household as consistent with the eligibility requirements.

Within the tracking protocol, there are local and distance tracking cases. Local and distance tracking applies to both households and individuals. Local tracking is defined as cases where the tracking target is within one hour driving distance from the original cluster and at least one tracking member from the household is eligible for tracking. For local tracking cases, the teams are required to interview the tracking target before leaving the original cluster. Distance tracking occurs when the tracking target resides in a location that is more than one hour driving distance from the original cluster. In this case, the teams fill out the appropriate tracking form and send the information to NBS headquarters. Once at NBS headquarters, the distance tracking case is given to one of the two dedicated tracking teams, who are then responsible for locating that household and conducting the interview.

Often households and members which have moved from their previous dwelling or household have relocated a great distance from their previous interview location. Given the inefficiency in searching for these members on a case by case basis across the country as they occur, field teams were not required to track households and members deemed to be too far away from the original location. Information on these cases was key entered and sent electronically to the NBS headquarters, compiled, and reviewed. After review, the tracking cases were assigned to the field teams based on the location of the new residence of the household or individual.

Distance tracking lasted approximately for one month (from March 14, 2020 to April 11, 2020). It was done after the completion of the main data collection to allow enough time to accumulate a sufficient number of distance tracking targets. Furthermore, regular field teams would perform distance tracking whenever they had a break in their schedule. Two dedicated teams of three enumerators conducted the distance tracking fieldwork.

Data Processing & Management:

The NPS-SDD 2019/20 contains a robust multi-level quality assurance and data management system. Great effort was placed on the development and utilization of this system by the NBS with technical assistance from the World Bank prior to the implementation of the NPS-SDD 2019/20 to assist in the management of the complex household panel survey and address the growing need for high quality timely data.

The NPS-SDD utilized a Computer Assisted Personal Interviewing (CAPI) system developed by the Word Bank in collaboration with IT personnel from the NBS. This system was selected to increase the availability of data for review by managing staff as well as to provide regular and consistent quality assessment of data directly to the field staff. STATA software was utilized to perform complex aggregated checks. Furthermore, due to the panel nature of the survey, where applicable and appropriate, data was checked against previous round data.

Data files from completed clusters were transmitted to NBS headquarters via syncing to a Dropbox using 3G USB modems. Received data files were concatenated at the headquarters, and regular checks were performed to ensure the fieldwork was proceeding according to the schedule and that quality standards were met. During the course of field work data was routinely checked at the aggregate level to identify any potential issues and where identified additional checks were integrated into the CAPI system.

Throughout the data processing system versions of the data are archived at all key steps and all checking and cleaning syntax documented and archived.³

Panel Attrition

As with most panel surveys a certain portion of panel respondents are not able to be re-interviewed over time. This attrition of panel respondents can lead to attrition bias where respondents drop out of the survey non-randomly and where the attrition is correlated with variables of interest. The Tanzania NPS has fortunately maintained low attrition over the rounds, thus minimizing the potential for attrition bias within the datasets.

By the end of data collection, 974 of the 989 households had been located and 908 households were successfully re-interviewed for a total household attrition rate of 9.2 percent. At the individual level, 2,621 of the 3,188 eligible household members (over the age of 15 years and not a household servant) were successfully re-interviewed during the NPS-SDD 2019/20, equating to an individual attrition rate of roughly 17.7 percent between the NPS 2014/15 and the NPS-SDD 2019/20 (for extended panel households).

³ Due to the presence of confidential information within the datasets and the syntax used to process that data, this data and information will not be made available to the public.

Weighting / Expansion Factors

Assignment of urban and rural status for calculation of panel weights

Each round of the NPS requires an assessment of whether each household is in an urban or rural location, both for the calculation of panel weights and any subsequent analysis. The assignment of this location status is done by the NBS with assistance from the World Bank using geo-spatial location variables, mass location assignments, and other available location data.

In the NPS-SDD 2019/20, the location status designation for all households that remained in the same locations between 2014/15 and 2019/20 (“non-movers”) remained the same as it had been in NPS 2014/15. Households that had moved from their original location to Dar es Salaam were automatically assigned an urban status as Dar es Salaam is a purely urban strata and therefore requires no distinctions for households in that region.

For households that had moved away from their original location to regions other than Dar es Salaam, geo-spatial analysis was used to determine the distance moved, and when possible an assessment was done of the location status of other nearby households. Unlike previous rounds of the NPS which employed *distance* tracking, the tracking protocol for NPS-SDD 2019/20 specified that households were only tracked when known to be in close proximity to their original location; thus the previous round’s assignment of urban or rural was unlikely to change despite minor movement in location.

Weighting and expansion factors

In order to produce nationally representative statistics with the NPS data, it is necessary to apply weighting or expansion factors. The panel survey weights adjust for differences in the probability of selection into the NPS 2008/09 sample for observations in various strata, 2008/09 households splitting into multiple households in NPS 2010/11 and NPS 2012/13, splitting even further in NPS 2014/15, and attrition between rounds of the survey.⁴

The first round of the NPS sample was a multi-stage clustered sample design. First stage sampling involved the selection of survey clusters with the probability of selection proportional to cluster size within a stratum. The sampling of these clusters was stratified along two dimensions: (i) eight administrative zones (seven on Mainland Tanzania plus Zanzibar as an eighth zone), and (ii) rural versus urban clusters within each administrative zone. The combination of these two dimensions yields 16 strata. In rural areas a cluster is defined as an entire village. In urban areas, a cluster is defined as a census enumeration area. As a general rule, the probability of selection was higher for

⁴ The details of the sample design – including the sampling strata and the use of multiple sampling frames – are discussed in a separate document, *Sample Design for the National Panel Survey*, April 2009, available from NBS upon request.

clusters within strata where existing data sources showed that the variance of key variables of interest for the NPS (e.g., household consumption and maize production) were likely to be very high – implying the need for more observations to produce reliable estimates.

The expansion factors for the NPS-SDD 2019/20 variable “sdd_weights” have been integrated into Section A, “HH_SEC_A” of the household dataset. Additionally, unique identifiers for the first-stage sampling units, “clusterid”, and for the sampling strata, “strataid” can also be located in Section A of the household dataset.

The methodology used to calculate the panel weights for the extended panel households in NPS 2019/20 was developed as part of the LSMS-ISA work program. Details on the methodology can be found in the paper: Himelein, Kristen. 2013. “Weight Calculations for Panel Surveys with Subsampling and Split-off Tracking.” *Statistics and Public Policy*, vol (1), pp40-45 and in Appendix A.

Data Set

The NPS consists of several data files. Each data file pertains to a section of the questionnaire, or a set of sections that are for the same level of observation. The complete lists of data files as well as the unique identification variables in each module are listed in Tables 1- 4.

Unique Household Identifiers:

Households are identified by a ten-digit number, *sdd_hhid*, in the NPS-SDD 2019/20. This is generated using the combination of the seven-digit household identification number in NPS 2014/15 plus a three-digit number. The last three digits of the NPS-SDD 2019/20 household identifier is the lowest individual ID number from the NPS 2014/15 round out of all the members of that household. For example, an NPS 2014/15 household has the household identification number of “0218-001” and consisted of 6 members with individual ID numbers from 1-6. If in the NPS-SDD 2019/20, members 2, 3 and 4 remained in the original household, then this household will have the unique identifier of “0218-001-002”.

Merging between Round 4 data sets:

The household identification variable is *sdd_hhid* in the data files. When merging or linking individual data files, it is necessary to use at minimum the household identification variable (*sdd_hhid*) as well as the other unique identification variables pertinent to the data files being merged. All household level sections have been harmonized, regardless of a household’s or member’s qualification for the section, to provide a consistent number of observations in each module across like units of observation.

Additional variables required to merge data across sections depend on which two sections are being merged. For example, merging Sections A and Section I (basic identification and household characteristics, respectively) require only the *sdd_hhid* variable as it is the single unique identifier in both datasets. Merging sections B and C (roster information with education levels, respectively) requires merging on both the *sdd_hhid* and the individual's ID, *sdd_indid*⁵. This combination of variables will be unique in the roster data file, as only one person in a household can have a particular roster number. Similar patterns will be found in other combinations of data files, such as the plot number *plotnum* and crop id *cropid* variables in the agricultural datasets.

Merging between the three rounds:

NPS-SDD 2019/20 households can also be linked back to their household information in previous rounds of the NPS. To merge household-level datasets for Extended Panel households between the NPS 2014/15 and NPS-SDD 2019/20 it is necessary to use the *y4_hhid* variable found in the data for both rounds. This is also possible for all rounds of the NPS as the previous round's household identification number is always found in Section A of each round.

Merging of individuals in extended panel households across the NPS rounds is also possible. It is important to note that due to the movement of household members, and particularly the joining of household members from one panel household to another, the Section A household identifier from the previous round does not always reflect the previous household of each member. To define each member's previous year's household, the *y4_hhid* variable reflecting each specific member's previous round household has been added to the Section B household roster. To facilitate accurate merging of panel members between rounds, a supplementary dataset, "NPSSDD.PANEL.KEY", has also been provided. This dataset contains identification information for individuals, where applicable, across each of the NPS panel rounds an individual has been present.

Obtaining Data

Data and background documentation for the NPS-SDD 2019/20 is available on the Tanzania National Bureau of Statistics website (www.nbs.go.tz), as well as the World Bank Living Standards Measurement Study – Integrated Surveys on Agriculture website (www.worldbank.org/lsms-isa), and may be downloaded free of charge. Inquiries pertaining to the data may be sent to the LSMS team at lsms@worldbank.org.

⁵ It is important to note that while the *sdd_hhid* variable is constructed using the individual IDs from round 4, a new and unique individual identification number for each individual (old and new) is provided (*sdd_indid*).

Table 1: Household Questionnaire

SECTION A : HOUSEHOLD IDENTIFICATION			
Level of Observation :	Household	Data File :	HH_SEC_A
Unique Identifier :	sdd_hhid	Additional Info :	
Description :			
Household location variables, unique within panel round household identification variables, date and time of interview, analytic sampling weights, cluster identification, sampling strata identification, and status of survey.			
Key Notes :			
The variable loc_info distinguishes whether or not a household was in the same physical location as the previous round, NPSY4. For split-off households, this variable will be blank. For original households, if the answer is “NO”, then <i>new</i> household location information will be provided in the variables with the prefix “hh_a”, (i.e. hh_a01_1, hh_a02_1, etc). If the answer is “YES”, then the household has confirmed they are in the same location and the only household location information available will be in the variables with the prefix “t0_” (t0_region, t0_district, etc.), and no new location information will be provided.			
All sensitive identifying variables, such as names of the ward, village, mtaa, household head, tracking target, and the written description of the household location have been removed from the dissemination version of this dataset to preserve the confidentiality of the respondent.			
SECTION B : HOUSEHOLD MEMBER ROSTER			
Level of Observation :	Individual	Data File :	HH_SEC_B
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	
Description :			
Roster of household members, individual characteristics including: sex, age, relationship to the household head, panel member identification, presence in household, general occupation, parental status, place of birth, marital status, and spouse identification.			
Key Notes :			
Two sets of unique individual identifiers are present in the household roster; the within round (NPS-SDD) individual unique identifier and the across round (NPSY4/NPS-SDD) individual unique identifier. The within round individual unique identifier is composed of the unique NPS-SDD ten-digit household identification, sdd_hhid , and the roster row individual identification number, sdd_indid .			
The across round unique identifier is comprised of the seven digit NPSY4 unique household identifier, y4_hhid , and the previous round’s roster row number, hh_b06 . Both individual identifiers are present due to the rare instance where members from different panel households have merged into one household.			
New members, previously absent in any panel household, are indicated by “99” in the hh_b06 . Where eligible NPSY3 household members were not located in the fourth round but were subsequently interviewed in the NPS-SDD, their y4_hhid will be missing and their hh_b06 will indicate their NPSY3 roster ID. Likewise, if a respondent from NPSY4 moved to <i>another</i> NPS household in NPS-SDD, their hh_b06 will indicate their NPSY4 roster ID, and their y4_hhid will differ from the rest of the members in their new household as it links them to their original round four household.			

SECTION B1B : LAND PLOT ROSTER

Level of Observation :	Plot	Data File :	HH_SEC_B1B
Unique Identifier :	sdd_hhid, plot_id	Additional Info :	

Description :

Plot roster of all previously owned and new plots owned by family, including location, tenure system, and use.

Key Notes :

None

SECTION C : EDUCATION

Level of Observation :	Individual	Data File :	HH_SEC_C
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	(>=5 years) ; Appendix E

Description :

Educational enrolment and attainment; literacy, education history/level attainment, current enrolment, school characteristics, temporary absence, education examination (participation and score) and education expenditures.

Key Notes :

Section is administered to members 5 years of age or older.

See Appendix E for additional terminology and information on changes to the Tanzanian educational system potentially affecting comparability of educational attainment of household members born before or around 1970.

SECTION D : HEALTH

Level of Observation :	Individual	Data File :	HH_SEC_D
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	

Description :

General health status and utilization of health services; source and financing of health treatments / hospitalization, disaggregated health expenditures, disability, bednet use, pregnancy, prenatal care and births, child health and ailments / diarrhoea.

Key Notes :

Respondents less than 12 years of age answer for themselves; else an informed respondent provides information.

Questions on disability were included in NPSY2, NPSY4, and in NPS-SDD but *not* in NPSY3.

Questions on pregnancy are asked only to women 14 through 49 years of age.

Question on child instance of diarrhoea are asked for members less than 5 years of age.

SECTION E : LABOUR

Level of Observation :	Individual	Data File :	HH_SEC_E1
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	(>= 5 years); Appendix F; G

Description :

Labour market participation; activities including unpaid apprenticeship, wage work, non-farm enterprise, and agricultural activity (including livestock activities) in the last seven days. Also includes unemployment and steps taken to find work, secondary activities, industry (TASCO) and occupation (ISIC) codes (Appendix F and Appendix G), wages earned, contract type, employer provided safety nets, and general domestic activities.

Key Notes :

Section is administered to household members 5 years of age or older.

Recorded written descriptions of industry and occupation have been masked to protect respondent confidentiality. These text fields are removed for confidentiality purposes, as well as the text names of the employing companies.

SECTION E2 : LABOUR (USUAL ACTIVITY)

Level of Observation :	Individual	Data File :	HH_SEC_E2
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	(>= 5 years); last 12 months

Description :

Usual labour activity during the past twelve months, including unpaid apprenticeships, wage work, non-farm enterprise, and agricultural activity (including livestock activities).

Key Notes :

Section is administered to household members 5 years of age or older.

SECTION E3 : OWN USE PRODUCTION OF GOODS

Level of Observation :	Individual	Data File :	HH_SEC_E3
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	(>= 5 years); past 7 days

Description :

Hunting, gathering, food preparation/preservation, household good crafting, water and firewood collection activities done by respondents in the last seven days and how much time has been spent on these activities.

Key Notes :

Section is administered to household members 5 years of age or older.

SECTION F : FOOD CONSUMED OUTSIDE THE HOUSEHOLD

Level of Observation :	Individual	Data File :	HH_SEC_F
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	Last 7 days

Description :
Value of food consumed outside the home during the last seven days.

Key Notes :
None

SECTION G : SUBJECTIVE WELFARE AND CRIME

Level of Observation :	Individual	Data File :	HH_SEC_G
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	(>=15 years)

Description :
Self-reported level of satisfaction with health, financial status, housing, job, services, and safety. Also includes perceived status at present, and as of two years ago. This section also collects information about any crime that the household may have been a victim of in the past twelve months and any associated police involvement.

Key Notes :
None

SECTION G1A : PLOT DETAILS

Level of Observation :	Individual-Plot	Data File :	HH_SEC_G1A
Unique Identifier :	sdd_hhid, sdd_indid, plot_id	Additional Info :	

Description :
Use, ownership, and holding rights for agricultural plots that are not. Information is gathered at the plot level for the primary male and primary female, as well as any other household members over the age of 17 years.

Key Notes :
This is a new module and will not have any previous panel information available.

SECTION G1B : INDIVIDUAL RIGHTS TO PLOTS

Level of Observation :	Individual-Plot-Right	Data File :	HH_SEC_G1B
Unique Identifier :	sdd_hhid, sdd_indid, plot_id, right_id	Additional Info :	

Description :
Information on each individual's right(s) to plot(s), including to sell, to bequeath, to use as collateral, to rent out, and to make improvements/invest. Includes information on permission and consent needed for each right - from others both inside and outside the household, as well as the number of males and females outside of the household that need to give permission and consent.

Key Notes :
Entire module will be asked of each plot reported by the household. This is a new module and will not have any previous panel information available.

SECTION G1C : LAND (CONTINUED)

Level of Observation :	Individual-Plot	Data File :	HH_SEC_G1C
Unique Identifier :	sdd_hhid, sdd_indid, plot_id	Additional Info :	

Description :

Knowledge and activities of the rent and sale of dwelling plots (plots in which the dwelling is on the plot of interest) in the community, as well as for the personal dwelling plot of the household. Includes valuation estimates and which members will decide how to use the money from the sale. Information is gathered at the plot level for the primary male and primary female, as well as any other household members over the age of 17 years.

Key Notes :

This is a new module and will not have any previous panel information available.

SECTION G2 : FINANCIAL ASSETS

Level of Observation :	Individual-Plot	Data File :	HH_SEC_G2
Unique Identifier :	sdd_hhid, sdd_indid, asset_id asset_no	Additional Info :	

Description :

Ownership, documentation and valuation of different types of financial assets including checking accounts, savings accounts, microfinance accounts, and informal savings club participation. This module is asked of the primary male and primary female in the household as long as they had been in the household for at least 3 months of the previous 12 months.

Key Notes :

This is a new module and will not have any previous panel information available.

SECTION G3A : MOBILE PHONE OWNERSHIP

Level of Observation :	Individual-Plot	Data File :	HH_SEC_G3A
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	

Description :

Ownership and amount of mobile phones owned as reported by the primary male and primary female in the household, as long as they had been in the household for at least 3 months of the previous 12 months.

Key Notes :

This is a new module and will not have any previous panel information available.

SECTION G3B : MOBILE PHONE OWNERSHIP

Level of Observation :	Individual-Plot	Data File :	HH_SEC_G3B
Unique Identifier :	sdd_hhid, sdd_indid, phone_id	Additional Info :	

Description :

Detailed information on ownership, condition, and use of mobile phone(s).

Key Notes :

This is a new module and will not have any previous panel information available.

SECTION H : FOOD SECURITY

Level of Observation :	Household	Data File :	HH_SEC_H
Unique Identifier :	sdd_hhid	Additional Info :	

Description :

Information on the household's diet and food intake patterns, months of food insecurity, and distribution of food within the household.

Key Notes :

None

SECTION I : HOUSING, WATER & SANITATION

Level of Observation :	Household	Data File :	HH_SEC_I
Unique Identifier :	sdd_hhid	Additional Info :	

Description :

Tenure status, rental expenditure, estimated rental value, dwelling maintenance and improvement expenditures, dwelling characteristics, including size, construction materials, toilet facilities and means of garbage disposal. Also includes, main type of cooking and lighting fuel, access to water /drinking water and time spent collecting water. The questions on water/drinking water are asked separately for the rainy and dry season.

Key Notes :

Major source for the questions on water and sanitation was the set of harmonized questions on drinking-water and sanitation for household surveys developed by the WHO/UNICEF Joint Monitoring Program (JMP) for Water Supply and Sanitation.

SECTION I2 : HANDWASHING

Level of Observation :	Household	Data File :	HH_SEC_I2
Unique Identifier :	sdd_hhid	Additional Info :	

Description :

Information on handwashing practices of the household, including location, presence of water, and presence of soap, asked to the head of household.

Key Notes :

This is a new module and will not have any previous panel information available.

SECTION J1 : CONSUMPTION OF FOOD OVER THE PAST ONE WEEK

Level of Observation :	Food item	Data File :	HH_SEC_J1
Unique Identifier :	sdd_hhid, itemcode	Additional Info :	Last 7 days

Description :

Consumption of 60 key items/ item groups over the last 7 days. These 60 items/item groups are divided into twelve broader categories; “Cereals and Cereal Products”, “Starches, Sugars and Sweets”, “Pulses, Dry”, “Nuts and Seeds”, “Vegetables”, “Fruits”, “Meat, Meat Products, Fish”, “Milk and Milk Products”, Oils and Fats”, “Spices and Other Foods”, and “Beverages”. Quantity and value of consumed items from purchases, own-production and gifts are recorded.

Key Notes :

Unlike previous rounds, no data was collected in the NPS-SDD on the presence of iodine.

Previous rounds of the NPS had 59 items. In NPSY4, item code 108 (“wheat flour, barley grain and other cereals”) was split into two items: item code 1081 (“wheat flour”) and item code 1082 (“barley grain and other cereals”), and the same codes remained in NPS-SDD.

SECTION J3 : FREQUENCY OF CONSUMED ITEMS

Level of Observation :	Food item category	Data File :	HH_SEC_J3
Unique Identifier :	sdd_hhid, itemcode	Additional Info :	Last 7 days

Description :

Number of days general food categories where consumed by the household in the last 7 days, includes: “Cereals, Grains and Cereal Products”, “Roots, Tubers, and Plantains”, Nuts and Pulses”, Vegetables”, Meat, Fish and Animal Products”, “Fruits” “Milk/Milk Products”, “Fats/Oils”, Sugar/Sugar Products/Honey”, and “Spices/Condiments”.

Key Notes :

The categories/items composing the food categories in this section may differ from those in Section J1.

SECTION J4 : QUANTITY OF MEALS AND PEOPLE CONSUMING MEALS

Level of Observation :	Age group	Data File :	HH_SEC_J4
Unique Identifier :	sdd_hhid, agegroup	Additional Info :	Last 7 days

Description :

Number of people living outside of the household that shared meals within the household and then total number of meals shared over the last 7 days.

Key Notes :

None

SECTION K : NON-FOOD EXPENDITURES – PAST ONE WEEK & ONE MONTH

Level of Observation :	Item	Data File :	HH_SEC_K
Unique Identifier :	sdd_hhid, itemcode	Additional Info :	Last 7 days / Last 1 month

Description :

Total expenditure on non-food items during the last week or last month, including: public transportation, fuels, cellular phone credits, personal hygiene items, etc.

Key Notes : None

SECTION L : NON-FOOD EXPENDITURES – PAST TWELVE MONTHS

Level of Observation :	Item	Data File :	HH_SEC_L
Unique Identifier :	sdd_hhid, itemcode	Additional Info :	Last 12 months

Description :

Total expenditure on non-food items during the last 12 months, including: household items, community contributions, fees and fines, marriage costs, clothing, etc.

Key Notes :

“Wood poles, bamboo” and “Grass for thatching roof or other use” are commonly consumed by households but not purchased. For these items, estimated total value is also recorded.

SECTION M : HOUSEHOLD ASSETS

Level of Observation :	Item	Data File :	HH_SEC_M
Unique Identifier :	sdd_hhid, itemcode	Additional Info :	Last 12 months

Description :

Quantity of key items owned by the household, age of item, purchase price, and current estimated value for items including, radio, telephones, appliances, furniture, cookware, vehicles, land, and agricultural tools.

Key Notes :

Age of item, purchase price, and estimated value are new additions to the NPS Household Assets section beginning in NPSY3. Age of item, purchase price and estimated value of item were not solicited for all items. Refer to Household Questionnaire Section M for list of items with this restriction.

SECTION N : FAMILY / HOUSEHOLD NON-FARM ENTERPRISES

Level of Observation :	Enterprise	Data File :	HH_SEC_N
Unique Identifier :	sdd_hhid, enterprise_id	Additional Info :	

Description :

Details on non-farm businesses operated by the household during the last 12 months, including type of product or service provided, household members involved with the enterprise, value of current stock, operation location, length of time the enterprise has been operating, income earned, profits, business operating costs etc.

Key Notes :

Only households operating non-farm enterprises completed this module. The filter question for this module is **hh_n01a**, and though it is asked at the household level, it is included in this data file.

SECTION 01 : ASSISTANCE AND GROUPS

Level of Observation :	Assistance type	Data File :	HH_SEC_01
Unique Identifier :	sdd_hhid, assistance_id	Additional Info :	

Description :

Financial and in-kind assistance provided by both government and non-government institutions, including free food/maize distribution, food for work or cash for work programmes, inputs for work programmes, and school scholarships.

Key Notes :

The names of the organizations have been masked to protect respondent confidentiality.

SECTION 02 : ASSISTANCE AND GROUPS

Level of Observation :	Individual	Data File :	HH_SEC_02
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	

Description :

Involvement in cooperative microfinance activities and financial details of membership, including contributions, withdrawal history, and repayment plans.

Key Notes :

Participating members in assistance groups will be distinguished by their **sdd_indid**, which can also be used to link to other individual level sections.

SECTION P : CREDIT

Level of Observation :	Loan	Data File :	HH_SEC_P
Unique Identifier :	sdd_hhid, loanid	Additional Info :	

Description :

Utilization of credit and loan institutions, including sources, amounts borrowed, and repayment plans.

Key Notes :

The name of the lending institution is masked due to confidentiality purposes.

Only households that borrowed cash, goods, or services in the last 12 months completed this module, though each household is included here to facilitate accurate merging between household-level modules. The filter question for this module is **hh_p01**, and though it was asked to at the household level, it is included in this data file.

Individual characteristics can be linked with household members who utilized loan/credit sources using the reported individual ID in Q4.

SECTION Q1 : FINANCE

Level of Observation :	Household	Data File :	HH_SEC_Q1
Unique Identifier :	sdd_hhid	Additional Info :	

Description :

Use of financial institutions and mobile-phone based money transfer services, income from rent or pensions, supplemental income sources, and banking history.

Key Notes :

Names of banking institutions where households maintained accounts have been masked to protect respondent confidentiality.

SECTION Q2 : FINANCE

Level of Observation :	Source of finance	Data File :	HH_SEC_Q2
Unique Identifier :	sdd_hhid, sourceid	Additional Info :	

Description :

Remittances or financial assistance received in the last 12 months from sources residing in Tanzania or abroad, including socio-demographic characteristics of source, remittance channels, and use of cash/in-kind items.

Key Notes :

The names of the sources have been masked to protect respondent confidentiality.

SECTION R : RECENT SHOCKS TO HOUSEHOLD

Level of Observation :	Shock	Data File :	HH_SEC_R
Unique Identifier :	sdd_hhid, shock_id	Additional Info :	

Description :

Severity ranking of 17 common shocks, such as “DROUGHT OR FLOODS”, “SEVERE WATER SHORTAGE”, and “DEATH OF MEMBER OF HOUSEHOLD”. More detailed information and coping strategies are asked of the three most severe shocks.

Key Notes :

Shocks that consistently had very low level of occurrence in previous NPS rounds were removed from the list of shocks. Previous rounds of NPS had 19 shocks.

SECTION S : DEATHS IN HOUSEHOLD

Level of Observation :	Individual	Data File :	HH_SEC_S
Unique Identifier :	sdd_hhid, personid	Additional Info :	

Description :

Deaths within the household, cause of death, duration of illness if applicable, and associated land or asset losses due to inheritance traditions.

Key Notes :

The name of the deceased household member is excluded for confidentiality purposes.

The **personid** variable is a within-module, constructed variable that only serves as a unique identifier for HH_SEC_S. It is not a linking variable with any other individual-level module.

The across rounds unique identifier is comprised of the seven-digit NPSY4 unique household identifier, **sdd_hhid**, and the previous round's roster row number, **hh_s04_2**. This variable can be linked in the same way that **hh_b06** in Section B is used to link living members. Note that not all deceased household members will have been present in the fourth round as some may have both joined the household and died in the interim between survey rounds.

SECTION U : RECONTACT INFORMATION

Level of Observation :	Household	Data File :	HH_SEC_U
Unique Identifier :	sdd_hhid	Additional Info :	

Description :

Contact information for household, including GPS coordinates, phone numbers for household members, and two reference persons within and outside the community. Filter questions for agriculture and livestock questionnaires are also included.

Key Notes :

Previous rounds of the NPS separated household recontact information from the screening questions for the agriculture and livestock questionnaires. In NPS-SDD, this information is combined in a single module.

Household recontact information is not publicly available so as to ensure respondent confidentiality.

SECTION V : ANTHROPOMETRY

Level of Observation :	Individual	Data File :	HH_SEC_V
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	

Description :

Anthropometric information of household members under the age of 15 or women of child bearing age (15-49 years old) who were able and willing to participate, including height, weight, and upper arm circumference measurements.

Key Notes :

Unlike in previous NPS rounds where this section was administered to all members, this section is administered to only members that were under the age of 15 or women of child bearing age (15-49 years old) in NPS-SDD.

Upper arm circumference measurements are only obtained for children less than 5 years of age.

SECTION V (SUPPLEMENT) : ANTHROPOMETRY

Level of Observation :	Individual	Data File :	NPS-SDD.CHILD.ANTHRO
Unique Identifier :	sdd_hhid, sdd_indid	Additional Info :	

Description :

Calculated anthropometric information of household members 60 months who were able and willing to participate, including z-scores, stunting, wasting, and underweight.

Table 2: Agriculture Questionnaire

All households that answered Question 1, 2, 3, or 4 in Section U as “YES” should appear in this module. This means that a household cultivated a plot(s), or owned a plot(s) that they did not cultivate, at some point in the last 12 months.

Please note that Section 8 for “Input Vouchers” and Section 9 “Outgrower Schemes” were removed in the Agriculture questionnaire in NPSY4 and remain removed for NPS-SDD. However, the numbering of the sections in the questionnaire have remained the same for consistency across NPS rounds. The cover page is not included in the dataset because it does not contain any additional information beyond what is included in the household questionnaire cover page.

SECTION 02 : PLOT ROSTER			
Level of Observation :	Plot	Data File :	AG_SEC_02
Unique Identifier :	sdd_hhid, plotnum	Additional Info :	
Description :			
Roster of all plots owned or cultivated by the household, including measurement information as calculated by GPS and farmer’s estimate, GPS coordinates, weather conditions at measurement, and reason for missing GPS.			
Key Notes :			
AG_SEC_02 includes all plots that were previously owned and still owned (question hh_b104 in HH_B1B.dta) and all new plots in this round, regardless of cultivation or season of cultivation. This differs from previous rounds and therefore, questions ag2a_01 and ag2a_12 (previously in the AG_FILTERS.dta) were not collected.			
If applicable, the NPSY4 plot ID of a NPS-SDD plot is recorded in ag2a_05 , in a similar fashion to hh_b06 in Household Module B which links a NPS-SDD member to NPSY4. However, households have increasingly split and a great deal of movement has occurred between the last two rounds, so as a consequence Round 4 household identification numbers and Round 4 plot numbers are no longer unique identifiers for NPS-SDD plots. In a small number of cases it appears that the household has split in NPS-SDD, but that both resulting households are reporting the same plot from Round 4 (possibly because they remain in close proximity to the original household, such as in the case of a child moving out). Further investigation showed that the cases fell into the following two categories: (1) the actual plot size splitting between the two NPS-SDD households, so that each household owns a smaller portion of the original plot but as the <i>entire</i> plot originated from the Round 4 plot a duplicate will exist, as well as (2) both NPS-SDD households reporting the entire plot on their plot roster. The amount of occurrences is negligible but should be noted as it will lead to imperfect merges between rounds.			
The plot areas were measured using Garmin eTrex HC series GPS devices. The survey protocol indicates that all plots should be measured as long as they were with one hour’s transportation (either on foot, by bicycle / motorbike, or, if possible, by vehicle) from the household. The only other acceptable reason for the plot not to be measure would be if the household refused.			
The plot names, descriptions, and GPS coordinates are excluded for confidentiality reasons.			

SECTION 3A/3B : PLOT DETAILS

Level of Observation :	Plot	Data File :	AG_SEC_3A/3B
Unique Identifier :	sdd_hhid, plotnum	Additional Info :	

Description :

Detailed information on usage of plot, main cultivated crops, decision-makers in household, soil type and quality with a focus on erosion, sources of irrigation, ownership status of plot, rental value, usage patterns of fertilizers, and agricultural inputs obtained on credit. Household and hired labour for farming activities is also reported.

Key Notes :

Identical questions are asked in “AG_SEC_3A” and “AG_SEC_3B”, with the exception of Q75-85 which gather brief information on their rainy season counterpart’s plot usage. Questions in 3A again refer to plots owned or cultivated during the last long rainy season, while 3B refers to the last completed short rainy season.

SECTION 3A_time/3B_time : PLOT DETAILS

Level of Observation :	Plot	Data File :	AG_SEC_3A_time/3B_time
Unique Identifier :	sdd_hhid, plotnum	Additional Info :	

Description :

Detailed information on household labour utilization on plot, including the number of days and hours per day that household members worked on plot. These are addendum to “AG_SEC_3A” and “AG_SEC_3B”.

Key Notes :

Identical questions are asked in “AG_SEC_3A_time” and “AG_SEC_3B_time”, corresponding to the long rains and short rainy seasons respectively. Thus, questions in 3A_time again refer to household labour utilization on plots owned or cultivated during the last long rainy season, while 3B_time refers to the last completed short rainy season.

SECTION 4A/4B : ANNUAL CROPS BY PLOT

Level of Observation :	Plot-crop	Data File :	AG_SEC_4A/4B
Unique Identifier :	sdd_hhid, plotnum, cropid	Additional Info :	

Description :

Crop planting patterns, intercropping, area and quantity harvested, associated losses, crop seeds purchased along with associated values, source and type of seed for all annual crops.

Key Notes :

“AG_SEC_4A” is asked of the long rainy season, while “AG_SEC_4B” is asked of the most recent short rainy season (dependent on date of interview). This section should only include annual crops, but due to interviewer errors some permanent and fruit crops were also captured.

SECTION 5A/5B : ANNUAL CROP PRODUCTION AND SALES

Level of Observation :	Crop	Data File :	AG_SEC_5A/5B
Unique Identifier :	sdd_hhid, cropid	Additional Info :	

Description :

Questions on quantity of crops sold, value of sales, customers crops sold to, average distance that crops were transported to for sale, post-harvest losses, how crop residue was handled, method and duration for which crop was stored.

Key Notes :

“AG_SEC_5A” is asked of the long rainy season, while “AG_SEC_5B” is asked of the most recent short rainy season (dependent on date of interview).

In some cases crops produced by the household were not represented in the list of response codes. In these cases crops were classified as “Other” with a corresponding code.

SECTION 6A : FRUIT CROPS BY PLOT

Level of Observation :	Plot-crop	Data File :	AG_SEC_6A
Unique Identifier :	sdd_hhid, plotnum, cropid	Additional Info :	

Description :

Number of fruit trees planted on the plot, when these were planted, presence of intercropping, quantity produced, loss before and after harvest, quantity sold, associated value and location sold, method and quantity of crop stored are asked in this section.

Key Notes :

This section should include only fruit trees but due to a small number of interviewer errors, some fruits are included in Section 4 instead while some permanent crops are included in this section. Note that in the English version of the questionnaire, both peaches and plums appear twice in the crop listing. This is due to the fact that some fruits common in Tanzania have the same English translation, while the names are different in Swahili.

Note that this section should include only fruits but due to a small number of interviewer errors, some fruits are included in Section 4 instead and some permanent crops are also included in this section.

SECTION 6B : PERMANENT CROPS BY PLOT

Level of Observation :	Plot-crop	Data File :	AG_SEC_6B
Unique Identifier :	sdd_hhid, plotnum, cropid	Additional Info :	

Description :

Number of permanent crops planted on the plot, when these were planted, how many were planted in the past 12 months, intercropping activities, quantity produced, losses before and after harvest, quantity sold, associated value and location sold, method and quantity of crop stored are asked in this section.

Key Notes :

Questions in “AG_SEC_6A” and “AG_SEC_6B” are identical, however 6A is asked only of fruit trees while 6B is asked of permanent trees/crops.

SECTION 7A : FRUIT CROP PRODUCTION AND SALES

Level of Observation :	Crop	Data File :	AG_SEC_7A
Unique Identifier :	sdd_hhid, cropid	Additional Info :	

Description :

Quantity of crop sold, associated value and location sold, post production losses and method and quantity of crop stored are included.

Key Notes :

None

SECTION 7B : PERMANENT CROP PRODUCTION AND SALES

Level of Observation :	Crop	Data File :	AG_SEC_7B
Unique Identifier :	sdd_hhid, cropid	Additional Info :	

Description :

Quantity of crop sold, associated value and location sold, post production losses and method and quantity of crop stored are included.

Key Notes :

Although 7B was intended to be a direct continuation of Section 6B and therefore include all crops listed in 6B, crops that were used specifically for own consumption were often not reported. Consequently, Section 7B has fewer observations than what is reported in Section 6B.

SECTION 10 : PROCESSED AGRICULTURAL PRODUCTS AND BY-PRODUCTS

Level of Observation :	Crop	Data File :	AG_SEC_10
Unique Identifier :	sdd_hhid, cropid	Additional Info :	

Description :

Information on crops, by-product names and quantity produced, amount of crop used as input, quantity sold, associated prices and buyers and costs incurred due to labor/other inputs are included in this section.

Key Notes :

Crops listed in this section should have been harvested by the household, and therefore should also appear in Section 5 and Section 7. However, due to interviewer error, some of the crops found in this section (primarily maize) were most likely purchased instead of harvested, and therefore will not appear in Sections 5 and 7.

SECTION 11 : FARM IMPLEMENTS AND MACHINERY

Level of Observation : Item	Data File : AG_SEC_11
Unique Identifier : sdd_hhid, itemid	Additional Info :

Description :

Detailed information on the number of farm implements and machinery used or owned by the household in the past 12 months along with associated value if sold, whether the item was used, reasons for no usage, whether any of these items were rented or borrowed for use in the last twelve months and associated rents paid.

SECTION 12A : EXTENSION SERVICES

Level of Observation : Extension service	Data File : AG_SEC_12A
Unique Identifier : sdd_hhid, sourceid	Additional Info :

Description :

Any extension services or advice that the household received for agricultural or livestock activities in the past 12 months through government extension, NGOs, Cooperative/Farmer's Association, or Large Scale Farmers, including what activity advice was sought for, subjective rating for advice received, and price paid for receiving advice.

SECTION 12B : EXTENSION SERVICES

Level of Observation : Extension service	Data File : AG_SEC_12B
Unique Identifier : sdd_hhid, sourceid	Additional Info :

Description :

Any extension services or advice that the household received for agricultural or livestock activities in the past 12 months through government extension, NGOs, Cooperative/Farmer's Association, Large Scale Farmers, Radio/television, Publications or neighbours including what activity advice was sought for, subjective rating for advice received, and price paid for receiving advice.

Key Notes :

Note that in both datasets in Section 12 (A and B), the variables to uniquely identify observations are **sdd_hhid** and **sourceid**. However, these two variables are not equivalent and it is not possible to merge the two datasets using these variables.

SECTION FILTERS: AGRICULTURE FILTER QUESTIONS

Level of Observation : Household	Data File : AG_FILTERS
Unique Identifier : sdd_hhid	Additional Info :

Description :

Screening questions for agricultural modules. Includes: ag2a_11, ag10_01.

Key Notes :

Unlike previous rounds, the variables ag2a_01 and ag2a_12 were not collected during data collection and therefore will not be included in the AG_FILTERS.dta.

Table 3: Livestock Questionnaire

Sections 2-8 of the Livestock Questionnaire are asked of all households that answered Question 9 in Section U as “YES”. Unlike previous rounds of the NPS, there was no data collection on Fisheries. The cover page is not included in the dataset because they do not contain any additional information beyond what is included in the household questionnaire cover page.

Note that Section 2 and Sections 3-7 ask for information about a household’s livestock at different levels. Section 2 asks for information at the level of individual animal types (i.e. cows, chickens, etc.) while Sections 3-7 ask information at the broader level of aggregated animal types (i.e. large ruminants, small ruminants, etc.).

SECTION 02 : LIVESTOCK STOCK			
Level of Observation :	Livestock animal	Data File :	LF_SEC_02
Unique Identifier :	sdd_hhid, lvstckid	Additional Info :	
Description : For 16 animal categories (including “Other”), this section asks questions on topics related to ownership, purchases, gifts received, diseases and animals lost because of them, thefts, sales and associated earnings, slaughtering and associated earning in the last 12 months.			
Key Notes : None			
SECTION 03 : ANIMAL HEALTH			
Level of Observation :	Livestock group	Data File :	LF_SEC_03
Unique Identifier :	sdd_hhid, lvstckid	Additional Info :	Appendix H
Description : Detailed information on the health of animals in the last 12 months related to diseases affecting the animals, vaccinations provided, de-worming treatments, preventative and treatment measures taken against tick borne diseases, and associated spending for any preventative and treatment measures.			
Key Notes : Questions in this section are only asked of large and small ruminants, pigs and poultry. Additional information on main animal diseases for which vaccination is available in Appendix H.			

SECTION 04 : FEED, WATER, HOUSING, BREEDING

Level of Observation : Livestock group
Unique Identifier : sdd_hhid, lvstckid

Data File : LF_SEC_04
Additional Info : Appendix I

Description :

This section asks about fodder and water costs for the animals, type of housing used for the animals, and breeding strategies used by the household.

Key Notes :

Questions in this section are only asked of large and small ruminants, pigs and poultry. Additional information on breeding strategies may be found in Appendix I.

SECTION 05 : LIVESTOCK LABOUR

Level of Observation : Livestock group
Unique Identifier : sdd_hhid, lvstckid

Data File : LF_SEC_05
Additional Info :

Description :

This section gathers information about the household members responsible for activities associated with upkeep of animals, the months in which the household hired help (if any) to assist in the upkeep of animals, and any associated costs with hired labor.

Key Notes :

Questions in this section are only asked of large and small ruminants.

SECTION 06 : MILK

Level of Observation : Livestock group
Unique Identifier : sdd_hhid, lvstckid

Data File : LF_SEC_06
Additional Info :

Description :

This section asks about characteristics of milk production by the animals and the amount of milk produced that were consumed by the household, sold, or processed in the last 12 months.

Key Notes :

None.

SECTION 07 : ANIMAL POWER AND DUNG

Level of Observation : Livestock group
Unique Identifier : sdd_hhid, lvstckid

Data File : LF_SEC_07
Additional Info :

Description :

Detailed information related to amount of dung produced by the animals, characteristics of the use of the dung, associated earnings from any sales of dung, and use of animals for transport or ploughing.

Key Notes :

Questions in this section are only asked of large and small ruminants.

SECTION 08 : OTHER LIVESTOCK PRODUCTS

Level of Observation : Product

Data File : LF_SEC_08

Unique Identifier : sdd_hhid, productid

Additional Info :

Description :

Information is collected on livestock by-products, including the quantity produced, the quantity sold, value of sold goods, buyers of by product sold.

Key Notes :

None

Table 4: Community Questionnaire

For the purposes of this survey a “community” is defined as the village in rural areas and the mtaa in which the cluster is located in urban areas. The community questionnaire was administered to a group of local leaders determined by the field supervisors. In general, in rural areas this group included the ward executive officer, village chairperson and the village executive officer (VEO), as well as other members from the village council. In urban areas the group included the ward executive officer, mtaa chairperson and possibly other local leaders. Note that not all sample clusters have a corresponding community questionnaire. Particularly in urban areas, clusters within the same ward share the same administration and therefore community level information.

In addition, individuals that moved to new communities would not have corresponding community information as this information was only collected for the originally selected EAs.

SECTION A : COMMUNITY IDENTIFICATION			
Level of Observation :	Community	Data File :	CM_SEC_A
Unique Identifier :	id_01 id_02 id_03 id_04 id_05 or <i>interview__key</i>	Additional Info :	
Description : Community identification information including region, district, ward, regional capital identifier, location of market price information, and enumeration area, as well as survey staff information such as interviewers ID code, supervisor, and direct observation questions.			
Key Notes : Sensitive identifying variables, such as name of village, GPS coordinates, and the names of the interviewer, supervisor, and data entry operators have been removed from the dissemination version of this dataset to preserve confidentiality.			
The unique identifier for Section A can be either the combination of location variables (region + district + ward + ea + mtaa, or the single, data-entry generated identifier interview__key . Please note that this is not comparable to the <i>interview__key</i> variable provided in household-level and individual-level datasets.			
SECTION B : ACCESS TO BASIC SERVICES			
Level of Observation :	Basic service	Data File :	CM_SEC_B
Unique Identifier :	interview__key service_id	Additional Info :	
Description : Information on access to basic services in terms of distance and associated transportation costs for these services.			
Key Notes : Names of services/institutions have been dropped from the public data file to preserve confidentiality.			

SECTION C : INVESTMENT PROJECTS

Level of Observation : Project
Unique Identifier : interview__key project_id
Data File : CM_SEC_C
Additional Info :

Description :

Sources of funds and associated amounts for recent construction projects such as road construction/maintenance, market construction/maintenance, water supply such as wells and pumps, school construction and maintenance at pre-primary, primary and secondary levels, health and veterinary services, irrigation schemes and grain storages.

Key Notes :

None

SECTION D : LAND USE

Level of Observation : Community
Unique Identifier : interview__key
Data File : CM_SEC_D
Additional Info :

Description :

Land use related issues with estimated percentages of how different types of village land are used (cultivation, forest, pasture, wetland, residential, business).

Key Notes :

Occasionally key informants did not know all the information asked in the questionnaire.

SECTION D2 : MAJOR LAND RELATED EVENTS

Level of Observation : Event
Unique Identifier : interview__key, event_id
Data File : CM_SEC_D2
Additional Info :

Description :

Information on major land related events, including appropriation of land for outside investors, district or central government declaring land as “reserve land”, and allocation of land cultivated/inhabited by villagers for public use, as well as reasons for re-allocation of land (if any), number of households affected, and associated compensation.

Key Notes :

None

SECTION E : DEMOGRAPHICS, LAND, AND LIVESTOCK

Level of Observation : Community
Unique Identifier : interview__key
Data File : CM_SEC_E
Additional Info :

Description :

Participants utilizing SACCOs and other farmer cooperative groups, activities undertaken by cooperatives, the timing and quantity of the masika and vuli rainy seasons, detailed information on maize seed suppliers and sales, and the migration patterns of community members due to livestock activities.

Key Notes :

The name of the nearest supplier of improved maize seeds has been dropped for confidentiality purposes.

SECTION F : MARKET PRICES

Level of Observation :	Item	Data File :	CM_SEC_F, CM_SEC_F_ID
Unique Identifier :	interview__key, item_id	Additional Info :	

Description :

Market prices for the surveyed communities, reported for both the village level and the district capital area.

Key Notes :

Section F is split into two datasets: CM_SEC_F, which provides detailed location information on the community the market prices were collected at and CM_SEC_F_ID, which provides unit, weight, and price data per item. The unique identifier for CM_SEC_F is **interview__key**, while for the corresponding CM_SEC_F_ID dataset it is the combination of **interview__key** and **item_id**.

The GPS coordinates are removed for confidentiality purposes.

SECTION G : LOCAL UNITS

Level of Observation :	Item-Observation number	Data File :	CM_SEC_G
Unique Identifier :	interview__key, item_id, obs_id	Additional Info :	

Description :

Records the local units used for certain items in the surveyed communities. Similar to Section CF, the information is collected both at the village level and the district capital area. The kilogram or liter equivalent for the local units is collected, in addition to the price of the item in that local unit.

Key Notes :

The unique identifier is a combination of the community location variables plus the food item code, food item name, and food item number. This is necessary as each food item (**item_id**) is allowed up to three separate responses, or observations, of local units (**obs_id**).

Appendix A: Calculation of Panel Weights

The methodology described in this paper builds upon published documentation from established panel surveys, such as the Panel Study of Income Dynamics (PSID), conducted since 1968 by the Institute for Social Research at the University of Michigan; and the British Household Panel Survey (BHPS), whose first 13 waves were conducted between 1991 and 2003 by Institute for Social and Economic Research at the University of Essex. Both the PSID and the BHPS are nationally-representative panel surveys in the USA and the UK, respectively.

The weights are developed in the following steps:

- 1) Begin with the “base weights”, or those calculated during the previous round of the survey;
- 2) incorporate fair-share weights for composition changes;
- 3) derive attrition adjusted weights for all individuals, including split-off⁶ households, then aggregate these weights to the household level;
- 4) post-stratify the pooled weights to known population totals.

Each of these steps is discussed in detail below.

1) *Base Weights from 2008/2009 Sample*

The panel weight calculations are based on the 2014/15 household weights for the Extended Panel households. These weights are based on the inverse probability of selection, EA level non-response correction, trimming of outlier weights, and a post-stratification correction⁷. These probability weights form the first component of the NPS-SDD 2019/20 calculations.

$$W_1 = W_{2014}$$

The next step in a panel weight calculation would typically be the generation of “shadow weights”, or “phantom weights”, for those not in the previous year but still eligible as part of the sample. These weights are equivalent to what their weight would have been in the previous year, if present. In the NPS-SDD 2019/20 sample, no shadow weights were calculated as no household was tracked if it had not been found and interviewed in the 2014/15 round.

2) *Fair Share Correction*

Based on the tracking protocols, the split-off rules for the TZN-SDD 2019/20 allow for the incorporation of people who now live with original sample members. For example a young adult living with his parents in 2014, may have formed a new household in 2018, getting married and having a child. The wife and infant will be incorporated into the survey and thus require a probability of selection. Such corrections are routinely used to distribute weight to new sample

⁶ For the purposes of this note, ‘parent’ refers to the household found at the same location as the previous round of data collection, and ‘split-off’ refers to new households entering the sample through an individual originally resident in a parent household during a previous round. Since this distinction is arbitrary, however, there is no mathematical difference between the parent and split households.

⁷ See BID for the first year of the panel for further details on the calculations of the base weights.

members in panel surveys. See Rendtel and Harms (2009) for a discussion of several different methods of weight correction.

In an ideal world, it would be possible to know the probability of selection that each new member brought into the household, and adjust the household weight accordingly. This is necessary since households receiving members have higher probabilities of selection (and therefore lower weights) because the household could have been selected in multiple ways. Since we cannot know the probabilities of every member, we must make simplifying assumptions. The first simplifying assumption is that the arriving members arrived together from one other household. This would be the case if a man and woman get married and set up a new household, or in the case of an older relative moving in with adult children. In certain cases, however, arriving members come from more than one household. Assuming only two source households underestimates slightly the probability of selection (and therefore over-estimates the weights). Incidence of these cases is believed to be relatively rare, and any resulting bias should be negligible.

The second simplifying assumption we make is that the arriving members have the same probability of selection, on average, as those members that are already there. This would not be true on a case-by-case basis but would be true in the aggregate. With these simplifying assumptions, we add a factor of ½ for all households, ‘split’ or ‘parent’ that have new members arriving from other households. This takes into account the fact that they could have been selected in two ways, and assumes the probability of selection is equal.⁸

$$a_1 = \begin{cases} 1 & \text{otherwise} \\ \frac{1}{2} & \text{if new members} \end{cases}$$

Then the adjusted weights would be:

$$W_2 = W_1 * a_1$$

A limitation of the panel methodology is that the represented population is not identical to the 2019 Tanzanian household population, as it does not include immigrants in new households. Inclusion of these groups would necessitate refreshing the sample with new households. However, the represented population is close enough to the 2019 Tanzanian population to permit the desired cross-sectional estimates.

⁸ New births and arriving children under age 4 do not count as ‘new members’ in this case because they could not have been selected in 2005.

3) *Attrition Correction Factor*

All household panel surveys must tackle the problem of attrition, sample members selected for follow-up interview which cannot be located and/or interviewed. The methodology used to adjust weights for attrition in the TZNPS follows Rosenbaum & Rubin (1984). We use predicted response probabilities from a logistic regression model based on the covariates to form the weighting classes or cells. This approach has also been adopted in the PSID; see for example, Gouskova (2008).

The attrition correction in the case of the TZNPS needs to take into account two distinct sources of attrition: entire households that are not found and split-off individuals that are selected for tracking but not found. The two potential options for the calculations are (1) to treat the split-off households as household heads and do the calculations at the level of the household, or (2) to treat the households that are not found as individuals and perform the calculations at the individual level. The first option is problematic as the characteristics of household heads are dissimilar to the characteristics of split-offs (see table 2). Therefore in the TZNPS, the second methodology is employed.

To obtain the attrition adjustment factor, the probability that a sample household was successfully re-interviewed in the second round of surveys is modeled with the linear logistic model at the level of the individual. A binary response variable is created by coding the response disposition for eligible households that do not respond in the second round as 0, and households that do respond as 1⁹.

Next, a logistic response propensity model is fitted, using 2005 UNHS household and individual characteristics measured in the first wave as covariates. Included covariates are:

- gender
- age
- marital status
- current school attendance
- years of education
- labor force participation
- household size
- rural / urban status
- residence in agricultural (crop) household
- residence in a livestock household
- residence in a fishing household
- residence in household owning non-farm enterprise
- residence in household receiving transfer income
- residence in dwelling with improved walls
- residence in dwelling with improved roof
- residence in dwelling with improved floor
- residence in a household with receiving wage income

⁹ Note that only household members who have died are excluded from the attrition calculations. In some rare cases, there are eligible household members who were selected for tracking but for whom the field teams did not actually search. Possible reasons could include international migration or lack of time on the part of the field teams.

- residence is a titled dwelling
- residence in a rental dwelling
- residence in household with at least one member owning mobile phone
- region of residence¹⁰

In a few limited cases, values of unit-level variables were missing from the 2014/15 household dataset. These values were imputed using multivariate regression and logistic regression techniques. Imputations are done using the ‘impute’ command in Stata at the level of the TZNPS strata (urban/rural and region). Overall, less than one percent of the variables required imputation to replace missing values.

The estimated logistic model is used to obtain a predicted probability of response for each household member in the 2019/20 survey. These response probabilities were then aggregated to the household level (by calculating the mean), the using the household-level predicted response probabilities as the ranking variable, all households are ranked into 10 equal groups (deciles). An attrition adjustment factor was then defined as the reciprocal of the empirical response rate for the household-level propensity score decile.

Then the adjusted weights would be:

$$W_3 = W_2 * ac$$

4) *Post-stratification*

To reduce the overall standard errors, and weight the population totals up to the known population figures, a post-stratification correction is applied. Based on the projected number of households in the urban and rural segments of each region, adjustment factors are calculated. This correction also reduces overall standard errors (see Little et al, 1997).

$$W_{panel} = W_3 * ps$$

¹⁰ Zanzibar regions are aggregated into Unguja (region 51, 52, and 53) and Pemba (region 54 and 55) islands due to a lack of variable with the disaggregated categories.

Appendix B: Estimates of Sampling Errors

The sample of respondents selected in the NPS-SDD 2019/20 is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples and although the degree of variability is not known exactly, it can be estimated from the survey results and statistically evaluated.

A sampling error is typically measured in terms of the standard error for a particular statistic (mean, percentage, etc.), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design. If the sample of respondents had been selected as a simple random sample, it would have been possible to use straightforward formulas for calculating sampling errors. However, the NPS-SDD 2019/20 sample is the result of a two-stage stratified design, and, consequently, it was necessary to use more complex formulas.

The computer software program STATA used *estat effects* to calculate sampling errors for the NPS-SDD 2019/20. In addition to the standard error, STATA computed the design effect (DEFF) for each estimate, which is defined as the ratio between the standard error using the given sample design and the standard error that would result if a simple random sample had been used. A DEFF value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error is due to the use of a more complex and less statistically efficient design. STATA also computed the relative error and confidence limits for the estimates.

Sampling errors for the NPS-SDD 2019/20 are calculated for selected variables considered to be of primary interest at the household and individual levels. The results are presented in this Appendix at the national level and for each of the four primary domains of inference, namely: Dar es Salaam, other urban areas on mainland Tanzania, rural mainland Tanzania, and Zanzibar. For each variable of interest, the value of the statistic (R), its standard error (SE), the number of cases, the design effect (DEFF), the relative standard error (SE/R), and the 95 percent confidence limits ($R \pm 2SE$) are provided in Tables 1-10 below. The DEFF is considered undefined when the standard error in a simple random sample is zero (when the estimate is close to 0 or 1). When the RSE was not found to be significant at the national level, no estimates were provided for that indicator.

Table B1. Sampling errors for **National** sample, Tanzania NPS 2019/20 – Household level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
<i>Food Security</i>							
Worried there was not enough food, past 7 days	0.2209	0.0206	1183	2.9140	0.0932	0.1806	0.2613
Number of meals taken per day, by all members	2.7325	0.0229	1183	2.7110	0.0084	2.6877	2.7773
Number of meals taken per day, by children	3.4117	0.0969	620	4.9060	0.0284	3.2219	3.6016
Not enough food to feed household, 12 months	0.2265	0.0187	1183	2.3556	0.0825	0.1899	0.2632
<i>Housing, Water, and Sanitation</i>							
Monthly rent for dwelling	-	-	-	-	-	-	-
Wall material - Baked/burnt bricks	0.3914	0.0285	1184	4.0380	0.0728	0.3355	0.4473
Wall material - Concrete, cement, stones	0.2370	0.0211	1184	2.9151	0.0891	0.1957	0.2784
Wall material - Mud bricks	-	-	-	-	-	-	-
Wall material - Poles and Mud/Mud and Stones	-	-	-	-	-	-	-
Roof material - Grass, leaves, bamboo	-	-	-	-	-	-	-
Roof material - Metal sheets (GCI)	0.8552	0.0165	1184	2.5994	0.0193	0.8228	0.8875
Floor material - Concrete, cement, tiles, timber	0.5360	0.0249	1184	2.9419	0.0464	0.4872	0.5847
Floor material - Earth	0.4479	0.0244	1184	2.8508	0.0545	0.4001	0.4958
Toilet - Flush Toilet	0.3282	0.0240	1184	3.1004	0.0732	0.2811	0.3753
Toilet - No Toilet	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Not Washable)	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Washable)	0.3420	0.0264	1184	3.6673	0.0772	0.2902	0.3938
Toilet - Pit Latrine w/out Slab/Open Pit	-	-	-	-	-	-	-
Cooking Fuel - Charcoal	0.2938	0.0239	1184	3.2577	0.0814	0.2469	0.3406
Cooking Fuel - Firewood	0.6081	0.0278	1184	3.8261	0.0457	0.5537	0.6625
Cooking Fuel - Other ¹¹	-	-	-	-	-	-	-
Access to electricity	0.6478	0.0244	1150	3.0054	0.0377	0.5999	0.6957
Lighting Fuel - Electricity	0.3131	0.0252	1184	3.4897	0.0805	0.2637	0.3624
Lighting Fuel - Lamp Oil	-	-	-	-	-	-	-
Lighting Fuel - Solar	0.3129	0.0263	1184	3.8150	0.0841	0.2613	0.3645
Lighting Fuel - Torch	0.2683	0.0226	1184	3.0782	0.0842	0.2240	0.3126
Access to safe drinking water ¹² (rainy season)	0.5085	0.0308	1178	4.4563	0.0605	0.4482	0.5688
Access to safe drinking water (dry season)	0.6309	0.0306	1178	4.7194	0.0484	0.5710	0.6908
Basic sanitation facilities (toilet) ¹³	0.9351	0.0109	1103	2.1395	0.0116	0.9138	0.9564
Decent household (MMMP standards) ¹⁴	0.5069	0.0253	1154	2.9460	0.0499	0.4574	0.5565

¹¹ Other cooking fuel sources include paraffin, electricity, gas, animal residue, and biogas.

¹² Access to safe drinking water in the NPS is defined as the main source of drinking water coming from piped water, turnwell/borehole, protected dug well, or bottled water.

¹³ Basic sanitation facilities in the NPS include flush or pour toilets, ventilated pit latrines, or simple pit latrines. The WHO/UNICEF JMP defines an improved sanitation facility as one that hygienically separates human excreta from human contact.

¹⁴ The Monitoring Master Plan (MMMP), the framework for monitoring issues defined by the National Strategy for Growth and Poverty Reduction (MKUKUTA), defines a decent household as one with brick walls, cement floors, and a roof that is timber, tile, or corrugated iron.

Table B2. Sampling errors for **Dar es Salaam** sample, Tanzania NPS 2019/20 – Household level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
<i>Food Security</i>							
Worried there was not enough food, past 7 days	0.1464	0.0358	178	1.4367	0.2448	0.0761	0.2166
Number of meals taken per day, by all members	2.8887	0.0382	178	1.3368	0.0132	2.8140	2.9635
Number of meals taken per day, by children	3.4231	0.3500	73	3.0604	0.1023	2.7371	4.1091
Not enough food to feed household, 12 months	0.1519	0.0339	178	1.2483	0.2233	0.0854	0.2184
<i>Housing, Water, and Sanitation</i>							
Monthly rent for dwelling	-	-	-	-	-	-	-
Wall material - Baked/burnt bricks	0.0074	0.0073	178	1.0311	0.9965	0.0000	0.0218
Wall material - Concrete, cement, stones	0.9901	0.0078	178	0.8664	0.0079	0.9748	1.0054
Wall material - Mud bricks	-	-	-	-	-	-	-
Wall material - Poles and Mud/Mud and Stones	-	-	-	-	-	-	-
Roof material - Grass, leaves, bamboo	-	-	-	-	-	-	-
Roof material - Metal sheets (GCI)	0.9627	0.0215	178	1.8076	0.0224	0.9205	1.0050
Floor material - Concrete, cement, tiles, timber	0.9539	0.0294	178	2.7530	0.0308	0.8963	1.0116
Floor material - Earth	0.0183	0.0128	178	1.2760	0.6988	0.0000	0.0435
Toilet - Flush Toilet	0.7253	0.0443	178	1.3751	0.0610	0.6385	0.8120
Toilet - No Toilet	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Not Washable)	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Washable)	0.0145	0.0087	178	0.7472	0.6032	0.0000	0.0316
Toilet - Pit Latrine w/out Slab/Open Pit	-	-	-	-	-	-	-
Cooking Fuel - Charcoal	0.6182	0.0645	178	2.4652	0.1044	0.4917	0.7446
Cooking Fuel - Firewood	0.0267	0.0120	178	0.7709	0.4483	0.0032	0.0502
Cooking Fuel - Other ¹⁵	-	-	-	-	-	-	-
Access to electricity	0.9122	0.0281	173	1.3620	0.0308	0.8572	0.9673
Lighting Fuel - Electricity	0.8334	0.0324	178	1.0581	0.0389	0.7699	0.8970
Lighting Fuel - Lamp Oil	-	-	-	-	-	-	-
Lighting Fuel - Solar	0.0640	0.0186	178	0.8064	0.2905	0.0276	0.1004
Lighting Fuel - Torch	0.0450	0.0165	178	0.8890	0.3673	0.0126	0.0774
Access to safe drinking water ¹⁶ (rainy season)	0.9515	0.0202	178	1.2396	0.0213	0.9119	0.9912
Access to safe drinking water (dry season)	0.9662	0.0186	178	1.4724	0.0192	0.9298	1.0026
Basic sanitation facilities (toilet) ¹⁷	1.0000	0.0000	158	0.0000	0.0000	1.0000	1.0000
Decent household (MMMP standards) ¹⁸	0.9777	0.0140	172	1.1753	0.0143	0.9503	1.0051

¹⁵ Other cooking fuel sources include paraffin, electricity, gas, animal residue, and biogas.

¹⁶ Access to safe drinking water in the NPS is defined as the main source of drinking water coming from piped water, turnwell/borehole, protected dug well, or bottled water.

¹⁷ Basic sanitation facilities in the NPS include flush or pour toilets, ventilated pit latrines, or simple pit latrines. The WHO/UNICEF JMP defines an improved sanitation facility as one that hygienically separates human excreta from human contact.

¹⁸ The Monitoring Master Plan (MMMP), the framework for monitoring issues defined by the National Strategy for Growth and Poverty Reduction (MKUKUTA), defines a decent household as one with brick walls, cement floors, and a roof that is timber, tile, or corrugated iron.

Table B3. Sampling errors for **Other Urban** sample, Tanzania NPS 2019/20 – Household level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
<i>Food Security</i>							
Worried there was not enough food, past 7 days	0.1900	0.0316	303	1.3756	0.1662	0.1281	0.2519
Number of meals taken per day, by all members	2.8298	0.0354	303	1.8797	0.0125	2.7605	2.8991
Number of meals taken per day, by children	3.2750	0.2000	136	1.9235	0.0611	2.8830	3.6669
Not enough food to feed household, 12 months	0.1755	0.0326	303	1.5578	0.1857	0.1117	0.2394
<i>Housing, Water, and Sanitation</i>							
Monthly rent for dwelling	-	-	-	-	-	-	-
Wall material - Baked/burnt bricks	0.4354	0.0658	303	3.7399	0.1511	0.3065	0.5644
Wall material - Concrete, cement, stones	0.3073	0.0428	303	1.8275	0.1393	0.2234	0.3912
Wall material - Mud bricks	-	-	-	-	-	-	-
Wall material - Poles and Mud/Mud and Stones	-	-	-	-	-	-	-
Roof material - Grass, leaves, bamboo	-	-	-	-	-	-	-
Roof material - Metal sheets (GCI)	0.9294	0.0251	303	2.0320	0.0270	0.8803	0.9785
Floor material - Concrete, cement, tiles, timber	0.7377	0.0380	303	1.5887	0.0516	0.6631	0.8123
Floor material - Earth	0.2559	0.0377	303	1.5887	0.1475	0.1819	0.3299
Toilet - Flush Toilet	0.5394	0.0504	303	2.1681	0.0934	0.4407	0.6381
Toilet - No Toilet	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Not Washable)	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Washable)	0.1438	0.0262	303	1.1831	0.1822	0.0924	0.1951
Toilet - Pit Latrine w/out Slab/Open Pit	-	-	-	-	-	-	-
Cooking Fuel - Charcoal	0.5544	0.0443	303	1.6840	0.0798	0.4676	0.6412
Cooking Fuel - Firewood	0.2841	0.0398	303	1.6530	0.1401	0.2061	0.3621
Cooking Fuel - Other ¹⁹	-	-	-	-	-	-	-
Access to electricity	0.7685	0.0362	293	1.5055	0.0471	0.6975	0.8396
Lighting Fuel - Electricity	0.5008	0.0415	303	1.4614	0.0828	0.4195	0.5821
Lighting Fuel - Lamp Oil	-	-	-	-	-	-	-
Lighting Fuel - Solar	0.2338	0.0439	303	2.2850	0.1878	0.1478	0.3199
Lighting Fuel - Torch	0.1494	0.0321	303	1.7184	0.2146	0.0866	0.2123
Access to safe drinking water ²⁰ (rainy season)	0.6820	0.0425	302	1.7652	0.0624	0.5986	0.7654
Access to safe drinking water (dry season)	0.8468	0.0352	302	2.0273	0.0416	0.7778	0.9159
Basic sanitation facilities (toilet) ²¹	0.9464	0.0231	279	1.9919	0.0244	0.9011	0.9917
Decent household (MMMP standards) ²²	0.7028	0.0466	300	2.2014	0.0664	0.6114	0.7942

¹⁹ Other cooking fuel sources include paraffin, electricity, gas, animal residue, and biogas.

²⁰ Access to safe drinking water in the NPS is defined as the main source of drinking water coming from piped water, turnwell/borehole, protected dug well, or bottled water.

²¹ Basic sanitation facilities in the NPS include flush or pour toilets, ventilated pit latrines, or simple pit latrines. The WHO/UNICEF JMP defines an improved sanitation facility as one that hygienically separates human excreta from human contact.

²² The Monitoring Master Plan (MMMP), the framework for monitoring issues defined by the National Strategy for Growth and Poverty Reduction (MKUKUTA), defines a decent household as one with brick walls, cement floors, and a roof that is timber, tile, or corrugated iron.

Table B4. Sampling errors for **Mainland Rural** sample, Tanzania NPS 2019/20 – Household level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
<i>Food Security</i>							
Worried there was not enough food, past 7 days	0.2449	0.0285	580	3.5056	0.1163	0.1890	0.3007
Number of meals taken per day, by all members	2.6811	0.0313	580	3.0737	0.0117	2.6198	2.7424
Number of meals taken per day, by children	3.4567	0.1150	341	6.6760	0.0333	3.2312	3.6821
Not enough food to feed household, 12 months	0.2599	0.0252	580	2.6282	0.0968	0.2106	0.3092
<i>Housing, Water, and Sanitation</i>							
Monthly rent for dwelling	-	-	-	-	-	-	-
Wall material - Baked/burnt bricks	0.4613	0.0359	581	4.1600	0.0779	0.3909	0.5318
Wall material - Concrete, cement, stones	0.0697	0.0169	581	3.5456	0.2433	0.0365	0.1029
Wall material - Mud bricks	-	-	-	-	-	-	-
Wall material - Poles and Mud/Mud and Stones	-	-	-	-	-	-	-
Roof material - Grass, leaves, bamboo	-	-	-	-	-	-	-
Roof material - Metal sheets (GCI)	0.8171	0.0223	581	2.6722	0.0273	0.7733	0.8609
Floor material - Concrete, cement, tiles, timber	0.4026	0.0328	581	3.5688	0.0814	0.3384	0.4668
Floor material - Earth	0.5802	0.0322	581	3.4031	0.0555	0.5171	0.6433
Toilet - Flush Toilet	0.2095	0.0299	581	4.3155	0.1427	0.1509	0.2681
Toilet - No Toilet	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Not Washable)	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Washable)	0.4649	0.0368	581	4.3599	0.0792	0.3928	0.5371
Toilet - Pit Latrine w/out Slab/Open Pit	-	-	-	-	-	-	-
Cooking Fuel - Charcoal	0.1739	0.0244	581	3.3101	0.1402	0.1261	0.2217
Cooking Fuel - Firewood	0.7985	0.0267	581	3.5373	0.0334	0.7463	0.8508
Cooking Fuel - Other ²³	-	-	-	-	-	-	-
Access to electricity	0.5639	0.0336	569	3.5698	0.0595	0.4982	0.6297
Lighting Fuel - Electricity	0.1613	0.0301	581	5.3621	0.1867	0.1023	0.2203
Lighting Fuel - Lamp Oil	-	-	-	-	-	-	-
Lighting Fuel - Solar	0.3854	0.0352	581	4.1830	0.0913	0.3164	0.4544
Lighting Fuel - Torch	0.3486	0.0318	581	3.5730	0.0914	0.2862	0.4110
Access to safe drinking water ²⁴ (rainy season)	0.3659	0.0421	576	6.0630	0.1149	0.2835	0.4484
Access to safe drinking water (dry season)	0.5004	0.0415	576	5.4821	0.0830	0.4190	0.5818
Basic sanitation facilities (toilet) ²⁵	0.9225	0.0143	567	2.2055	0.0155	0.8944	0.9506
Decent household (MMMP standards) ²⁶	0.3692	0.0316	566	3.3431	0.0856	0.3073	0.4312

²³ Other cooking fuel sources include paraffin, electricity, gas, animal residue, and biogas

²⁴ Access to safe drinking water in the NPS is defined as the main source of drinking water coming from piped water, turnwell/borehole, protected dug well, or bottled water.

²⁵ Basic sanitation facilities in the NPS include flush or pour toilets, ventilated pit latrines, or simple pit latrines. The WHO/UNICEF JMP defines an improved sanitation facility as one that hygienically separates human excreta from human contact.

²⁶ The Monitoring Master Plan (MMMP), the framework for monitoring issues defined by the National Strategy for Growth and Poverty Reduction (MKUKUTA), defines a decent household as one with brick walls, cement floors, and a roof that is timber, tile, or corrugated iron.

Table B5. Sampling errors for **Zanzibar** sample, Tanzania NPS 2019/20 – Household level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
<i>Food Security</i>							
Worried there was not enough food, past 7 days	0.1516	0.0683	122	1.1166	0.4503	0.0178	0.2855
Number of meals taken per day, by all members	2.6864	0.1212	122	1.9002	0.0451	2.4488	2.9241
Number of meals taken per day, by children	2.7203	0.1313	70	0.5501	0.0483	2.4631	2.9776
Not enough food to feed household, 12 months	0.0522	0.0318	122	0.6299	0.6090	0.0000	0.1146
<i>Housing, Water, and Sanitation</i>							
Monthly rent for dwelling	-	-	-	-	-	-	-
Wall material - Baked/burnt bricks	0.0159	0.0134	122	0.3557	0.8448	0.0000	0.0423
Wall material - Concrete, cement, stones	0.6816	0.1282	122	2.3345	0.1881	0.4303	0.9329
Wall material - Mud bricks	-	-	-	-	-	-	-
Wall material - Poles and Mud/Mud and Stones	-	-	-	-	-	-	-
Roof material - Grass, leaves, bamboo	-	-	-	-	-	-	-
Roof material - Metal sheets (GCI)	0.8435	0.1011	122	2.3878	0.1199	0.6453	1.0417
Floor material - Concrete, cement, tiles, timber	0.7132	0.1235	122	2.2992	0.1732	0.4710	0.9553
Floor material - Earth	0.2868	0.1235	122	2.2992	0.4307	0.0447	0.5290
Toilet - Flush Toilet	0.1538	0.0616	122	0.8998	0.4009	0.0329	0.2746
Toilet - No Toilet	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Not Washable)	-	-	-	-	-	-	-
Toilet - Pit Latrine w/Slab (Washable)	0.0017	0.0018	122	0.0601	1.0000	0.0000	0.0053
Toilet - Pit Latrine w/out Slab/Open Pit	-	-	-	-	-	-	-
Cooking Fuel - Charcoal	0.1372	0.0614	122	0.9804	0.4473	0.0169	0.2575
Cooking Fuel - Firewood	0.5353	0.1733	122	3.7198	0.3237	0.1956	0.8749
Cooking Fuel - Other ²⁷	-	-	-	-	-	-	-
Access to electricity	0.8012	0.0825	115	1.1594	0.1029	0.6395	0.9628
Lighting Fuel - Electricity	0.5977	0.1409	122	2.5461	0.2358	0.3215	0.8740
Lighting Fuel - Lamp Oil	-	-	-	-	-	-	-
Lighting Fuel - Solar	0.1047	0.0705	122	1.6364	0.6740	0.0000	0.2429
Lighting Fuel - Torch	0.0163	0.0090	122	0.1542	0.5491	0.0000	0.0339
Access to safe drinking water ²⁸ (rainy season)	0.9915	0.0067	122	0.1640	0.0068	0.9783	1.0046
Access to safe drinking water (dry season)	0.9915	0.0067	122	0.1643	0.0068	0.9783	1.0046
Basic sanitation facilities (toilet) ²⁹	0.9278	0.0589	99	1.3954	0.0635	0.8124	1.0433
Decent household (MMMP standards) ³⁰	0.6426	0.1376	116	2.5165	0.2140	0.3730	0.9122

²⁷ Other cooking fuel sources include paraffin, electricity, gas, animal residue, and biogas

²⁸ Access to safe drinking water in the NPS is defined as the main source of drinking water coming from piped water, turnwell/borehole, protected dug well, or bottled water.

²⁹ Basic sanitation facilities in the NPS include flush or pour toilets, ventilated pit latrines, or simple pit latrines. The WHO/UNICEF JMP defines an improved sanitation facility as one that hygienically separates human excreta from human contact.

³⁰ The Monitoring Master Plan (MMMP), the framework for monitoring issues defined by the National Strategy for Growth and Poverty Reduction (MKUKUTA), defines a decent household as one with brick walls, cement floors, and a roof that is timber, tile, or corrugated iron.

Table B6. Sampling errors for **National** sample, Tanzania NPS 2019/20 – Individual level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
Sex, % female	0.5170	0.0095	5584	2.0268	0.0184	0.4984	0.5357
Age	22.85	0.4104	5583	2.5489	0.0180	22.05	23.66
Never married (>=12 yrs)	0.4726	0.0142	3621	2.9406	0.0301	0.4447	0.5005
Females age 12-49 years	0.2729	0.0072	5587	1.4508	0.0263	0.2588	0.2870
Female-headed household	0.2571	0.0223	1184	3.0672	0.0865	0.2135	0.3008
Household size	-	-	-	-	-	-	-
<i><u>Education (>=5 years of age)</u></i>							
Literate	0.7770	0.0156	4594	6.4310	0.0200	0.7464	0.8075
No education	0.1447	0.0115	4594	4.9100	0.0795	0.1222	0.1673
No education, female	0.1695	0.0134	2436	3.1236	0.0793	0.1431	0.1958
No education, male	-	-	-	-	-	-	-
Net primary enrollment rate	0.8762	0.0203	5587	3.3826	0.0232	0.8364	0.9160
Net primary enrollment rate, female	0.8789	0.0224	2936	2.1403	0.0255	0.8349	0.9228
Net primary enrollment rate, male	0.8735	0.0274	2648	2.9635	0.0313	0.8199	0.9272
Total spending on education ³¹ , per person (TSh)	-	-	-	-	-	-	-
<i><u>Health</u></i>							
Bednet used last night	0.7308	0.0245	5085	15.4509	0.0335	0.6829	0.7787
Birth attended by skilled health worker ³²	0.8936	0.0288	408	3.5626	0.0323	0.8371	0.9502
Child had diarrhea, last 2 weeks (<5 yrs)	-	-	-	-	-	-	-
<i><u>Subjective Welfare & Crime (>=15)</u></i>							
Satisfaction ³³ , health	2.3900	0.0523	2606	4.2293	0.0219	2.2875	2.4925
Satisfaction, financial situation	4.7767	0.0641	2606	3.5501	0.0134	4.6510	4.9023
Satisfaction, housing	3.4253	0.0791	2606	5.2306	0.0231	3.2703	3.5803
Satisfaction, job	3.9325	0.0948	2606	4.9783	0.0241	3.7467	4.1182
Satisfaction, health care available	3.0405	0.0529	2606	3.0817	0.0174	2.9369	3.1442
Satisfaction, education available	3.8774	0.0852	2606	5.3051	0.0220	3.7104	4.0444
Satisfaction, protection against crime/your safety	2.4649	0.0421	2606	3.3752	0.0171	2.3825	2.5473
Victim of crime, past 12 months (>12 yrs)	2.3900	0.0523	2606	4.2293	0.0219	2.2875	2.4925
<i><u>Labour³⁴</u></i>							
Employed - Wage work, last 12 months (>=5)	0.2200	0.0157	4593	6.6226	0.0715	0.1892	0.2508
Employed - Self-employed, last 12 months(>=5)	0.1338	0.0093	4593	3.4278	0.0695	0.1156	0.1520
<i><u>Main type of occupation</u></i>							
Employed Agriculture/Livestock (>=15)	0.4665	0.0229	3260	6.8614	0.0491	0.4216	0.5113
Employed (Non-Ag), unpaid family work (>=15)	-	-	-	-	-	-	-
Employed (Non-Ag), with employees (>=15)	-	-	-	-	-	-	-
Employed (Non-Ag), no employees (>=15)	0.0935	0.0091	3260	3.1867	0.0974	0.0756	0.1113
Employed, private sector (>=15)	-	-	-	-	-	-	-

³¹ Spending on an individual's education in the past 12 months by members of the household.

³² Of births in past 24 mos., the proportion attended by a skilled health worker (defined as doctor, nurse, midwife)

³³ Values shown are derived from scaled responses where 1 = very satisfied and 7 = very dissatisfied.

³⁴ The International Labour Organization (ILO) defines an employed person as one who for at least one hour in the last seven days did any work for wages, profits, barter, or in a family business for free or has a job to which they will return to for work. An unemployed person is one who did not work in last seven days, does not have a job to which they will return, were available to work, and were looking for a job.

Table B7. Sampling errors for **Dar es Salaam** sample, Tanzania NPS 2019/20 – Individual level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
Sex, % female	0.5282	0.0176	674	0.6333	0.0334	0.4936	0.5628
Age	24.79	0.8412	674	1.1888	0.0339	23.14	26.44
Never married (≥ 12 years of age)	0.4745	0.0339	499	1.7463	0.0714	0.4081	0.5408
Females age 12-49 years	0.3493	0.0181	674	0.7304	0.0518	0.3139	0.3848
Female-headed household	0.2121	0.0366	178	1.1181	0.1724	0.1404	0.2837
Household size	-	-	-	-	-	-	-
<i><u>Education (≥ 5 years of age)</u></i>							
Literate	0.9313	0.0125	585	1.0486	0.0134	0.9068	0.9557
No education	0.0419	0.0108	585	1.2542	0.2580	0.0207	0.0631
No education, female	0.0399	0.0122	313	0.9170	0.3059	0.0160	0.0639
No education, male	-	-	-	-	-	-	-
Net primary enrollment rate	0.9536	0.0387	674	1.4960	0.0406	0.8778	1.0295
Net primary enrollment rate, female	1.0000	0.0000	356	0.0000	0.0000	1.0000	1.0000
Net primary enrollment rate, male	0.8993	0.0809	318	1.4428	0.0900	0.7408	1.0579
Total spending on education ³⁵ , per person (TSh)	-	-	-	-	-	-	-
<i><u>Health</u></i>							
Bednet used last night	0.8550	0.0274	604	2.7292	0.0320	0.8014	0.9086
Birth attended by skilled health worker ³⁶	1.0000	0.0000	39	0.0000	0.0000	1.0000	1.0000
Child had diarrhea, last 2 weeks (< 5 yrs)	-	-	-	-	-	-	-
<i><u>Subjective Welfare & Crime (≥ 15)</u></i>							
Satisfaction ³⁷ , health	2.2012	0.1019	374	2.1229	0.0463	2.0015	2.4009
Satisfaction, financial situation	4.8765	0.1431	374	1.9852	0.0294	4.5959	5.1570
Satisfaction, housing	3.3371	0.1519	374	2.0977	0.0455	3.0395	3.6347
Satisfaction, job	4.3083	0.2282	374	2.4818	0.0530	3.8610	4.7555
Satisfaction, health care available	2.9958	0.1274	374	2.0136	0.0425	2.7461	3.2454
Satisfaction, education available	3.6829	0.2320	374	4.2999	0.0630	3.2282	4.1375
Satisfaction, protection against crime/your safety	2.8136	0.1290	374	2.1769	0.0458	2.5608	3.0663
Victim of crime, past 12 months (> 12 yrs)	-	-	-	-	-	-	-
<i><u>Labour³⁸</u></i>							
Employed - Wage work, last 12 months (≥ 5)	0.3188	0.0385	585	2.9417	0.1208	0.2433	0.3943
Employed - Self-employed, last 12 months (≥ 5)	0.2348	0.0176	585	0.7408	0.0749	0.2003	0.2692
<i><u>Main type of occupation</u></i>							
Employed Agriculture/Livestock (≥ 15)	0.0059	0.0035	451	0.7370	0.6038	-0.0011	0.0128
Employed (Non-Ag), unpaid family work (≥ 15)	-	-	-	-	-	-	-
Employed (Non-Ag), with employees (≥ 15)	-	-	-	-	-	-	-
Employed (Non-Ag), no employees (≥ 15)	0.2388	0.0238	451	1.0711	0.0997	0.1921	0.2855
Employed, private sector (≥ 15)	-	-	-	-	-	-	-

³⁵ Spending on an individual's education in the past 12 months by members of the household.

³⁶ Of births in past 24 mos., the proportion attended by a skilled health worker (defined as doctor, nurse, midwife)

³⁷ Values shown are derived from scaled responses where 1 = very satisfied and 7 = very dissatisfied.

³⁸ The International Labour Organization (ILO) defines an employed person as one who for at least one hour in the last seven days did any work for wages, profits, barter, or in a family business for free or has a job to which they will return to for work. An unemployed person is one who did not work in last seven days, does not have a job to which they will return, were available to work, and were looking for a job.

Table B8. Sampling errors for **Other Urban** sample, Tanzania NPS 2019/20 – Individual level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
Sex, % female	0.4817	0.0171	1259	0.9859	0.0354	0.4482	0.5151
Age	25.27	0.7604	1259	1.2823	0.0301	23.78	26.76
Never married (≥ 12 year of age)	0.5046	0.0306	883	2.3030	0.0607	0.4445	0.5646
Females age 12-49 years	0.2789	0.0171	1259	1.2242	0.0612	0.2454	0.3123
Female-headed household	0.1660	0.0324	303	1.6065	0.1950	0.1026	0.2294
Household size	-	-	-	-	-	-	-
<i><u>Education (≥ 5 years of age)</u></i>							
Literate	0.8544	0.0238	1068	3.2448	0.0279	0.8077	0.9010
No education	0.0991	0.0208	1068	3.4452	0.2097	0.0584	0.1399
No education, female	0.1165	0.0294	554	2.9602	0.2528	0.0588	0.1742
No education, male	-	-	-	-	-	-	-
Net primary enrollment rate	0.9375	0.0281	1259	1.2572	0.0299	0.8826	0.9925
Net primary enrollment rate, female	0.9031	0.0500	653	1.1915	0.0554	0.8051	1.0011
Net primary enrollment rate, male	0.9645	0.0221	606	0.7335	0.0229	0.9212	1.0078
Total spending on education ³⁹ , per person (TSh)	-	-	-	-	-	-	-
<i><u>Health</u></i>							
Bednet used last night	0.7906	0.0293	1105	3.9479	0.0371	0.7332	0.8480
Birth attended by skilled health worker ⁴⁰	0.9635	0.0110	76	0.2195	0.0114	0.9420	0.9851
Child had diarrhea in last 2 weeks (< 5 yrs)	-	-	-	-	-	-	-
<i><u>Subjective Welfare & Crime (≥ 15)</u></i>							
Satisfaction ⁴¹ , health	2.3972	0.0899	628	2.1055	0.0375	2.2210	2.5734
Satisfaction, financial situation	4.9150	0.1150	628	2.1316	0.0234	4.6896	5.1403
Satisfaction, housing	3.2953	0.1706	628	4.7316	0.0518	2.9609	3.6296
Satisfaction, job	4.0278	0.1728	628	3.1979	0.0429	3.6891	4.3664
Satisfaction, health care available	3.1010	0.0904	628	1.7417	0.0292	2.9238	3.2781
Satisfaction, education available	3.8290	0.1664	628	3.8573	0.0434	3.5030	4.1551
Satisfaction, protection against crime/your safety	2.5970	0.0924	628	2.5117	0.0356	2.4158	2.7781
Victim of crime, past 12 months (> 12 yrs)	-	-	-	-	-	-	-
<i><u>Labour⁴²</u></i>							
Employed - Wage work, last 12 months (≥ 5)	0.2814	0.0259	1068	2.3677	0.0922	0.2306	0.3322
Employed - Self-employed, last 12 months (≥ 5)	0.1862	0.0189	1068	1.6705	0.1013	0.1492	0.2232
<i><u>Main type of occupation</u></i>							
Employed Agriculture/Livestock (≥ 15)	0.2507	0.0308	801	2.8586	0.1228	0.1904	0.3111
Employed (Non-Ag), unpaid family work (≥ 15)	-	-	-	-	-	-	-
Employed (Non-Ag), with employees (≥ 15)	-	-	-	-	-	-	-
Employed (Non-Ag), no employees (≥ 15)	0.1573	0.0217	801	2.0155	0.1381	0.1147	0.1999
Employed, private sector (≥ 15)	-	-	-	-	-	-	-

³⁹ Spending on an individual's education in the past 12 months by members of the household.

⁴⁰ Of births in past 24 mos., the proportion attended by a skilled health worker (defined as doctor, nurse, midwife)

⁴¹ Values shown are derived from scaled responses where 1 = very satisfied and 7 = very dissatisfied.

⁴² The International Labour Organization (ILO) defines an employed person as one who for at least one hour in the last seven days did any work for wages, profits, barter, or in a family business for free or has a job to which they will return to for work. An unemployed person is one who did not work in last seven days, does not have a job to which they will return, were available to work, and were looking for a job.

Table B9. Sampling errors for **Mainland Rural** sample, Tanzania NPS 2019/20 – Individual level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
Sex, % female	0.5204	0.0122	3004	2.4529	0.0235	0.4965	0.5443
Age	22.13	0.4945	3004	2.6887	0.0223	21.16	23.10
Never married (>=12 years of age)	0.4656	0.0181	1823	3.3647	0.0389	0.4301	0.5012
Females age 12-49 years	0.2607	0.0084	3007	1.4994	0.0322	0.2443	0.2772
Female-headed household	0.2792	0.0297	581	3.5177	0.1065	0.2209	0.3375
Household size	-	-	-	-	-	-	-
<i><u>Education (>=5 years of age)</u></i>							
Literate	0.7394	0.0206	2432	7.3871	0.0279	0.6990	0.7798
No education	0.1668	0.0148	2432	5.2957	0.0889	0.1377	0.1958
No education, female	0.1960	0.0171	1288	3.2987	0.0870	0.1626	0.2294
No education, male	-	-	-	-	-	-	-
Net primary enrollment rate	0.8616	0.0239	3007	3.5254	0.0277	0.8148	0.9085
Net primary enrollment rate, female	0.8658	0.0264	1581	2.2634	0.0305	0.8140	0.9176
Net primary enrollment rate, male	0.8574	0.0320	1423	3.0022	0.0373	0.7948	0.9201
Total spending on education ⁴³ , per person (TSh)	-	-	-	-	-	-	-
<i><u>Health</u></i>							
Bednet used last night	0.7045	0.0319	2772	18.2984	0.0452	0.6420	0.7669
Birth attended by skilled health worker ⁴⁴	0.8614	0.0396	236	3.8562	0.0460	0.7838	0.9391
Child had diarrhea in last 2 weeks (<5 yrs)	-	-	-	-	-	-	-
<i><u>Subjective Welfare & Crime (>=15)</u></i>							
Satisfaction ⁴⁵ , health	2.4222	0.0712	1280	5.2394	0.0294	2.2826	2.5617
Satisfaction, financial situation	4.7421	0.0842	1280	4.1280	0.0178	4.5771	4.9070
Satisfaction, housing	3.4997	0.1033	1280	5.9166	0.0295	3.2971	3.7022
Satisfaction, job	3.8338	0.1239	1280	6.1347	0.0323	3.5910	4.0765
Satisfaction, health care available	3.0619	0.0707	1280	3.6363	0.0231	2.9233	3.2004
Satisfaction, education available	3.9096	0.1086	1280	5.9452	0.0278	3.6968	4.1224
Satisfaction, protection against crime/your safety	2.3696	0.0488	1280	3.8169	0.0206	2.2738	2.4653
Victim of crime, past 12 months (>12 yrs)	-	-	-	-	-	-	-
<i><u>Labour⁴⁶</u></i>							
Employed - Wage work, last 12 months (>=5)	0.1928	0.0184	2431	7.2535	0.0952	0.1569	0.2288
Employed - Self-employed, last 12 months(>=5)	0.1117	0.0107	2431	3.8931	0.0961	0.0906	0.1327
<i><u>Main type of occupation</u></i>							
Employed Agriculture/Livestock (>=15)	0.5989	0.0282	1621	7.5261	0.0471	0.5437	0.6542
Employed (Non-Ag), unpaid family work (>=15)	-	-	-	-	-	-	-
Employed (Non-Ag), with employees (>=15)	-	-	-	-	-	-	-
Employed (Non-Ag), no employees (>=15)	0.0558	0.0087	1621	3.2490	0.1555	0.0388	0.0728
Employed, private sector (>=15)	-	-	-	-	-	-	-

⁴³ Spending on an individual's education in the past 12 months by members of the household

⁴⁴ Of births in past 24 mos., the proportion attended by a skilled health worker (defined as doctor, nurse, midwife)

⁴⁵ Values shown are derived from scaled responses where 1 = very satisfied and 7 = very dissatisfied

⁴⁶ The International Labour Organization (ILO) defines an employed person as one who for at least one hour in the last seven days did any work for wages, profits, barter, or in a family business for free or has a job to which they will return to for work. An unemployed person is one who did not work in last seven days, does not have a job to which they will return, were available to work, and were looking for a job.

Table B10. Sampling errors for **Zanzibar** sample, Tanzania NPS 2019/20 – Individual level

Indicator	Value	Standard Error	Number of Cases	Design Effect	Relative Standard Error	Confidence Limits	
	R	SE	N	DEFF	SE/R	R-2SE	R+2SE
Sex, % female	0.6007	0.0454	647	1.0549	0.0756	0.5117	0.6897
Age	22.28	1.0090	646	0.3773	0.0453	20.30	24.26
Never married (>=12 years of age)	0.4394	0.0846	416	2.3068	0.1925	0.2736	0.6053
Females age 12-49 years	0.3230	0.0569	647	1.8164	0.1761	0.2115	0.4345
Female-headed household	0.5164	0.1667	122	3.4274	0.3227	0.1897	0.8430
Household size	-	-	-	-	-	-	-
<i><u>Education (>=5 years of age)</u></i>							
Literate	0.8198	0.0507	509	1.7229	0.0618	0.7204	0.9192
No education	0.1739	0.0477	509	1.5666	0.2742	0.0804	0.2673
No education, female	0.1980	0.0717	281	1.9589	0.3622	0.0575	0.3386
No education, male	-	-	-	-	-	-	-
Net primary enrollment rate	0.9691	0.0262	647	0.3861	0.0270	0.9178	1.0203
Net primary enrollment rate, female	0.9774	0.0219	346	0.2182	0.0224	0.9345	1.0204
Net primary enrollment rate, male	0.9574	0.0367	301	0.2286	0.0384	0.8854	1.0294
Total spending on education ⁴⁷ , per person (TSh)	-	-	-	-	-	-	-
<i><u>Health</u></i>							
Bednet used last night	0.7052	0.0856	604	4.1648	0.1213	0.5376	0.8729
Birth attended by skilled health worker ⁴⁸	0.9744	0.0193	57	0.1929	0.0198	0.9366	1.0122
Child had diarrhea in last 2 weeks (<5 yrs)	-	-	-	-	-	-	-
<i><u>Subjective Welfare & Crime (>=15)</u></i>							
Satisfaction ⁴⁹ , health	2.3130	0.1029	324	0.7764	0.0445	2.1114	2.5147
Satisfaction, financial situation	4.3125	0.3027	324	2.5309	0.0702	3.7193	4.9058
Satisfaction, housing	2.7615	0.1926	324	2.1779	0.0698	2.3840	3.1391
Satisfaction, job	4.2387	0.4210	324	1.8969	0.0993	3.4136	5.0638
Satisfaction, health care available	2.2736	0.1098	324	0.8935	0.0483	2.0585	2.4888
Satisfaction, education available	4.1973	0.5293	324	3.5499	0.1261	3.1598	5.2348
Satisfaction, protection against crime/your safety	2.5518	0.1714	324	1.0781	0.0672	2.2158	2.8878
Victim of crime, past 12 months (>12 yrs)	-	-	-	-	-	-	-
<i><u>Labour⁵⁰</u></i>							
Employed - Wage work, last 12 months (>=5)	0.2681	0.0773	509	3.0133	0.2882	0.1166	0.4195
Employed - Self-employed, last 12 months(>=5)	0.0662	0.0208	509	0.6914	0.3139	0.0255	0.1069
<i><u>Main type of occupation</u></i>							
Employed Agriculture/Livestock (>=15)	0.1888	0.0535	387	1.4099	0.2832	0.0840	0.2936
Employed (Non-Ag), unpaid family work (>=15)	-	-	-	-	-	-	-
Employed (Non-Ag), with employees (>=15)	-	-	-	-	-	-	-
Employed (Non-Ag), no employees (>=15)	0.0891	0.0283	387	0.7432	0.3172	0.0337	0.1445
Employed, private sector (>=15)	-	-	-	-	-	-	-

⁴⁷ Spending on an individual's education in the past 12 months by members of the household

⁴⁸ Of births in past 24 mos., the proportion attended by a skilled health worker (defined as doctor, nurse, midwife)

⁴⁹ Values shown are derived from scaled responses where 1 = very satisfied and 7 = very dissatisfied

⁵⁰ The International Labour Organization (ILO) defines an employed person as one who for at least one hour in the last seven days did any work for wages, profits, barter, or in a family business for free or has a job to which they will return to for work. An unemployed person is one who did not work in last seven days, does not have a job to which they will return, were available to work, and were looking for a job.

Appendix C: Confidential Information

To maintain the confidentiality of our respondents, certain parts of the NPS database have not been made publicly available. The confidential variables pertain to (i) names of the respondents in the household and community questionnaires, (ii) village and constituency names, (iii) descriptions of household dwelling and agricultural plot locations, (iv) phone numbers of household members and their reference contacts, (v) GPS-based household and agricultural plot locations, (vi) names of the children of the head/spouse living elsewhere, (vii) names of the deceased household members, and (viii) names of individuals listed in the network roster.

Appendix D: Consumption Aggregate

This Appendix explains the steps involved in the construction of the consumption measure and describes the estimation of the nominal household consumption. The methodology used for the NPS-SDD 2019/20 is identical to the methodology used in all previous rounds of the NPS so that the aggregates are comparable over time.

1.0 The construction of the consumption aggregate

Creating the consumption aggregate is guided by theoretical and practical considerations. First, it must be as comprehensive as possible given the available information. Omitting some components assumes that they do not contribute to people's welfare or that they do not affect the ranking of the population. Second, market and non-market transactions are to be included, which means that purchases are not the sole component of the indicator. Third, expenditure is not consumption. For perishable goods, mostly food, it is usual to assume that all purchases are consumed. However, for other goods and services, such as housing or durable goods, corrections have to be made. Fourth, a common reference period should be chosen. Typically, each consumption module in a survey has a different reference period, for instance, education could refer to the last 12 months, food could refer to the last week, and health could refer to the last month. Following common practice in Tanzania, consumption will be reported per 28 days.

1.1 Food component

A few general principles are applied in the construction of this component. First, all possible sources of consumption are included. This means that the food component comprises not only consumption from purchases in the market or from meals eaten away from home but also food that was produced by the household or received as a gift. Second, only food that was actually consumed, as opposed to total food purchases or total home-produced food, enters into the consumption aggregate. Third, non-purchased consumed food needs to be valued and included in the welfare measure. The NPS gathers information on the amount spent on purchases and on the quantity purchased for all food items. A measure of prices, or rather a measure of unit values, can be obtained by dividing the expenditure by the quantity and can be used to value own-consumption or food received as a gift.

1.2 Non-food component

Data on an extensive range of non-food items are usually available: utilities such as water, kerosene, electricity, health, transportation, communications, recreation, education, furnishings, personal care, etc. Unlike food, the NPS only collects data on purchases of non-food items, that is, the survey assumes that the consumption of non-food goods and services coming from own-production, from gifts or from other sources is negligible and can be ignored. In addition, the NPS does not gather information on quantities purchased because most non-food items are too heterogeneous to try to calculate prices.

Each non-food component is associated with a particular reference period, which reflects the frequency of that purchase or consumption. For instance, expenses on public transportation are

collected for the last seven days, expenses on mobile phones and personal care are collected for the last month, and expenses on furnishings and small appliances for the last twelve months.

The information about some non-food goods and services needs to be excluded from the consumption aggregate because those items are not consumption. Payments of mortgages or debts are financial transactions and not consumption. Losses to theft are neither expenditure nor consumption. Remittances to other households are expenditures but not consumption. Expenditures on marriages, dowries, births and funerals are consumption but given their sporadic nature and the fact that the reported amounts are typically rather large, this consumption is left out to avoid overestimating the true level of welfare of the household.

1.3 Durable goods

Ownership of durable goods, such as telephones, beds, bicycles, tractors, etc., can be an important component in calculating the welfare of the households. Given that these goods last for many years, the expenditure on purchases is not the proper indicator to consider. The right measure to estimate, for consumption purposes, is the stream of services that households derive from all durable goods in their possession over the relevant reference period. This flow of utility is unobservable but it can be assumed to be proportional to the value of the good. Information on the number of durable goods owned, their age, and their value (current or original) is required to estimate this component of consumption. Unfortunately, Rounds 1 and 2 of the NPS only provide data on the number of durable goods owned by the household, while Rounds 3 and 4 and the NPS-SDD asked for the number owned, age, and value. Calculating this consumption component in previous rounds would have involved making assumptions about their age, their current value and their lifespan. This might have resulted in an extremely imprecise estimation, thus it was decided to exclude this component from the consumption aggregate in Round 1 and 2, and as this is a panel survey, the durables component was likewise excluded in the NPS-SDD to maintain comparability.

1.4 Housing

Housing conditions are considered to be an essential part of people's living standards. Nonetheless, in most developing countries limited or non-existent housing rental markets pose a difficult challenge for the estimation and inclusion of this component in the consumption aggregate. As in the case of durable goods, the objective is to measure the flow of services received by the household from occupying its dwelling. When a household lives in a rented dwelling, and provided that rental markets function well, that value would be the actual rent paid. If enough families rent dwellings, imputations can be made for those families that own their dwelling. It is common to include a question for homeowners asking them to provide the hypothetical rent they would pay for renting their dwelling. In principle, these self-reported rents can be used to value the consumption the household gets from occupying its dwelling, but these amounts are not always credible or usable, particularly in rural areas where very few households rent. If imputed rents cannot be estimated, actual rents must be excluded from the consumption aggregate for the sake of consistency. Round 2 of the NPS did not collect information on imputed rents and given that the number of households living in rented dwellings is fairly small, this component was excluded from the consumption aggregate for that round. In Rounds 3 and 4 and the NPS-SDD, both actual

and estimated rents are reported; however, this component was again excluded in order to maintain comparability between rounds.

2.0 Price adjustment

Nominal consumption of the household must be adjusted for cost-of-living differences. Temporal and spatial price adjustments are required to adjust consumption to real terms. Temporal differences are associated with the duration of the fieldwork (TSh 1,000 in October 2019 may not have the same value as in August 2020) as well as with the different recall periods (TSh 1,000 spent in the last month may not have the same value as in the last quarter or in the last year)⁵¹. Spatial differences are associated with the location of households interviewed in the survey (the purchasing power of TSh 1,000 in Dar es Salaam may be different than in Ruvuma).

The price index required to adjust nominal consumption could come partly or fully from the NPS. A price index is a combination of prices and budget shares in a base and a comparison period. The budget shares are the weights that each commodity has in the index and are equivalent to their share in the cost of the bundle being analysed. The NPS can provide information on budget shares for all items, but information on prices (unit values) only for food items. Two possible price indices could be constructed: a price index based only on food items (the assumption would be that non-food items show the same temporal and spatial differences than food items) or a price index that takes into account both food and non-food by combining information from the survey (food prices and weights for food and non-food items) and the official consumer price index (non-food prices).

Fisher price indices based only on food items were employed to adjust the nominal consumption aggregate for spatial and temporal price differences. Fisher price indices do a better job than Laspeyres or Paasche price indices at capturing differences in consumption patterns across domains as a consequence of differences in relative prices. They also avoid overstating or understating the true inflation (as would be the case with Laspeyres and Paasche respectively).⁵² Price indices were estimated by stratum and quarter (a period of three consecutive months) and the base period comprises the entire period of each round of the NPS – that is, price indices were calculated separately for each round. A price index by stratum and month would have been ideal, but complications arose with the sample size because in some combinations of stratum and month few households were interviewed. Price indices by stratum and quarter might not be as precise as price indices by stratum and month but they provide more robust results. Fisher price indices by stratum and quarter were constructed using the following formula:

$$F_i = \sqrt{L_i P_i}$$

where i is a combination of stratum and quarter, L refers to a Laspeyres price index and P refers to a Paasche price index. The Laspeyres and Paasche price indices are defined as

⁵¹ In the NPS-SDD 2019/20, the number of interviews conducted in January 2020 was negligible; therefore, these have been reallocated to the December 2019 month for simplicity of quarter definitions

⁵² See Deaton and Tarozzi (2000).

$$L_i = \sum_{k=1}^n w_{0k} \left(\frac{p_{ik}}{p_{0k}} \right), P_i = \left[\sum_{k=1}^n w_{ik} \left(\frac{p_{ik}}{p_{0k}} \right)^{-1} \right]^{-1}$$

where w_{0k} is the average household budget share of item k in the country, w_{ik} is the average household budget share of item k in stratum and quarter i , p_{0k} is the national median price of item k and p_{ik} is the median price of item k in stratum and quarter i .

Food items that had been purchased by at least 5 households by stratum and quarter were included in the construction of the price indices. Residual or catch-all food categories were also excluded because their unit values effectively mix several items. The share of the bundle considered for the price indices with respect to total food consumption is similar in both rounds of the NPS: it stands at around 67% at the national level and goes from 63% in rural mainland to more than 80% in Dar es Salaam and Zanzibar. Median unit values were estimated for the price indices because the median is less sensitive to outliers than the mean.

Table 2.1 shows the Fisher food price indices for each round of the NPS. Spatial price differences across strata remain fairly constant over time. The most expensive stratum is Dar es Salaam whereas the cheapest is rural areas in mainland. The cost of living in other urban areas in mainland and Zanzibar is relatively similar. Temporal price differences across quarters are noticeably larger during the NPS 2010/2011, thus reflecting a higher inflation in the second round compared to the first round.

Table 2.1: Fisher food price indices by stratum and quarter, NPS 2008/2009, NPS 2010/2011, NPS 2012/2013, NPS 2014/2015 and NPS-SDD 2019/2020

NPS 2008/2009	Oct-Dec 2008	Jan-Mar 2009	Apr-Jun 2009	Jul-Sep 2009
Dar es Salaam	1.08	1.18	1.20	1.15
Other urban	1.00	1.04	1.04	1.04
Rural	0.92	0.86	0.92	0.96
Zanzibar	1.03	1.06	1.07	1.07
NPS 2010/2011	Oct-Dec 2010	Jan-Mar 2011	Apr-Jun 2011	Jul-Sep 2011
Dar es Salaam	1.05	1.14	1.17	1.18
Other urban	0.90	0.97	1.06	1.08
Rural	0.87	0.86	0.98	1.02
Zanzibar	0.89	0.98	1.06	1.07
NPS 2012/2013	Oct-Dec 2012	Jan-Mar 2012	Apr-Jun 2013	Jul-Sep 2013

Dar es Salaam	1.12	1.17	1.13	1.07
Other urban	0.99	1.04	1.02	0.93
Rural	0.95	0.94	1.00	0.93
Zanzibar	0.88	0.91	0.93	0.99
<hr/>				
NPS 2014/2015	Oct-Dec 2014	Jan-Mar 2015	Apr-Jun 2015	Jul-Sep 2015
Dar es Salaam	1.00	1.09	1.17	1.20
Other urban	0.93	0.98	1.01	1.04
Rural	0.93	0.85	0.99	0.90
Zanzibar	0.90	0.88	0.88	1.01
<hr/>				
NPS-SDD 2019/2020	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019
Dar es Salaam	-	1.12	1.10	1.10
Other urban	0.99	0.84	1.10	1.04
Rural	0.95	0.97	0.97	1.01
Zanzibar	1.03	0.85	0.60	1.23

Updating monetary figures across rounds of the NPS

Price indices will also be required to update monetary figures across rounds of the NPS. The price indices from Table 2.1 are used to adjust nominal consumption for cost of living differences within each round of the NPS. Yet it would not be correct to compare real consumption at NPS 2008/09 prices with real consumption at NPS 2010/11 or NPS 2012/2013 prices.

Fisher price indices based only on food items were employed to adjust consumption for spatial and temporal price differences across rounds of the NPS. It was assumed that non-food goods and services show the same temporal and spatial price differences across rounds as food items. Price indices were estimated for the entire country and for the full extent of each round: in the case of the NPS-SDD 2019/20, the base period is the 12 months of the NPS 2014/2015 and the comparison period is the 12 months of the NPS-SDD 2019/20.

Food items that had been purchased by at least 50 households in the country were included in the construction of the price indices. As with the previous price indices, residual food categories were also excluded and median rather than mean unit values were used. The share of the bundle considered for the price indices with respect to total food consumption is similar in all rounds of the NPS: it stands at around 98 percent.

3.0 Household composition adjustment

The final step in constructing the welfare indicator involves going from a measure of standard of living defined at the household level to another at the individual level. Ultimately, the concern is to make comparisons across individuals and not across households. Two types of adjustments have to be made to correct for differences in composition and size. The first relates to demographic composition. Household members have different needs based mainly on their age and gender, although other characteristics can also be considered. Equivalence scales are the factors that reflect those differences and are used to convert all household members into “equivalent adults”. For instance, children are thought to need a fraction of what adults require, thus if a comparison is made between two households with the same total consumption and equal number of members, but one of them has children while the other is comprised of only adults, it could be expected that the former will have a higher individual welfare than the latter. Unfortunately there is no agreement on a consistent methodology to calculate these scales. Some are based on nutritional grounds, but while a child may need only 50% of the food requirements of an adult, it is not clear why the same scale should be carried over non-food items. It may very well be the case that the same child requires a larger proportion than the adult in education or clothing.⁵³

The second adjustment focuses on the economies of scale in consumption within the household. The motivation for this is the fact that some of the goods and services consumed by the household have characteristics of “public goods”. A good is said to be public when its consumption by a member of the household does not necessarily prevent another member from consuming it as well. Examples of these goods could be housing and durable goods. For example, one member watching television does not preclude another from watching too. Larger households may need to spend less to be as well-off as smaller ones. Hence, the bigger the share of public goods in total consumption, the larger the scope for economies of scale. On the other hand, private goods cannot be shared among members – once one household member has consumed them, no other member can. Food is the classic example of a private good and, for instance, in poor economies, where food represents a sizeable share of the household budget, little room exists for economies of scale.

Poverty analysis in Tanzania employs an adult-equivalent scale to implement these two adjustments (see Table 3.1). In general, children are thought to consume less than adults and women less than men. An alternative and common practice would have been to use a per capita adjustment for household composition. This is a special case of both adjustments and implies that children consume as much as adults and there is no room for economies of scale. In other words, all members within the household consume equal shares of the total consumption and costs increase in proportion to the number of people in the household. In general, per capita measures will underestimate the welfare of households with children with respect to families with no children, and the welfare of large households with respect to families with a small number of members.

⁵³ See Deaton and Muellbauer (1986) or Deaton (1997).

Table 3.1: Adult-equivalent scale by gender and age

Age (years)	Male	Female
0-2	0.40	0.40
3-4	0.48	0.48
5-6	0.56	0.56
7-8	0.64	0.64
9-10	0.76	0.76
11-12	0.80	0.88
13-14	1.00	1.00
15-18	1.20	1.00
19-59	1.00	0.88
60 and more	0.80	0.72

Appendix E: Tanzanian Educational System

Tanzania has 13 years of formal schooling – D1 to D7 and F1 to F6.

D1 - Standard I (1 st year)	F1 - Form I (8 th year)
D2 - Standard II (2 nd year)	F2 - Form II (9 th year)
D3 - Standard III (3 rd year)	F3 - Form III (10 th year)
D4 - Standard IV (4 th year)	F4 - Form IV (11 th year)
D5 - Standard V (5 th year)	F5 - Form V (12 th year)
D6 - Standard VI (6 th year)	F6 - Form VI (13 th year)
D7 - Standard VII (7 th year)	

Prior to independence, there used to be a D8 – Grade 8. Additionally, all classes used to be taught in English but following independence, the Tanzanian primary education system switched to being based in Swahili. Until the early 1970s, a student was required to take an exam after Standard IV in order to proceed to Standard V.

For a student to proceed to a government secondary school, the student has to receive a passing grade on the Primary School Leaving Exam, which is taken after Standard VII. Otherwise, the student can continue education in a private secondary school.

If an individual does not proceed to Form I (F1), they can take the MS+ Course. This is a vocational course – for jobs such as carpentry - that ranges from three months to a year. For a student to proceed to Form V (F5), they must take the Form IV (F4) national level exam, which is also known as O+. It is important to note that the O+ does not constitute an extra year of school. It is simply a required final exam an individual must take to advance educationally. So an individual could have finished Form IV (F4) but have failed the O+, thus not proceeding to Form V (F5). Students must also take a national level exam, A+, after completing Form VI (F6). If they pass the A+ exam with a certain grade, they go directly to University (U1 through U5).

If one does not pass the O+ exam, one can take a certificate course at a technical school.

If one does not pass the A+ exam, one can do the Diploma course or choose to not pursue further education. If the individual completes the Diploma course, they can then enroll into University.

U1 – 14 th year
U2 – 15 th year
U3 – 16 th year
U4 – 17 th year
U5 – 18 th year
U5+ – 18 th plus year

The Diploma course can range from one to three years. Acquiring a Diploma degree in Tanzania can qualify an individual to be a primary school teacher. However, participating in the Diploma course does not technically add additional years of education to an individual's record. This is because universities treat A+ certification and Diploma's equally for admission. Therefore, to calculate the number of educational years an individual, who attended the Diploma course, has is to add one year to their current university level (U1 through U5+). For example, a student with a Diploma who is in U2 would have 16 years of schooling.

Appendix F: Description of the Tanzania Standard Classification of Occupation (TASCO)

In Section E of the Household Questionnaire (HH_SEC_E1.dta), the TASCO codes are used. Respondents were asked to describe what kind of job/work they did. Based off the respondent's description, the TASCO codes were assigned. Depending on the specificity of the job/work description affects if there is a two or three digit TASCO code. Respondents were asked to be specific as possible but in some cases, their responses did not allow for a three digit TASCO code to be assigned. The following list is all of the potential TASCO codes and those used within the survey.

MAJOR GROUP 1: MANAGERS

- 11 Legislators, Chief executives and senior officials
 - 111 Legislators and senior official
 - 1111 Legislators
 - 1112 Senior government executive officials
 - 1113 Traditional chiefs and heads of village
 - 1114 Senior officials of special-interest organizations
 - 1119 Senior government administrative other specialised services
 - 112 Managing directors and chief executives
 - 1120 Managing directors and chief executives
- 12 Administrative and commercial managers
 - 121 Business services and administration managers
 - 1211 Finance managers
 - 1212 Human resource managers
 - 1213 Policy and planning managers
 - 1214 Business services mmanagers
 - 1215 Administrative managers
 - 1219 Business services and administration managers not elsewhere classified
 - 122 Sales, marketing and development managers
 - 1221 Sales and marketing managers
 - 1222 Advertising and public relations managers
 - 1223 Research and development managers
- 13 Production and specialized services managers
 - 131 Production managers in agriculture, forestry and fisheries
 - 1311 Agricultural and forestry production managers
 - 1312 Aquaculture and fisheries production managers
 - 132 Manufacturing, mining, construction, and distribution managers
 - 1321 Manufacturing managers
 - 1322 Mining managers
 - 1323 Construction managers
 - 1324 Supply, distribution and related managers

- 133 Information and communications technology service managers
 - 1330 Information and communications technology service managers
- 134 Professional services managers
 - 1341 Child care services managers
 - 1342 Health services managers
 - 1343 Aged care services managers
 - 1344 Social welfare managers
 - 1345 Education managers
 - 1346 Financial and insurance services branch managers
 - 1347 Legal managers
 - 1348 Property manager
 - 1349 Professional services managers not elsewhere classified
- 14 Hospitality, retail and other services managers
 - 141 Hotel and restaurant managers
 - 1411 Hotel managers
 - 1412 Restaurant managers
 - 142 Retail and wholesale trade managers
 - 1420 Retail and wholesale trade managers
 - 143 Other services managers
 - 1431 Sports, recreation and cultural centre managers
 - 1432 Personal care, cleaning and related services managers
 - 1433 Safety and security managers
 - 1439 Services managers not elsewhere classified

MAJOR GROUP 2: PROFESSIONALS

- 21 Science and engineering professionals
 - 211 Physical and earth science professionals
 - 2111 Physicists and astronomers
 - 2112 Meteorologists
 - 2113 Chemists
 - 2114 Geologists and geophysicists
 - 212 Mathematicians, actuaries and statisticians
 - 2120 Mathematicians, actuaries and statisticians
 - 213 Life science professionals
 - 2131 Biologists, botanists, zoologists and related professionals
 - 2132 Farming, forestry and fisheries and related professionals
 - 2133 Environmental protection professionals
 - 214 Engineering professionals (excluding electro-technology)
 - 2141 Industrial and production engineers
 - 2142 Civil engineers
 - 2143 Environmental engineers
 - 2144 Mechanical engineers
 - 2145 Chemical engineers

- 2146 Mining engineers, metallurgists and related professionals
- 2149 Engineering professionals not elsewhere classified
- 215 Electro-technology engineers
 - 2151 Electrical engineers
 - 2152 Electronics engineers
 - 2153 Telecommunications engineers
- 216 Architects, planners, surveyors and designers
 - 2161 Building architects
 - 2162 Landscape architects
 - 2163 Product and garment designers
 - 2164 Town and traffic planners
 - 2165 Cartographers and surveyors
 - 2166 Graphic and multimedia designers
- 22 Health professionals
 - 221 Medical doctors
 - 2211 Generalist medical practitioners
 - 2212 Specialist medical practitioners
 - 222 Nursing and midwifery professionals
 - 2221 Nursing professionals
 - 2222 Midwifery professionals
 - 223 Traditional and complementary medicine professionals
 - 2230 Traditional and complementary medicine professionals
 - 224 Paramedical practitioners
 - 2240 Paramedical practitioners
 - 225 Veterinarians
 - 2250 Veterinarians
 - 226 Other health professionals
 - 2261 Dentists
 - 2262 Pharmacists
 - 2263 Environmental and occupational health and hygiene professionals
 - 2264 Physiotherapists
 - 2265 Dieticians and nutritionists
 - 2266 Audiologists and speech therapists
 - 2267 Optometrists and ophthalmic opticians
 - 2269 Health professionals not elsewhere classified
- 23 Teaching professionals
 - 231 University and higher education teachers
 - 2310 University and higher education teachers
 - 232 Vocational education teachers
 - 2320 Vocational education teachers
 - 233 Secondary education teachers
 - 2330 Secondary education teachers
 - 234 Other teaching professionals
 - 2341 Education methods specialists
 - 2342 Special needs teachers

- 2343 Other language teachers
- 2344 Other music teachers
- 2345 Other arts teachers
- 2346 Information technology trainers
- 2349 Teaching professionals not elsewhere classified
- 24 Business and administration professionals
 - 241 Finance professionals
 - 2411 Accountants
 - 2412 Financial and investment advisers
 - 2413 Financial analysts
 - 2414 Procurement and logistics professionals
 - 242 Administration professionals
 - 2421 Management and organization analysts
 - 2422 Policy administration professionals
 - 2423 Personnel and careers professionals
 - 2424 Training and staff development professionals
 - 243 Sales, marketing and public relations professionals
 - 2431 Advertising and marketing professionals
 - 2432 Public relations professionals
 - 2433 Technical and medical sales professionals (excluding ICT)
 - 2434 Information and communications technology sales professionals
 - 244 Regulatory government professionals
 - 2441 Customs and border inspector professionals
 - 2442 Taxation and excise officials' professionals
 - 2449 Regulatory government professionals, not elsewhere classified
- 25 Information and communications technology professionals
 - 251 Software and applications developers and analysts
 - 2511 Systems analysts
 - 2512 Software developers
 - 2513 Web and multimedia developers
 - 2514 Applications programmers
 - 2519 Software and applications developers and analysts not elsewhere classified
 - 252 Database and network professionals
 - 2521 Database designers and administrators
 - 2522 Computer systems administrators
 - 2523 Computer network professionals
 - 2529 Database and network professionals not elsewhere classified
- 26 Legal, social and cultural professionals
 - 261 Legal professionals
 - 2611 Lawyers
 - 2612 Judges
 - 2613 Other legal professionals

- 2619 Legal professionals not elsewhere classified
- 262 Librarians, archivists and curators
 - 2621 Archivists and curators
 - 2622 Librarians and related information professionals
- 263 Social and religious professionals
 - 2631 Economists
 - 2632 Sociologists, anthropologists and related professionals
 - 2633 Philosophers, historians and political scientists
 - 2634 Psychologists
 - 2635 Social work and counselling professionals
 - 2636 Religious professionals
 - 2639 Social and religious professionals not else where classified
- 264 Authors, journalists and linguists
 - 2641 Authors and related writers
 - 2642 Journalists
 - 2643 Translators, interpreters and other linguists
- 265 Creative and performing artists
 - 2651 Visual artists
 - 2652 Musicians, singers and composers
 - 2653 Dancers and choreographers
 - 2654 Film, stage and producers
 - 2655 Actors and entertainers
 - 2656 Announcers on radio, television and other media
 - 2657 Clowns, magicians, acrobats and related professionals
 - 2658 Animal/ bird keepers and trainers care
 - 2659 Creative and performing artists not elsewhere classified

MAJOR GROUP 3: TECHNICIANS AND ASSOCIATE PROFFESIONALS

- 31 Science and engineering associate professionals
 - 311 Physical and engineering science technicians
 - 3111 Chemical and physical science technicians
 - 3112 Civil engineering technicians
 - 3113 Electrical engineering technicians
 - 3114 Electronics engineering technicians
 - 3115 Mechanical engineering technicians
 - 3116 Chemical engineering technicians
 - 3117 Mining and metallurgical technicians
 - 3118 Draughtspersons
 - 3119 Physical and engineering science technicians not elsewhere classified
 - 312 Mining, manufacturing and construction supervisors
 - 3121 Mining supervisors
 - 3122 Manufacturing supervisors
 - 3123 Construction supervisors

- 3124 Food and beverage processing supervisors
- 3129 Other supervisors not elsewhere classified
- 313 Process control technicians
 - 3131 Power production plant operators
 - 3132 Incinerator and water treatment plant operators
 - 3133 Chemical processing plant controllers
 - 3134 Petroleum and natural gas refining plant operators
 - 3135 Metal production process controllers
 - 3139 Process control technicians not elsewhere classified
- 314 Life science technicians and related associate professionals
 - 3141 Life science technicians (excluding medical)
 - 3142 Agricultural technicians
 - 3143 Forestry technicians
 - 3144 Livestock technicians
 - 3145 Fishery technicians
- 315 Ship and aircraft controllers and technicians
 - 3151 Ships' engineers
 - 3152 Ships' deck officers and pilots
 - 3153 Aircraft pilots and related associate professionals
 - 3154 Air traffic controllers
 - 3155 Air traffic safety electronics technicians
- 32 Health associate professionals
 - 321 Medical and pharmaceutical technicians
 - 3211 Medical imaging and therapeutic equipment technicians
 - 3212 Medical and pathology laboratory technicians
 - 3213 Pharmaceutical technicians and assistants
 - 3214 Medical and dental prosthetic technicians
 - 322 Nursing and midwifery associate professionals
 - 3221 Nursing associate professionals
 - 3222 Midwifery associate professionals
 - 323 Traditional and complementary medicine associate professionals
 - 3230 Traditional and complementary medicine associate professionals
 - 324 Veterinary technicians and assistants
 - 3240 Veterinary technicians and assistants
 - 325 Other health associate professionals
 - 3251 Dental assistants and therapists
 - 3252 Medical records and health information technicians
 - 3253 Community health workers
 - 3254 Dispensing opticians
 - 3255 Physiotherapy technicians and assistants
 - 3256 Medical assistants
 - 3257 Environmental and occupational health inspectors and associates
 - 3258 Ambulance workers
 - 3259 Health associate professionals not elsewhere classified

- 33 Business and administration associate professionals
 - 331 Financial and mathematical associate professionals
 - 3311 Securities and finance dealers and brokers
 - 3312 Credit and loans officers
 - 3313 Accounting associate professionals
 - 3314 Statistical, mathematical and actuarial associate professionals
 - 3315 Valuers and loss assessors
 - 332 Sales and purchasing agents and brokers
 - 3321 Insurance representatives
 - 3322 Commercial sales representatives
 - 3323 Buyers
 - 3324 Trade brokers
 - 333 Business services agents
 - 3331 Clearing and forwarding agents
 - 3332 Conference and event planners
 - 3333 Employment agents and contractors
 - 3334 Real estate and property agents
 - 3335 Travel agents
 - 3339 Business services agents not elsewhere classified
 - 334 Administrative and specialized secretaries
 - 3341 Office supervisors
 - 3342 Legal secretaries
 - 3343 Administrative and executive secretaries
 - 3344 Medical secretaries
 - 3349 Administrative and executive secretaries, NEC
 - 335 Regulatory government associate professionals
 - 3351 Customs and border inspectors
 - 3352 Government tax and excise officials
 - 3353 Government social benefits officials
 - 3354 Government licensing officials
 - 3355 Police inspectors and detectives
 - 3359 Regulatory government associate professionals not elsewhere classified
- 34 Legal, social, cultural and related associate professionals
 - 341 Legal, social and religious associate professionals
 - 3411 Legal and related associate professionals
 - 3412 Social work associate professionals
 - 3413 Religious associate professionals
 - 342 Sports and fitness workers
 - 3421 Athletes and sports players
 - 3422 Sports coaches, instructors and officials
 - 3423 Fitness and recreation instructors and program leaders
 - 343 Artistic, cultural and culinary associate professionals
 - 3431 Photographers
 - 3432 Interior designers and decorators

- 3433 Gallery, museum and library technicians
- 3434 Chefs
- 3435 Other artistic and cultural associate professionals
- 35 Information and communications technicians
 - 351 Information and communications technology operations and user support technicians
 - 3511 Information and communications technology operations technicians
 - 3512 Information and communications technology user support technicians
 - 3513 Computer network and systems technicians
 - 3514 Web technicians
 - 352 Telecommunications and broadcasting technicians
 - 3521 Broadcasting and audio-visual technicians
 - 3522 Telecommunications engineering technicians
- 36 Teaching associate professionals
 - 361 Primary school and early childhood teachers
 - 3611 Primary school teachers
 - 3612 Early childhood educators
 - 362 Secondary education teachers, associate professionals
 - 3620 Secondary education teachers, associate professionals
 - 363 Technical/vocational education teachers, associate professionals
 - 3630 Technical/vocational education teachers, associate professionals
 - 364 Special education teachers, associate professionals
 - 3640 Special education teachers, associate professionals

MAJOR GROUP 4: CLERICAL SUPPORT WORKERS

- 41 General and keyboard clerks
 - 411 General office clerks
 - 4110 General office clerks
 - 412 Secretaries (general)
 - 4120 Secretaries (general)
 - 413 Keyboard operators
 - 4131 Typists and word processing operators
 - 4132 Data entry clerks
 - 4133 Registry assistant
- 42 Customer services clerks
 - 421 Tellers, money collectors and related clerks
 - 4211 Bank tellers and related clerks
 - 4212 Bookmakers, croupiers and related gaming workers
 - 4213 Pawnbrokers and money-lenders
 - 4214 Debt-collectors and related workers

- 422 Client information workers
 - 4221 Travel consultants and clerks
 - 4222 Contact centre information clerks
 - 4223 Telephone switchboard operators
 - 4224 Hotel receptionists
 - 4225 Enquiry clerks
 - 4226 Receptionists (general)
 - 4227 Survey and market research interviewers
 - 4229 Client information workers not elsewhere classified
- 43 Numerical and material recording clerks
 - 431 Numerical clerks
 - 4311 Accounting and bookkeeping clerks
 - 4312 Statistical, finance and insurance clerks
 - 4313 Payroll clerks
 - 432 Material-recording and transport clerks
 - 4321 Stock clerks
 - 4322 Production clerks
 - 4323 Transport clerks
 - 4329 Material recording and transport clerk, not elsewhere classified
- 44 Other clerical support workers
 - 441 Other clerical support workers
 - 4411 Library clerks
 - 4412 Mail carriers and sorting clerks
 - 4413 Coding, proof-reading and related clerks
 - 4414 Scribes and related workers
 - 4415 Filing and copying clerks
 - 4416 Personnel clerks
 - 4419 Clerical support workers not elsewhere classified

MAJOR GROUP 5: SERVICE AND SALES WORKERS

- 51 Personal service workers
 - 511 Travel attendants, conductors and guides
 - 5111 Travel attendants and travel stewards
 - 5112 Transport conductors
 - 5113 Travel guides
 - 512 Cooks
 - 5120 Cooks
 - 513 Waiters and bartenders
 - 5131 Waiters
 - 5132 Bartenders
 - 514 Hairdressers, beauticians and related workers
 - 5141 Hairdressers
 - 5142 Beauticians and related workers
 - 515 Building and housekeeping supervisors

- 5151 Cleaning and housekeeping supervisors in offices, hotels and other establishments
- 5152 Domestic housekeepers
- 5153 Building caretakers
- 516 Other personal services workers
 - 5161 Astrologers, fortune-tellers and related workers
 - 5162 Companions and valets
 - 5163 Undertakers and embalmers
 - 5164 Pet groomers and animal care workers
 - 5165 Driving instructors
 - 5169 Personal services workers not elsewhere classified
- 52 Sales workers
 - 521 Street and market salespersons
 - 5211 Stall and market salespersons
 - 5212 Street food salespersons
 - 522 Shop salespersons
 - 5221 Shop keepers
 - 5222 Shop supervisors
 - 5223 Shop sales assistants
 - 523 Cashiers and ticket clerks
 - 5230 Cashiers and ticket clerks
 - 524 Other sales workers
 - 5241 Fashion and other models
 - 5242 Sales demonstrators
 - 5243 Door to door salespersons
 - 5244 Contact centre salespersons
 - 5245 Service station attendants
 - 5246 Food service counters attendants
 - 5249 Sales workers not elsewhere classified
- 53 Personal care workers
 - 531 Child care workers and teachers' aides
 - 5311 Child care workers
 - 5312 Teachers' aides
 - 532 Personal care workers in health services
 - 5321 Health care assistants
 - 5322 Home-based personal care workers
 - 5329 Personal care workers in health services not elsewhere classified
- 54 Protective services workers
 - 541 Protective services workers
 - 5411 Fire-fighters
 - 5412 Police officers
 - 5413 Prison guards
 - 5414 Security guards
 - 5419 Protective services workers not elsewhere classified

MAJOR GROUP 6: SKILLED AGRICULTURAL, FORESTRY AND FISHERY WORKERS

- 61 Market-oriented skilled agricultural workers
 - 611 Market gardeners and crop growers
 - 6111 Field crop and vegetable growers
 - 6112 Tree and shrub crop growers
 - 6113 Gardeners, horticultural and nursery growers
 - 6114 Mixed crop growers
 - 612 Animal producers
 - 6121 Livestock and dairy producers
 - 6122 Poultry producers
 - 6123 Apiarists and sericulturists
 - 6129 Animal producers not elsewhere classified
 - 613 Mixed crop and animal producers
 - 6130 Mixed crop and animal producers
- 62 Market-oriented skilled forestry, fishery and hunting workers
 - 621 Forestry and related workers
 - 6210 Forestry and related workers
 - 622 Fishery workers, hunters and trappers
 - 6221 Aquaculture workers
 - 6222 Inland and coastal waters fishery workers
 - 6223 Deep-sea fishery workers
 - 6224 Hunters and trappers
- 63 Subsistence farmers, fishers, hunters and gatherers
 - 631 Subsistence crop farmers
 - 6310 Subsistence crop farmers
 - 632 Subsistence livestock farmers
 - 6320 Subsistence livestock farmers
 - 633 Subsistence mixed crop and livestock farmers
 - 6330 Subsistence mixed crop and livestock farmers
 - 634 Subsistence fishers, hunters, trappers and gatherers
- 6340 Subsistence fishers, hunters, trappers and gatherers

MAJOR GROUP 7: CRAFT AND RELATED TRADES WORKERS

- 71 Building and related trades' workers, excluding electricians
 - 711 Building frame and related trades workers
 - 7111 House builders
 - 7112 Bricklayers and related workers
 - 7113 Stonemasons, stone cutters, splitters and carvers
 - 7114 Concrete placers, concrete finishers and related workers
 - 7115 Carpenters and joiners
 - 7119 Building frame and related trades workers not elsewhere classified
 - 712 Building finishers and related trades workers

- 7121 Roofers
- 7122 Floor layers and tile setters
- 7123 Plasterers
- 7124 Insulation workers
- 7125 Glaziers
- 7126 Plumbers and pipe fitters
- 7127 Air conditioning and refrigeration mechanics
- 713 Painters, building structure cleaners and related trades workers
 - 7131 Painters and related workers
 - 7132 Spray painters and varnishes
 - 7133 Building structure cleaners
- 72 Metal, machinery and related trades workers
 - 721 Sheet and structural metal workers, moulders and welders, and related workers
 - 7211 Metal moulders and core makers
 - 7212 Welders and flame cutters
 - 7213 Sheet-metal workers
 - 7214 Structural-metal preparers and erectors
 - 7215 Riggers and cable splicers
 - 722 Blacksmiths, toolmakers and related trades workers
 - 7221 Blacksmiths, hammersmiths and forging press workers
 - 7222 Toolmakers and related workers
 - 7223 Metal working machine tool setters and operators
 - 7224 Metal polishers, wheel grinders and tool sharpeners
 - 723 Machinery mechanics and repairers
 - 7231 Motor vehicle mechanics and repairers
 - 7232 Aircraft engine mechanics and repairers
 - 7233 Agricultural and industrial machinery mechanics and repairers
 - 7234 Bicycle and related repairers
- 73 Handicraft and printing workers
 - 731 Handicraft workers
 - 7311 Precision-instrument makers and repairers
 - 7312 Musical instrument makers and tuners
 - 7313 Jewellery and precious-metal workers
 - 7314 Potters and related workers
 - 7315 Glass makers, cutters, grinders and finishers
 - 7316 Sign writers, decorative painters, engravers and etchers
 - 7317 Handicraft workers in wood, basketry and related materials
 - 7318 Handicraft workers in textile, leather and related materials
 - 7319 Handicraft workers not elsewhere classified
 - 732 Printing trades workers
 - 7321 Pre-press technicians
 - 7322 Printers
 - 7323 Print finishing and binding workers
- 74 Electrical and electronic trades workers

- 741 Electrical equipment installers and repairers
 - 7411 Building and related electricians
 - 7412 Electrical mechanics and fitters
 - 7413 Electrical line installers and repairers
- 742 Electronics and telecommunications installers and repairers
 - 7421 Electronics mechanics and servicers
 - 7422 Information and communications technology installers and servicers
- 75 Food processing, wood working, garment and other craft and related trades workers
 - 751 Food processing and related trades workers
 - 7511 Butchers, fishmongers and related food preparers
 - 7512 Bakers, pastry-cooks and confectionery makers
 - 7513 Dairy-products makers
 - 7514 Fruit, vegetable and related preservers
 - 7515 Food and beverage tasters and graders
 - 7516 Tobacco preparers and tobacco products makers
 - 752 Wood treaters, cabinet-makers and related trades workers
 - 7521 Wood treaters
 - 7522 Cabinet-makers and related workers
 - 7523 Woodworking-machine tool setters and operators
 - 753 Garment and related trades workers
 - 7531 Tailors, dressmakers, furriers and hatters
 - 7532 Garment and related pattern-makers and cutters
 - 7533 Sewing, embroidery and related workers
 - 7534 Upholsterers and related workers
 - 7535 Pelt dressers, tanners and fellmongers
 - 7536 Shoemakers and related workers
 - 754 Other craft and related workers
 - 7541 Underwater divers
 - 7542 Shot firers and blasters
 - 7543 Product graders and testers (excluding foods and beverages)
 - 7544 Fumigators and other pest and weed controllers
 - 7549 Craft and related workers not elsewhere classified

MAJOR GROUP 8: PLANT MACHINE OPERATORS AND ASSEMBLERS

- 81 Stationary plant and machine operators
 - 811 Mining and mineral processing plant operators
 - 8111 Miners and quarriers
 - 8112 Mineral and stone processing plant operators
 - 8113 Well drillers and borers and related workers
 - 8114 Cement, stone and other mineral products machine operators
 - 812 Metal processing and finishing plant operators
 - 8121 Metal processing plant operators
 - 8122 Metal finishing, plating and coating machine operators

- 813 Chemical and photographic products plant and machine operators
 - 8131 Chemical products plant and machine operators
 - 8132 Photographic products machine operators
- 814 Rubber, plastic and paper products machine operators
 - 8141 Rubber products machine operators
 - 8142 Plastic products machine operators
 - 8143 Paper products machine operators
- 815 Textile, fur and leather products machine operators
 - 8151 Fibre preparing, spinning and winding machine operators
 - 8152 Weaving and knitting machine operators
 - 8153 Sewing machine operators
 - 8154 Bleaching, dyeing and fabric cleaning machine operators
 - 8155 Fur and leather preparing machine operators
 - 8156 Shoemaking and related machine operators
 - 8157 Laundry machine operators
 - 8159 Textile, fur and leather products machine operators not elsewhere classified
- 816 Food and related products machine operators
 - 8160 Food and related products machine operators
- 817 Wood processing and papermaking plant operators
 - 8171 Pulp and papermaking plant operators
 - 8172 Wood processing plant operators
- 818 Other stationary plant and machine operators
 - 8181 Glass and ceramics plant operators
 - 8182 Steam engine and boiler operators
 - 8183 Packing, bottling and labelling machine operators
 - 8184 Power-generating plant operator
 - 8185 Other power-generating and related plant operators
 - 8189 Stationary plant and machine operators not elsewhere classified
- 82 Assemblers
 - 821 Assemblers
 - 8211 Mechanical machinery assemblers
 - 8212 Electrical and electronic equipment assemblers
 - 8219 Assemblers not elsewhere classified
- 83 Drivers and mobile plant operators
 - 831 Locomotive engine drivers and related workers
 - 8311 Locomotive engine drivers
 - 8312 Railway brake, signal and switch operators
 - 832 Car, van and motorcycle drivers
 - 8321 Motorcycle drivers
 - 8322 Car, taxi and van drivers
 - 833 Heavy truck and bus drivers
 - 8331 Bus and tram drivers
 - 8332 Heavy truck and lorry drivers
 - 834 Mobile plant operators

- 8341 Mobile farm and forestry plant operators
- 8342 Earthmoving and related plant operators
- 8343 Crane, hoist and related plant operators
- 8344 Lifting truck operators
- 835 Ships' deck crews and related workers
 - 8350 Ships' deck crews and related workers

MAJOR GROUP 9: ELEMENTARY OCCUPATIONS

- 91 Cleaners and helpers
 - 911 Domestic, hotel and office cleaners and helpers
 - 9111 Domestic cleaners and helpers
 - 9112 Cleaners and helpers in offices, hotels and other establishments
 - 912 Vehicle, window, laundry and other hand cleaning workers
 - 9121 Hand launderers and pressers
 - 9122 Vehicle cleaners
 - 9123 Window cleaners
 - 9129 Other cleaning workers
- 92 Agricultural, forestry and fishery labourers
 - 921 Agricultural, forestry and fishery labourers
 - 9211 Crop farm labourers
 - 9212 Livestock farm labourers
 - 9213 Mixed crop and livestock farm labourers
 - 9214 Garden and horticultural labourers
 - 9215 Forestry labourers
 - 9216 Fishery and aquaculture labourers
- 93 Labourers in mining, construction, manufacturing and transport
 - 931 Mining and construction labourers
 - 9311 Mining and quarrying labourers
 - 9312 Civil engineering labourers
 - 9313 Building construction labourers
 - 932 Manufacturing labourers
 - 9321 Hand packers
 - 9329 Manufacturing labourers not elsewhere classified
 - 933 Transport and storage labourers
 - 9331 Hand and pedal vehicle drivers
 - 9332 Drivers of animal-drawn vehicles and machinery
 - 9333 Freight handlers
 - 9334 Shelf fillers
 - 9335 Storage labourers
- 94 Food preparation assistants
 - 941 Food preparation assistants
 - 9411 Fast food preparers
 - 9412 Kitchen helpers
- 95 Street and related sales and service workers
 - 951 Street and related service workers

- 9510 Street and related service workers
- 952 Street vendors (excluding food)
 - 9520 Street vendors (excluding food)
- 953 Shoe cleaning and other street services
 - 9530 Shoe cleaning and other street services
- 96 Refuse workers and other elementary workers
 - 961 Refuse workers
 - 9611 Garbage and recycling collectors
 - 9612 Refuse sorters
 - 9613 Sweepers and related labourers
 - 962 Other elementary workers
 - 9621 Messengers, package deliverers and luggage porters
 - 9622 Odd job persons
 - 9623 Meter readers and vending-machine collectors
 - 9624 Water and firewood collectors
 - 9629 Elementary workers not elsewhere classified

MAJOR GROUP 0: ARMED FORCES OCCUPATIONS

- 01 Commissioned armed forces officers
 - 011 Commissioned armed forces officers
 - 0110 Commissioned armed forces officers
- 02 Non-commissioned armed forces officers
 - 021 Non-commissioned armed forces officers
 - 0210 Non-commissioned armed forces officers
- 03 Armed forces occupations, other ranks
 - 031 Armed forces occupations, other ranks
 - 0310 Armed forces occupations, other ranks

Appendix G: List of International Standard Industry Codes (ISIC)

In Section E of the Household Questionnaire (HH_SEC_E1.dta), the ISIC codes are used. Respondents were asked to describe their association to different trades and businesses. Based off the respondent's description, the ISIC codes were assigned. Depending on the specificity of trade/business description affects if there is a two, three, or four digit ISIC code. Respondents were asked to be specific as possible but in some cases, their responses did not allow for a three or four digit ISIC code to be assigned. The following list is all of the potential ISIC codes and those used within the survey.

A - Agriculture, forestry and fishing

- 01 - Crop and animal production, hunting and related service activities
- 02 - Forestry and logging
- 03 - Fishing and aquaculture

B - Mining and quarrying

- 05 - Mining of coal and lignite
- 06 - Extraction of crude petroleum and natural gas
- 07 - Mining of metal ores
- 08 - Other mining and quarrying
- 09 - Mining support service activities

C - Manufacturing

- 10 - Manufacture of food products
 - 101 - Processing and preserving of meat
 - 102 - Processing and preserving of fish, crustaceans and mollusks
 - 103 - Processing and preserving of fruit and vegetables
 - 104 - Manufacture of vegetable and animal oils and fats
 - 105 - Manufacture of dairy products
 - 106 - Manufacture of grain mill products, starches and starch products
 - 107 - Manufacture of other food products
 - 108 - Manufacture of prepared animal feeds
- 11 - Manufacture of beverages
- 12 - Manufacture of tobacco products
- 13 - Manufacture of textiles
- 14 - Manufacture of wearing apparel
- 15 - Manufacture of leather and related products
- 16 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
- 17 - Manufacture of paper and paper products
- 18 - Printing and reproduction of recorded media
- 19 - Manufacture of coke and refined petroleum products
- 20 - Manufacture of chemicals and chemical products
- 21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations
- 22 - Manufacture of rubber and plastics products
- 23 - Manufacture of other non-metallic mineral products
- 24 - Manufacture of basic metals

- 25 - Manufacture of fabricated metal products, except machinery and equipment
- 26 - Manufacture of computer, electronic and optical products
- 27 - Manufacture of electrical equipment
- 28 - Manufacture of machinery and equipment n.e.c.
- 29 - Manufacture of motor vehicles, trailers and semi-trailers
- 30 - Manufacture of other transport equipment
- 31 - Manufacture of furniture
- 32 - Other manufacturing
- 33 - Repair and installation of machinery and equipment
- D - *Electricity, gas, steam and air conditioning supply*
 - 35 - Electricity, gas, steam and air conditioning supply
- E - *Water supply; sewerage, waste management and remediation activities*
 - 36 - Water collection, treatment and supply
 - 37 - Sewerage
 - 38 - Waste collection, treatment and disposal activities; materials recovery
 - 39 - Remediation activities and other waste management services
- F - *Construction*
 - 41 - Construction of buildings
 - 42 - Civil engineering
 - 43 - Specialized construction activities
- G - *Wholesale and retail trade; repair of motor vehicles and motorcycles*
 - 45 - Wholesale and retail trade and repair of motor vehicles and motorcycles
 - 46 - Wholesale trade, except of motor vehicles and motorcycles
 - 47 - Retail trade, except of motor vehicles and motorcycles
 - 471 - Retail sale in non-specialized stores
 - 472 - Retail sale of food, beverages and tobacco in specialized stores
 - 473 - Retail sale of automotive fuel in specialized stores
 - 474 - Retail sale of information and communications equipment in specialized stores
 - 475 - Retail sale of other household equipment in specialized stores
 - 476 - Retail sale of cultural and recreation goods in specialized stores
 - 477 - Retail sale of other goods in specialized stores
 - 478 - Retail sale via stalls and markets
 - 479 - Retail trade not in stores, stalls or markets
- H - *Transportation and storage*
 - 49 - Land transport and transport via pipelines
 - 491 - Transport via railways
 - 492 - Other land transport
 - 4921 - Urban and suburban passenger land transport
 - 4922 - Other passenger land transport
 - 4923 - Freight transport by road
 - 493 - Transport via pipeline
 - 50 - Water transport
 - 51 - Air transport
 - 52 - Warehousing and support activities for transportation
 - 53 - Postal and courier activities
- I - *Accommodation and food service activities*

- 55 – Accommodation
- 56 - Food and beverage service activities
 - 561 - Restaurants and mobile food service activities
 - 562 - Event catering and other food service activities
 - 563 - Beverage serving activities
- J - *Information and communication*
 - 58 - Publishing activities
 - 59 - Motion picture, video and television programme production, sound recording and music publishing activities
 - 60 - Programming and broadcasting activities
 - 61 – Telecommunications
 - 62 - Computer programming, consultancy and related activities
 - 63 - Information service activities
- K - *Financial and insurance activities*
 - 64 - Financial service activities, except insurance and pension funding
 - 65 - Insurance, reinsurance and pension funding, except compulsory social security
 - 66 - Activities auxiliary to financial service and insurance activities
- L - *Real estate activities*
 - 68 - Real estate activities
- M - *Professional, scientific and technical activities*
 - 69 - Legal and accounting activities
 - 70 - Activities of head offices; management consultancy activities
 - 71 - Architectural and engineering activities; technical testing and analysis
 - 72 - Scientific research and development
 - 73 - Advertising and market research
 - 74 - Other professional, scientific and technical activities
 - 75 - Veterinary activities
- N - *Administrative and support service activities*
 - 77 - Rental and leasing activities
 - 78 - Employment activities
 - 79 - Travel agency, tour operator, reservation service and related activities
 - 80 - Security and investigation activities
 - 81 - Services to buildings and landscape activities
 - 82 - Office administrative, office support and other business support activities
- O - *Public administration and defense; compulsory social security*
 - 84 - Public administration and defense; compulsory social security
- P – *Education*
 - 85 - Education
- Q - *Human health and social work activities*
 - 86 - Human health activities
 - 87 - Residential care activities
 - 88 - Social work activities without accommodation
- R - *Arts, entertainment and recreation*
 - 90 - Creative, arts and entertainment activities
 - 91 - Libraries, archives, museums and other cultural activities
 - 92 - Gambling and betting activities

- 93 - Sports activities and amusement and recreation activities
- S - *Other service activities*
 - 94 - Activities of membership organizations
 - 95 - Repair of computers and personal and household goods
 - 96 - Other personal service activities
- T - *Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use*
 - 97 - Activities of households as employers of domestic personnel
 - 98 - Undifferentiated goods- and services-producing activities of private households for own use
- U - *Activities of extraterritorial organizations and bodies*
 - 99 - Activities of extraterritorial organizations and bodies

Appendix H: Main Animal Diseases & Key Terms

DISEASE NAME	DEFINITION	HOSTS AFFECTS	CLINICAL SIGNS / SYMPTONS
FMD Foot and Mouth Disease	A highly contagious viral disease	Cattle, sheep, goats, pigs and water buffalos	Fever, ulcerations in the mouth, nose, muzzle, feet, teats. Drooling of saliva can also be observed
CBPP (Contagious Bovine Pleuro-pneumonia)	A highly infectious acute/sub-acute/chronic disease affecting lungs and occasionally joints	Cattle	Fever, cough, increased respiratory rate (in sequence)
CCPP (Contagious Caprine Pleuro-pneumonia)	An acute highly contagious disease	Goats	Fatal weeping pneumonia, labored breathing, death within 7-10 days after onset of clinical signs
LSD Lumpy Skin Disease	It is a viral disease transmitted by insects	Cattle	Persistent fever, generalized skin nodules, edema of corresponding lymph nodes, hair loss
Anthrax	It is infectious but non-contagious	All domestic animals and buffalo	Sudden death, fever, severe diarrhea with blood, bloody nasal discharge
Blackleg	Blackleg is a highly fatal disease of young cattle	Young cattle	Lameness, loss of appetite, rapid breathing and the animal is usually depressed and has a high fever. Characteristic swellings develop in the hip, shoulder, chest, back, neck or elsewhere
PPR (Peste des petits ruminants)	An acute viral Rinderpest like disease of sheep and goats	Goats and sheep	Similar to those of rinderpest in cattle: Respiratory difficulty with cough, high fever, weakness, dull coat, nasal discharge, severe bloody diarrhea
Sheep and goat pox	Contagious viral disease of small ruminants, There is a high mortality rate in susceptible populations	Small ruminants (sheep and goats)	Onset of fever followed by erythematous macules that develop into papules. Lesions may also develop on the mucous membrane and on internal organs, causing systemic signs (respiratory signs, diarrhea, depression, emaciation, abortion and sometimes death)
Newcastle disease	A highly contagious zoonotic poultry disease	Chicken and other domestics fowls and wild avian species	High mortality above 30%, characterized by respiratory and nervous symptoms
Fowl pox	Fowlpox is a relatively low-spreading viral disease of poultry	Chicken and other domestics fowls and wild avian species	Skin lesions and/or plaques in the pharynx
Avian flu	Avian influenza is a highly-contagious flu infection in birds. It is a zoonotic disease	Chicken and other domestics fowls and wild avian species	Decrease in bird's activities, decline in egg production, swelling of the face with blue colored combs and wattles, breathing problems, diarrhoea, muscle paralysis and sudden death
IBD (Infectious Bursal Disease) / Gumboro	A highly contagious disease of young chicks	Chicken	Mortality at 3-6 weeks and can rise up to 75%. Birds are depressed, watery diarrhea

KEY TERMS	
Contagious	Spread by means of contact
Infectious	Spread by means of virus, bacteria or a parasite
Fatal	Leads to death
Zoonotic disease	An infectious disease that can be transmitted to humans and vice versa
Curative	Care provided to improve a situation (especially medical procedures or applications that are intended to relieve illness or injury)

Appendix I: Animal Breeding Types

CODE	BREEDING TYPE	DESCRIPTION
1	None	No particular strategy is adopted for the breeding of animals. Animals are allowed to mate
2	Natural mating, sire selected from within herd	Animals mate naturally, but specific male(s) are selected from within the herds for mating/reproduction.
3	Natural mating, sire purchased	Animals mate naturally, but specific male(s) are purchased specifically for mating/reproduction.
4	Natural mating, sire exchanged	Animals mate naturally, but male(s) are exchanged with other households specifically for mating/reproduction.
5	Artificial insemination	The technique of placing semen from the male into the reproductive tract of the female by means other than natural service.
6	Dam purchased	Animals mate naturally, but specific female(s) are purchased specifically for mating/reproduction.
7	Dam exchanged	Animals mate naturally, but specific female(s) are exchanged with other households specifically for mating/reproduction.
8	Non-breeding males castrated	Males that are not preferred for breeding/reproduction are castrated to prevent them from mating.

Appendix I: List of Definitions

GULIO (local market)

Gulio is a local market mostly at the Village level which can occur at any frequency – once a week, twice etc. One can get any sort of goods at a Gulio and it mostly operates in rural areas. Farmers get together at a certain place once a week and sell their produce. Note that these sellers travel across the country – it could be that every Monday they operate in Village A, every Tuesday in Village B, every Wednesday in Village C and so on.

SOKO KUU (main market)

Soko kuu is the main market that people go to that usually operates daily and they operate at the village or ward level. Soko Kuu is the primary market for all goods. The difference between Soko Kuu and Gulio is that Soko Kuu operates daily while Gulio operates on a fixed schedule basis, which is why they are referred to as the Main Market.

SOKO (market)

Soko is a small market located at street corner that sells few items like vegetables, and some other household goods. Soko's are frequently found in Dar for example. Usually these markets do not carry high value goods and have fewer items than a Soko Kuu.

MNADA (auction)

Mnanda is an English auction for a very specific good – like a cow for example. A minimum price is set, beyond which the bidders can go up to any amount. The highest bidder wins. It is an open auction in the sense that all the bidders find out how much each is bidding and can competitively bid more.

M/BIASHARA BINAFSI (private business person)

This is usually a vendor or a hawker who sells goods by walking door to door – like cigarette/water sellers or vegetable vendors in Dar.

DUKANI/MCHUUZI (grocery local merchant)

This is a small shop owner around street corners that sell very specific items. This could be a shop for stationery, shop for buying everyday essentials like bread, toothpaste, etc... or even a medical shop. Dukani/Mchuuzi sell very specific goods and are fixed shops owned by merchants unlike the Biasharas who are travellers.