



THE UNITED REPUBLIC OF TANZANIA

NATIONAL PANEL SURVEY

WAVE 5, 2020 - 2021



NOVEMBER 2022



The United Republic of Tanzania

TANZANIA PANEL SURVEY

WAVE 5, 2020-2021

National Bureau of Statistics
Ministry of Finance and Planning
Dodoma

November 2022



The Tanzania National Panel Survey (NPS) has been implemented by the National Bureau of Statistics in collaboration with the Office of the Chief Government Statistician – Zanzibar since its inception in 2008/09. This report presents findings from the fifth wave of the survey (NPS Wave 5) that was implemented from December 2020 to January 2022. The NPS is a nationally representative longitudinal survey designed to provide data from the same households over time in an attempt to better track national and international development indicators, understand poverty dynamics, understand the linkages between smallholder agriculture and welfare, and to evaluate policy impacts in the country. The main financiers of the fifth wave of the NPS included: Ministry of Finance and Planning, European Union (EU); World Bank / Gates Foundation, and UNICEF.

Additional information about the survey may be obtained from the National Bureau of Statistics Statistician General, Jakaya Kikwete Road, P.O. Box 2683, Dodoma, Tanzania (Telephone: 255-26-2963822; Email: sg@nbs.go.tz).

Recommended citation: National Bureau of Statistics (NBS) [Tanzania]. 2022. Tanzania National Panel Survey Report (NPS) - Wave 5, 2020 - 2021. Dodoma, Tanzania: NBS.

Table of Contents

List of Tables	v
List of Figures.....	ix
List of Acronyms	xi
Preface	xii
Acknowledgement	xiv
CHAPTER ONE.....	1
1.0 Introduction	1
1.1 Introduction	1
1.2 Objectives.....	1
1.3 Sample Design.....	2
1.4 Panel Sample Trim and Refresh	3
1.5 Revised Sample Design.....	3
1.6 Tracking and Attrition	5
1.7 Fieldwork.....	5
1.8 Standard Disaggregates	6
CHAPTER TWO	8
2.0 Social and Demographic Characteristics of Households, and Accessibility to Selected Services.....	8
2.1 Introduction	8
2.2 Population Distribution by Age and Sex	8
2.3 Definition of Households	9
2.4 Distribution of Households by Sex of Household Head	9
2.5 Household Size.....	9
2.6 Marital Status.....	10
2.7 Access to Clean Drinking Water	11
2.8 Access to Improved Source of Drinking Water	12
2.9 Access to Basic Sanitation Facilities	13
2.10 Access to Improved Sanitation Facilities	13
2.11 Toilet Facilities Used.....	14
2.12 Access to Electricity	15
2.13 Energy for Cooking Used by Households	16
2.14 Access to Credit /Loan	17
2.15 Use of Land-Ownning Certificate as Collateral for Loan	18
2.16 Use of Credit/Loan	19
CHAPTER THREE	21
3.0 Education.....	21
3.1 Introduction	21

3.2	Literacy.....	21
3.3	Literacy Among the General Population	21
3.4	Literacy among Population Aged 6 – 12 and 7-13 Years	22
3.5	Literacy Rates among those Currently Attending School Aged 6 – 12 and 7-13 Years	23
3.6	Literacy among Youth and Adult Population.....	24
3.7	Net and Gross Enrolment Rates	24
3.7.1	Net Enrolment Rate at Pre-Primary School.....	24
3.7.2	Primary School Net Enrolment Rate	25
3.7.3	Secondary School Net Enrolment Rate	27
3.7.4	Gross Enrolment Rate in Higher Education	28
3.8	Enrollment of Orphans in School	28
3.9	Transport Facilities, Time Taken, and Distance to School for Primary School Children...	29
3.10	Reasons for Not Attending School	31
CHAPTER FOUR		33
4.0	Health	33
4.1	Introduction	33
4.2	Births Attended by a Skilled Health Worker.....	33
4.3	Registration of Births	34
4.4	Satisfaction with Health Services	35
4.5	Major Reasons for Respondents' Dissatisfaction with Health Services Provision	36
4.6	Health Spending	37
4.7	Place of Birth for Newborns.....	38
4.8	Disability	38
4.9	Medical Exemption	39
4.10	Hospitalization or Overnight Stay in a Medical Facility or Traditional Healer	40
CHAPTER FIVE		42
5.0	Welfare, Consumption, and Expenditure Profile	42
5.1	Introduction	42
5.2	Welfare Based on Consumption.....	42
5.3	Consumption-Based Welfare Transitions (In and Out of Quintiles).....	45
5.4	Share of Consumption by Selected Socio-Economic Characteristics	48
5.5	Share of Consumption by Location and Sex of Head of Household.....	48
5.6	Share of Consumption by Number of Usual Members of Household.....	49
5.7	Share of Consumption by Marital Status of Head of Household	49
5.8	Share of Consumption by Employment Sector of the Head of Household	50
5.9	Share of Consumption by Income Diversification of Head of Household in Past 12 Months	51
5.10	Average and Median Household Expenditure Levels	51
5.11	Transition In and Out of Poverty	52
5.12	Inequality	53

CHAPTER SIX.....	55
6.0 Labour Market Dynamics.....	55
6.1 Introduction	55
6.2 Employment Status.....	55
6.3 Employment by Sector	55
6.4 Employment Transition between Sectors	57
6.5 Employment Status Dynamics across Waves.....	58
6.6 Unemployment Status	60
6.7 Youth who are Neither in Education nor in Employment or Training.....	60
6.8 Income Diversification	62
CHAPTER SEVEN	64
7.0 Nutrition Status, Dietary Diversity, and Food Security	64
7.1 Introduction	64
7.2 Food Security.....	64
7.3 Number of Meals	67
7.4 Food Shortages	69
7.5 Causes of Food Shortages	70
7.6 Dietary Diversity	71
7.7 Under-Fives Moderately or Severely Stunted (Height-for-Age).....	72
7.8 Wasting (Weight-for-Height)	73
7.9 Underweight (Weight-for-Age).....	74
7.10 Underweight (BMI) of Women of Reproductive Age (15 - 49 years).....	75
7.11 Overweight	76
CHAPTER EIGHT	78
8.0 Agriculture and Livestock	78
8.1 Introduction	78
8.2 Productivity of Major Food Crops	78
8.1.1 Average Yields of Maize (kg/area planted and harvested in hectares) by Type of Plot	78
8.1.2 Average Yields of Paddy (kg/area planted and harvested in hectares) by Type of Plot	80
8.3 Households using Irrigation by Method, Tanzania	83
8.4 Use of Agricultural Inputs	84
8.5 Agricultural Mechanization.....	86
8.6 Off-Farm Income Generating Activities	87
8.7 Cash Crops.....	87
8.8 Extension Services.....	88
8.9 Livestock	89
8.1.3 Households Currently Owning/Keeping Livestock by Type	89
8.1.4 Animal Health	89
8.10 Feeding, Housing Practices and Water Sources	91
8.11 Tropical Livestock Unit (TLU)	92

APPENDICES	94
Appendix A: Methodology for Consumption Aggregates.....	94
1.1 The construction of the consumption aggregate.....	94
Appendix B: Standard Errors and Confidence Intervals for Selected Indicators	101
Persons involved in the 2020/21 National Panel Survey (NPS).....	102

List of Tables

Table 1. 1:	Number of Clusters and Households in New and Extended Samples of NPS 2014/15 by Area.....	4
Table 1. 2:	Number of Clusters and Households in Panel and Additional Samples of NPS 2020/21 by Area.....	4
Table 1. 3:	Distribution of Households of the NPS 2020/21 Panel Sample by Area and Quarter of Interview	6
Table 1. 4:	Distribution of Households for the NPS 2020/21 Full Sample by Area and Quarter of Interview	6
Table 2. 1	Percentage Distribution of Households by Sex of Head of Household and Area, Tanzania	9
Table 2. 2	Percentage Distribution of Number of Usual Residents in a Household, by Area, Tanzania	10
Table 2. 3	Percentage Distribution of Population by Marital Status, Tanzania	11
Table 2. 4	Percentage Distribution of Households with Access to Clean Drinking Water by Area and Season, Tanzania	12
Table 2. 5	Proportion of Households with Access to Improved Source of Drinking Water by Area and Season, Tanzania	12
Table 2. 6:	Percentage Distribution of Households with Basic Sanitation Facilities by Area, Tanzania	13
Table 2. 7a	Type of Toilets Used by Households (%), Tanzania	14
Table 2. 8	Percentage of Households who Borrowed or Took Credit in Last 12 Months and Sources of Credit, Tanzania, NPS 2020/21	18
Table 2. 9	Use of Land-Ownning Certificate or Certificate of Customary Right of Occupancy (CCRO) as Collateral for Loan, (% of those who took credit in past 12 months), Tanzania, NPS 2020/21	19
Table 2. 10	Use of Credit/Loan, by Area and Gender of Head of Household, NPS 2020/21	20
Table 3. 1	Literacy Rates among those Currently Attending School Aged 6 – 12 and 7-13 Years, Tanzania.....	23
Table 3. 2	Percentage Distribution of Youths and Adult Literacy, by Area and Sex, Tanzania	24
Table 3. 3	Net Enrolment Rate in Primary Education by Area and Sex, for Children Ages 7 -13	26
Table 3. 4	Net Enrolment Rate in Primary Education by Area and Sex for Children Ages 7 – 13 and 6 – 12	27

Table 3. 5	Net Enrolment in Secondary Education by Area and Sex, Tanzania.....	27
Table 3. 6	Gross Enrolment in Higher Education Institutions by Area and Sex, Tanzania.....	28
Table 3. 7	Percentage Distribution of Transportation Type Used by Students at Primary Level Education, Tanzania, NPS 2020/21	30
Table 3. 8	Reasons for Not Attending School (Percent of School Aged Population Not Attending School), Tanzania, NPS 2020/21	32
Table 3. 9	Reasons for Not Attending School (Percentage of School Aged Population Not Attending School) by Area, Tanzania, NPS 2020/21	32
Table 4. 1	Percentage of Births Registered ¹ among Those Born in the 24 Months (%) Period Prior to the Survey by Area, Tanzania	34
Table 4. 2	Percentage Expressing Satisfaction with Health Services ¹ , by Area and Sex, Tanzania	35
Table 4. 3	Distribution (percent) of Dissatisfied Health Services Seekers by Reasons for Dissatisfaction and Area, Tanzania, NPS 2020/21	36
Table 4. 4	Percent Distribution of Individual Expenditure on Health Services Acquisition by Spending Group, Tanzania.....	37
Table 4. 5	Place of Birth for Children Born During the Last 24 months, by Area, NPS 2020/21.....	38
Table 4. 6	Percentage of Persons with Disability by Location and Type of Disability (5 years and older), Tanzania, NPS 2020/21	39
Table 4. 7	Percentage of People who got Medical Exemption by Age and Area, NPS 2020/21.....	40
Table 4. 8	Percentage of People who Reported to be Hospitalized by Age and Type of Illness or Injury, Tanzania, NPS 2020/21	40
Table 4. 9	Percentage of People Who Reported to be Hospitalized, by Type of Illness or Injury, Tanzania	41
Table 5. 1	Welfare-Based Transitions (In and Out of Quintiles) (Percent), Tanzania.....	46
Table 5. 2	Welfare-Based Transitions (In and Out of Quintiles) (Percent), Zanzibar	46
Table 5. 3	Welfare-Based Transitions (In and Out of Quintiles) (Percent), Mainland Other Urban.....	47
Table 5. 4	Welfare-Based Transitions (In and Out of Quintiles) (Percent), Mainland Rural	47
Table 5. 5	Welfare-Based Transitions (In and Out of Quintiles) (Percent), Dar es Salaam	47
Table 5. 6	Share of Consumption by Location and Gender of Head of Household, Tanzania	49
Table 5. 7	Share of Consumption by Number of Usual Residents, Tanzania.....	49

Table 5. 8	Share of Consumption by Marital Status of Head of Household, Tanzania	50
Table 5. 9	Share of Consumption by Employment Sector of the Head of Household, Tanzania	50
Table 5. 10	Share of Consumption by Income Diversification of Head of Household in Past 12 Months, Tanzania	51
Table 5. 11	Average and Median Household Consumption Expenditure per 28 days by Area, TZS, Tanzania	52
Table 5. 12	Transition in and Out of Poverty (Percent), Tanzania	52
Table 5. 13	Gini Coefficient, Tanzania	53
Table 6. 1	Percentage of Employment by Sector, Tanzania, NPS 2020/21	56
Table 6. 2	Employment Transition Between Sectors, Tanzania, NPS 2020/21	57
Table 6. 3	Employment Status Dynamics across Waves, Tanzania	59
Table 6. 4	Percentage of Youth who are Neither in Education nor in Employment or Training, Tanzania, NPS 2020/21	61
Table 6. 5	Income Diversification in Past 12 Months by Number of Sources, Tanzania	62
Table 6. 6	Income Diversification in Past 12 Months by Source, Tanzania	63
Table 7. 1	Percentage of the Population Experiencing Three Food Security Indicators by Area, Tanzania	65
Table 7. 2	Percentage of the Population Experiencing <i>All Three</i> Food Security Indicators by Welfare Quintile, Tanzania	66
Table 7. 3	Average Number of Meals Taken per Day by Adults and Children by Area, Tanzania	67
Table 7. 4	The Percentage of Population by the Average Number of Daily Meals and Area, Adults, Tanzania	68
Table 7. 5	The Proportion of Population by the Average Number of Daily Meals and Area, Children (6-59 months), Tanzania	69
Table 7. 6	Percentage of the Population Experiencing Food Shortage and Average Number of Months of Food Shortage Experienced in the 12 Months Prior to the Survey, Tanzania	70
Table 7. 7	Percentage of Households Reporting Food Shortage by Cause, Area, and Farming Status, Tanzania	71
Table 7. 8	Average Dietary Diversity (Number of Different Food Groups Consumed), Tanzania	72
Table 7. 9	Percentage of Stunting (height for age) of Children Under 5 years by Area, Sex, and Age, Percentage below -2 SD, Tanzania	73

Table 7. 10	Percentage of Wasting (weight for height) of Children Under 5 Years by Area, Sex, and Age, Percentage below -2 SD, Tanzania.....	74
Table 7. 11	Percentage of Underweight (weight for age) of Children Under 5 Years by Area, Sex, and Age, Percentage below -2 SD, Tanzania.....	75
Table 7. 12	Percentage of Underweight (BMI) Women of Reproductive Age (15 - 49 years) by Area, Inclusive of All Women 15-49 Regardless of Pregnancy Status ¹ , Tanzania.....	76
Table 7. 13	Percentage of Overweight/Obesity (BMI) of Women of Reproductive age (15 - 49 years) by Area, Excluding Women 15-49 Who are Currently Pregnant (NPS 2020/21 only ¹).....	77
Table 8. 1	Average Yields of Maize using Area Planted and Area Harvested by Type of Plot, Tanzania.....	79
Table 8. 2	Average Yields of Paddy (Kilogram /Area Planted and Harvested in Hectares) by Type of Plot, Tanzania	81
Table 8. 3	Percentage of Households Using Irrigation by Area, Tanzania.....	83
Table 8. 4	Percentage of Households Using Irrigation by Method, Tanzania	84
Table 8. 5	Percentage of Households Using Various Sources of Water for Irrigation, Tanzania	84
Table 8. 6	Percentage of Farm Households Using Fertilizer, Seeds, and Pesticides by Area, Tanzania	85
Table 8. 7	Percentage of Farm Households Owning/Using Farm Implements and Machinery, Tanzania.....	86
Table 8. 8	Percentage of Farm Households Earning Income from Off-Farm Activities by Wave, Source of Income, and Area, Tanzania.....	87
Table 8. 9	Cash Crops Average Area Planted, Area Harvested, Quantity Harvested, and Yield, by Major Cash Crops, Tanzania, NPS 2020/21	88
Table 8. 10	Quantity Harvested and Sold, and the Total Value of Sales (TZS) by Crop, Tanzania, NPS 2020/21.....	88
Table 8. 11	Proportion of Households Receiving Extension Services, Tanzania	88
Table 8. 12	Percentage of Households Currently Own/Keep Animals by Type (Indigenous/Improved), Area, and Round	89
Table 8. 13	Percentage of Households Reporting Occurrence of Animal Diseases, Tanzania	90
Table 8. 14	Percentage of Households Reported to Vaccinate, Deworm, Prevent Ticks and Treat Animals, Tanzania, NPS 2020/21.....	91
Table 8. 15	Percentage of Households Reporting Different Feeding Practices, Sources of Water, Housing and Mating Methods, Tanzania, NPS 2020/21	92

Table 8. 16	Tropical Livestock Unit (TLU) by Wave and Area, Tanzania	93
-------------	--	----

List of Figures

Figure 2. 1	Population Pyramids for NPS 2014/15 and NPS 2020/21, Tanzania	8
Figure 2. 2	Percentage of Households with Access to Improved Sanitation Facilities by Area, Tanzania	14
Figure 2. 3	Percentage of Households using Electricity for Lighting by Area, Tanzania.....	15
Figure 2. 4	Percentage of Households using Alternative Fuels ¹ for Cooking by Area, Tanzania	17
Figure 3. 1	Literacy Rate of the General Population by Area, Tanzania	22
Figure 3. 2	Literacy Rate of the Population Ages 6 – 12 and 7-13 Years by Area, Tanzania	23
Figure 3. 3	Net Enrolment Rate in Pre-Primary Education by Area, Tanzania	25
Figure 3. 4	Net Enrolment Rate in Pre-Primary Education by Sex, Tanzania	25
Figure 3. 5	NER in Primary Education by Area and Sex, for Children Ages 6-12.....	26
Figure 3. 6	NER in Pre-Primary, Primary and Secondary Education by Orphanhood Status, Tanzania	29
Figure 3. 7	Average Distance to School (in minutes) for Students who Walk to School, Tanzania	31
Figure 4. 1	Proportion of Births Attended by Skilled Health Worker by Area, Tanzania	33
Figure 4. 2	Reasons for Client Dissatisfaction Pertaining to Health Services Provision, Tanzania	36
Figure 5. 5	Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Tanzania	43
Figure 5. 6	Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Dar es Salaam.....	43
Figure 5. 7	Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Other Urban Mainland	44
Figure 5. 8	Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Mainland Rural.....	44
Figure 5. 9	Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Zanzibar.....	45

Figure 5. 10	Welfare-Based Transitions (In and Out of Quintiles), Tanzania	46
Figure 5. 11	Lorenz Curve of Consumption, Tanzania	54
Figure 5. 12	Lorenz Curve of Consumption, by Strata	54
Figure 6. 1	Percentage of Employment by Sector by Welfare Quintile, NPS 2014/15 and NPS 2020/21	57
Figure 6. 2	Employment Transition Matrix Between Sectors, Tanzania	58
Figure 6. 3	Employment Status Dynamics across Waves, Tanzania	59
Figure 7. 1	Percent of the Population Experiencing <i>All Three</i> Food Security Indicators by Area, Tanzania	66
Figure 7. 2	Percent of the Population Experiencing <i>None of the Three</i> Food Security Indicators by Area, Tanzania	67

List of Acronyms

BMGF	Bill and Melinda Gates Foundation
BMI	Body Mass Index
CBPP	Contagious Bovine Pleuropneumonia
CCPP	Contagious Caprine Pleuropneumonia
CCRO	Certificate of Customary Right of Occupancy
EA	Enumeration Area
ECF	East Coast Fever
EU	European Union
FMD	Foot-And-Mouth Disease
FYDP	Five Year Development Plan
GDP	Gross Domestic Product
GER	Gross Enrolment Rate
GPS	Global Positioning System
HBS	Household Budget Surveys
ILO	International Labour Organization
MKUKUTA	National Strategy for Growth and Reduction of Poverty
MUAC	Mid-Upper Arm Circumference
NBS	National Bureau of Statistics
NER	Net Enrolment Rate
NMNAP	New National Multi-Sectoral Nutrition Action Plan
NPS	National Panel Survey
OECD	Economic Co-operation and Development
PHC	Population and Housing Census
PSU	Primary Sampling Units
SD	Standard Deviation
TLU	Tropical Livestock Units
TSMP	Tanzania Statistical Master Plan
TZS	Tanzanian Shillings
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
VIP	Ventilated Improved Pit Latrine
WHO	World Health Organization

Preface

The Tanzania National Panel Survey (NPS) has been implemented by the National Bureau of Statistics (NBS) in collaboration with the Office of the Chief Government Statistician (OCGS) – Zanzibar since its inception in 2008/09. This report presents findings from the fifth wave of the survey that was implemented from December 2020 to January 2022. The National Panel Survey is a nationally representative longitudinal survey designed to provide data from the same households over time in an attempt to better track national and international development indicators, understand poverty dynamics, understand the linkages between smallholder agriculture and



welfare, and to evaluate policy impacts in the country. The fifth wave of the National Panel Survey follows four previous waves: the first wave was conducted between October 2008 and October 2009; the second wave was fielded between October 2010 and November 2011; the third wave was implemented between October 2012 and November 2013; and the fourth wave was conducted between October 2014 and November 2015.

In the first three waves, the sample was based on Enumeration Areas from the Tanzania 2002 Population and Housing Census. Due to availability of the new sampling frame from the 2012 Population and Housing Census, the Wave 4 sample was reviewed and realigned with any changes in administrative boundaries, demographic shifts or updated population information. A refresh of longitudinal cohorts is typically done to ensure proper representativeness of estimates while maintaining sufficient primary sample to maintain cohesion within panel analysis. A nationally representative sub-sample was selected to continue as part of the “Extended Panel” while an entirely new sample, “Refresh Panel”, was selected to represent national and sub-national domains, similar to those of the 2008/09 sample: namely, Dar es Salaam, Other Urban areas in Tanzania Mainland, Rural Mainland, and Zanzibar. Therefore, the Wave 4 sample consisted of 860 originally selected households from 68 clusters (extended panel) surveyed in the previous rounds and 3,360 new households corresponding to 420 clusters from the latest Population and Housing Census in 2012. This cohort of new households was maintained and tracked in the fifth wave. The fifth wave also introduced additional (booster) clusters sampled from major cities other than Dar es Salaam to allow for the estimation of indicators for other large urban centres in Tanzania Mainland, including Arusha, Dodoma, Mbeya, Mwanza, and Tanga.

For convenience and accuracy in the presentation of trends and panel statistics, this report is based on data from the Wave 4 “Refresh Panel” households only and excludes the booster sample. Separate analyses can be done with the booster households in order to establish baselines for these other major cities in the Mainland, which will be tracked during Wave 6 and beyond.

I wish to thank the Government of the United Republic of Tanzania and the Ministry of Finance and Planning, the European Union (EU), World Bank / Gates Foundation, UNICEF, and other partners for contributing financial and technical resources that made Wave 5 of the NPS a success.

Furthermore, I wish to convey my appreciation to all permanent and temporary National Bureau of Statistics staff for their tireless efforts in designing and implementing the survey. My sincere appreciation should also go to their families for being patient during the long absence of their beloved ones.

Lastly, but equally important, I am even more grateful to the survey respondents who generously contributed part of their valuable time to be interviewed again in order to provide crucial information for the country's planning and policy formulation.

Dr. Mwigulu L. Nchemba (MP)

Minister of Finance and Planning

Acknowledgement

This report has been possible as a result of collaborative and individual efforts from those who have tirelessly been working to ensure the survey is a success and the report is out as scheduled. Being the fifth wave of the panel survey, a number of individuals and institutions, both public and non-public, have played a great role to ensure the country and partners are served with high quality official statistics produced from the NPS.



It is my privilege to acknowledge the Government of the United Republic of Tanzania and the Revolutionary Government of Zanzibar for maintaining enabling environment and providing resources, both financial and non-financial, that made the undertaking of not only the NPS Wave 5 successfully, but also all the preceding waves since the inception of the NPS in Tanzania in 2008/09. The United States Agency for International Development (USAID), Bill and Melinda Gates Foundation (BMGF), and the European Union (EU) have been the major funding partners of the NPS. The World Bank, UNICEF, and other partners have been instrumental in providing both financial and technical backstopping to ensure the smooth running of the NPS up to the current wave.

Individual staff from both the NBS/OCGS and partners played commendable roles to make the survey implementation and the production of this report possible. I wish to acknowledge the overall coordination of the survey by a number of officers of the NBS led by Mr. Emilian Karugendo and Ms. Jocelyn Rwehumbiza, and Mr. Mlemba Abassy (who is now serving the country in a different organization within Tanzania). From the OCGS, Zanzibar, Mr. Abdul R. Abeid (who is now serving in Planning Commission) and Mr. Khamis Abdul-rahman Msham led the coordination of the survey in Zanzibar. I also wish to thank the National Panel Survey Technical Committee as a whole for their invaluable contributions in all aspects of the survey.

The National Bureau of Statistics appreciates technical contributions by World Bank staff: Gero Carletto, Darcey Johnson, Maryam Gul, Josephine Ofori Adofo, Rob Swinkels, Amparo Palacios-Lopez and Akuffo Amankwah in providing technical support during the implementation of the survey, as well as the finalization of this report.

I also in a special way wish to appreciate the data collection teams in both Mainland and Zanzibar for their tireless effort at ensuring that all households assigned to them for were tracked and interviewed successfully. Equally important, respondents, some of whom have been responding to survey questions since the first wave in 2008/09 though this fifth wave, are appreciated.

The list of individuals who have been part of this success is long and it is my sincere wish to mention each and everyone here, but I find it is impossible. All those who have been part of this fifth wave have been listed in an annex as a way of appreciating their valuable contribution to the survey.



Dr. Albina Chuwa

Statistician General

National Bureau of Statistics

CHAPTER ONE

1.0 Introduction

1.1 Introduction

The National Panel Survey (NPS) is a nationally representative household survey that collects information on the living standards of the population, including their consumption expenditure, non-farm income generating activities, agricultural production, and other socio-economic characteristics. The term “panel” indicates that the survey will follow the population from the original sample over time to track the evolution of their living standards. To date, the NPS has completed several waves: the first wave of the survey (NPS 2008/09) was conducted between October 2008 and October 2009, the second wave (NPS 2010/11) between October 2010 and November 2011, the third wave (NPS 2012/13) between October 2012 and November 2013, and the fourth wave (NPS 2014/15) between October 2014 and November 2015. The fifth and most recent wave which this report will be based on was conducted between December 2020 and January 2022 (NPS 2020/21).

1.2 Objectives

The NPS was designed to fulfil three principal objectives. The first objective is to track implementation progress across the three clusters of the then National Strategy for Growth and Reduction of Poverty (commonly known by its Kiswahili acronym “MKUKUTA”), which included: growth and reduction of poverty, improvement of quality of life and social well-being, and good governance and accountability. Assessing progress across the three clusters is possible because the NPS allows for the estimation of many of these MKUKUTA II indicators¹. With the phasing out of the MKUKUTA II, the survey is now aligned to the Five-Year Development Plan (FYDP) (2016/17 – 2020/21) which integrated frameworks of the first Five Year Development Plan (2011/12 – 2015/16) and the MKUKUTA II (2010/11 – 2014/15).

The second objective is to provide a better understanding of the determinants of poverty reduction. The NPS enables detailed study of poverty dynamics at the national level and separately for Dar es Salaam, Other Urban Areas, Rural and Zanzibar. In addition to tracking the evolution of aggregate poverty numbers at the national level in years between Household Budget Surveys (HBS), the NPS enables analysis of the micro-level determinants of poverty reduction at the household level. Panel data provides the basis for analyzing the causal determinants of poverty in indicators such as income growth, agricultural productivity, improvements in educational achievement, and changes in the quality of public service provision over time by linking changes in these outcomes to household and community characteristics.

The third objective is to assess the impact of public policy initiatives. The NPS can be a powerful tool in evaluating the impact of development policies and programs implemented by both the

¹ See *MKUKUTA II Monitoring Master Plan and Indicator Information* for a detailed list of all indicators.

government and non-governmental institutions. If a person, household, or community has been impacted by a particular policy and has been sampled in the NPS, the survey may allow the estimation of indicators that capture that effect. Hence, coordination with those implementing these policies is crucial in order to determine how the impact evaluation can be done and if complementary data are required. The panel feature of this survey is suitable for investigating the dynamics of many indicators such as the educational progression of children, the labour mobility of the adult population, or the evolution of agricultural yields.

1.3 Sample Design

The NPS is based on a stratified, multi-stage cluster sample design. The original sampling frame was from the 2002 Population and Housing Census (PHC), and more specifically, the National Master Sample Frame, which is a list of all populated Enumeration Areas (EA) in the country.

The sample design of the NPS recognizes four explicit analytical strata: Dar es Salaam, Other Urban areas in Mainland, Rural areas in Mainland, and Zanzibar. Within each stratum, clusters were randomly selected as primary sampling units (PSU), with the probability of selection proportional to their population size. Clusters are equivalent to census EAs. In rural areas, an EA is a natural village or a segment of a large village, while in urban areas, an EA is a street or a city block. In the last stage, eight (8) households were randomly chosen in each cluster/EA.

The first (baseline) wave of the NPS in 2008/09 was designed to have a panel component with the 2007 Household Budget Survey (HBS). For this wave, the panel was only possible in Tanzania Mainland, where 200 of the 350 clusters were drawn from the HBS sample and hence, a panel of 1,600 households was expected for the NPS 2008/09. Altogether, the NPS sample in 2008/09 included a total of 409 clusters and 3,265 households.

The second wave of the NPS in 2010/11 followed the same sample design that was used in the first wave and re-interviewed first wave NPS baseline households. Additionally, all eligible baseline households and members who moved locations were tracked for re-interview. Likewise, the third wave (NPS 2012/13) followed the same sample design that was used in the first wave and further tracked all additional households added to the sample in the second wave for re-interview.

In the fourth wave (NPS 2014/15), the sample design was revisited and refreshed. From the original NPS sample, a nationally representative sub-sample was selected to continue as the “Extended Panel” (989 households) while an entirely new sample, the “Refresh Panel” (3,352 households), was selected to represent both national and sub-national domains. Selection of the “Refresh Panel” sample took advantage of the availability of the new population census frame in addition to data previously captured through the NPS. This allowed for optimal sample design and maximized efficiency while minimizing the overall sample size.

Retention of the “Extended Panel” cohort preserves the opportunity to track national progress and assess potential differences at the national level, while additionally offering a robust base for the study of poverty dynamics over a longer period in Tanzania. The fifth wave of the NPS (2020/21) follows the “Refresh Panel” cohort, and introduced an additional (booster) sample of households in large cities such as Arusha, Dodoma, Mbeya, Mwanza, and Tanga, in order to allow separate estimates for these growing urban centres as is done for Dar es Salaam.

1.4 Panel Sample Trim and Refresh

By design, the NPS seeks to re-interview households over time. Longitudinal surveys, such as the NPS, permit the monitoring of households over time and provide the ability to diagnose potential determinants of any observed changes. This type of survey yields a powerful basis for the analysis of poverty dynamics, which is not possible in pooled cross-sectional survey designs that interview different households across time. However, longitudinal surveys tend to suffer from potential bias introduced by households leaving the survey over time (i.e. attrition). Although the NPS has maintained a highly successful recapture rate (roughly 96 percent retention at the household level), in order to minimize the escalation of this selection bias, a refresh of longitudinal cohorts is typically done to ensure proper representativeness of estimates while still preserving a sufficient primary sample to conduct panel analysis.

The refreshing of a longitudinal sample may also be commissioned to realign the sample with any changes in administrative boundaries, demographic shifts, or updated population information. In the case of Tanzania, the newly completed 2022 PHC will provide updated population figures along with new administrative boundaries, and emboldens an opportunity to both realign the NPS sample and abate collective bias potentially introduced through attrition.

1.5 Revised Sample Design

To streamline the trimming and refreshing of the NPS sample, the sample design dealt with both as independent exercises. From the previous NPS 2014/15 sample, the entire “Refresh Panel” sub-sample was selected to continue as part of the NPS 2020/21 sample and a brand new sample (“Booster Sample”) was additionally introduced to represent sub-national domains. This new sample represented large cities in Tanzania (sub-national domains), to allow for separate estimates in these large cities. This new cohort will be maintained in all future NPS waves between national censuses.

Altogether, the NPS 2014/15 sample consisted of 3,360 households corresponding to 420 clusters for the “Refresh Panel” and 860 households corresponding to 68 clusters in the “Extended Panel”. Table 1.1 shows the allocation of clusters and households across strata for the entire NPS 2014/15 sample. During data collection activities, it was found that one cluster in Dar es Salaam was no longer there as the houses in it were destroyed to pave the way for expansion of the road and eventually, 3,352 households from 419 clusters were successfully interviewed.

The new sample design for NPS 2020/21 consisted of a combination of the previous NPS 2014/15 sample and the new “Booster Sample” which collectively represent both national and sub-national domains. The sample design for the full NPS 2020/21 sample (inclusive of the booster) allows for analysis at four primary domains of inference, namely: Large cities (Dar es Salaam, Mbeya, Mwanza, Arusha, Tanga and Dodoma), Other Urban areas in Mainland, Rural Mainland, and Zanzibar. As this report presents results for panel households only (exclusive of the booster), the four analytical strata recognized are Dar es Salaam, Other Urban areas in Mainland, Rural Mainland, and Zanzibar.

Table 1. 1: Number of Clusters and Households in New and Extended Samples of NPS 2014/15 by Area

Area	New (Refresh) Sample				Extended Sample			
	Clusters		Households		Clusters		Households	
	Expected	Actual	Expected	Actual	Expected	Actual	Expected	Actual
Tanzania	420	419	3,360	3,352	68	66	860	784
Tanzania Mainland	360	359	2,880	2,872	59	57	759	703
<i>Dar es Salaam</i>	70	69	560	552	13	13	124	108
<i>Other Urban</i>	68	68	544	544	15	13	212	168
<i>Rural</i>	222	222	1,776	1,776	31	31	423	427
Zanzibar	60	60	480	480	9	9	101	81

The sample for the NPS 2020/2021 consisted of the 3,352 households corresponding to 419 clusters from the NPS 2014/2015 sample. Additionally, the “Booster Sample” consisted of a new selection of 545 households corresponding to 68 EAs. This new sample in NPS 2020/21 will be maintained and tracked in all future waves of the NPS. Table 1.2 shows the allocation of clusters and households across strata for the NPS 2020/21 sample.

Table 1. 2: Number of Clusters and Households in Panel and Additional Samples of NPS 2020/21 by Area

Area	Panel Sample				Additional (Booster) Sample			
	Clusters		Households		Clusters		Households	
	Expected	Actual	Expected	Actual	Expected	Actual	Expected	Actual
Tanzania	419	401	3,352	3,042	68	64	545	545
Tanzania Mainland	359	346	2,872	2,585	68	64	545	545
<i>Dar es Salaam</i>	69	60	552	414	0	0	0	0
<i>Other Urban</i>	68	65	544	470	68	64	545	545
<i>Rural</i>	222	221	1,776	1,701	0	0	0	0
Zanzibar	60	55	480	457	0	0	0	0

1.6 Tracking and Attrition

A main feature of the NPS is the ability to track all eligible households and individuals present in previous waves of the survey, including those who have changed location. Three scenarios are possible: an individual stayed in the same location, moved to a nearby location, or moved to a distant location. For households, enumerators were able to maintain previous schedules for households that either stayed in the same location or moved to a nearby location. This was possible for the entire sample between the first and third waves of the NPS. The second wave of the NPS successfully tracked 97 percent of the original households in the first wave, and the third wave tracked 96 percent of households in the second wave. The attrition rate remained low at 3.9 percent in the third wave though slightly higher than that of the second wave (3 percent).

Due to the refresh of the sample in the fourth wave, calculation of the attrition rate for the entire sample from the third wave is not possible. This is only possible for the group of “Extended Panel” households, in which 95 percent of households were tracked (an attrition rate of 4.9 percent).

The NPS sample has also tended to increase over time, following original household members as they split-off and start new households and accounting for the changing composition of households as households gain new members. Marriage and migration are the most common reasons for households splitting over time.

1.7 Fieldwork

Fieldwork for the NPS 2020/21 was carried out between December 2020 and January 2022. The fieldwork was intentionally implemented over a 14-month period in order to address concerns about intra-year seasonality, as seasonal fluctuations can considerably affect the living standards of a population. Table 1.3 and 1.4 present the fieldwork distribution of the sample within each stratum. Table 1.3 presents the distribution for the panel sample only, which this report is based on, while Table 1.4 presents the distribution for the full NPS 2020/21 sample (both the panel sample and booster sample).

In addition to temporal considerations, an equally important consideration of fieldwork was to spread the urban and rural sample evenly within Tanzania Mainland and Zanzibar. This was taken into account as rural and urban households were evenly spread over the 14-month period of fieldwork.

Table 1. 3: Distribution of Households of the NPS 2020/21 Panel Sample by Area and Quarter of Interview

Area	NPS 2021				Total
	January-March ¹	April-June	July-September	October-December ²	
Tanzania	1,541	800	969	854	4,164
Tanzania Mainland	1,272	677	806	755	3,510
<i>Dar es Salaam</i>	243	116	111	76	546
<i>Other Urban</i>	140	124	134	217	615
<i>Rural</i>	889	437	561	462	2,349
Zanzibar	269	123	163	99	654

¹Households interviewed in December 2020 were included in the January-March 2021 quarter for all consumption and price analyses

²Households interviewed in January 2022 were included in the October-December 2021 quarter for all consumption and price analyses.

Values shown here are for the panel sample only (on which analysis was done for this report)

Table 1. 4: Distribution of Households for the NPS 2020/21 Full Sample by Area and Quarter of Interview

Area	NPS 2021				Total
	January-March ¹	April-June	July-September	October-December ²	
Tanzania	1,750	888	1,145	926	4,709
Tanzania Mainland	1,481	765	982	827	4,055
<i>Dar es Salaam</i>	243	116	111	76	546
<i>Other Urban</i>	349	212	310	289	1,160
<i>Rural</i>	889	437	561	462	2,349
Zanzibar	269	123	163	99	654

¹Households interviewed in December 2020 were included in the January-March 2021 quarter for all consumption and price analyses

²Households interviewed in January 2022 were included in the October-December 2021 quarter for all consumption and price analyses

Values shown here are for the full NPS 2020/21 sample (including the panel sample and booster sample)

1.8 Standard Disaggregates

In addition to national level results, a standard set of disaggregates is used in tables and figures throughout this report. These variables are primarily geographical but occasionally are based on gender of the respondent, the child, or the head of household.

Rural and Urban Areas

Estimates for rural and urban areas of the entire country (inclusive of both Mainland and Zanzibar households) will typically be presented in all tables and figures. The cumulative rural-urban disaggregate covers the entirety of the county of Tanzania.

Tanzania Mainland and Zanzibar

Estimates for the Mainland (both rural and urban parts) and Zanzibar (both rural and urban parts) will typically be presented in all tables and figures. The cumulative Mainland-Zanzibar disaggregate covers the entirety of the country of Tanzania.

Strata

The NPS is specifically designed to provide representative results at the sub-national level. This includes four separate strata: Dar es Salaam, Other Urban (urban areas on the Mainland outside of Dar es Salaam), Rural (rural areas in the Mainland), and Zanzibar (both rural and urban parts). The cumulative strata disaggregate covers the entirety of the county. In this instance, the values for Zanzibar will be equivalent to values for Zanzibar using the Mainland-Zanzibar disaggregate (above).

Gender

Unless otherwise noted, a table or figure with the disaggregate “Gender” will refer to the gender of the individual in the specific population noted in the title of the table, whether they are the primary respondent or not (i.e. net enrollment rates for children 5-6 *by gender* will refer to the gender of the 5-6 year old child even if the child him/herself did not answer the questions). For some household-level tables, the gender of the household head will be presented and noted as well.

CHAPTER TWO

2.0 Social and Demographic Characteristics of Households, and Accessibility to Selected Services

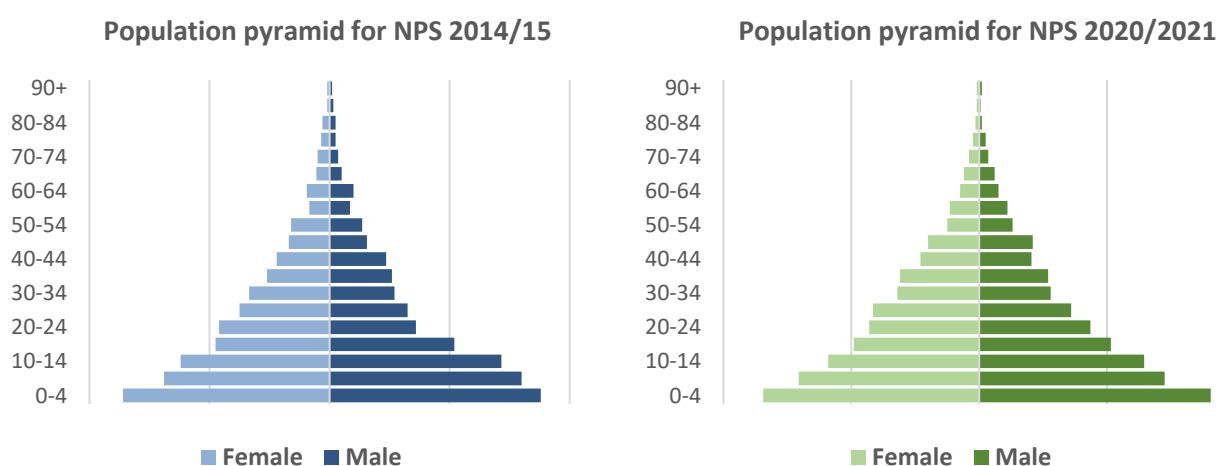
2.1 Introduction

Chapter 2 provides information on the social and demographic characteristics of households and individuals that were interviewed in the NPS 2020/21. It provides detailed information on demographic characteristics including the population distribution by age, sex, and marital status, the definition of a household, distribution of households by sex of household head, and household size. Other results discussed include access to clean and safe sources of drinking water, access to basic sanitation facilities, toilet facilities, use of modern energy for lighting and cooking.

2.2 Population Distribution by Age and Sex

The age and sex composition of a population are crucial demographic features that influence the formulation and implementation of policies in ways that accurately meet the specific requirements of a population. Figure 2.1 presents the age and sex composition of the population in Tanzania in 5-year age brackets, as well as the percentage of males and females in each age bracket for the NPS 2014/15 and NPS 2020/21. Each population pyramid is bell-shaped, indicating that the majority of the population is young, primarily between the ages of 0 and 14 years, and that as age increases the percentage of the population in that bracket decreases. This pattern is characteristic of developing countries such as Tanzania.

Figure 2.1 Population Pyramids for NPS 2014/15 and NPS 2020/21, Tanzania



2.3 Definition of Households

The NPS is a household-based survey with a focus on private households. In Tanzania, a private household is described as a person or group of people who live in the same homestead or compound who universally recognize one person as the household head and share cooking arrangements which may not necessarily in the same dwelling unit.

2.4 Distribution of Households by Sex of Household Head

Nationally, approximately seven in ten households (73.6 percent) were headed by males in the NPS 2020/21, an increase from 71.2 percent in the NPS 2014/15. Across geographical areas, there were increases in the percentage of male-headed households in both rural and urban areas and in each of the four analytical strata. The largest increase was reported in Dar es Salaam (5 percentage points) while the smallest increase was reported in Rural Mainland (1.6 percentage points). Zanzibar consistently had the highest percentage of male-headed households across waves (77 percent in 2014/15 and 80 percent in 2020/21). The highest percentage of female-headed households across waves was in Other Urban areas of Mainland (33.3 percent in 2014/15 and 30.1 percent in 2020/21).

Table 2.1 Percentage Distribution of Households by Sex of Head of Household and Area, Tanzania

Area	NPS 2014/15		NPS 2020/21	
	Male	Female	Male	Female
Tanzania	71.2	28.8	73.6	26.4
<i>Rural</i>	68.4	31.6	72.1	27.9
<i>Urban</i>	72.7	27.3	74.3	25.7
Tanzania Mainland	71.0	29.0	73.4	26.6
<i>Dar es Salaam</i>	70.0	30.0	75.0	25.0
<i>Other Urban</i>	66.7	33.3	69.9	30.1
<i>Rural</i>	72.6	27.4	74.2	25.8
Zanzibar	76.9	23.1	79.7	20.3

2.5 Household Size

Household size refers to the average number of people per private household. The average household size is calculated by dividing the total number of people living in private households by the total number of private households. A change in household size may be due to several factors such as births, marriages, partnership splits, and the departure (or addition) of other adults and children from the household.

Table 2.2 shows that the average household size in the NPS 2020/21 was 4.7 persons, remaining unchanged from the NPS 2014/15. Rural households had relatively larger household sizes (5.0 people per household) than urban households (4.1 people per household). The distribution of the number of usual members was also similar across the two waves.

Table 2.2 Percentage Distribution of Number of Usual Residents in a Household, by Area, Tanzania

Number of usual residents ¹	NPS 2014/15				NPS 2020/21		
	Rural	Urban	Total		Rural	Urban	Total
1	6.7	11.6	8.4		8.7	13.0	10.1
2	9.9	13.7	11.2		8.6	11.2	9.4
3	15.4	21.3	17.4		15.3	18.2	16.2
4	14.8	17.6	15.8		16.9	19.4	17.7
5	14.4	13.4	14.1		14.2	14.9	14.4
6+	38.8	22.4	33.1		36.3	23.3	32.1
Total	100.0	100.0	100.0		100.0	100.0	100.0
Average household size	5.1	4.0	4.7		5.0	4.1	4.7
Percent of households	65.5	34.5	100.0		67.4	32.6	100.0

¹A usual household resident/member is defined as one who has stayed in the household for at least 3 months out of the previous 12 months; the only exceptions are infants, boarding students, and new members.

2.6 Marital Status

Information on marital status is typically collected for all respondents above the minimum age at which a person can marry for the first time. According to the Marriage Act of Tanzania, the minimum age for marriage is 15 years for females and 18 years for males. However, for the NPS, marital status information was collected and analyzed for household members 12 years old and above. This information is useful for analysis of the birth rate and population forecast. Marital status data are presented at the national level and disaggregated by rural and urban areas in Table 2.3.

The majority of individuals in Tanzania had either never been married or were in monogamous marriages. Notably, the largest increase in distribution of population by marital status was for people in monogamous marriages, increasing from 34.8 percent in the NPS 2014/15 to 40.5 percent in the NPS 2020/21 (Table 2.3). There was a less marked increase in individuals who were separated from their partners or those who had never been married, with increases of just 1.2 percent and 0.6 percent, respectively. In contrast, there was a considerable decrease in polygamous marriages, from 6.4 percent in NPS 2014/15 to 2.6 percent in NPS 2020/21, and in the proportion of individuals living together (a decrease of 2.8 percentage points). There was little variation between rural and urban areas, though polygamous marriages remain more common in rural areas.

Table 2.3 Percentage Distribution of Population by Marital Status, Tanzania

Marital status	NPS 2014/15				NPS 2020/21		
	Rural	Urban	Total		Rural	Urban	Total
Monogamous marriage	35.0	34.4	34.8		41.4	38.4	40.5
Polygamous marriage	8.4	2.2	6.4		3.2	1.2	2.6
Living together	8.5	9.7	8.9		5.9	6.5	6.1
Separated	3.5	4.5	3.8		4.7	5.7	5.0
Divorced	1.9	2.4	2.1		1.7	2.3	1.9
Never married	37.1	40.8	38.3		38.3	40.4	38.9
Widow(er)	5.6	5.8	5.7		4.9	5.4	5.1

2.7 Access to Clean Drinking Water

The source of drinking water used by a household is necessary to ascertain the suitability of water for consumption. Piped water inside the dwelling, private or public standpipes (taps), and protected wells are each considered clean sources of drinking water. The NPS collects information for this indicator separately for the rainy and dry seasons.

Table 2.4 presents the distribution of households with access to clean drinking water by geographic area and season. Nationally, nearly half of all households (49.5 percent) had access to clean drinking water in the rainy season while 64.6 percent had access in the dry season. Access to clean drinking water improved in both the rainy and dry season between the NPS 2014/15 and NPS 2020/21 (from 57.3 percent to 64.6 percent in the dry season, and from 46.0 percent to 49.5 percent in the rainy season). People living in urban areas were consistently more likely to have better access to clean drinking water in both seasons than their rural counterparts.

More than 90 percent of households in both Zanzibar and Dar es Salaam had access to clean drinking water in the dry season, with both areas reporting significant² improvements in access between 2014/15 and 2020/21. While improvements were reported in the rainy season for households in both Zanzibar and Dar es Salaam, just 79.2 percent of households in Dar es Salaam reported access in 2020/21, compared to 91.2 percent of households in Zanzibar. Households in Rural Mainland areas reported moderate improvements over time in each season, but consistently had the lowest levels of access across the country.

² Statistical tests were performed to test the difference between referred groups and the p-value was less than 0.10

Table 2. 4 Percentage Distribution of Households with Access to Clean Drinking Water by Area and Season, Tanzania

Area	Rainy Season			Dry Season		
	NPS 2014/15	NPS 2020/21	Sig ^a	NPS	NPS	Sig ^a
Tanzania	46.0	49.5	**	57.3	64.6	***
<i>Rural</i>	34.5	37.6	n/s	46.1	54.2	***
<i>Urban</i>	67.8	74.3	***	78.6	86.2	***
Tanzania Mainland	45.0	48.4	**	56.6	63.8	***
<i>Dar es Salaam</i>	65.7	79.2	***	81.6	93.8	***
<i>Other Urban</i>	68.7	69.9	n/s	77.1	81.1	n/s
<i>Rural</i>	33.4	36.5	n/s	45.2	53.5	***
Zanzibar	81.3	91.5	***	81.3	91.9	***

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

2.8 Access to Improved Source of Drinking Water

An improved source of drinking water is defined as one of the following: piped water inside dwelling or to private or public standpipes (taps), tube well or borehole, protected dug well, protected spring, bottled water, or rainwater. Greater accessibility to improved source of drinking water reduces incidence of water-borne diseases like cholera therefore improving better health outcomes.

The NPS 2020/21 collected information on drinking water, time taken to fetch drinking water, and persons who usually fetch drinking water and household water consumption. Nationally, access to improved source of drinking water increased mostly during the rainy season (from 68.9 percent in NPS 2014/15 to 79.2 percent in NPS 2020/21) as compared to the dry season (from 58.5 percent in NPS 2014/15 to 66.8 percent in NPS 2020/21) which also witnessed an increase (Table 2.5).

Table 2. 5 Proportion of Households with Access to Improved Source of Drinking Water by Area and Season, Tanzania

Area	Rainy Season			Dry Season		
	NPS 2014/15	NPS 2020/21	Sig ^a	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	68.9	79.2	***	58.5	66.8	***
<i>Rural</i>	59.8	72.5	***	47.4	56.9	***
<i>Urban</i>	86.0	92.9	***	79.6	87.3	***
Tanzania Mainland	68.5	78.8	***	57.9	66.1	***
<i>Dar es Salaam</i>	88.4	96.1	***	82.6	95.2	***
<i>Other Urban</i>	85.6	90.8	**	78.2	82.1	n/s
<i>Rural</i>	59.2	72.2	***	46.6	56.3	***
Zanzibar	81.3	91.9	***	81.3	91.9	***

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

2.9 Access to Basic Sanitation Facilities

Basic sanitation facilities include flush or pour toilets, ventilated pit latrines (VIP), and simple pit latrines. Poor sanitation is a major cause of preventable diseases including diarrhea, dysentery and cholera. Improvements in hygiene are generally associated with better health, which positively impacts other activities of the household.

The proportion of households with basic sanitation facilities in Tanzania significantly increased from 87.0 percent to 89.7 percent between NPS 2014/15 and NPS 2020/21. Basic sanitation facilities were nearly universal in Dar es Salaam (99.7 percent), but despite significant improvement over time they remain least common in rural areas (86 percent in NPS 2020/21).

Table 2. 6: Percentage Distribution of Households with Basic Sanitation Facilities by Area, Tanzania

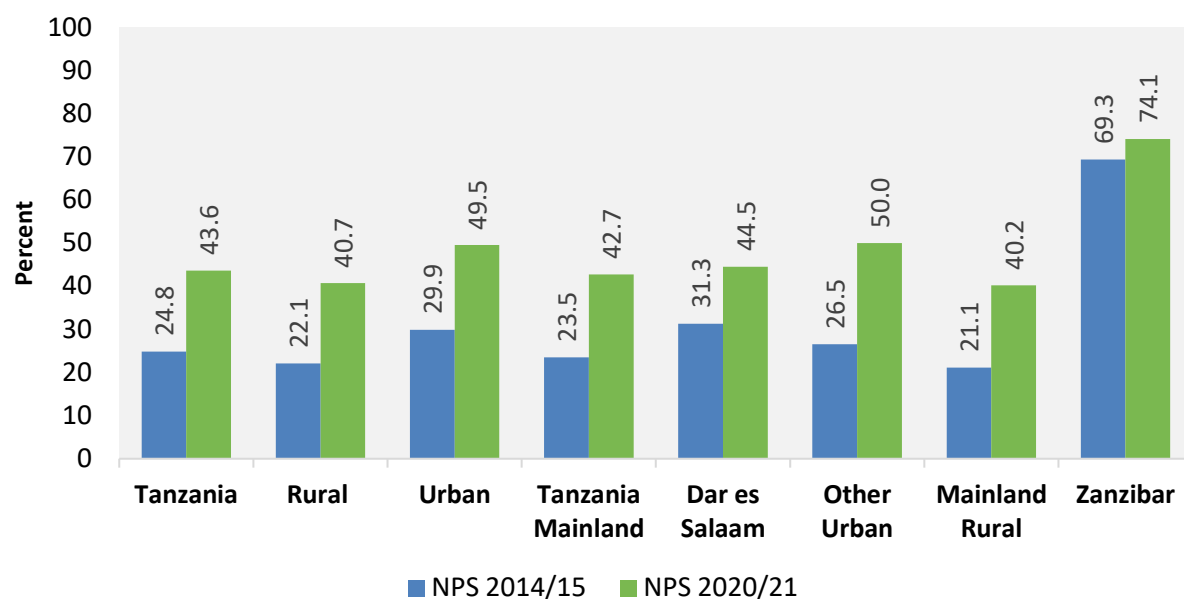
Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	87.0	89.7	***
<i>Rural</i>	82.2	85.7	**
<i>Urban</i>	96.0	97.9	**
Tanzania Mainland	87.1	89.7	***
<i>Dar es Salaam</i>	99.0	99.7	n/s
<i>Other Urban</i>	96.3	96.8	n/s
<i>Rural</i>	81.9	85.8	***
Zanzibar	81.2	88.6	***

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

2.10 Access to Improved Sanitation Facilities

Improved sanitation facilities are not shared with other households and include the use of a flush/pour flush toilet (piped sewer system, septic tank, pit latrine), ventilated improved pit (VIP) latrine, pit latrine with washable slab, or composting toilet (according to WHO and UNICEF). Such facilities ensure the hygienic separation of human excreta from human contact. In Tanzania, 43.6 percent of households had access to improved sanitation facilities in NPS 2020/21, a significant increase from just 24.8 percent in NPS 2014/15. Although both urban and rural areas show similar improvements in access to improved sanitation facilities over time, access was better in urban areas (49.5 percent) than rural areas (40.7 percent) (Figure 2.2).

Figure 2.2 Percentage of Households with Access to Improved Sanitation Facilities by Area, Tanzania



2.11 Toilet Facilities Used

The NPS collects detailed information on the types of toilet facilities used by households, including pit latrines and flush toilets. In NPS 2020/21, 90.5 percent of households in Tanzania used toilets compared to NPS 2014/15 when 87.1 percent of households used toilets (Table 2.7a). The most common types of toilet facilities were pit latrine (40.6 percent) and flush toilet (33.7 percent). The use of flush toilets became considerably more common in 2020/21, with more than one-third of households in Tanzania now using a flush toilet. In contrast, the proportion of households using a pit latrine without slab decreased from 41.3 percent to 23.1 percent.

Table 2.7a Type of Toilets Used by Households (%), Tanzania

Toilet type	NPS 2014/15	NPS 2020/21	Sig ^a
No toilet	12.9	9.5	***
Pit latrine without slab (open pit)	41.3	23.1	***
Pit latrine with slab (not washable)	12.8	17.5	***
Pit latrine with slab (washable)	10.7	8.8	**
VIP	2.5	2.3	n/s
Pour flush	2.7	4.1	***
Flush toilet	16.9	33.7	***
ECOSAN	0.0	0.0	n/s
Other	0.1	0.8	***

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

In Tanzania Mainland, flush toilets, pit latrines without slabs, and pit latrines with slabs (not washable) were the most common types of toilet facilities used, while flush toilets and pit latrines with slabs (washable) were most common in Zanzibar. Across all geographic areas, flush toilets were most common in Dar es Salaam, where two-thirds of households used them (66.6 percent), followed by Other Urban areas (58.4 percent) and Zanzibar (52.9 percent). However, approximately 12 percent of households in Zanzibar and 13 percent of households in Rural Mainland areas still had no toilet facilities (Table 2.7b).

Table 2.7b Type of Toilet Used by Households by Area (%), Tanzania, NPS 2020/21

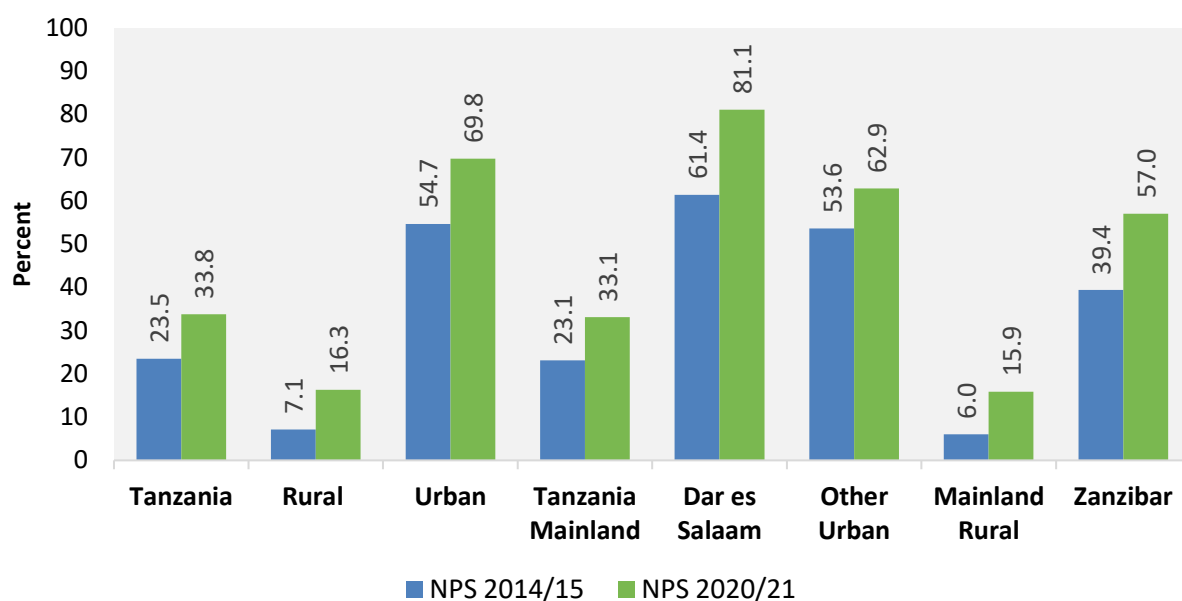
Toilet type	Tanzania	Mainland	Tanzania Mainland			Zanzibar
			Dar es Salaam	Other Urban	Rural	
No toilet	9.5	9.5	0.2	3.5	12.9	11.7
Pit latrine without slab (open pit)	23.1	23.6	5.9	8.7	31.2	5.9
Pit latrine with slab (not washable)	17.5	17.9	2.7	5.5	24.3	5.9
Pit latrine with slab (washable)	8.8	8.7	10.7	10.2	7.9	14.1
VIP	2.3	2.3	4.9	3.3	1.5	3.3
Pour flush	4.1	4.1	8.9	10.2	1.3	6.3
Flush toilet	33.7	33.2	66.6	58.4	19.7	52.9
ECOSAN	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.8	0.8	0.1	0.2	1.1	0.0

2.12 Access to Electricity

Energy, particularly electricity, is a key driver in the socio-economic transformation of a nation. To improve the availability and accessibility of electricity to both rural and urban areas, the Government of the United Republic of Tanzania has constructed new transmission lines under the rural electrification project. The NPS 2020/21 collected information on the main energy sources used by households for lighting with the aim of tracking the progress of electrification programs in the country.

Overall, more than one-third of households in Tanzania used electricity as their main source of energy for lighting in the NPS 2020/21, a statistically significant increase from 23.5 percent in NPS 2014/15 to 33.8 percent in NPS 2020/21 (Figure 2.3). Similar improvements were reported across all areas in the country, with statistically significant increases in both rural and urban areas, Tanzania Mainland, and all four strata. Use of electricity as the main source of energy remained most common in Dar es Salaam and Other Urban areas in Mainland, where 81.1 percent and 62.9 percent of households reported access in the NPS 2020/21, respectively. Despite significant improvements in access, the use of electricity remained least common in Rural Mainland areas (16 percent in NPS 2020/21).

Figure 2.3 Percentage of Households using Electricity for Lighting by Area, Tanzania

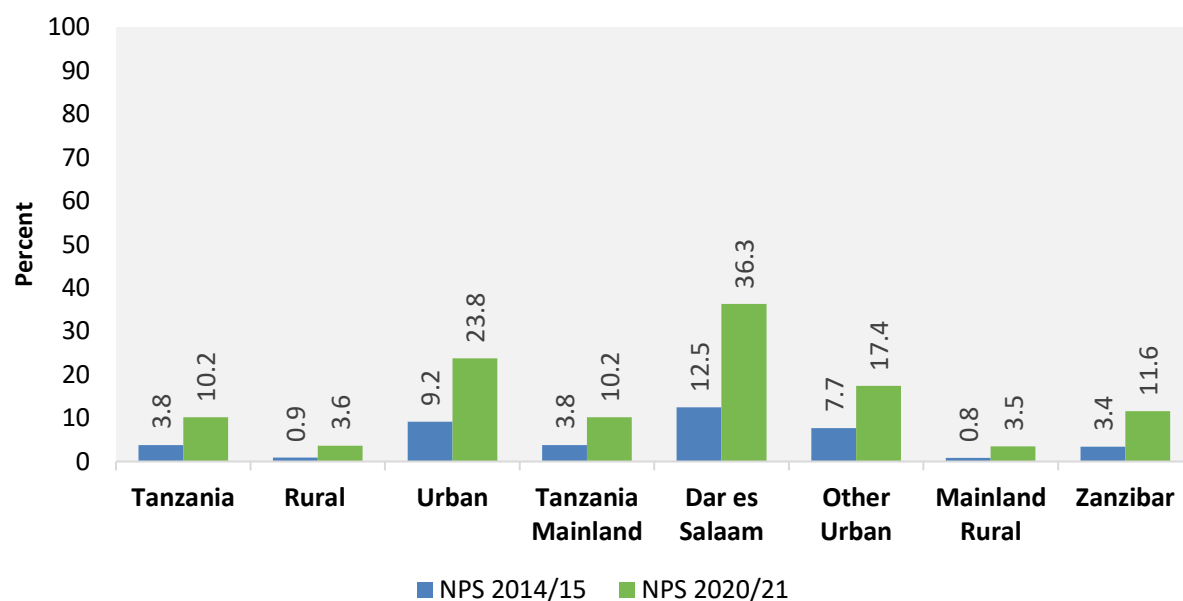


2.13 Energy for Cooking Used by Households

The majority of Tanzanian households cook using open fires or stoves that burn solid fuels, such as charcoal, wood, or animal dung. When solid fuels are used for cooking, a large amount of indoor air pollution occurs, which can have negative effects on the health of a household. Additionally, the deforestation caused by the excessive use of various solid fuels negatively impacts the environment.

Since the NPS 2014/15, there have been significant improvements in the proportion of households using alternative fuels as energy sources for cooking in every area of the country. At the national level, more than 10 percent of households are now using alternative fuels for cooking, a significant increase from just 3.8 percent in the NPS 2014/15. Rural households, which have consistently been less likely to use alternative fuels than urban households, reported a slight increase in the use of alternative fuels for cooking, from 0.9 percent in NPS 2014/15 to 3.6 percent in NPS 2020/21. In Zanzibar, the proportion of households using alternatives to solid fuels for cooking increased from 3.4 percent in NPS 2014/15 to 11.6 percent in NPS 2020/21. The largest proportional increase was in Dar es Salaam, where the proportion of households using alternatives to solid fuels increased from 12.5 percent to 36.3 percent between 2014/15 and 2020/21 (Figure 2.4).

Figure 2.4 Percentage of Households using Alternative Fuels¹ for Cooking by Area, Tanzania



¹Alternative fuels include electricity, gas, and animal residue

2.14 Access to Credit /Loan

Credit is integral in helping people with low incomes sustain their daily life. The Government of the United Republic of Tanzania has several credit windows available to help individuals improve their socio-economic conditions. This section of the report presents survey findings on credit and loans taken by households in the 12 months prior to the survey. Information was collected on sources of the credit/loan(s) – i.e. if the credit/loan(s) taken by households were from someone outside the household or from an institution – and if the household received either by cash, goods or services. For analysis, sources were grouped into two categories – formal and informal – where formal included banks and other institutions and informal included friends/neighbors, self-help groups, and others.

At the national level, 11.0 percent of households borrowed or took credit from any source. Most credit was from formal sources (3.6 percent), followed by informal self-help groups (2.8 percent). In urban areas, 13.9 percent of households borrowed or took credit from any source with formal sources again the most common, followed by informal self-help groups (6.8 percent and 3.0 percent, respectively). In rural areas, just 9.5 percent of the population borrowed or took credit from any source, with the most common being informal self-help groups (2.8 percent), followed by other informal sources (2.3 percent) (Table 2.8).

Table 2.8 Percentage of Households who Borrowed or Took Credit in Last 12 Months and Sources of Credit, Tanzania, NPS 2020/21

Area/Gender	Borrowed or took credit, any source	Source			
		Formal ¹	Informal (Friends/Neighbors)	Informal (Self-help groups)	Informal (Other) ²
Tanzania	11.0	3.6	2.3	2.8	2.3
<i>Rural</i>	9.5	2.2	2.2	2.8	2.3
<i>Urban</i>	13.9	6.3	2.3	3.0	2.3
Tanzania Mainland	11.2	3.6	2.3	2.9	2.4
<i>Dar es Salaam</i>	10.4	6.1	1.7	1.2	1.4
<i>Other Urban</i>	16.6	6.8	2.8	4.1	2.9
<i>Rural</i>	9.7	2.2	2.3	2.8	2.4
Zanzibar	3.0	2.0	0.0	0.9	0.1
Gender of Household Head					
<i>Female</i>	11.1	3.7	1.8	3.2	2.3
<i>Male</i>	10.9	3.5	2.4	2.7	2.3

¹This table is calculated out of all NPS 2020/21 households

¹Formal sources of credit include commercial banks, microfinance institutions, building soc./mortgages, insurance companies, or other financial institutions

²Informal (other) sources of credit include grocery/local merchants, money lenders, employers, religious institutions, NGOs, or other sources

Borrowing money or taking loans was much more common in Tanzania Mainland than Zanzibar. In Tanzania Mainland, 11.2 percent of the households borrowed or took credit from any source and formal sources were most common (3.6 percent). In Zanzibar, only 3.1 percent of households borrowed or took credit, and 2.0 percent used a formal source. Female- and male-headed households were equally likely to borrow money or take loans, though a slightly higher proportion of male-headed households used friends/neighbors while more female-headed households used self-help groups. Generally, the findings reveal that households in rural areas were more likely to borrow from informal sources than formal.

2.15 Use of Land-Owning Certificate as Collateral for Loan

The NPS 2020/21 also collected information from households that reported ownership or land tenure documents, and whether they used those documents as collateral to obtain loan. Nationally, 7.9 percent of households used any collateral to borrow. This included 5.6 percent who used land owning certificates as collateral to borrow, and 2.3 percent who used certificates of customary right of occupancy (CCRO). However, 92.1 percent of the households took credit/loan without using land owning certificate or CCROs. Male-headed households were more likely to use collateral (8.9 percent) than female-headed households (5.2 percent), and they typically used a land-owning certificate over a CCRO (Table 2.9).

Table 2.9 Use of Land-Owning Certificate or Certificate of Customary Right of Occupancy (CCRO) as Collateral for Loan, (% of those who took credit in past 12 months), Tanzania, NPS 2020/21

Area/Gender	Yes, land owning certificate	Yes, certificate of customary right	Did not use
Tanzania	5.6	2.3	92.1
<i>Rural</i>	7.7	0.7	91.5
<i>Urban</i>	2.6	4.5	92.9
Tanzania Mainland	5.6	2.3	92.1
<i>Dar es Salaam</i>	0.6	9.9	89.6
<i>Other Urban</i>	3.4	2.7	94.0
<i>Rural</i>	7.8	0.7	91.5
Zanzibar	0.0	0.0	100.0
Gender of Household Head			
<i>Female</i>	2.9	2.3	94.8
<i>Male</i>	6.6	2.3	91.1

2.16 Use of Credit/Loan

The survey also collected information on the use of credit and loan(s) secured by household members, either in the form of cash, goods, or services. In Tanzania, nearly one-third (31.8 percent) of households took credit/loan(s) for subsistence needs, 26.4 percent took credit/loan(s) to purchase other business inputs, 13.1 percent for school fees, and 12.4 percent for medical costs. This trend holds true across gender of the household head, with similar uses of the credit/loans received by both female- and male-headed households. Very few individuals in Tanzania (0.5 percent) used credit/loan(s) for purchasing agriculture machinery.

Table 2. 10 Use of Credit/Loan, by Area and Gender of Head of Household, NPS 2020/21

Area/sex	Subsistence needs	Medical costs	School fees	Ceremony/wedding	Purchase land	Purchase agric. input	Other business input	Purchase agric. machinery	Buy/build dwelling	Other
Tanzania	31.8	12.4	13.1	1.1	1.9	8.1	26.4	0.5	11.7	11.0
<i>Rural</i>	35.7	16.3	12.4	1.6	0.6	12.0	19.7	0.7	10.8	9.2
<i>Urban</i>	26.4	6.8	14.1	0.4	3.8	2.6	35.9	0.3	12.9	13.6
Tanzania Mainland	31.8	12.4	13.2	1.0	1.9	8.2	26.5	0.5	11.4	11.1
<i>Dar es Salaam</i>	41.1	1.7	7.0	0.0	8.3	3.5	37.5	0.0	8.5	19.0
<i>Other Urban</i>	21.2	8.5	16.8	0.6	2.2	2.3	35.6	0.4	14.2	11.9
<i>Rural</i>	35.6	16.3	12.5	1.5	0.6	12.1	19.7	0.7	10.5	0.9
Zanzibar	40.2	13.4	0.0	10.3	0.0	0.0	19.0	0.0	45.9	0.0
Gender of Household Head										
<i>Female</i>	33.8	11.0	17.6	0.7	0.0	3.7	31.4	0.0	5.7	1.6
<i>Male</i>	31.1	12.8	11.5	1.3	2.6	9.7	24.6	0.7	13.8	9.8

In Tanzania Mainland, 31.8 percent of individuals used credit/loan(s) for subsistence needs, followed by 26.5 percent for other business inputs, while a small percentage (0.5 percent) used credit/loan(s) to purchase agriculture machinery. In Zanzibar, nearly half (45.9 percent) of households used credit/loan(s) for buying/building dwellings, followed by 40.2 percent for subsistence needs. Notably, no household in Zanzibar borrowed money to pay for school fees, purchases of land, agriculture input, machinery, or any other/uncategorized item.

Key message: *Increase in use of electricity as major source of energy for both lighting and cooking signals improvement in accessibility of electricity in both urban and rural areas between NPS Wave 4 (2014/15) and NPS Wave 5 (2020/21).*

CHAPTER THREE

3.0 Education

3.1 Introduction

Education develops the intellectual, physical, and moral capabilities necessary to make individuals distinguished and contributing members of society. In Tanzania, the education current system is based on the 2–7–4–2–3+ structure, where there are 2 years of pre-primary school, 7 years of primary school, 4 years of ordinary level (O-Level) secondary school, 2 years of advanced level (A-Level) secondary school, and at least 3 years of higher education (tertiary) (BEST, 2020).

Chapter 3 presents results for education indicators including literacy rates, net enrolment rates in pre-primary, primary, and secondary education, gross enrolment rates in higher education, transportation, time taken to and from school, and average household expenditure on education. Trends in education between the NPS 2014/15 and NPS 2020/21 are also presented. In the interest of education development indicators, the NPS included several questions to obtain information on these variables.

3.2 Literacy

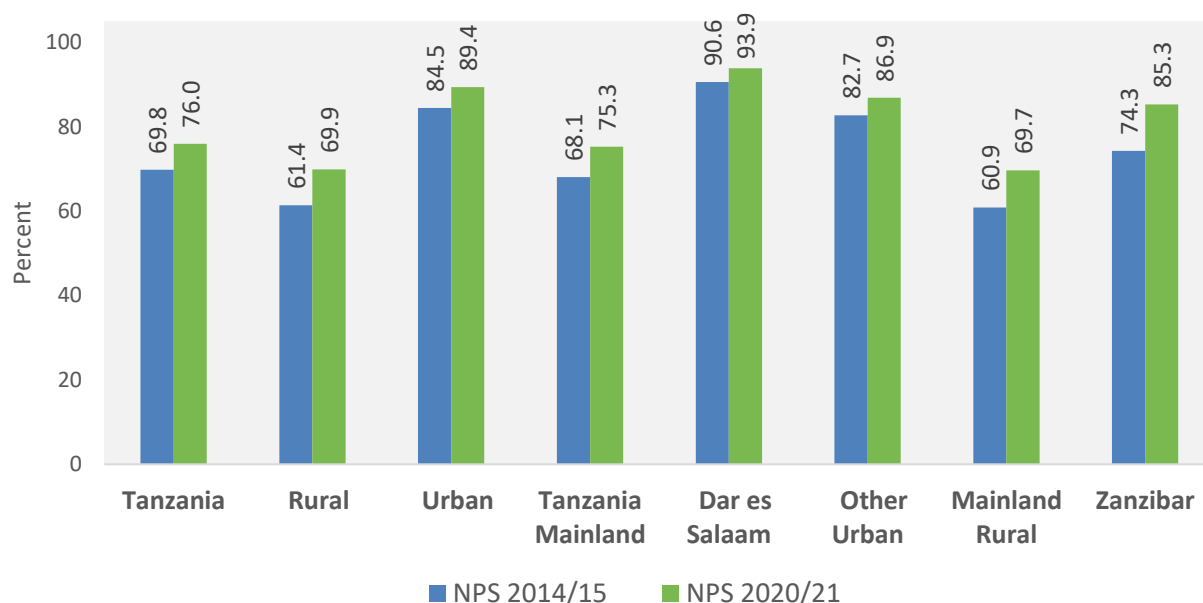
According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO), literacy rates are “the percentage of population who can both read and write with understanding a short simple statement on their everyday lives. Generally, ‘literacy’ also encompasses ‘numeracy’, the ability to make simple arithmetic calculations”. Literacy represents the prospect for further intellectual growth and contribution to the socio-economic and cultural development of a society.

3.3 Literacy Among the General Population

In the NPS 2020/21, 76 percent of the general population were literate. Despite considerable improvements for both males and females, literacy rates remain higher for males than females. Individuals in Dar es Salaam had the highest literacy rates, with approximately 94 percent of the population able to read or write, while those in Rural Mainland had the lowest rates (69.7 percent). This is expected as large cities such as Dar es Salaam typically tend to have higher access to education services compared to rural areas.

Comparing literacy levels between the NPS 2014/15 and NPS 2020/21, the proportion of literate population increased substantially across all geographical areas and for both males and females. These results reflect the continued efforts of government and other stakeholders to ensure that illiteracy among Tanzanians is reduced (Figure 3.1).

Figure 3.1 Literacy Rate of the General Population by Area, Tanzania

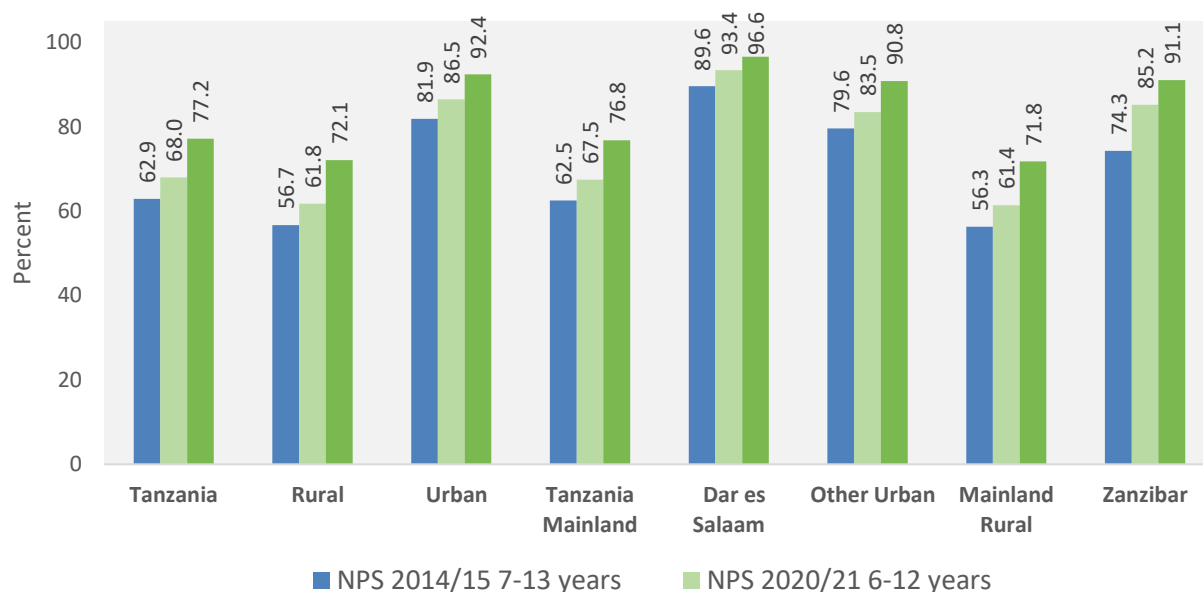


3.4 Literacy among Population Aged 6 – 12 and 7-13 Years

In Tanzania, children start learning basic reading and writing in pre-primary school, then proceed to primary school where they are expected to be able to read and write as well as carry out basic numeracy. The following analysis of the primary school age population reflects efforts made to ensure the future generation is prepared for the next steps of their educational career.

At the national level, the literacy rate among those 6-12 years stood at 68.0 percent, while the literacy rate for those 7-13 years was 77.2 percent. The proportion of the literate population for those aged 7-13 is higher than that of the general population (76.0 percent), though the difference is nominal. Notably, across the two waves, the proportion of those ages 7-13 who can read and write has increased in all geographic areas. However, efforts are still needed to ensure education for all, and in particular for the younger population in rural areas where nearly 3 in 10 individuals cannot read and write.

Figure 3.2 Literacy Rate of the Population Ages 6 – 12 and 7-13 Years by Area, Tanzania



3.5 Literacy Rates among those Currently Attending School Aged 6 – 12 and 7-13 Years

The proportion of the literate population aged 7-13 years currently attending school in NPS 2020/21 was 85.4 percent, an increase from 75.6 percent in the NPS 2014/15. The table below presents detailed findings for rural and urban areas, as well as for Dar es Salaam, Other Urban, Mainland Rural, and Zanzibar. Furthermore, the analysis presents a comparison between male and females, whereby literate female children currently attending school are the majority across both age groups as compared to their male counterparts.

Table 3.1 Literacy Rates among those Currently Attending School Aged 6 – 12 and 7-13 Years, Tanzania

Area	NPS 2014/15	NPS 2020/21	NPS 2020/21
	7-13 years	6-12 years	7-13 years
Tanzania	75.6	78.6	85.4
<i>Rural</i>	71.0	74.2	81.9
<i>Urban</i>	88.0	90.0	94.8
Tanzania Mainland	75.3	78.3	85.1
<i>Dar Es Salaam</i>	92.3	95.0	97.4
<i>Other Urban</i>	86.3	87.7	93.8
<i>Rural</i>	70.7	73.9	81.7
Zanzibar	84.6	89.0	92.5
Gender			
<i>Male</i>	73.9	76.2	83.3
<i>Female</i>	77.4	80.9	87.4

3.6 Literacy among Youth and Adult Population

Globally, youth and adults are defined as individuals aged 15-24 and 25 years and older, respectively. These groups are expected to have completed both pre-primary and primary school and should be able to read and write. Youth literacy rates in Tanzania are considerably higher than those of the general population. In the NPS 2020/21, the literacy rate of youths is 87.3 percent, driven by males (88.6 percent) and those in urban areas. While adult literacy rates are also considerably lower than literacy rates for youth, literacy rates for adult males are still significantly higher than those for adult females (84.5 percent and 70.6 percent, respectively).

Despite disparities across genders, the results show that the literacy rate for both male and female youth increased between the NPS 2014/15 and NPS 2020/21, as well as for male and female adults. Literacy rates for youth neared 100 percent in Dar es Salaam in 2020/21 (up from 96 percent in 2014/15), while the proportion of literate youth in Rural Mainland areas – the least literate area – increased from 78.8 percent to 83.7 percent.

Table 3.2 Percentage Distribution of Youths and Adult Literacy, by Area and Sex, Tanzania

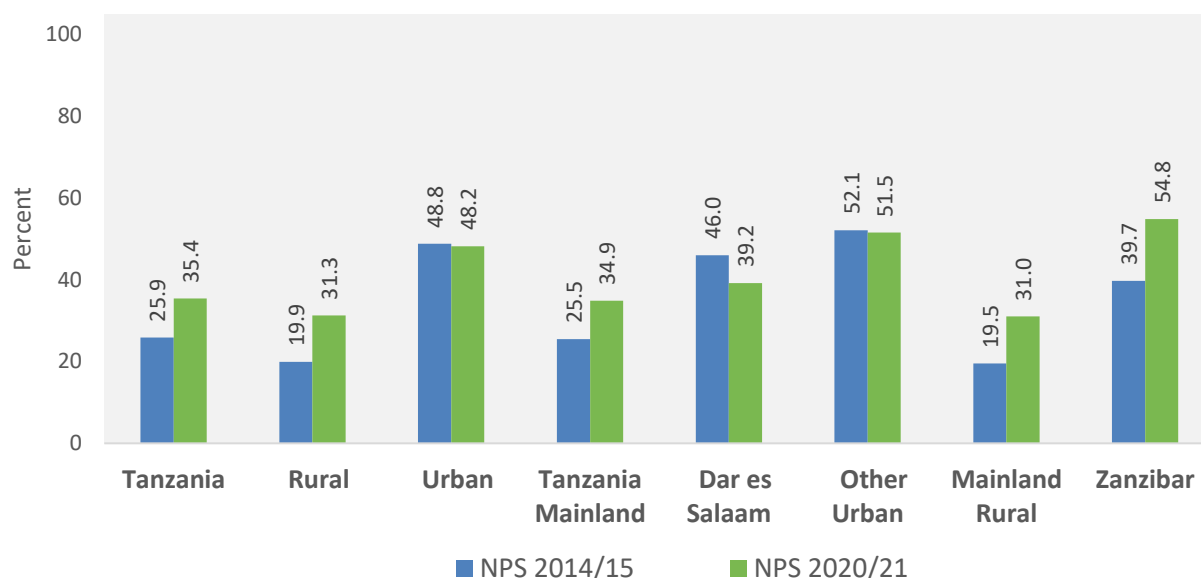
Area	NPS 2014/15						NPS 2020/21					
	Youth (15-24 years)			Adult (25+)			Youth (15-24 years)			Adult (25+)		
	Female	Male	All	Female	Male	All	Female	Male	All	Female	Male	All
Tanzania	83.9	84.9	84.4	63.5	80.4	71.4	86.0	88.6	87.3	70.6	84.5	77.0
<i>Rural</i>	78.4	80.1	79.3	54.5	75.0	64.1	81.9	85.7	83.8	62.4	79.3	70.3
<i>Urban</i>	93.9	96.8	95.1	81.5	91.0	86.0	96.4	97.0	96.7	86.1	95.3	90.3
Tanzania Mainland	83.6	84.8	84.2	63.3	80.4	71.3	85.8	88.4	87.1	70.3	84.3	76.8
<i>Dar Es Salaam</i>	94.8	98.0	96.0	89.5	94.7	91.9	99.2	99.2	99.2	92.8	96.4	94.5
<i>Other Urban</i>	93.8	97.4	95.4	78.5	90.2	84.0	94.8	95.7	95.2	82.1	94.6	87.7
<i>Rural</i>	78.0	79.7	78.8	53.8	74.6	63.5	81.8	85.6	83.7	62.3	79.1	70.2
Zanzibar	92.2	90.7	91.5	69.4	82.5	75.6	93.9	93.9	93.9	78.8	91.2	84.5

3.7 Net and Gross Enrolment Rates

3.7.1 Net Enrolment Rate at Pre-Primary School

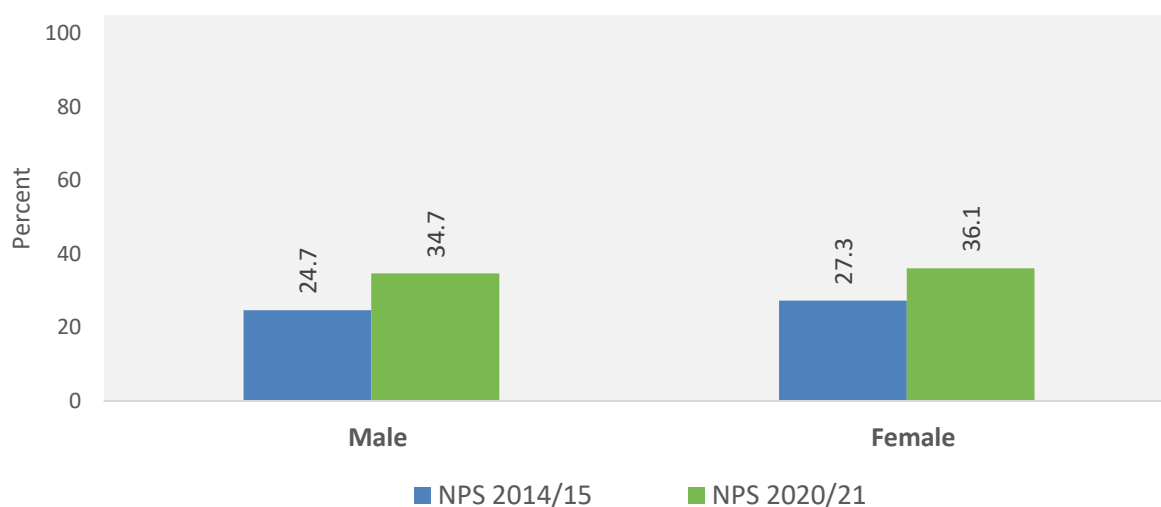
The net enrolment rate (NER) in pre-primary education is the proportion of children aged 5 to 6 years enrolled in pre-primary school to the total population of children who are 5 to 6 years of age. The NER illustrates the extent of coverage for children belonging to the official age group corresponding to a given level of education. In Tanzania, the NER in pre-primary education increased by 9.5 percentage points between the NPS 2014/15 and NPS 2020/21. In both waves, urban areas reported higher enrolment rates in pre-primary education than rural areas, and Zanzibar reported higher enrolment rates than Tanzania Mainland. Across the country, the highest NER in pre-primary education was in Other Urban areas in the Mainland (Figure 3.3).

Figure 3.3 Net Enrolment Rate in Pre-Primary Education by Area, Tanzania



For both males and females, there was a statistically significant increase in the pre-primary NER between the NPS 2014/15 and NPS 2020/21. However, females continued to have a higher pre-primary NER than males.

Figure 3.4 Net Enrolment Rate in Pre-Primary Education by Sex, Tanzania



3.7.2 Primary School Net Enrolment Rate

The NER in primary education is the proportion of children aged 7-13 years enrolled in primary school to the total population of children who are 7-13 years of age. In the NPS 2020/21, 82.0 percent of children aged 7 to 13 were enrolled in primary schools, which is an increase from 73.6 percent in the NPS 2014/15. In both waves, urban areas consistently exhibited higher NER in primary education than rural areas.

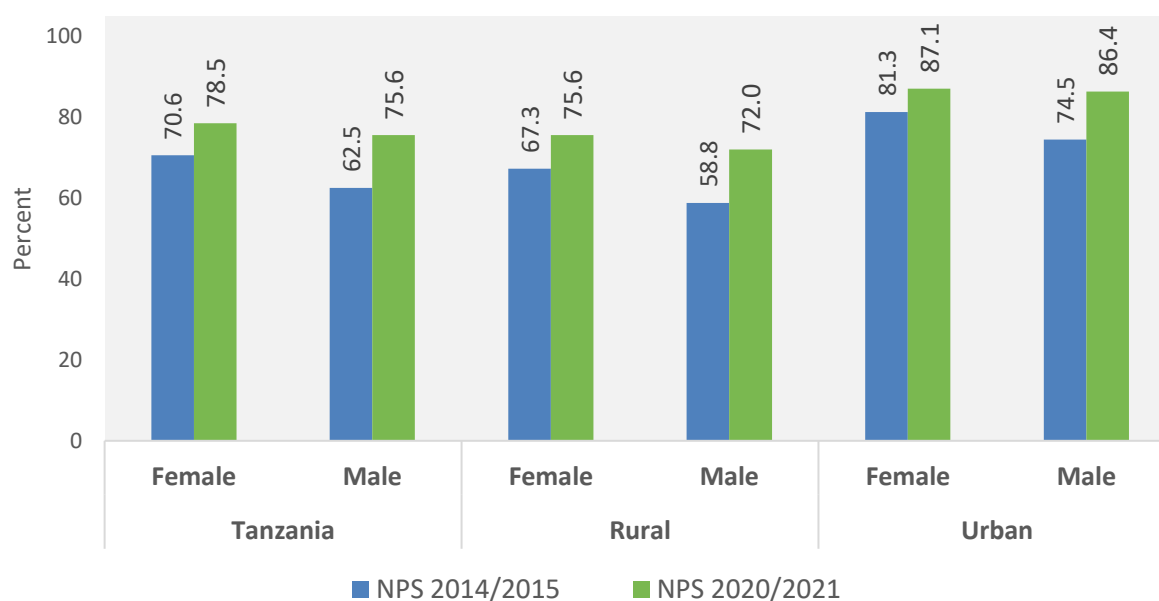
Table 3.3 Net Enrolment Rate in Primary Education by Area and Sex, for Children Ages 7 - 13

Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	73.6	82.0	***
<i>Rural</i>	71.4	80.2	***
<i>Urban</i>	80.6	87.4	***
Tanzania Mainland	73.4	81.8	***
<i>Dar Es Salaam</i>	84.4	92.6	***
<i>Other Urban</i>	79.2	85.5	***
<i>Rural</i>	71.1	80.0	***
Zanzibar	82.4	88.1	***
Gender			
<i>Female</i>	76.7	83.6	***
<i>Male</i>	70.8	80.4	***

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

For both males and females, there was an increase in the primary NER between the NPS 2014/15 and NPS 2020/21. However, females continued to have a slightly higher primary NER than males at the national level and in rural and urban areas.

Figure 3.5 NER in Primary Education by Area and Sex, for Children Ages 6-12



Across all geographic areas, the net enrolment rate for those aged 6-12 is lower than for those 7-13 years, with the exception of Dar es Salaam. Similarly, for both males and females, the net enrollment rate for those aged 6-12 is lower than for those 7-13 years.

Table 3.4 Net Enrolment Rate in Primary Education by Area and Sex for Children Ages 7 – 13 and 6 – 12

	NPS 2014/15 Ages 7-13	NPS 2020/21 Ages 7-13	NPS 2020/21 Ages 6-12
Tanzania	73.6	82.0	77.0
<i>Rural</i>	71.4	80.2	73.8
<i>Urban</i>	80.6	87.4	86.8
Tanzania Mainland	73.4	81.8	76.8
<i>Dar es Salaam</i>	84.4	92.6	92.7
<i>Other Urban</i>	79.2	85.5	84.5
<i>Rural</i>	71.1	80.0	73.5
Zanzibar	82.4	88.1	85.0
Gender			
<i>Male</i>	70.8	80.4	75.6
<i>Female</i>	76.7	83.6	78.5

3.7.3 Secondary School Net Enrolment Rate

The NER in secondary education is the proportion of children ages 14 to 17 years who were enrolled in Forms 1 to 4 in secondary school to the total population of all children ages 14 to 17 years. In the NPS 2020/21, more than one-third (39 percent) of children ages 14 to 17 years were enrolled in secondary school, an increase of 14.3 percentage points from the NPS 2014/15. Urban areas consistently reported a higher NER in secondary education than rural areas, and females consistently reported a higher NER in secondary school than males.

Table 3.5 Net Enrolment in Secondary Education by Area and Sex, Tanzania

Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	24.7	39.0	***
<i>Rural</i>	18.4	29.2	***
<i>Urban</i>	41.4	67.0	***
Tanzania Mainland	24.3	38.3	***
<i>Dar es Salaam</i>	41.6	64.5	***
<i>Other Urban</i>	42.8	67.6	***
<i>Rural</i>	17.8	28.9	***
Zanzibar	37.6	64.5	***
Gender			
<i>Female</i>	25.7	41.5	***
<i>Male</i>	23.7	36.7	***

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

Key message: Free education policy for both primary and secondary schools, has likely influenced the observed significant increase in net enrolment ratios for both primary and secondary schools and for both boys and girls.

3.7.4 Gross Enrolment Rate in Higher Education

The gross enrolment rate (GER) in higher education is the ratio between those enrolled in higher education institutions to the total population aged 20 to 24 years. **Error! Reference source not found.** presents gross enrolment rates in higher education for NPS 2014/15 and NPS 2020/21.

The GER in higher education is relatively low in Tanzania, at just 5.8 percent in the NPS 2020/21 (a slight increase from 5.2 percent in the NPS 2014/15). Like other levels of education, enrolment in tertiary education was consistently higher in urban areas than rural areas, and as of 2020/21 was higher in Zanzibar than in Tanzania Mainland.

Table 3.6 Gross Enrolment in Higher Education Institutions by Area and Sex, Tanzania

Area	NPS 2014/15	NPS 2020/21
Tanzania	5.2	5.8
<i>Rural</i>	2.0	2.4
<i>Urban</i>	10.8	14.7
Tanzania Mainland	5.2	5.7
<i>Dar es Salaam</i>	11.3	16.3
<i>Other Urban</i>	11.1	14.0
<i>Rural</i>	1.9	2.5
Zanzibar	4.9	7.0
Gender		
<i>Male</i>	8.0	7.2
<i>Female</i>	3.0	4.4

Across geographical areas, Dar es Salaam – which consistently had the highest GER across all areas – had a larger increase in enrollment rates in higher education compared to Rural Mainland, Other Urban areas and Zanzibar. The GER in higher education for males was higher than for females in both waves of the NPS. However, the GER in higher education for females has increased by 1.4 percentage points while the GER for males decreased by 0.8 percentage points.

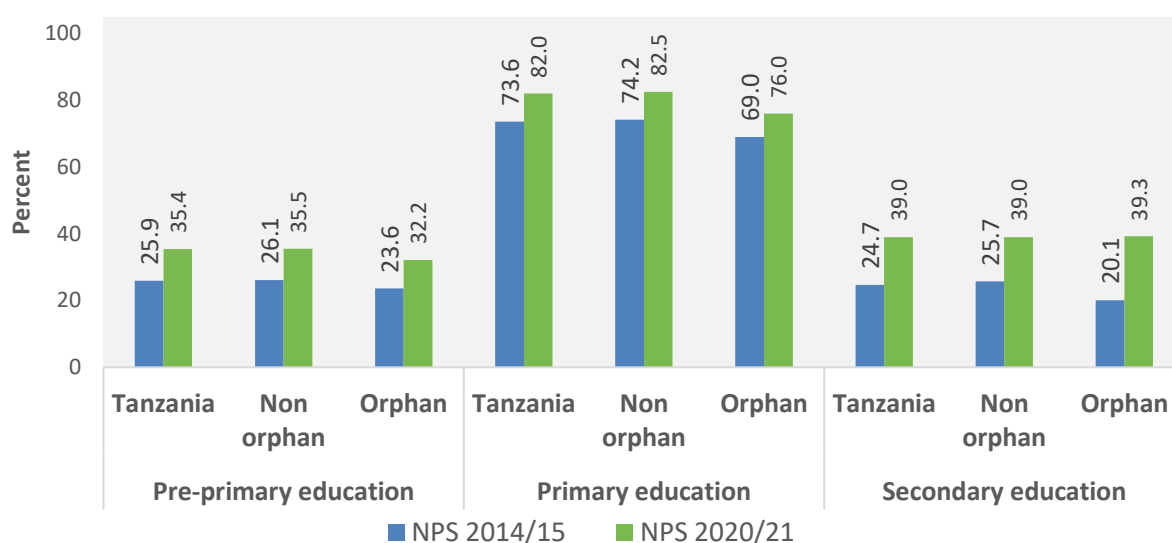
3.8 Enrollment of Orphans in School

The aim of the Government of the United Republic of Tanzania is to ensure that all of the country's most vulnerable children – including orphans – are provided with community-based support and care. The education sector is recognized as having a critical role in these efforts, and access to education is viewed as one of the key channels through which children can be set free from long-term poverty and vulnerability. For purposes of this report, an orphan is defined as a child whose biological mother or father or both are deceased.

Figure 3.6 shows that the NER in pre-primary, primary, and secondary education for orphans has increased between the NPS 2014/15 and NPS 2020/21. Approximately one-third (32.2 percent) of orphans were enrolled in pre-primary schools in 2020/21, an increase from 23.6 percent in the NPS 2014/15. Furthermore, findings show that in the NPS 2020/21, eight in ten orphans aged 7 to 13 years were enrolled in primary schools, an increase of 7 percentage points from NPS 2014/15.

The greatest improvement in enrolment was for secondary school, as nearly 40 percent of orphans aged 14 to 17 years were enrolled in secondary school in the NPS 2020/21, a remarkable increase from just 20 percent in the NPS 2014/15.

Figure 3.6 NER in Pre-Primary, Primary and Secondary Education by Orphanhood Status, Tanzania



3.9 Transport Facilities, Time Taken, and Distance to School for Primary School Children

Primary education in Tanzania is primarily day-based learning where pupils go to school in the morning and come back home in the evening. There is only a small proportion of boarding primary schools in the country which are mainly operated by the private sector. As a result, pupils use various means of transport to go to and back from school. The NPS collected information on the method used by pupils in primary schools to commute to school. The results in Table 3.7 show that majority of pupils (92 percent) walk to and back from school on foot.

There was little change in the proportion of pupils commuting to and from schools on foot between the NPS 2014/15 and 2020/21. However, walking on foot to and from school was common among pupils in rural areas (96.9 percent) compared to their urban counterparts (82.4 percent). Dar es Salaam had the lowest proportion of pupils who walk on foot to and from school (68.3 percent) compared to pupils in all other strata of Tanzania Mainland. Comparing Tanzania Mainland to Zanzibar, the results suggest that pupils in Zanzibar are less likely to commute on foot to and from school (85.1 percent in 2014/15 and 88.4 percent in 2020/21) than their Tanzania Mainland counterparts (92.3 percent in 2014/15 and 92.7 percent in 2020/21).

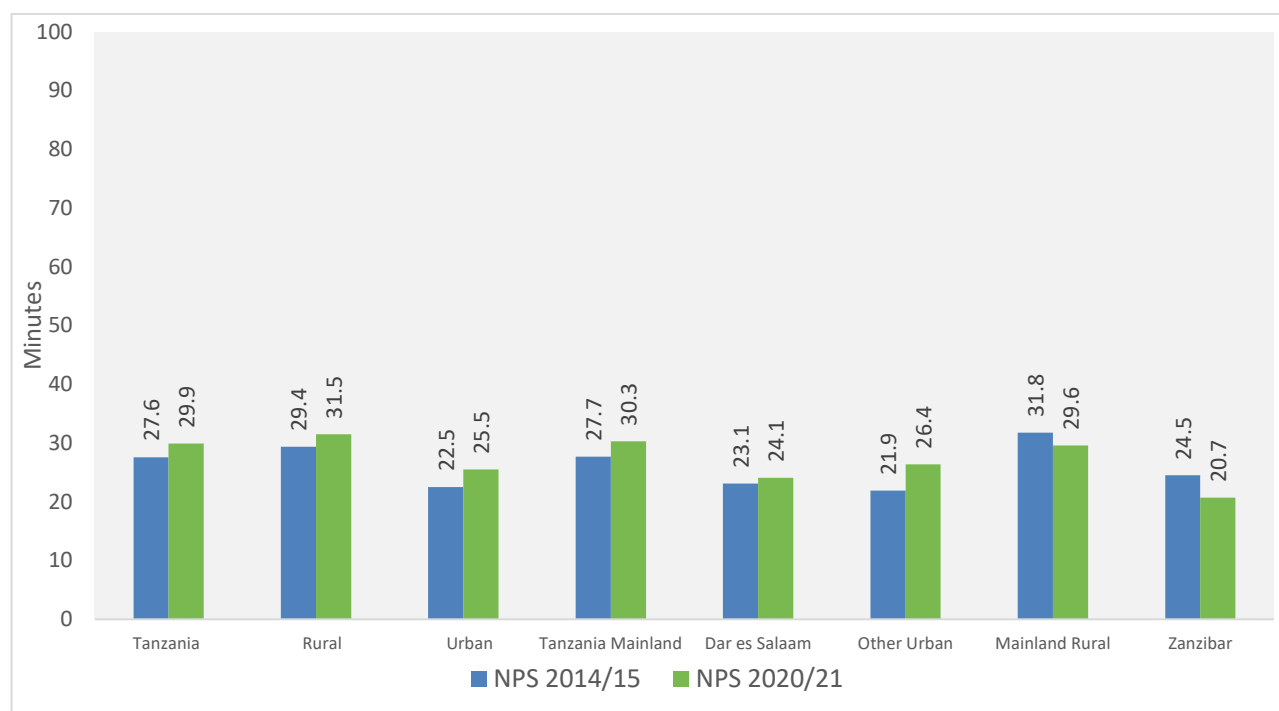
Table 3.7 Percentage Distribution of Transportation Type Used by Students at Primary Level Education, Tanzania, NPS 2020/21

Area	Round	Means of transport						
		On foot	By bicycle	By private car or vehicle	By public vehicle or minibus	Motorcycle	School bus	Other
Tanzania	2014/15	92.0	2.3	0.8	4.3	0.5	0.0	0.0
	2020/21	92.6	1.1	0.6	3.7	0.4	1.5	0.1
<i>Rural</i>	2014/15	96.5	1.9	0.3	1.1	0.1	0.0	0.0
	2020/21	96.9	1.1	0.2	0.9	0.3	0.4	0.1
<i>Urban</i>	2014/15	81.9	3.1	1.9	11.7	1.5	0.0	0.0
	2020/21	82.4	0.9	1.5	10.5	0.7	4.0	0.1
Tanzania Mainland	2014/15	92.3	2.2	0.8	4.1	0.5	0.0	0.0
	2020/21	92.7	1.1	0.6	3.6	0.4	1.5	0.1
<i>Dar es Salaam</i>	2014/15	69.1	0.9	1.5	27.0	1.6	0.0	0.0
	2020/21	68.3	0.0	1.9	23.2	0.8	5.6	0.3
<i>Other Urban</i>	2014/15	87.1	4.0	2.2	5.1	1.6	0.0	0.0
	2020/21	88.9	1.3	1.3	4.4	0.7	3.4	0.0
<i>Rural</i>	2014/15	97.0	1.9	0.3	0.6	0.1	0.0	0.0
	2020/21	96.8	1.2	0.2	0.9	0.3	0.4	0.1
Zanzibar	2014/15	85.1	3.1	2.2	8.8	0.8	0.0	0.0
	2020/21	88.4	0.2	0.3	8.1	1.0	2.0	0.0

School bus has recently become a common means of transportation for students, especially for schools operated by the private sector. During the NPS 2014/15, virtually no student used this means of transportation; however, during the NPS 2020/21, the proportion had increased to 1.5 percent. This means of transport was more common in urban areas compared to rural areas and was driven by a particularly large uptake by pupils in Dar es Salaam (5.6 percent). In contrast, the use of public vehicles/minibuses as means of transportation to and from school has decreased, even in areas where it was commonly used like Dar es Salaam. Here, the percentage of primary school children using public vehicles/minibuses as the means of transport decreased from 27.0 percent in NPS 2014/15 to 23.2 percent in NPS 2020/21.

On average, it took students who walk to school 29.9 minutes to reach the school in NPS 2020/21. This is an increase from 27.6 minutes in the NPS 2014/15 (Figure 3.7). The time taken to reach schools has increased for all areas except Zanzibar. In rural areas, this distance is longer (31.5 minutes in rural areas versus 25.5 minutes in urban areas) and has significantly increased over time. Students in Zanzibar walk the shortest distance (20.7 minutes) while students in Mainland Rural areas walk the longest distance (29.6 minutes).

Figure 3.7 Average Distance to School (in minutes) for Students who Walk to School, Tanzania



3.10 Reasons for Not Attending School

Absence from school is a key topic of discussion among educationist and policy makers. Students who do not attend school do not fully acquire the intended learning outcomes compared to those who regularly attend school. In addition to information on current attendance, the NPS also collected data on the reasons for not attending. When restricting analysis to only include those who are school-aged, the results show that more than one-third (36 percent) of those not attending school in rural Tanzania cited "satisfaction with the level of education acquired" as the reason for not currently attending school, followed by "having to work/looking for work" at 22.8 percent.

The percentage of those satisfied with the level of education they had acquired was even higher in urban areas, at 41.3 percent in NPS 2020/21. Males were also more likely to cite "satisfaction with the level of education acquired" as the reason for not currently attending school. Nearly one-quarter of individuals were not attending because they were either working or looking for work (22.8 percent in rural areas and 24.7 percent in urban areas). This reason was considerably more common for men (30.6 percent) than for women (16.3 percent). In contrast, nearly one-quarter of women not attending school were not attending because of marriage. This reason was also cited more in rural areas than urban. Another common reason for not currently attending school was financial constraint, which was somewhat more prominent in urban areas as compared to rural but similarly affected both males and females.

Table 3.8 Reasons for Not Attending School (Percent of School Aged Population Not Attending School), Tanzania, NPS 2020/21

Reason for not attending school	NPS 2020/21			
	Rural	Urban	Male	Female
Financial constraints	10.0	13.3	11.5	10.8
School too far away	0.7	0.2	0.5	0.5
Illness/ sickness	1.5	0.8	1.2	1.3
Pregnancy related	0.5	0.2	0.0	0.8
Satisfied	36.7	41.3	39.2	37.3
Refusal	6.9	2.4	7.5	3.3
Expulsion	0.1	0.2	0.2	0.1
To work/ looking for work	22.8	24.7	30.6	16.3
Caring for the sick/ children	0.9	1.7	0.3	2.0
Marriage	16.7	10.2	5.1	23.9

More detailed analysis indicates that although some reasons are common across areas, some are unique to particular areas of the country. For instance, financial constraints were far more common in Dar es Salaam than in any other area, but in particular Zanzibar, where less than one percent reported this as the reason. However, refusal to attend and marriage prevail more in Zanzibar as reasons for not attending school compared to other areas (Table 3.9) in the country.

Table 3.9 Reasons for Not Attending School (Percentage of School Aged Population Not Attending School) by Area, Tanzania, NPS 2020/21

Reason for not attending school	NPS 2020/21					
	Tanzania	Mainland	Tanzania Mainland			Zanzibar
			Dar es Salaam	Other Urban	Rural	
Financial constraints	9.1	11.4	16.3	12.4	10.2	0.8
School too far away	0.6	0.5	0.0	0.4	0.7	0.0
Illness/ sickness	1.4	1.3	1.0	0.7	1.5	0.7
Pregnancy related	0.4	0.4	0.1	0.3	0.5	0.3
Satisfied	39.2	38.1	36.1	43.6	36.7	44.5
Refusal	7.2	5.1	1.5	2.4	6.7	15.5
Expulsion	0.2	0.2	0.1	0.2	0.1	0.0
To work/ looking for work	23.3	23.6	27.1	23.8	22.9	17.0
Caring for the sick/ children	1.0	1.2	2.5	1.2	0.9	0.3
Marriage	14.5	14.3	8.6	10.8	16.5	20.8

CHAPTER FOUR

4.0 Health

4.1 Introduction

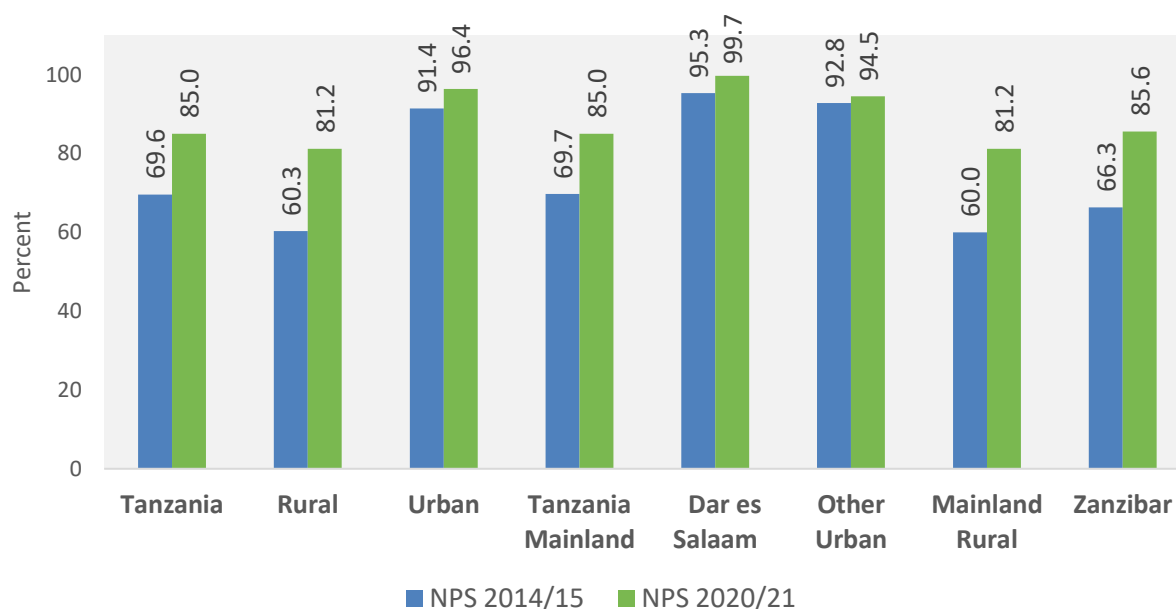
Chapter 4 presents health-related findings from the NPS 2020/21. These findings provide information on types of health care providers, health spending, client satisfaction with health services, hospitalization or overnight stays in a medical facility, and disability. The survey also collected information on medical exemptions, place of birth for children, births attended by a skilled health worker, and birth registration, as well as diarrhea for children under 5-years-old.

4.2 Births Attended by a Skilled Health Worker

The proportion of births attended by a skilled health worker is used as a proxy for access to reproductive and maternal health care. In this context, doctors, clinical officers, nurses, and midwives are considered skilled health workers as they have the necessary training to provide supervision, care and advice to women during pregnancy, labour, delivery and post-partum. Skilled health workers can successfully manage potential complications during childbirth and reducing both maternal and infant mortality.

Information was collected from women aged 12 to 49 years on whether they gave birth (including still births) during the 24 months prior to the survey. The analysis that is presented in this report considers only women of the reproductive age (15 – 49 years).

Figure 4.1 Proportion of Births Attended by Skilled Health Worker by Area, Tanzania



The percentage of births attended by skilled workers increased significantly from 69.6 percent in NPS 2014/15 to 85 percent in NPS 2020/21. This trend was observed across all areas in Tanzania with an average increase of 12.9 percentage points.

The results, displayed in Figure 4.1, suggest that in urban areas of Tanzania, the proportion of births attended by skilled health workers increased to 96.4 percent in NPS 2020/21, compared to 91.4 percent in NPS 2014/15. Urban areas have experienced improved access to reproductive health care, in Dar es Salaam, for instance, the share of births attended by skilled health workers increased from 95.3 percent in NPS 2014/15 to 99.7 percent in NPS 2020/21, with almost universal coverage for all births in the area. Finally, the data show that the share of births attended by skilled health workers for both Mainland and Zanzibar have experienced similar increases and over 85 percent of births in both areas are now attended by skilled health workers.

4.3 Registration of Births

Birth registration is the process through which a child's birth is recorded in the civil register with a government authority. It provides the first legal recognition of the child as a citizen, and it is generally required to obtain a birth certificate, other legal documents, and other rights.

Table 4.1 presents the proportion of births registered among those born in the last 24 months. Nationally, there was an increase from 83.3 percent in NPS 2014/15 to 86.8 percent in NPS 2020/21, and this change was statistically significant. Furthermore, in NPS 2020/21, urban areas reported a higher proportion of registered births (96.6 percent) compared to rural areas (83.5 percent). Following this trend, the highest proportion of registered births in 2020/21 was in Dar es Salaam (97 percent).

Table 4.1 Percentage of Births Registered¹ among Those Born in the 24 Months (%) Period Prior to the Survey by Area, Tanzania

Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	83.3	86.8	*
<i>Rural</i>	78.4	83.5	*
<i>Urban</i>	94.6	96.6	n/s
Tanzania Mainland	82.8	86.6	*
<i>Dar es Salaam</i>	94.2	97.0	n/s
<i>Other Urban</i>	94.4	96.1	n/s
<i>Rural</i>	78.2	83.5	**
Zanzibar	96.8	94.7	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$,

*** $p < 0.01$; n/s = not significant

¹ Birth was registered with the civil authorities

Improvements were also reported in Tanzania Mainland, where the proportion of birth registrations increased from 82.8 percent in NPS 2014/15 to 86.6 percent in NPS 2020/21. Meanwhile, in Zanzibar, the share of registered births decreased from 96.8 percent in NPS 2014/15 to 94.7 percent in NPS 2020/21.

4.4 Satisfaction with Health Services

The survey collected information on households' satisfaction with services provided by different health providers in Tanzania (including those run by the government, private and religious organizations). Respondents were asked if they were satisfied with health services provided in the four weeks preceding the survey for the individuals who reported to have sought health care services during the reference period.

Nationally, in NPS 2020/21, over eight in ten individuals (81.2 percent) who visited health facilities stated that they were satisfied with health services provided, a significant increase in satisfaction levels compared to 72.6 percent in NPS 2014/15. The results show that in Tanzania Mainland, client satisfaction significantly increased from 72.4 percent in NPS 2014/15 to 80.9 percent in NPS 2020/21 (Table 4.2). Zanzibar consistently reported the highest level of satisfaction in health services provided and also experienced a statistically significant increase in satisfaction from 82.3 percent in NPS 2014/15 to 90.3 percent in NPS 2020/21. There was no decrease in satisfaction in health services reported in any area across the country.

Table 4.2 Percentage Expressing Satisfaction with Health Services¹, by Area and Sex, Tanzania

Area/Sex	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	72.6	81.2	n/s
<i>Rural</i>	73.7	81.0	***
<i>Urban</i>	70.5	81.5	***
Tanzania Mainland	72.4	80.9	***
<i>Dar es Salaam</i>	62.3	83.5	***
<i>Other Urban</i>	74.3	79.6	n/s
<i>Rural</i>	73.6	80.8	***
Zanzibar	82.3	90.3	**
Gender			
<i>Female</i>	71.2	79.4	***
<i>Male</i>	74.5	83.5	***

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

¹ The analysis here considers only responses from the first provider mentioned by the respondents

From a gendered lens, males were more likely to be satisfied with health services provided than females. NPS 2020/21 data shows an increase in satisfaction with health services as compared to NPS 2014/15, which can be accredited to the government's initiative to improve access to health services (in terms of distance to the nearest health facility), availability of medicines, equipment and supplies, as well as improved quality of service to the client.

4.5 Major Reasons for Respondents' Dissatisfaction with Health Services Provision

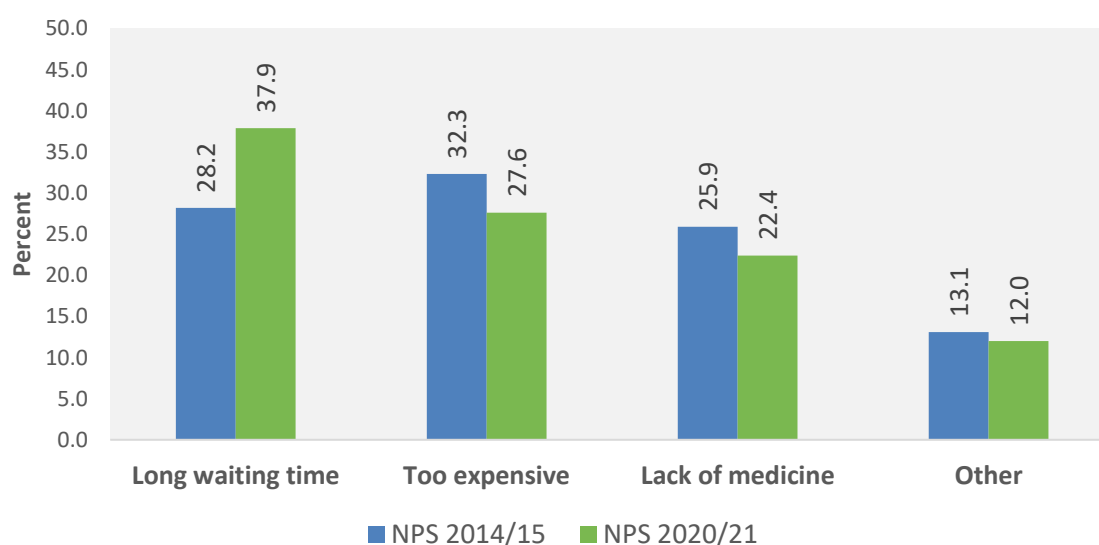
Respondents were asked reasons for dissatisfaction if they said that they were dissatisfied with the health services provided. Amongst the main reasons reported by respondents for dissatisfaction were “long waiting time” (37.9 percent), followed by “high costs for acquiring the service”, “too expensive” (27.6 percent), “lack of medicine” (22.4 percent), and “others” (12.0 percent). The “others” category includes poor building / tools, inadequate trained staff, amongst other unspecified reasons (Table 4.3).

Table 4.3 Distribution (percent) of Dissatisfied Health Services Seekers by Reasons for Dissatisfaction and Area, Tanzania, NPS 2020/21

Area	Long waiting	Too expensive	Lack of	Other
Tanzania	37.9	27.6	22.4	12.0
<i>Rural</i>	35.4	26.9	22.8	14.9
<i>Urban</i>	43.0	28.9	21.7	6.3
Tanzania Mainland	37.8	27.9	22.1	12.2
<i>Dar es Salaam</i>	49.4	27.0	16.8	6.8
<i>Other Urban</i>	40.4	30.0	23.5	6.1
<i>Rural</i>	35.1	27.3	22.5	15.1
Zanzibar	45.8	11.4	40.7	2.1

Table 4.3 shows further that the highest number of respondents in Tanzania Mainland reported they were not satisfied with health service provided due to “long waiting time” (37.8 percent), followed by “too expensive” (27.9 percent). The reason, “long waiting time”, was also reported by nearly five in ten respondents in both Dar es Salaam (49.4 percent) and Zanzibar (45.8 percent). Expensive medical care was least commonly cited as a reason for dissatisfaction for households in Zanzibar (just 11 percent), while lack of medicine was least common in Dar es Salaam (16.8 percent.)

Figure 4.2 Reasons for Client Dissatisfaction Pertaining to Health Services Provision, Tanzania



In NPS 2014/15, the main reason for client dissatisfaction with the health services provision was “too expensive” (32.3 percent), followed by “long waiting time” (28.2 percent), and “lack of medicine” (25.9 percent), while in NPS 2020/21 the order changed with “long waiting time” as the most cited issue. Across both waves, the time it takes for one to get attended to by health care providers, together with costs to access the service were reported as major obstacles in health care services acquisition as displayed in Figure 4.2.

4.6 Health Spending

The survey collected information on respondents’ expenditure to health providers in the four weeks prior to the survey. The results show that a large proportion of respondents, 80.3 percent in NPS 2014/15 and 66.9 percent in NPS 2020/21, spent no more than 10,000 Tanzanian shillings (TZS) on health services in the given period. This demonstrates a statistically significant decline in the percentage of people who spend less or equal to 10,000 TZS on health services (Table 4.4). Other expenditure thresholds show an increase across all ranges in the number of people who paid more than 10,001 TZS to access health care services in NPS 2020/21, this is not always statistically significant when compared to NPS 2014/15.

Table 4. 4 Percent Distribution of Individual Expenditure on Health Services Acquisition by Spending Group, Tanzania

Expenditure (TZS)	NPS 2014/15	NPS 2020/21	Sig ^a
Less than or equal to 10,000	80.3	66.9	***
10,001 - 20,000	11.1	15.5	n/s
20,001 - 30,000	3.4	5.7	n/s
30,001 - 40,000	1.6	4.1	*
40,001 - 50,000	1.3	2.1	n/s
50,000 and higher	2.3	5.7	**

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

Key message: While the number patients who paid up to TShs. 10,000 has declined and those paying more than TShs. 10,000 has increased, majority reported long waiting time at the health facilities as a major problem they face when seeking medical attention

4.7 Place of Birth for Newborns

Tanzania's Health Policy emphasizes having more health centres with all necessary medical equipment in order to help reduce deaths (both maternal and child mortality) during delivery. The Government of the United Republic of Tanzania insists all women give birth at these health centres.

The findings suggest that four in ten (41.8 percent) women gave birth in hospital/maternity wards in 2020/21, followed by births in dispensaries (20.7 percent) and then health centres (18.7 percent). A similar pattern was observed in both rural areas and Tanzania Mainland. In urban areas, the most common place of birth were hospitals (69.3 percent), followed health centres (17.4 percent) and dispensaries (7.7 percent), showing a greater access to medical facilities in urban areas than in rural areas (Table 4.5). In 2020/21, the majority of women in Zanzibar delivered in hospitals/maternity wards (67.8 percent), followed by women who delivered at home (17.3 percent) and then health centers (13.5 percent.)

Nearly 15 percent of women still gave birth at home in 2020/21 across all of Tanzania. Interestingly, while in rural areas and Zanzibar over 17 percent of women gave birth at home, in more urban settings under 5 percent of women gave birth at home, highlighting the rural-urban healthcare differences.

Table 4.5 Place of Birth for Children Born During the Last 24 months, by Area, NPS 2020/21

Place of birth	Tanzania	Area		Mainland	Tanzania Mainland			Zanzibar
		Rural	Urban		Dar es Salaam	Other Urban	Rural	
Hospital/Maternity	41.8	32.6	69.3	41.0	79.2	65.0	32.0	67.8
Clinic	2.8	3.1	1.9	2.9	0.0	3.0	3.1	0.3
At home	14.9	18.8	3.3	14.8	1.1	4.4	18.4	17.3
Health centre	18.7	19.2	17.4	18.9	12.3	19.4	19.4	14.5
Dispensary	20.7	25.1	7.7	21.4	7.3	7.3	25.8	0.0
Other	1.1	1.3	0.4	1.1	0.0	0.7	1.3	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

4.8 Disability

Information was also collected on the prevalence of disabilities across the country. Table 4.6 indicates that nationally, the most common types of disability for persons above 5 years of age are “difficulty in seeing” and “difficulty in walking or climbing steps” (1.9 percent) followed by “difficulty remembering or concentrating” (0.9 percent), and “difficulty in hearing” (0.8 percent), while “difficulty in self-care” (0.6 percent) and “difficulty in communication” (0.5 percent) are the last common disabilities.

Table 4. 6 Percentage of Persons with Disability by Location and Type of Disability (5 years and older), Tanzania, NPS 2020/21

Area	Type of disability					
	Difficulty seeing	Difficulty hearing	Difficulty walking or climbing steps	Difficulty remembering or concentrating	Difficulty in self care	Difficulty in communication
Tanzania	1.9	0.8	1.9	0.9	0.6	0.5
<i>Rural</i>	1.6	0.8	1.9	1.0	0.7	0.5
<i>Urban</i>	2.6	0.7	1.8	0.8	0.5	0.5
Tanzania Mainland	1.9	0.8	1.9	1.0	0.6	0.5
<i>Dar es Salaam</i>	3.0	0.8	1.5	0.9	0.6	0.3
<i>Other Urban</i>	2.6	0.8	2.0	0.8	0.4	0.6
<i>Rural</i>	1.6	0.8	1.9	1.0	0.7	0.5
Zanzibar	0.2	0.1	0.6	0.1	0.3	0.1

Across the different areas, an almost identical pattern is observed, except for Dar es Salaam where the percentage of persons who have “difficulty seeing” stood at 3.0 percent. Unlike all other areas, Zanzibar reported a much lower disability prevalence across all types compared to the national average.

4.9 Medical Exemption

Tanzania, like other African countries, has been implementing various exemptions and targeted programs to protect and ensure equitable access to health care by segments of the population. These programs have targeted access to all maternity services, children under five years, and for diseases such as TB/Leprosy, HIV/AIDS, and some chronic diseases, that would otherwise drain substantial income from patients if such patients were asked to pay.

The survey asked respondents if they visited a health care provider in the last 4 weeks prior to the survey week as well as the mode of payments for the services received. Table 4.7 shows that in Tanzania 8.4 percent of patients got medical exemption and this was slightly more common in Rural areas (9 percent) compared to Urban areas (6.8 percent). Across areas, Zanzibar had the lowest incidence of medical exemption (2 percent).

Across age groups, children 0-4 years had the highest incidence of medical exemption (30.3 percent), followed by those aged 60 years and above (18.6 percent), which reconfirms the implementation of health policy programs targeting these two population groups. A similar pattern was observed across all areas including in Zanzibar.

Table 4.7 Percentage of People who got Medical Exemption by Age and Area, NPS 2020/21

Age (in years)	Area			Mainland	Tanzania Mainland			Zanzibar
	Tanzania	Rural	Urban		Dar es Salaam	Other Urban	Rural	
0-4	30.3	29.9	31.6	31.1	28.6	35.2	30.5	2.6
5-14	2.6	2.7	2.5	2.7	1.0	3.2	2.7	1.3
15-24	3.5	4.0	2.0	3.6	1.2	2.6	4.1	0.4
25-34	4.3	4.8	3.3	4.4	1.0	4.9	4.9	3.5
35-44	2.9	3.3	2.3	3.0	2.5	2.2	3.3	1.3
45-54	1.8	2.5	0.4	1.8	0.7	0.2	2.5	1.4
55-59	4.5	5.0	3.4	4.5	2.0	4.3	4.9	3.6
60+	18.6	21.9	8.9	18.9	9.8	8.9	22.2	7.3
Total	8.4	9.0	6.8	8.6	5.3	8.1	9.1	2.0

4.10 Hospitalization or Overnight Stay in a Medical Facility or Traditional Healer

This section presents information on individuals who had been hospitalized or had an overnight stay in a medical facility as well as the type of illness or injury that led to their hospitalization, this information was collected for incidents that occurred in the 12 months period preceding the survey. Table 4.8 presents individuals' hospitalization status by age and type of illness or injury.

Table 4.8 Percentage of People who Reported to be Hospitalized by Age and Type of Illness or Injury, Tanzania, NPS 2020/21

Type of illness or injury	Age (in years)							
	0-4	5-14	15-24	25-34	35-44	45-59	60+	Total
Fever	0.7	0.2	0.3	0.6	0.2	0.7	0.8	0.4
Malaria	0.8	0.6	0.6	0.9	0.8	0.8	1.5	0.7
Stomach	0.5	0.1	0.6	0.8	1.3	0.8	1.5	0.6
Diarrhea	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Headache	0.0	0.1	0.1	0.2	0.1	0.2	0.5	0.1
Heart	0.0	0.0	0.0	0.3	0.2	0.3	0.6	0.1
Lung	0.2	0.0	0.1	0.3	0.2	0.2	0.4	0.2
Broken bone	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.1
Pregnancy related complications	0.3	0.0	1.9	2.9	1.7	0.0	0.0	1.0
HIV/AIDS/STD	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0
Tuberculosis	0.0	0.1	0.0	0.0	0.0	0.2	0.3	0.0
Accident	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.1
Other	1.1	0.4	0.7	0.8	1.6	1.6	2.5	0.9
Total	3.5	1.4	3.9	6.4	5.8	4.3	6.8	3.8

Overall, 3.8 percent of people in Tanzania reported being hospitalized for various types of illnesses/injuries. Amongst these, “other illness” (0.9 percent) were the most common cause of hospitalization, followed by “malaria” (0.7 percent), and “fever” (0.4 percent). Across age groups, people aged 60 years and above appear to have been hospitalized the most for all illnesses/injuries (6.8 percent), followed by those 25-34 years of age (6.4 percent) as shown in Table 4.8.

Table 4.9 shows that several illnesses or injuries caused people to be hospitalized. Comparing NPS 2020/21 to NPS 2014/15, the results indicate that there has been a significant decrease in the percentage of people being hospitalized, from 5.4 percent in NPS 2014/15 to 3.8 percent in NPS 2020/21. The largest decrease has been in Malaria-related hospitalizations, with a decline of 0.9 percentage points, nationally.

Table 4.9 Percentage of People Who Reported to be Hospitalized, by Type of Illness or Injury, Tanzania

Type of illness or injury	NPS 2014/15	NPS 2020/21	Sig ^a
Fever	0.6	0.4	n/s
Malaria	1.6	0.7	***
Stomach	0.9	0.6	**
Diarrhea	0.2	0.1	n/s
Headache	0.1	0.1	n/s
Heart	0.1	0.1	n/s
Lung	0.2	0.2	n/s
Broken bone	0.1	0.1	n/s
Pregnancy related complications	0.8	1.0	n/s
HIV/AIDS/STD	0.0	0.0	**
Tuberculosis	0.0	0.0	**
Accident	0.0	0.1	***
Other	1.7	0.9	***
Total	5.4	3.8	***

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

CHAPTER FIVE

5.0 Welfare, Consumption, and Expenditure Profile

5.1 Introduction

Chapter 5 presents information on welfare dynamics of households in Tanzania. It includes findings on household consumption, and the transition between welfare and poverty status over time. The chapter also contains information on Gini coefficients to track inequality dynamics between the two waves of the surveys.

5.2 Welfare Based on Consumption

. In the NPS, household welfare was determined by classifying households based on consumption, which were then ranked from lowest to highest. The list of households was then divided into five equal groups (quintiles of welfare) each representing approximately 20 percent of the population. Households in the highest quintile may not necessarily be “wealthy” but they are of higher socioeconomic status than the other 80 percent of households in the country.

Nominal consumption in each round of the NPS was adjusted for temporal differences, and spatially adjusted in prices of the survey year.

At the national level, average annual consumption within adult equivalent welfare quintiles is presented in Figure 5.1. Within each quintile, welfare, as expressed by total consumption, rose between the two rounds of the NPS, although this change was not statistically significant. The lowest quintile also reported an increase in consumption between NPS 2014/15 (2.36 TZS Millions) and NPS 2020/21 (2.55 TZS Millions) but also not statistically significant. The second, third, and fourth quintiles reported similar non-significant increases during the same period. The largest proportional change in consumption (23.8 percent), was observed in the highest quintile with an increase from 11.3 TZS Million to 14.0 TZS Million, though this was not statistically significant. The smallest proportional change (4.5 percent) was observed in the fourth quintile.

Figure 5.1 Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Tanzania

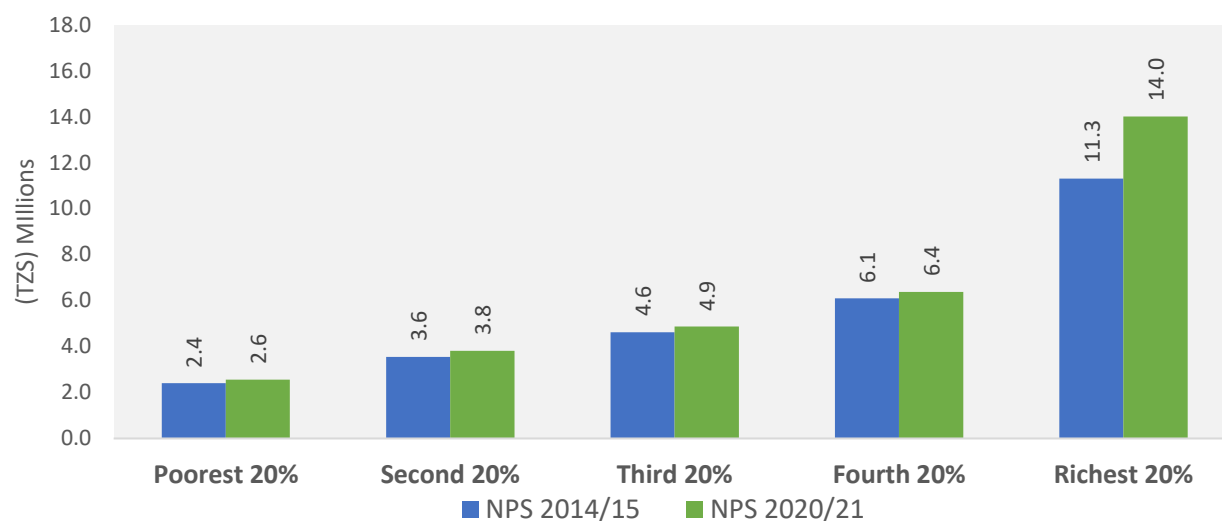


Figure 5.2 presents average annual consumption within adult equivalent welfare quintiles for Dar es Salaam. Contrary to the national trends, consumption in Dar es Salaam declined between NPS 2014/15 and NPS 2020/21 for each quintile. However, these decreases were not statistically significant in any quintile. The proportional change in consumption in Dar es Salaam between the two waves was most pronounced in the highest quintile, decreasing from 27.1 TZS million to 19.4 TZS million in NPS 2014/15 and NPS 2020/21, respectively.

Figure 5.2 Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Dar es Salaam

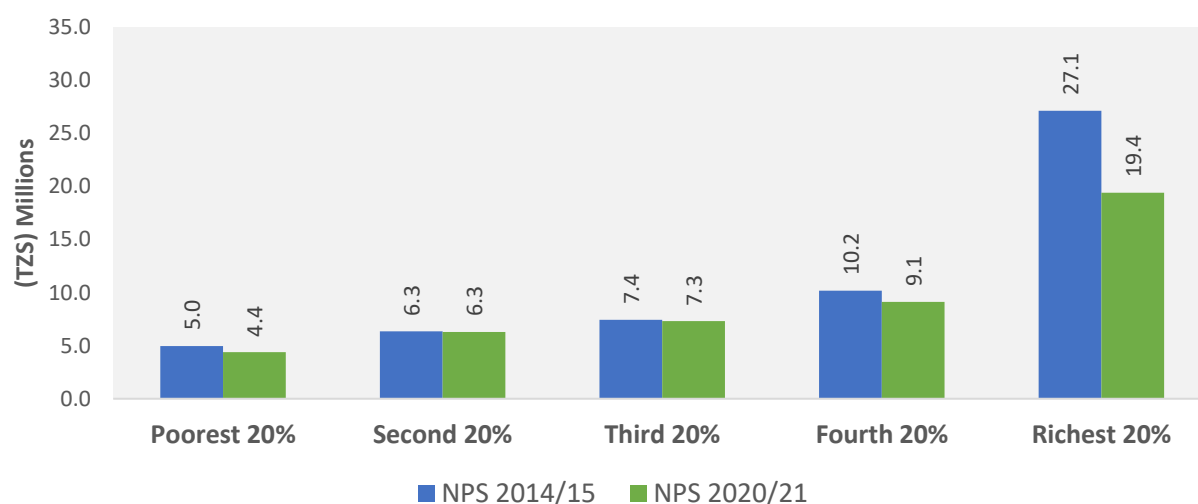
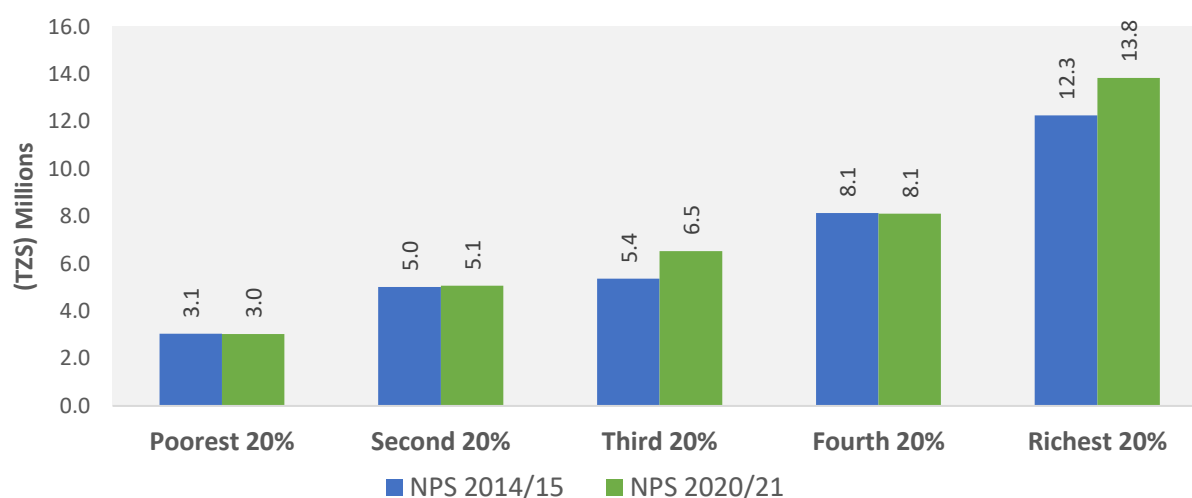


Figure 5.3 presents the average annual consumption within adult equivalent welfare quintiles for Other Urban areas of Mainland (excluding Dar es Salaam). The two poorest quintiles experienced relatively little change over time. A slight increase was, however, observed in the highest welfare quintile, while the only statistically significant increase between the two waves was observed in the third quintile (5.37 TZS million to 6.54 TZS million).

Figure 5.3 Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Other Urban Mainland



Key message: *COVID-19 and its associated economic hardship and uncertainty of future may have led to stagnated or lowered consumption in Dar es Salaam while consumption in other areas increased.*

Figure 5.4 presents average annual consumption within adult equivalent welfare quintiles for the Mainland Rural areas. Mirroring the national level trends, welfare rose in each quintile between the two waves of the NPS. The only statistically significant increase was observed in the second quintile, rising from 3.0 TZS million to 3.5 TZS million between NPS 2014/15 and NPS 2020/21. The largest proportional increase was once again observed in the highest quintile, although this was not statistically significant.

Figure 5.4 Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by Quintile and NPS Round, Mainland Rural

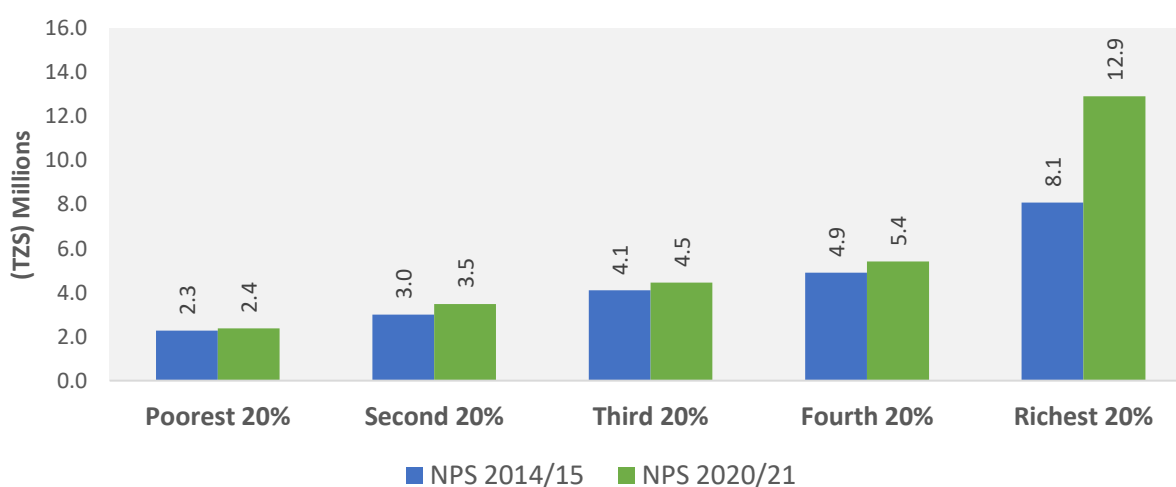
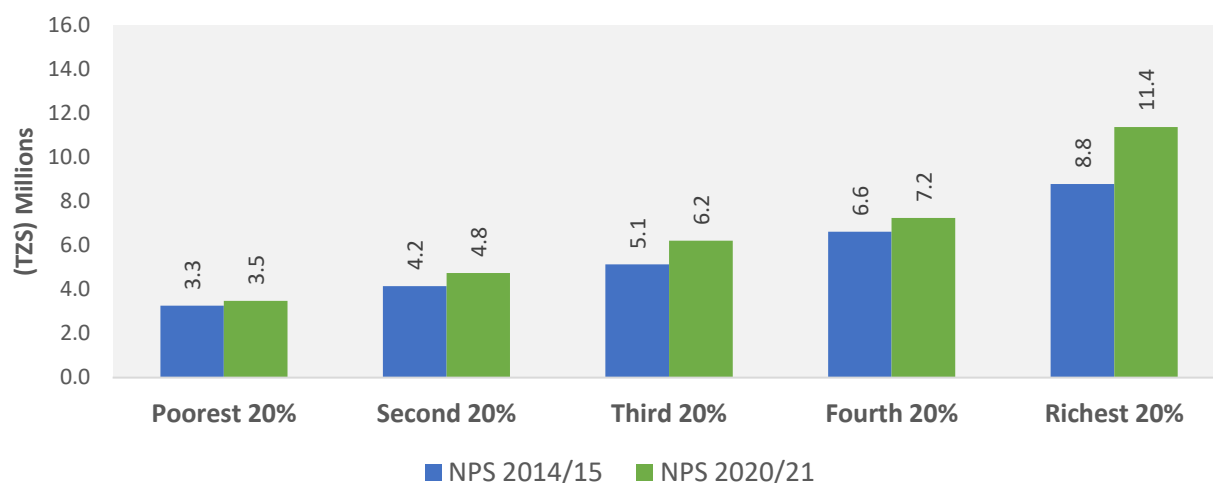


Figure 5.5 presents the average annual consumption within adult equivalent welfare quintiles for Zanzibar. The poorest quintile shows an insignificant, slight increase in consumption between the two waves from 3.27 TZS million in NPS 2014/15 to 3.49 TZS million in NPS 2020/21, while the third and fourth quintiles show similar trends. As with other areas in the country, the largest proportional increase was in the wealthiest quintile, though it was not statistically significant. In Zanzibar, the only statistically significant change was in the second quintile, where consumption increased from 4.16 TZS million to 4.75 TZS million between the two waves.

Figure 5.5 Average Annual Consumption (Spatially Adjusted in Prices of Survey Year) by



Quintile and NPS Round, Zanzibar

5.3 Consumption-Based Welfare Transitions (In and Out of Quintiles)

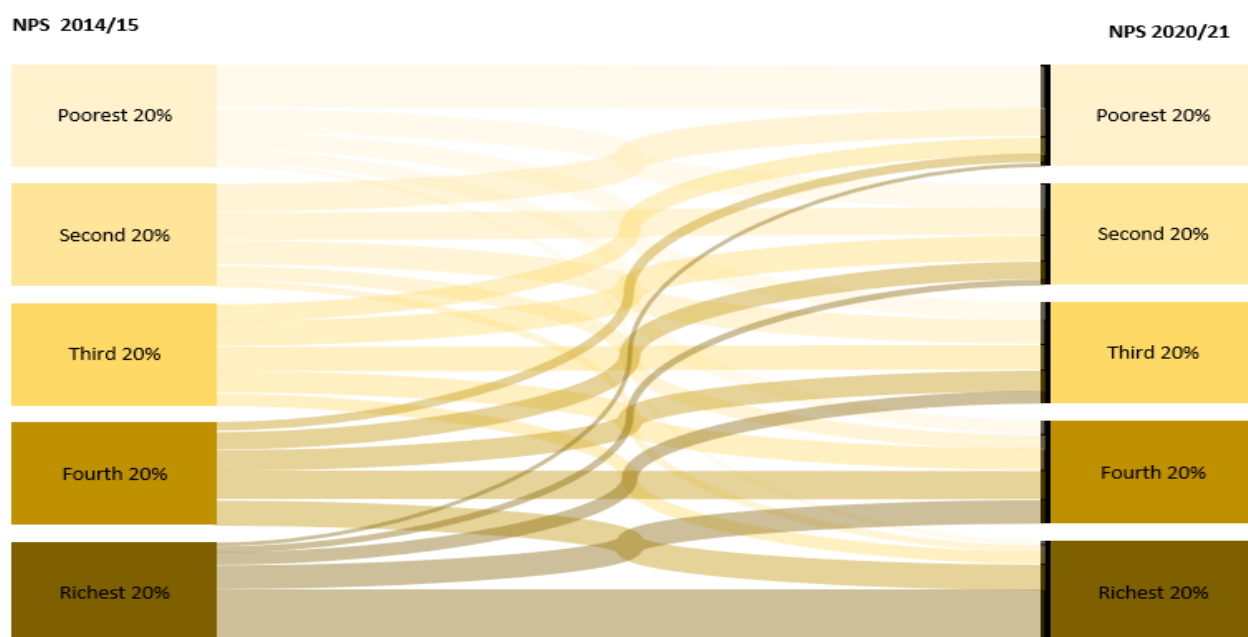
This section aims to describe the welfare-based transitions – the movement of households in and out of welfare quintiles over time – between NPS 2014/15 and NPS 2020/21. These transitions are presented at the national level and for each of the four geographical strata.

In Tanzania, less than half (42.6 percent) of the households in the lowest quintile in 2014/15 remained in the lowest quintile in 2020/21 (Table 5.2). This, however, indicates that more than half of the poorest households in 2014/15 were able to successfully transition to higher consumption quintiles, with approximately three percent of the households in the lowest quintile from 2014/15 transitioning to the highest quintile in 2020/21. More than half (53.8 percent) of the households in the highest quintile in 2014/15 remained in such in 2020/21.

Table 5.1 Welfare-Based Transitions (In and Out of Quintiles) (Percent), Tanzania

		NPS 2020/21				
		Lowest 20%	Second 20%	Third 20%	Fourth 20%	Highest 20%
NPS 2014/15	Lowest 20%	42.6	23.3	17.6	13.2	3.4
	Second 20%	27.8	27.3	24.0	14.3	6.6
	Third 20%	17.2	24.8	24.5	21.3	12.2
	Fourth 20%	8.5	17.5	20.6	28.2	25.2
	Highest 20%	3.7	6.1	12.8	23.6	53.8

Figure 5.6 Welfare-Based Transitions (In and Out of Quintiles), Tanzania



The most pronounced transitions between quintiles were recorded in Zanzibar where the smallest proportion of households in the highest quintile from 2014/15 remained in the highest in 2020/21 (35.2 percent); most households moved into the third and fourth quintiles but over six percent had transitioned to the lowest quintile (Table 5.3).

Table 5.2 Welfare-Based Transitions (In and Out of Quintiles) (Percent), Zanzibar

		NPS 2020/21				
		Lowest 20%	Second 20%	Third 20%	Fourth 20%	Highest 20%
NPS 2014/15	Lowest 20%	35.7	27.3	19.0	11.7	6.3
	Second 20%	36.7	30.3	22.9	7.3	2.8
	Third 20%	18.0	26.3	19.0	19.3	17.5
	Fourth 20%	9.2	8.7	23.9	29.0	29.2
	Highest 20%	6.3	10.7	15.5	30.4	35.2

In Other Urban areas of Mainland, nearly half (43.5 percent) of households in the lowest quintile in 2014/15 remained in the same quintile in 2020/21. Around 5.0 percent of households in the lowest quintile in 2014/15 moved to the highest quintile in 2020/21, while 6.6 percent of the highest households in 2014/15 moved into the lowest quintile in 2020/21 (Table 5.4).

Table 5.3 Welfare-Based Transitions (In and Out of Quintiles) (Percent), Mainland Other Urban

		NPS 2020/21				
		Lowest 20%	Second 20%	Third 20%	Fourth 20%	Highest 20%
NPS 2014/15	Lowest 20%	43.5	18.4	26.5	6.3	5.3
	Second 20%	22.4	30.7	22.3	19.6	5.0
	Third 20%	21.5	30.7	22.3	19.6	5.0
	Fourth 20%	5.0	13.5	17.2	37.2	27.2
	Highest 20%	6.6	8.5	10.1	25.5	49.3

In Mainland Rural areas, 37.1 percent of households in the lowest consumption quintile in 2014/15 remained in the same quintile in 2020/21. In contrast, over 10 percent of the households in the lowest consumption quintile in 2014/15 transitioned to the highest quintile in 2020/21. Only 7.1 percent of households in the highest quintile in 2014/15 moved into the lowest quintile in 2020/21 (Table 5.4).

Table 5.4 Welfare-Based Transitions (In and Out of Quintiles) (Percent), Mainland Rural

		NPS 2020/21				
		Lowest 20%	Second 20%	Third 20%	Fourth 20%	Highest 20%
NPS 2014/15	Lowest 20%	37.1	19.7	20.3	12.7	10.1
	Second 20%	26.3	27.5	20.4	17.1	8.8
	Third 20%	16.0	23.9	21.8	22.5	15.8
	Fourth 20%	15.1	19.0	22.9	22.6	20.4
	Highest 20%	7.1	10.6	14.4	24.4	43.5

In Dar es Salaam, nearly half (46.8 percent) of the households in the highest quintile remained in the highest quintile, and 3.5 percent moved into the lowest quintile (Table 5.6). Similar to Other Urban areas in the Mainland, a relatively large portion of the households in the lowest quintile (43.3 percent) remained in the lowest quintile while a small percentage (0.3 percent) moved into the highest quintile.

Table 5.5 Welfare-Based Transitions (In and Out of Quintiles) (Percent), Dar es Salaam

		NPS 2020/21				
		Lowest 20%	Second 20%	Third 20%	Fourth 20%	Highest 20%
NPS 2014/15	Lowest 20%	43.3	31.2	11.0	14.3	0.3
	Second 20%	25.4	25.8	28.2	17.8	2.7
	Third 20%	21.1	30.0	18.0	18.3	12.6
	Fourth 20%	13.5	8.2	29.3	20.1	28.9
	Highest 20%	3.5	9.3	12.9	27.5	46.8

Key message: Households in the highest and lowest quintiles were more likely to remain in their quintiles. Middle quintiles were more likely to fall to the nearest lower quintile. Hence, policy interventions needed to reduce vulnerability of the middle quintiles.

5.4 Share of Consumption by Selected Socio-Economic Characteristics

This section discusses the relationship between shares of consumption expenditure and selected demographic and socio-economic characteristics of households. These demographic and socio-economic characteristics might be associated with consumption expenditure as a proxy of poverty without necessarily being the source of poverty. Such associations may provide improved context for examining changes in consumption expenditure and may better reflect the spending behavior of the population, in particular of the poor, as well as temporal and domain changes/differences in the cost of living. On the other hand, such associations may somewhat explain events that trigger entries and exits from poverty.

The selected socio-economic characteristics include location, sex of head of household, number of usual household residents, marital status of head of household, employment sector of the head of household, and number of income sources of the household head. The relationship between share of consumption levels and these characteristics across NPS 2014/15 and NPS 2020/21 is also examined.

5.5 Share of Consumption by Location and Sex of Head of Household

Table 5.7 presents the share of consumption at the national level, for urban and rural areas, by the four strata, and by sex of the household head. Between 2014/15 and 2020/21, the share of consumption increased in rural areas but decreased in urban areas. In 2020/21, the share of consumption in rural areas was 57.3 percent compared to 42.7 percent in urban areas. Across domains, Other Urban areas reported the highest decline of consumption shares (5.9 percentage points) while the Mainland Rural areas reported the highest increase (10.8 percentage points). In Zanzibar, shares of consumption remained nearly unchanged between the two survey waves.

The results further illustrate that the share of consumption remained considerably higher for male-headed households compared to female-headed households. Explicitly, nearly three quarters (73.3 percent) of the consumption is from male-headed households in the NPS 2020/21, an increase from NPS 2014/15 (70.9 percent). In contrast, the contribution of female-headed households to consumption shares decreased in NPS 2020/21 (26.7 percent) from the NPS 2014/15 (29.1 percent).

Table 5.6 Share of Consumption by Location and Gender of Head of Household, Tanzania

Area	NPS 2014/15	NPS 2020/21
	% Share Consumption	% Share Consumption
Tanzania	100.0	100.0
<i>Rural</i>	46.5	57.3
<i>Urban</i>	53.5	42.7
Mainland	97.5	97.2
<i>Dar es Salaam</i>	25.2	20.0
<i>Other Urban</i>	27.0	21.1
<i>Rural</i>	45.2	56.0
Zanzibar	2.5	2.8
Gender of Household Head		
<i>Male</i>	70.9	73.3
<i>Female</i>	29.1	26.7

Key message: *The share of consumption is increasing in rural areas but decreasing in urban areas, indicating increased inclusivity of the rural population and their contribution to national economy.*

5.6 Share of Consumption by Number of Usual Members of Household

The results illustrate that the share of consumption is the highest for households with "1-3" usual members (46.6 percent) then households with "4-5" usual members (30.2 percent), followed by "6+" usual members (23.1 percent) in the NPS 2020/21 as exhibited in Table 5.8. The trend in the share of consumption by the number of usual residents is consistent across waves. However, the share of consumption increased for households with "4-5" usual members by 2.4 percentage points, while the other two groups reported a decline between NPS 2014/15 and NPS 2020/21. The share of real consumption decreases with number of usual residents in both waves.

Table 5.7 Share of Consumption by Number of Usual Residents, Tanzania

Number of usual residents	NPS 2014/15	NPS 2020/21
	% Share Consumption	% Share Consumption
1-3	48.2	46.6
4-5	27.8	30.2
6+	24.0	23.1
Total	100.0	100.0

5.7 Share of Consumption by Marital Status of Head of Household

Table 5.9 presents the share of consumption by marital status of the head of households. The results illustrate that household heads who are monogamously married hold the majority share of consumption (50.5 percent) compared to household heads with other marital status groups in the NPS 2020/21. Across survey waves, those living together, in polygamous marriages, divorced, or never married reported decreases in their share of real consumption between NPS 2014/15 and NPS 2020/21.

Household heads whose marital status was “separated” reported the largest increase (4.6 percentage points) in the share of consumption between NPS 2014/15 and NPS 2021/21. In contrast, household heads who are living together reported the largest decrease (3.0 percentage points) in their consumption share between waves.

Table 5.8 Share of Consumption by Marital Status of Head of Household, Tanzania

Marital status	NPS 2014/15	NPS 2020/21
	% Share Consumption	% Share Consumption
Monogamous marriage	47.6	50.5
Polygamous marriage	6.5	5.3
Living together	11.1	8.1
Separated	7.3	11.9
Divorced	4.1	3.3
Never married	12.7	9.8
Widow(er)	10.6	11.0
Total	100.0	100.0

5.8 Share of Consumption by Employment Sector of the Head of Household

The share of consumption remained highest for household heads working in the service sector (47.5 percent) compared to those employed in other sectors. However, the service sector also saw a decline of 6.1 percentage points between the NPS 2014/15 and NPS 2020/21. In contrast, household heads in the agriculture sector reported an increase in their share of consumption, from 28.3 percent in NPS 2014/15 to 33.5 percent in NPS 2020/21. The industry sector held the lowest share of consumption across both waves and declined further between waves. Table 5.10 illustrates the share of consumption by the employment sector of the head of household.

Table 5.9 Share of Consumption by Employment Sector of the Head of Household, Tanzania

Employment by Sector of HH head	NPS 2014/15	NPS 2020/21
	% Share Real Consumption	% Share Real Consumption
Agriculture	28.3	33.5
Industry	13.8	10.8
Service	53.6	47.5
<i>Missing</i>	4.3	8.1
Total	100.00	100.00

5.9 Share of Consumption by Income Diversification of Head of Household in Past 12 Months

In the NPS 2020/21, the share of consumption remained highest among those depending on just one source of income (55.3 percent), as it was in NPS 2014/15 (56.4 percent). Those relying on two sources of income contributed nearly one-third (33.0 percent) of real consumption shares. The share of consumption of those with more than three sources of income (6.1 percent) or without any source of income (5.6 percent) were considerably less.

Moreover, the share of consumption has increased among household heads with no income sources and three income sources in the NPS 2020/21. Household heads with no income source experienced the largest increase (1.6 percentage points) in their share of consumption. Contrary to this, a slight decline was experienced by those with one or two sources of income between NPS 2014/15 and NPS 2020/21. Table 5.11 shows the share of consumption by income diversification of household heads in the past twelve months.

Table 5.10 Share of Consumption by Income Diversification of Head of Household in Past 12 Months, Tanzania

Number of Income Sources of Household Head	NPS 2014/15	NPS 2020/21
	% Share Consumption	% Share Consumption
No sources	4.0	5.6
One source	56.4	55.3
Two sources	34.5	33.0
Three sources	5.2	6.1
Total	100.0	100.0

5.10 Average and Median Household Expenditure Levels

This sub-section presents average and median levels of household consumption expenditure per month (28 days) by area between the NPS 2014/15 and NPS 2020/21 at real prices.

The average monthly household consumption expenditure at the national level was TZS 484,507 in 2020/21, a statistically significant increase of TZS 55,770 from the average monthly household consumption expenditure reported in 2014/15. A similar trend was observed among households residing in Tanzania Mainland, where average monthly household consumption expenditure increased from TZS 428,741 to TZS 483,873. In Zanzibar, the average monthly household consumption expenditure also increased from TZS 428,591 in 2014/15 to TZS 505,173 and this change was also statistically significant.

The average monthly household consumption expenditure in Dar es Salaam decreased from TZS 858,354 in 2014/15 to TZS 712,810 in 2020/21 (a decline of about 17 percent) and this change was statistically significant. The opposite was reported among households in Other Urban and Rural Areas in Tanzania Mainland, where average household consumption expenditure increased between rounds. However, only the change among households in Rural Mainland was statistically significant.

The results show further that national median monthly household consumption expenditures increased between 2014/15 and 2020/21 as well as across all geographical domains except for Dar es Salaam (Table 5.12). Overall, median monthly household consumption expenditures are substantially lower than average monthly consumption expenditures per household, as mean statistics tend to be influenced by extreme values (outliers).

Table 5.11 Average and Median Household Consumption Expenditure per 28 days by Area, TZS, Tanzania

	Mean expenditure			Median expenditure		
	NPS 2014/15	NPS 2020/21	Sig ^a	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	428,737	484,507	*	289,214	315,728	***
Tanzania Mainland	428,741	483,873	*	276,076	295,492	***
<i>Dar es Salaam</i>	858,354	712,810	*	456,403	428,773	n/s
<i>Other Urban</i>	518,077	560,964	n/s	318,839	364,335	**
<i>Rural</i>	342,341	439,191	**	218,076	256,359	***
Zanzibar	428,591	505,173	***	380,097	405,703	**

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

5.11 Transition In and Out of Poverty

Examining poverty dynamics using panel data collected at two or more time periods provides a richer and more accurate picture of the nature of poverty. For multiple time periods it is possible to identify the population that is chronically poor ("always poor") and the population that is "transient poor", the latter of which are poor at a particular time but are not poor in one or more of the other time periods. It is worth noting that the analysis of poverty dynamics in this report did not focus on events that trigger entries into and exits out of poverty.

Analysis of poverty transitions (dynamics of poverty) based on the NPS 2014/15 and NPS 2020/21 found that nearly half (48.9 percent) of Tanzanians escaped poverty while one-fifth (20.7 percent) fell into it as shown in Table 5.13. This means that, for every four Tanzanians who moved out of poverty, two who were non-poor, fell into poverty. Households may fall into and out of poverty over the course of their lives which can cumulatively add up to a significant number of years in poverty.

Table 5.12 Transition in and Out of Poverty (Percent), Tanzania

		NPS 2020/21	
		Non-poor	Poor
NPS 2014/15	Non-poor	79.3	20.7
	Poor	48.9	51.1

5.12 Inequality

Income inequality refers to the extent to which income is distributed un-evenly among the population. Consumption expenditure is considered a more reliable indicator of welfare than income as consumption is typically less fluctuating than income and gives a better and steadier picture of long-term welfare, and individuals feel more comfortable answering questions related to consumption than to income. As such, in this section, consumption per adult equivalent was used to examine inequality of income. One of the indicators for measuring inequality of distribution of per capita consumption expenditure is the “Gini Index” or Gini coefficient (commonly known as Gini). It often serves as a gauge of economic inequality, measuring income distribution or, less commonly, wealth distribution among a population.

The Gini coefficient ranges from 0 (perfect equality where every person has the same consumption expenditure) to 1 (perfect inequality where one/few persons share all the consumption level in the country).

Nationally, the 2020/21 NPS shows a rise in consumption inequality as measured by Gini coefficient, from 0.416 in 2014/15 to 0.444 in 2020/21 (Table 5.14). The rise is also observed across all domains except in rural areas from 0.399 (2014/15) to 0.390 (2020/21) and Dar es Salaam from 0.413 (2014/15) to 0.385 in (2020/21). Interestingly, despite Dar es Salaam having the highest consumption expenditures (across all quintiles) compared to the rest of the domains, it is one of the domains with the lowest inequality at 0.385.

Table 5.13 Gini Coefficient, Tanzania

Area	NPS 2014/15	NPS 2020/21
Tanzania	0.416	0.444
<i>Rural</i>	0.399	0.390
<i>Urban</i>	0.341	0.428
Tanzania Mainland	0.419	0.447
<i>Dar es Salaam</i>	0.413	0.385
<i>Other Urban</i>	0.352	0.387
<i>Rural</i>	0.339	0.429
Zanzibar	0.301	0.327

Inequality can also be presented using Lorenz curve, which is based on the monthly per capita consumption expenditure values. The diagonal of the Lorenz curve (line drawn at 45 degrees) represents a distribution with zero Gini value. Figure 5.6 presents the Lorenz curve at the national level while Figure 5.7 presents the Lorenz curve for the four analytical strata.

Figure 5.7 Lorenz Curve of Consumption, Tanzania

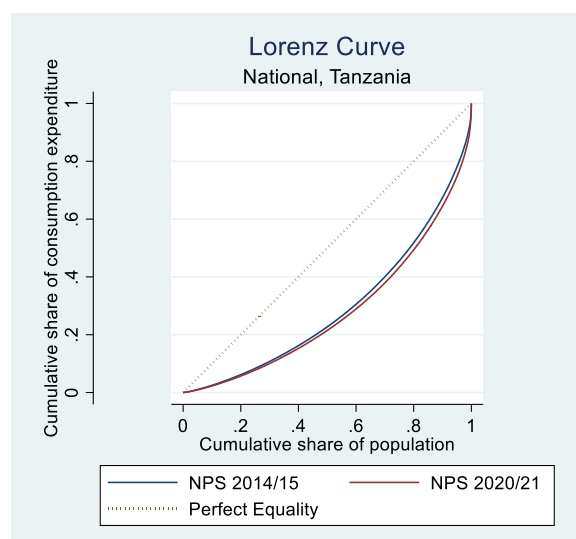
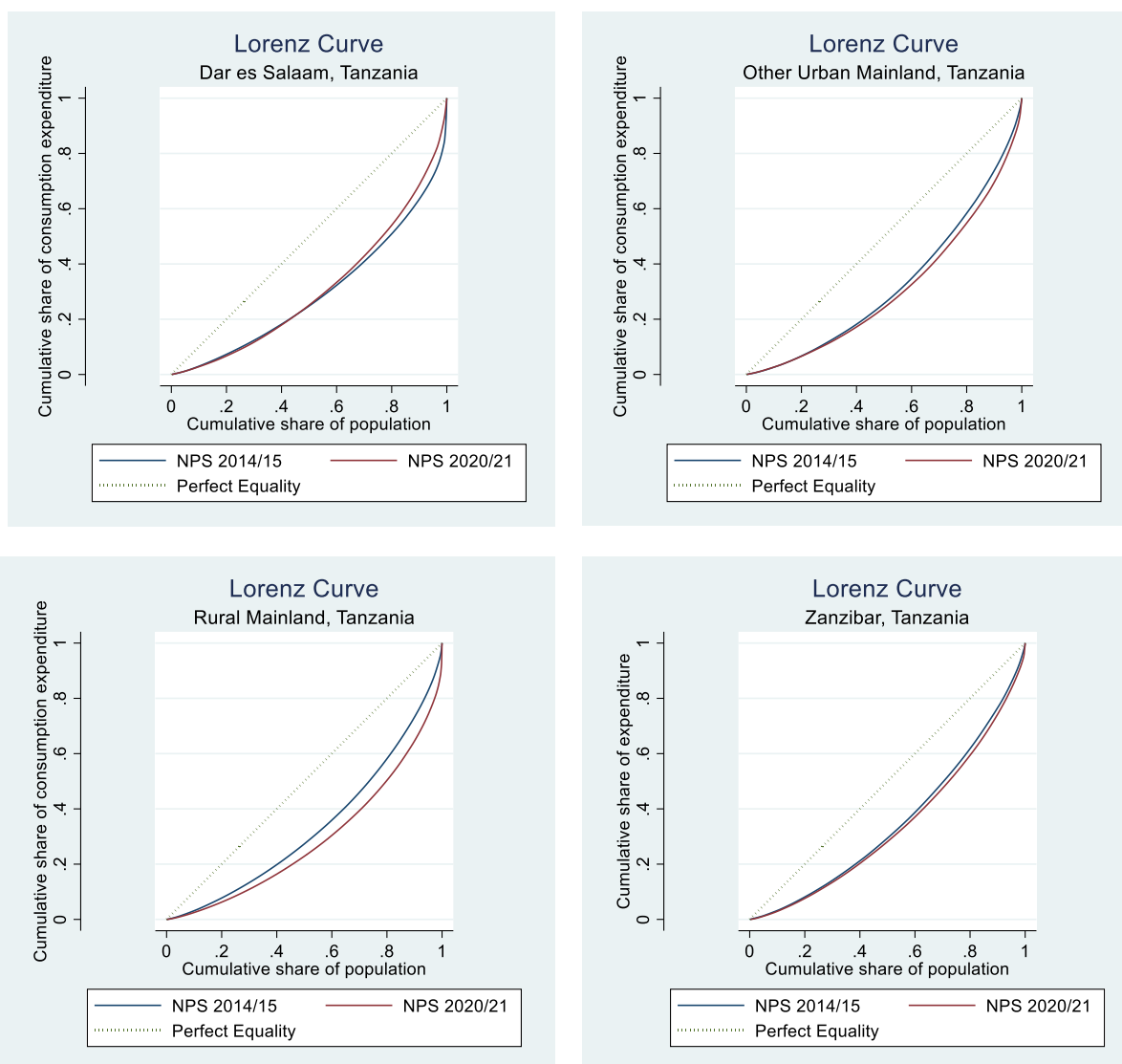


Figure 5.8 Lorenz Curve of Consumption, by Strata



CHAPTER SIX

6.0 Labour Market Dynamics

6.1 Introduction

Labour market dynamics according to the Organisation for Economic Co-operation and Development (OECD) refers to changes in jobs that take place as well as entries into and departures from economic activity affected by hirings, separations, as well as the establishment and closure of self-employment activities.

The International Labour Organization's (ILO) standard guidance on gathering information around the labour force participation rate is to include individuals who are at least 15 years old. The reference period for these individuals' economic activities are the seven days prior to the day of interview. The labour force comprises all economically active people, that is, people who are employed or unemployed. Those employed include people who worked for at least one hour in the previous seven days for wages, profits, barter, or in the family business for free. In addition, it includes those who did not work at all during the last seven days but do have a job to which they will return.

This chapter presents information on labour market dynamics. It includes findings on employment status by sector and transition between sectors; an analysis of youth who are neither in education nor in employment or training; income diversity; and employment dynamics across the two waves of the NPS.

6.2 Employment Status

The survey collected information on the employed population with their occupation, sector, status in employment and hours worked. A person must work for at least one hour in the previous week in any one of a wide range of economic activities or be temporarily absent from such work to be regarded as currently employed. Similarly, "usual activities" cover what is done in the past 12 months prior to the survey.

6.3 Employment by Sector

At the national level, Table 6.1 shows that the agriculture sector employed a majority of the population in Tanzania (60 percent), followed by services (32 percent) and then industry (8 percent). There is a stark contrast between Tanzania Mainland and Zanzibar; in the former, more than half of the population (60.2 percent) was engaged in agriculture, while in Zanzibar the service sector employed the largest proportion of the labor force (48.0 percent).

The results further illustrate that males are less likely to be employed in agriculture and service sectors (57.0 percent and 29.9 percent, respectively) compared to females whose share in the agriculture sector is 62.9 percent and 33.8 percent in service sector. Employment in the agriculture sector was most common for the youngest individuals (15-24 years) and the oldest individuals (65+

years), while employment in the industry sector remained highest for middle-aged individuals (25-34 years and 35-64 years).

Table 6.1 Percentage of Employment by Sector, Tanzania, NPS 2020/21

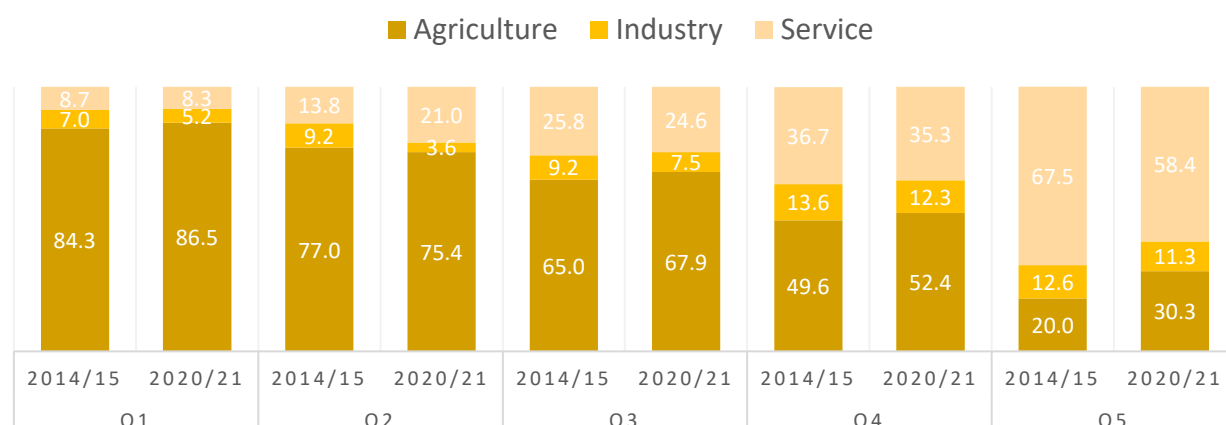
Area	NPS 2020/21		
	Agriculture	Industry ¹	Service
Tanzania	59.8	8.4	31.8
<i>Rural</i>	73.3	6.2	20.5
<i>Urban</i>	22.3	14.6	63.2
Tanzania Mainland	60.2	8.3	31.5
<i>Dar es Salaam</i>	4.5	16.5	75.0
<i>Other Urban</i>	29.9	13.6	56.5
<i>Rural</i>	73.5	6.1	20.4
Zanzibar	41.4	10.6	48.0
Gender			
<i>Female</i>	62.9	3.2	33.8
<i>Male</i>	57.0	13.1	29.9
Age Group			
<i>15-24</i>	74.5	5.2	20.2
<i>25-34</i>	46.9	10.7	42.4
<i>35-64</i>	56.8	9.4	33.8
<i>65+</i>	81.6	3.0	15.4

¹Industry includes manufacturing, mining, construction

[^] Those missing a sector classification were excluded from the denominator

In the poorest welfare quintile, more than eight in every ten individuals worked in agriculture, increasing even further between NPS 2014/15 and NPS 2020/21 (84.3 percent to 86.5 percent). Figure 6.1 shows that employment in agriculture became less common as household wealth increased, as just 30 percent of individuals in the highest quintile worked in agriculture. These individuals, in contrast, were more likely to work in the service sector, despite a decline from 67.5 percent to 58.4 percent. Between NPS 2014/15 and NPS 2020/21, the proportion of the population in the first, third, and fourth quintiles working in each sector remained relatively unchanged.

Figure 6.1 Percentage of Employment by Sector by Welfare Quintile, NPS 2014/15 and NPS 2020/21



6.4 Employment Transition between Sectors

The labour force transition rate measures the proportion of the working-age population that were actively engaged in either agriculture, industry, or service provision during the previous survey, and have since changed sectors due to unspecified reasons.

Table 6.2 reveals a great shift in the industry sector, where more than six out of ten people (63.2 percent) who worked in the industry sector during NPS 2014/15 have moved to another economic sector, including service (31.9 percent) and agriculture (31.3 percent).

Table 6.2 Employment Transition Between Sectors, Tanzania, NPS 2020/21

NPS 2014/15	NPS 2020/21		
	Agriculture	Industry ¹	Service
Agriculture	81.4	4.5	14.1
Industry	31.3	36.8	31.9
Service	30.6	6.7	62.7

[^] This table is calculated based on the sector the working individual was employed in during NPS 4 2014/15, where the sum of each row will equal 100; those missing a sector classification were excluded

¹Industry includes manufacturing, mining, construction

Key message: Promoting value addition in the agriculture sector is very likely to absorb more persons from industry and service sectors, hence curbing unemployment and under-employment.

Figure 6.2 shows that agriculture is the dominant sector as 31.3 percent and 30.6 percent of individuals shifted from the industrial and services sectors respectively, into this sector, increasing the overall proportion in NPS 2020/21. Employment in industry was the most transitional between

NPS 2014/15 and NPS 2020/21, with one-third of those previously employed in the industry sector moving into each of the agriculture and service sectors.

Figure 6.2 Employment Transition Matrix Between Sectors, Tanzania



**Employment proportions displayed in this figure are calculated for the subset of the sample who were present in both waves in order to directly map transitions in sector of employment. Therefore, these values will not directly match wave-specific point estimates presented throughout Chapter 6, which are representative of the full populations in each wave*

6.5 Employment Status Dynamics across Waves

Table 6.3 presents the employment transition from NPS 2014/15 to NPS 2020/21. The findings reveal that among those who were employed in NPS 2014/15, about 85 percent remained employed in 2020/21, while almost 12 percent became inactive, and 3.3 percent became unemployed. For those who were unemployed in NPS 2014/15, a substantial number, about 62 percent, transitioned employment status while 25.8 percent became inactive. Furthermore, the findings show that 60.3 percent of formerly inactive people had transitioned to employed status and 8.8 percent became unemployed. Previously unemployed and inactive people who remained in the same status were only 12.5 percent and 30.9 percent respectively.

Table 6.3 Employment Status Dynamics across Waves, Tanzania

		NPS 2020/21		
		Employed	Unemployed	Inactive
NPS 2014/15	Employed	84.7	3.3	11.9
	Unemployed	61.7	12.5	25.8
	Inactive	60.3	8.8	30.9

[^] This table calculates employment status during NPS 2014/15, where the sum of each row will equal 100

NOTE: This uses a relaxed definition of unemployment whereby looking for work is not a required condition

Key message: Modernization of agriculture is very likely to reduce unemployment and inactivity.

Likewise, Figure 6.3 illustrates the employment transition across waves of the NPS (across NPS 2014/15 and NPS 2020/21). The figure reveals that in NPS 2020/21, most individuals remained or moved to employment status. The figure further indicates that a large proportion of individuals remained or transitioned to inactive status as compared to being unemployed.

Figure 6.3 Employment Status Dynamics across Waves, Tanzania



**Proportions displayed in this figure are calculated for the subset of the sample who were present in both waves in order to directly map transitions in status of employment. Therefore, these values will not directly match wave-specific point estimates presented throughout Chapter 6, which are representative of the full populations in each wave*

6.6 Unemployment Status

The unemployment rate is the ratio of unemployed individuals to those in the labour force. It is a measure of imbalance in the labour market, representing the extent of unutilized labour supply in the country. Internationally, unemployment is defined as state of a person being in all the following three conditions: (a) did not work in the last seven days and did not have a job to which they will return to, (b) were available for work, and (c) were looking for a job. The ILO's recommendations allow the relaxation of condition (c), such that looking for a job, especially in countries where a large proportion of the population is engaged in subsistence agriculture and informal activities and generally have little knowledge of labour market developments in the rest of the economy. Tanzania is characterized by these conditions, and therefore, uses a relaxed standard definition of unemployment. This approach was used in the estimation of labour market indicators based on the NPS.

6.7 Youth who are Neither in Education nor in Employment or Training

Youth who are without work and do not attend any school or training program are among youths who are unemployed and inactive. They are at a higher risk of becoming economically and socially excluded because they are economically dependent. This indicator presents the share of young people who are neither in the formal education sector nor in employment, as a percentage of the total youth population in the past 12 months prior to the survey.

Table 6.4 show that in Tanzania, about 11 percent and 10 percent of youth aged 15-24 and 15-35 years, respectively, were neither in education nor employment or training. This proportion varies across areas among the youths aged 15-24, peaking at 37.3 percent in Zanzibar, followed by 24.6 percent in Dar es Salaam, and 13.4 percent and 7.1 percent in Other Urban and Mainland Rural respectively. A similar pattern was observed for youths aged 15-35, where Zanzibar had a higher proportion of the youths who are not in education, nor in employment or training (39.9 percent), followed by Dar es Salaam (24.3 percent), Other urban (13.3 percent) and Mainland Rural (6.2 percent). In addition, females in both age groups (15-24 years and 15-35 years) had a higher share (13.7 percent and 14.7 percent respectively) of youth who are not in education, nor in employment or training than their male counterparts (7.4 percent and 5.8 percent respectively).

Generally, the findings show that the proportion of youths aged 15-24 years who are neither in education nor in employment or training is slightly higher compared to those 15-35 years, except for Zanzibar and females across the two different age groups.

Table 6. 4 Percentage of Youth who are Neither in Education nor in Employment or Training, Tanzania, NPS 2020/21

Area/Sex	% of youth in education	% of youth in employment ¹ /training	% of youth not in education, employment ¹ or training
15-24 years			
Tanzania	31.5	57.9	10.6
<i>Dar es Salaam</i>	42.1	33.3	24.6
<i>Other Urban</i>	43.9	42.7	13.4
<i>Mainland Rural</i>	27.2	65.7	7.1
<i>Zanzibar</i>	35.2	27.5	37.3
Gender			
<i>Male</i>	33.2	59.4	7.4
<i>Female</i>	29.8	56.4	13.7
15-35 years			
Tanzania	18.3	71.3	10.4
<i>Dar es Salaam</i>	20.1	55.5	24.3
<i>Other Urban</i>	24.3	62.4	13.3
<i>Mainland Rural</i>	16.4	77.4	6.2
<i>Zanzibar</i>	19.8	40.3	39.9
Gender			
<i>Male</i>	20.3	73.9	5.8
<i>Female</i>	16.5	68.9	14.7

[^] Based on employment in past 12 months

[^] These categories are mutually exclusive; if a youth was both in school and working, they were assigned to the education category

¹Where employment is wage employment, self-employed non-ag work, or agricultural work

Among the youth population aged 15-24 years, 57.9 percent were either in employment or training, and 31.5 percent were in education only. Considering gender, a large share of males and females (59.4 percent and 56.4 percent) were either employed or trainees compared to 33.2 percent and 29.8 percent of males and females, respectively involved in only education. Furthermore, 7.4 percent of males and 13.7 percent of females were not in education, employed or trainees. However, the results across the areas reveal that a greater proportion (65.7 percent) of youths in Mainland rural were involved in only employment or training, while 43.9 percent of the youths in other urban were involved in education only.

On the other hand, among youth aged 15-35 years, the majority (71.3 percent) were either in employment or training, and 18.3 percent of them were in education only. A greater share of males and females (73.9 percent and 68.9 percent) were either employed or trainees compared to 20.3 percent and 16.5 percent of males and females respectively involved in only education, and 5.8 percent of males and 14.7 percent of females who were not in education, employed or trainees. Moreover, the results across the areas reveal that a greater proportion of youths in this age group were employed or trainees compared to those who were involved in education only. However, a huge

difference was observed in Mainland Rural areas, where 77.4 percent were employed, or trainees and 16.4 percent were involved in education only.

6.8 Income Diversification

Income diversification is defined as a situation in which an individual has multiple sources of income to sustain their livelihood. Access to multiple sources of income increases the ability of individuals to mitigate economic shocks and magnify household incomes. A more diverse income stream, positively influences an individual's/household's income stability. The NPS 2014/15 collected information on different sources of income per individual in each selected household to examine the ability of the individual or household to bear with economic situations and manage any environmental risks.

Overall, 55.0 percent of individuals in Tanzania had only one source of income in the NPS 2020/21. Table 6.5 further reveals that although there has been a slight decrease in the proportion of people with one source of income between 2014/15 and 2020/21, this decrease is not statistically significant (from 55.4 percent to 55.0 percent). Moreover, individuals with two sources of income declined significantly from 36.0 percent to 33.9 percent, while individuals with three sources of income had a slight yet insignificant increase from 4.7 percent in 2014/15 to 4.9 percent in 2020/21. In addition, the findings show that as the number of sources of income increases, the proportion of individuals with income sources tend to decrease.

Table 6.5 Income Diversification in Past 12 Months by Number of Sources, Tanzania

Source	NPS 2014/15	NPS 2020/21	Sig ^a
One source	55.4	55.0	n/s
Two sources	36.0	33.9	**
Three sources	4.7	4.9	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

[^]This table is calculated for individuals (15 years or older) reporting work in any of the three following activities in the previous 12 months as a source of income: wage employment, work in non-farm enterprise (their own or a business of the household), or agricultural work

The results further indicate that in 2020/21, 11.5 percent of individuals earned income from wage employment only, 9.9 percent earned from non-farm self-employment only, and 33.6 percent earned from agricultural work only. Compared to 2014/15, only those earning from wage employment significantly increased by 1.4 percentage points while others have generally shown a downward trend, though not statistically significant. Among those earning from more than one source of income, a statistically significant increase is observed for those earning from wage and non-farm work as well as agricultural and non-farm work (Table 6.6).

Table 6. 6 Income Diversification in Past 12 Months by Source, Tanzania

Activities	NPS 2014/15	NPS 2020/21	Sig ^a
Wage employment only	10.1	11.5	**
Non-farm self-employment only	10.0	9.9	n/s
Agricultural work only	35.3	33.6	n/s
Wage and non-farm work	1.6	2.2	**
Wage and agricultural work	19.4	20.0	n/s
Agricultural and non-farm work	15.0	11.7	***
Wage, non-farm, and agricultural work	4.7	4.9	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

[^]This table is calculated for individuals (15 years or older) reporting work in any of the three following activities in the previous 12 months as a source of income: wage employment, work in non-farm enterprise (their own or a business of the household), or agricultural work

CHAPTER SEVEN

7.0 Nutrition Status, Dietary Diversity, and Food Security

7.1 Introduction

Chapter 7 presents results for the primary nutrition-related concepts including nutrition status, dietary diversity, and food security. These concepts are notable as millions of Tanzanians suffer from various forms of malnutrition (NMNAP II 2021-2026) – undernutrition and obesity – which contribute to adverse effects on human health if not addressed. An assessment of food availability and access (food security) to meet an individual's nutrient sufficiency (food diversity) is also critical for improving an individual's nutritional status. Improved nutritional status in turn enhances infant and maternal health outcomes, builds stronger immune systems to fight diseases, results in safer pregnancy and childbirth, reduces the risk of non-communicable diseases and longevity, and ultimately the ability to contribute to national economies for the nation's better future. Findings from the NPS 2020/21 show an improvement in many nutritional indicators.

7.2 Food Security

Food security, as defined by the United Nations' Committee on World Food Security, is the state at which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life. There are three primary indicators of food security: worried about not having enough to eat³, negative changes in diet⁴, and reduced food intake⁵.

Table 7.1 presents the share of the population who experienced each of the three indicators of food security. Nationally, there has been a decrease in the percentage of people who experienced all three indicators. Between NPS 2014/15 and NPS 2020/21, the proportion of the population who were worried about not having enough food decreased from 34.5 percent to 30.6 percent. Similarly, the proportion of the population that reduced their food intake decreased from about 31 percent to about 29 percent. However, the share of the population that experienced negative changes in their diet increased from 33.3 percent in NPS 2014/15 to 34.2 percent in NPS 2020/21. The changes in the percentage of people who experienced “negative changes in diet” and “reduced food intake” are both not statistically significant.

³ Worried about not having enough food: defined as being worried, in past 7 days, that the household would not have enough food

⁴ Negative changes in diet: defined as any member of the household having to rely on less preferred foods or limiting the variety of foods eaten for at least 1 day in the past 7 days

⁵ Reduced food intake: defined as any member of the household having to limit portion size at meal-times, reduce the number of meals eaten in a day, restrict consumption by adults for small children to eat, borrow food or rely on help from a friend or relative, having no food of any kind in the household, or going for a whole day and night without eating anything for at least 1 day in the past 7 days

Table 7.1 Percentage of the Population Experiencing Three Food Security Indicators by Area, Tanzania

Area	Worried about not having enough food			Negative changes in diet			Reduced food intake		
	2014/15	2020/21	Sig ^a	2014/15	2020/21	Sig ^a	2014/15	2020/21	Sig ^a
Tanzania	34.5	30.6	***	34.1	33.9	n/s	31.2	29.3	n/s
<i>Rural</i>	35.3	29.6	***	35.0	31.2	**	31.8	28.0	**
<i>Urban</i>	32.8	33.1	n/s	32.0	40.9	***	29.9	32.4	n/s
Tanzania Mainland	35.0	30.8	***	34.9	34.4	n/s	31.6	29.5	n/s
<i>Dar es Salaam</i>	32.9	35.4	n/s	31.4	46.7	***	27.5	37.7	***
<i>Other Urban</i>	33.8	33.6	n/s	34.7	40.2	n/s	32.1	31.3	n/s
<i>Rural</i>	35.7	29.5	***	35.5	31.4	**	32.1	27.9	**
Zanzibar	18.9	24.5	n/s	7.7	16.4	***	18.5	21.2	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

Key message: Policy measures are needed to target urban poverty. Food insecurity in Dar es Salaam has increased for all three indicators between the two waves in line with decreased consumption. Zanzibar is also depicting food insecurity in two indicators.

There have been marked improvements in food security in rural areas of the country between the NPS 2014/15 and NPS 2020/21, with each of the three food security indicators reporting a statistically significant decrease between the two waves. In contrast, the urban population in NPS 2020/21 (33.1 percent) has become more likely to be worried about food security than those in rural areas (29.6 percent). Though Zanzibar continues to be the most food secure area in Tanzania, there was a significant increase in the proportion of the population reporting negative changes in their diet (increasing from 7.7 percent in NPS 2014/15 to 16.4 percent in NPS 2020/21).

In Dar es Salaam, there were also large and statistically significant increases for two of the three food security indicators: the proportion of the population experiencing negative change in diet (an increase of 15.3 percentage points) and the proportion of the population with reduced food intake (an increase of 9.4 percentage points).

At the national level, just 17.5 percent of the population was food insecure (i.e. experienced all three food security indicators) (Figure 7.1). This represents a significant decrease between the NPS 2014/15 and NPS 2020/21. Similar decreases were also observed in rural areas of the country and Tanzania Mainland. However, in both Zanzibar and Dar es Salaam, the proportion of the population that was food insecure increased significantly, with more than one-quarter of the population in Dar es Salaam now food insecure.

Figure 7.1 Percent of the Population Experiencing *All Three* Food Security Indicators by Area, Tanzania

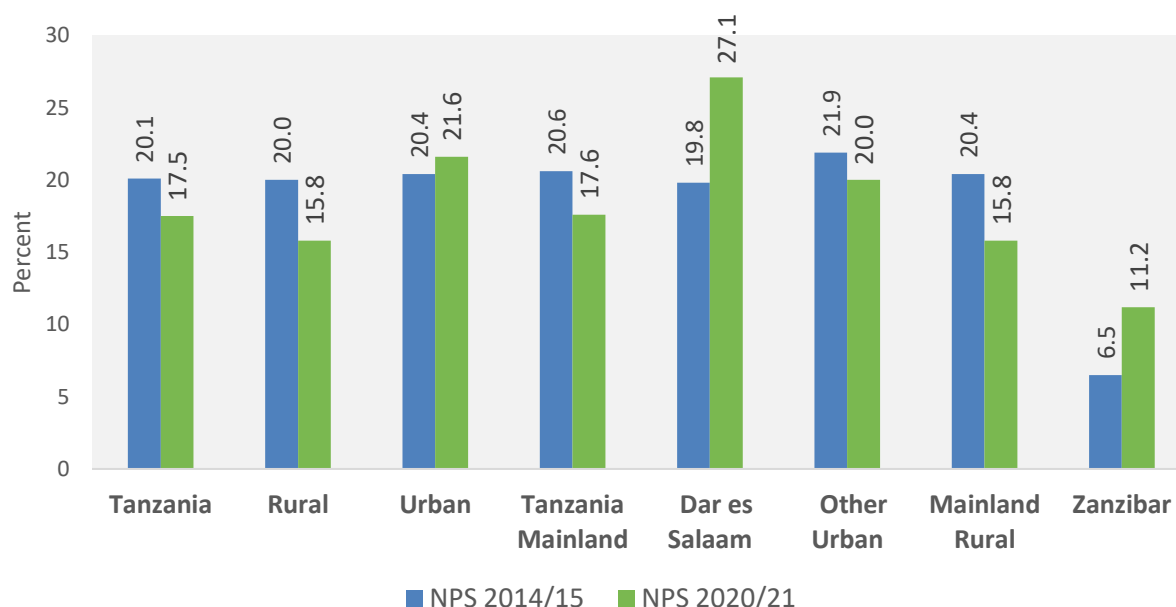


Table 7.1a presents the proportion of the population who are food insecure – those experiencing all three indicators – by wealth quintile. There was a decrease in the proportion of the population that experienced all three food insecurity indicators among the poorest quintile, second quintile, and wealthiest quintile, between NPS 2014/15 and NPS 2020/21. However, the only statistically significant decrease was in the poorest quintile (13 percentage points).

Table 7.2 Percentage of the Population Experiencing *All Three* Food Security Indicators by Welfare Quintile, Tanzania

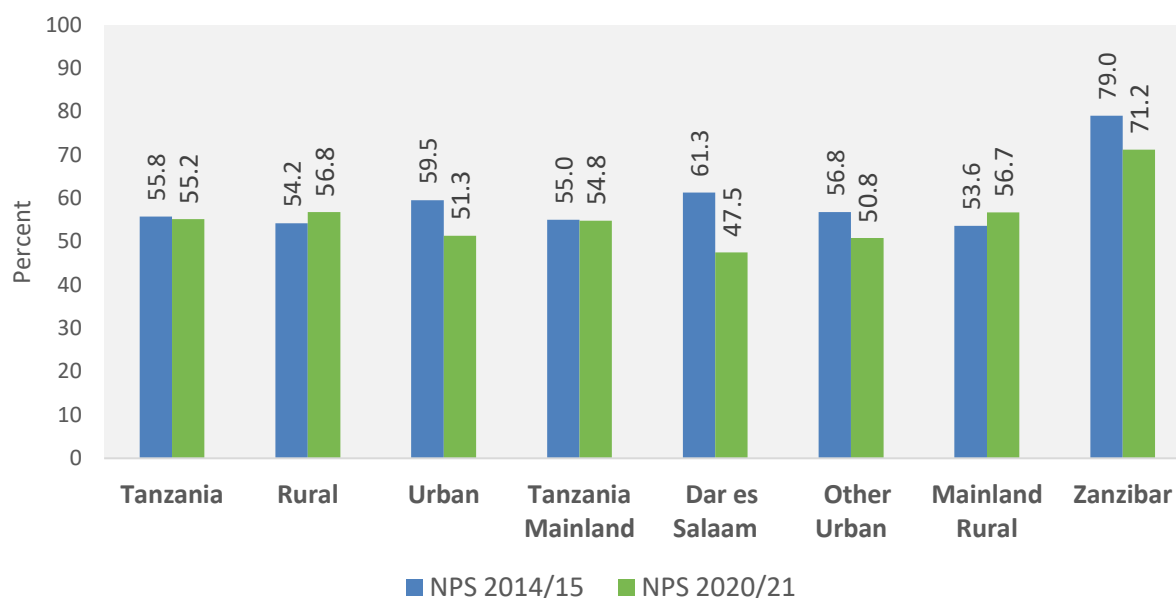
Welfare quintile (%)	NPS 2014/15	NPS 2020/21	Sig ^a
Bottom 20	34.2	21.3	***
Second 20	23.8	20.4	n/s
Third 20	16.4	17.6	n/s
Fourth 20	13.3	17.0	n/s
Top 20	13.0	10.5	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

Figure 7.2 presents proportions of the population experiencing *none* of the three food security indicators. At the national level, the share of the population experiencing *none* of the three indicators decreased slightly from 55.8 percent to 55.2 percent in NPS 2020/21, driven by a statistically significant decrease in urban areas (from 59.5 percent to 51.3 percent). At the stratum level, Dar es Salaam and Zanzibar were the only areas that experienced statistically significant decreases. Notably,

the largest proportions of the population experiencing none of the indicators were in Zanzibar in both waves of NPS (71.2 percent and 79 percent, respectively).

Figure 7.2 Percent of the Population Experiencing *None of the Three* Food Security Indicators by Area, Tanzania



7.3 Number of Meals

The number of meals taken in a day serves as an additional indicator of food security. Table 7.2 presents the average number of meals taken by both adults and children. In the NPS 2020/21, the average number of meals taken by children increased significantly from NPS 2014/15. However, a significant decrease was observed in the number of meals taken by adults from 2.7 in NPS 2014/15 to 2.6 in NPS 2020/21.

Table 7.3 Average Number of Meals Taken per Day by Adults and Children by Area, Tanzania

Area	Adults			Children		
	NPS 2014/15	NPS 2020/21	Sig ^a	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	2.71	2.62	***	2.91	2.86	***
<i>Rural</i>	2.66	2.55	***	2.90	2.83	***
<i>Urban</i>	2.80	2.74	***	2.94	2.92	n/s
Tanzania Mainland	2.71	2.62	***	2.92	2.86	***
<i>Dar es Salaam</i>	2.86	2.73	***	2.96	2.96	n/s
<i>Other Urban</i>	2.79	2.75	n/s	2.94	2.89	n/s
<i>Rural</i>	2.66	2.56	***	2.90	2.84	***
Zanzibar	2.62	2.65	n/s	2.86	2.74	**

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

Table 7.3 presents the population distribution by number of meals taken by adults. Food insecurity, in terms of daily meals taken by adults, is relatively low and similar across the country. In NPS 2020/21, the percentage of the population who took just one meal per day had increased from 0.6 percent in NPS 2014/15 to 1.6 percent in NPS 2020/21. Likewise, the percentage of adults who took two meals a day increased from 28.2 percent to 35.4 percent. In contrast, adults who take three or more meals per day decreased from 71.2 percent to 63 percent. Each of these changes were statistically significant. The proportion of adults who took at least three meals per day was consistently common in urban than in rural areas. Across geographical areas, the proportion of adults eating three or more meals per day was substantially larger in Dar es Salaam (73.3 percent) and Other Urban areas (75.1 percent) than in Rural Mainland (57.4 percent) and Zanzibar (65.8 percent).

Table 7.4 The Percentage of Population by the Average Number of Daily Meals and Area, Adults, Tanzania

Area	1 meal			2 meals			3 or more meals		
	2014/15	2020/21	Sig ^a	2014/15	2020/21	Sig ^a	2014/15	2020/21	Sig ^a
Tanzania	0.6	1.6	***	28.2	35.4	***	71.2	63.0	***
<i>Rural</i>	0.5	1.8	***	33.3	40.9	***	66.1	57.3	***
<i>Urban</i>	0.7	1.2	n/s	18.4	23.9	***	80.9	74.8	***
Tanzania Mainland	0.6	1.6	***	27.9	35.4	***	71.5	62.9	***
<i>Dar es Salaam</i>	0.5	1.1	n/s	12.9	25.5	***	86.5	73.3	***
<i>Other Urban</i>	0.9	1.3	n/s	19.5	23.5	n/s	79.7	75.1	*
<i>Rural</i>	0.5	1.8	***	33.5	40.8	***	65.9	57.4	***
Zanzibar	0.0	1.3	n/s	37.9	32.9	**	62.1	65.8	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

Table 7.4 presents the population distribution by number of meals taken by children (6-59 months). In Tanzania, the proportion of the children ages 6-59 months who took two meals a day increased significantly from 7.9 percent in NPS 2014/15 to 12.5 percent in NPS 2020/21. However, children who took at least three meals per day decreased from 91.3 percent in NPS 2014/14 to 86.6 percent in NPS 2020/21. Generally, the share of children who ate three or more meals a day decreased across all geographical domains for children (6-59) months.

As with adults, the proportion of children eating just one meal per day was relatively uncommon (less than one percent), although it remained most likely to occur in rural areas. However, the difference between urban and rural areas was considerably smaller for children than for adults. It is apparent that children were taking a larger number of daily meals than adults, and that less disparities are observed across geographical domains for children than for adults (Tables 7.3 and 7.4).

Table 7.5 The Proportion of Population by the Average Number of Daily Meals and Area, Children (6-59 months), Tanzania

Area	1 meal			2 meals			3 or more meals		
	2014/15	2020/21	Sig ^a	2014/15	2020/21	Sig ^a	2014/15	2020/21	Sig ^a
Tanzania	0.7	0.9	n/s	7.9	12.5	***	91.3	86.6	***
<i>Rural</i>	0.6	1.2	n/s	9.4	14.3	***	89.9	84.5	***
<i>Urban</i>	1.0	0.1	n/s	4.1	7.9	**	94.9	92.0	*
Tanzania Mainland	0.7	0.9	n/s	7.8	12.1	***	91.5	87.0	***
<i>Dar es Salaam</i>	0.7	0.4	n/s	2.5	2.9	n/s	96.8	96.7	n/s
<i>Other Urban</i>	1.2	0.0	n/s	3.6	10.5	***	95.1	89.5	**
<i>Rural</i>	0.6	1.2	n/s	9.5	13.7	***	89.9	85.1	***
Zanzibar	0.0	0.0	n/s	13.7	26.1	**	86.3	73.9	**

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

7.4 Food Shortages

Food shortages are also critical indicators of food security. The NPS collected information on the proportion of respondents reporting food shortages in the 12 months prior to the survey. This indicator specifically refers to the frequency of food shortages rather than the duration or severity of any particular period of food shortage.

Table 7.5 presents the percentage of the population that experienced food shortage in the 12-month period prior to the survey. At the national level, nearly one-third (31.0 percent) of the population continue to experience food shortages, though this represents a significant improvement from the NPS 2014/15. The average number of months where a food shortage was experienced has also significantly decreased, from 3.4 months in the NPS 2014/15 to 3.2 months in the NPS 2020/21.

The largest improvements in food shortage were in the rural areas, where the proportion of the population experiencing food shortage fell from 45.2 percent in NPS 2014/15 to 31.7 percent in NPS 2020/21. In urban areas, this indicator fell from 34.6 percent to 30.5 percent. The share of the population experiencing food shortage in Zanzibar remains the lowest in NPS 2020/21.

Table 7.6 Percentage of the Population Experiencing Food Shortage and Average Number of Months of Food Shortage Experienced in the 12 Months Prior to the Survey, Tanzania

Area	Not enough to eat ¹ (%)			Average number of months with food shortage		
	NPS 2014/15	NPS 2020/21	Sig ^a	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	42.1	31.0	***	3.4	3.2	**
<i>Rural</i>	45.2	31.2	***	3.4	3.1	*
<i>Urban</i>	34.6	30.5	*	3.6	3.3	n/s
Tanzania Mainland	43.1	31.6	***	3.4	3.2	**
<i>Dar es Salaam</i>	30.1	33.1	n/s	3.9	3.5	n/s
<i>Other Urban</i>	39.5	31.1	***	3.5	3.2	n/s
<i>Rural</i>	46.0	31.5	***	3.4	3.1	*
Zanzibar	9.8	9.3	n/s	2.5	2.7	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

¹Not enough to eat: This indicator is defined as a food shortage, or not enough food to feed the household, being reported at any time in the 12 months period prior to the survey, regardless of duration or severity of the shortage

7.5 Causes of Food Shortages

Food shortages can be attributed to several factors including drought or poor rains, crop pest, small land size, lack of farm input, expensive food, and a lack of money. In Tanzania, the two most common causes of food shortages were a lack of money and drought or poor rains.

Table 7.6 shows that for all causes of food shortages, the percentage of households reporting each cause has decreased at the national level. At the geographical area level, a few instances remain where the proportion of households reporting causes of food shortage increased, though the increases were small. For instance, those that reported small land size as the cause of food shortage in urban areas (overall) and Other Urban areas in Mainland (excluding Dar es Salaam) increased from 1.6 percent to 2.1 percent and 2.7 percent to 3.4 percent, respectively. Furthermore, between the NPS 2014/15 and NPS 2020/21, the proportion of households in Dar es Salaam reporting a lack of money as the cause of food shortage increased from 27.8 percent to 30 percent.

Generally, the percentage of households reporting food shortages by various causes decreased for both non-farm and farm households; however, there are vast differences in the causes for the two types of households. Expectedly, drought or poor rains was considerably more common as the cause of food shortage in farm households compared to non-farm households, despite a considerable decrease over time. For non-farm households, a lack of money was much more common as the cause of food shortage than for farm households.

Table 7.7 Percentage of Households Reporting Food Shortage by Cause, Area, and Farming Status, Tanzania

		Area and household farming status										
		Tanzania	Rural	Urban	Mainland	Dar es Salaam	Other Urban	Rural	Zanzibar	Household farming status	Farm ¹ Household	Non-farm Household
Drought, poor rains	NPS 2014/15	13.5	18.9	3.3	13.9	0.5	5.3	19.3	0.4		18.8	1.7
	NPS 2020/21	6.1	8.1	1.9	6.2	0.1	2.9	8.3	0.6		8.3	1.4
Crop pest	NPS 2014/15	1.3	2.0	0.0	1.3	0.0	0.0	2.0	0.0		1.9	0.0
	NPS 2020/21	1.2	1.7	0.2	1.2	0.0	0.3	1.7	0.0		1.7	0.2
Small land size	NPS 2014/15	5.1	6.9	1.6	5.2	0.0	2.7	7.0	0.0		7.0	0.6
	NPS 2020/21	4.7	6.0	2.1	4.9	0.0	3.4	6.2	0.0		6.6	0.8
Lack of farm input	NPS 2014/15	6.1	7.8	2.9	6.3	0.1	4.9	7.9	0.5		8.8	0.2
	NPS 2020/21	2.9	3.8	0.9	3.0	0.3	1.4	3.9	0.0		4.0	0.4
Expensive food	NPS 2014/15	5.0	4.2	6.5	5.1	6.6	7.0	4.3	0.1		4.1	7.1
	NPS 2020/21	1.8	1.9	1.6	1.9	1.3	1.9	1.9	0.7		1.8	1.9
No money	NPS 2014/15	22.6	21.3	25.2	23.1	27.8	24.8	21.6	7.5		20.8	26.8
	NPS 2020/21	19.5	16.5	25.9	19.9	30.0	25.0	16.6	7.3		16.0	27.1
Other	NPS 2014/15	6.2	8.0	2.7	6.3	0.9	3.9	8.2	0.9		7.2	3.9
	NPS 2020/21	4.0	5.0	1.7	4.1	1.9	1.8	5.2	0.0		4.8	2.2

¹A farm household is defined as any household where any member of the household cultivated a plot

7.6 Dietary Diversity

Understanding food groups consumed by Tanzanians is critical in understanding dietary diversity and nutrition status. The NPS collected information on ten different food groups commonly consumed by Tanzanians.

The average number of food groups consumed in Tanzania in 2020/21 was 7.7, a statistically significant decrease from 2014/15, where consumption of 7.9 food groups were reported. Similar decreases were apparent in all areas of the country. Dietary diversity decreased the most in Dar es Salaam, where the average number of food groups consumed fell from 8.7 in NPS 2014/15 to 7.8 in

NPS 2020/21. In the NPS 2020/2021, urban areas consumed the greatest variety of food groups (8.1), while rural areas consumed the least diversified diet (7.5).

Table 7.8 Average Dietary Diversity (Number of Different Food Groups Consumed), Tanzania

Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	7.9	7.7	***
<i>Rural</i>	7.6	7.5	n/s
<i>Urban</i>	8.5	8.0	***
Tanzania Mainland	7.9	7.7	***
<i>Dar es Salaam</i>	8.7	7.8	***
<i>Other Urban</i>	8.4	8.1	*
<i>Rural</i>	7.6	7.5	n/s
Zanzibar	8.1	7.7	**

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

[^] The total number of food groups possible is 10

7.7 Under-Fives Moderately or Severely Stunted (Height-for-Age)

Children who experience stunting have impaired growth and development as a result of poor nutrition, recurrent infections, and insufficient psychosocial stimulation. If a child's height for their age is more than two standard deviations below the WHO Child Growth Standards median, they are considered stunted. Depending on the method used to measure height, adjustments were made as appropriate (lying or standing). Included in this indicator is severe stunting, where height-for-age is more than three standard deviations below the median (-3 SD). Stunting has long-term effects on both people and economies, including poor cognitive and academic performance, low adult earnings, lost productivity, and an increased risk of chronic diseases.

All households with children ages 5 to 14 years had their weight and height measurements collected. Children under the age of five also had their Mid-Upper Arm Circumference (MUAC) measurements obtained in addition to their weight and height.

Table 7.8 summarizes the results of the above anthropometry assessment, presenting the percentage of stunting (height-for-age) in children under the age of five by area, sex, age, and survey wave (NPS 2014/15 and NPS 2020/21). Overall, nearly one-third of children in Tanzania are stunted (31.5 percent). However, the proportion of stunted children has decreased in all areas except Dar es Salaam, though none of these changes were statistically significant. A larger share of children under 5 years in rural areas were stunted (34.2 percent in NPS 2020/21) compared to children in urban areas (22.4 percent in NPS 2020/21). This suggests that efforts to fight stunting should be prioritized in rural areas rather than urban; however, work needs to continue nationwide in order to achieve the WHO target of less than 30 percent stunted children.

Table 7.9 Percentage of Stunting (height for age) of Children Under 5 years by Area, Sex, and Age, Percentage below -2 SD, Tanzania

Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	34.1	31.5	n/s
<i>Rural</i>	37.1	34.2	n/s
<i>Urban</i>	25.7	22.4	n/s
Tanzania Mainland	34.1	31.5	n/s
<i>Dar es Salaam</i>	23.7	25.5	n/s
<i>Other Urban</i>	25.6	20.6	n/s
<i>Rural</i>	37.2	34.2	n/s
Zanzibar	35.4	31.5	n/s
Gender			
<i>Female</i>	31.9	29.1	n/s
<i>Male</i>	36.4	33.8	n/s
Age groups			
<i>0-5 months</i>	9.2	10.8	n/s
<i>6-11 months</i>	26.6	19.3	*
<i>12-23 months</i>	42.8	38.3	n/s
<i>24-35 months</i>	43.0	39.8	n/s
<i>36-47 months</i>	34.1	33.5	n/s
<i>48-59 months</i>	31.4	28.4	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

7.8 Wasting (Weight-for-Height)

Wasting is defined as a weight-for-height z-score for children 59 months and younger who are more than two standard deviations (SD) below the median of the 2006 WHO Child Growth Standard. This includes wasting that is categorized as severe (-3 SD). Depending on the method of height measurement, adjustments to height were made as appropriate (lying or standing). Typically, wasting will occur when a child has not had food of adequate quality and quantity and/or they have had frequent or prolonged illnesses.

The percentage of children under five who are wasting is reported in Table 7.9. There have been significant improvements in wasting in Tanzania between the NPS 2014/15 and NPS 2020/21, as the percentage of children under the age of five who are wasting decreased from 4.9 percent to 3.4 percent. Similar improvements were observed in urban areas (5.6 percent to 3.0 percent), on the Mainland (from 5.0 percent to 3.3 percent), and among female children (5.0 percent to 3.4 percent). This indicates that efforts to address all forms of malnutrition are likely to be effective, and it is the country's obligation to maintain this value below the WHO recommendation of 5 percent.

Table 7.10 Percentage of Wasting (weight for height) of Children Under 5 Years by Area, Sex, and Age, Percentage below -2 SD, Tanzania

Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	4.9	3.4	**
<i>Rural</i>	4.7	3.5	n/s
<i>Urban</i>	5.6	3.0	*
Tanzania Mainland	5.0	3.3	**
<i>Dar es Salaam</i>	6.7	6.2	n/s
<i>Other Urban</i>	5.3	1.4	**
<i>Rural</i>	4.7	3.4	*
Zanzibar	3.5	6.6	n/s
Gender			
<i>Female</i>	5.0	3.4	*
<i>Male</i>	4.9	3.4	n/s
Age groups			
<i>0-5 months</i>	10.1	6.5	n/s
<i>6-11 months</i>	8.3	6.5	n/s
<i>12-23 months</i>	5.7	3.3	*
<i>24-35 months</i>	3.1	1.8	n/s
<i>36-47 months</i>	2.4	2.9	n/s
<i>48-59 months</i>	4.0	2.9	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

7.9 Underweight (Weight-for-Age)

WHO (2006) defines underweight as having a weight-for-age z-score that is more than two standard deviations below the median for children 59 months and younger. This includes cases of extreme underweight (below -3 SD). An underweight child may also be wasted, stunted, or both. In this section, underweight children in Tanzania are examined for NPS 2020/21 and NPS 2014/15.

Table 7.10 shows that 10.2 percent of children under 5 years of age in Tanzania are underweight. This represents a significant decline from the NPS 2014/15, where 13.2 percent of children were underweight. In both survey waves, children in rural areas (11.0 percent) were more likely to be underweight compared to children in urban areas (7.3 percent). The proportion of underweight children was also slightly high in Zanzibar (13.5 percent) than in Tanzania Mainland (10.1 percent), though the prevalence of underweight children on the Mainland has significantly improved. The proportion of children who are underweight has decreased among all age groups and significantly so for those 24-35 months.

Table 7. 11 Percentage of Underweight (weight for age) of Children Under 5 Years by Area, Sex, and Age, Percentage below -2 SD, Tanzania

Area	NPS 2014/15	NPS 2020/21	Sig
Tanzania	13.2	10.2	**
<i>Rural</i>	13.5	11.0	*
<i>Urban</i>	12.3	7.3	**
Tanzania Mainland	13.2	10.1	**
<i>Dar es Salaam</i>	11.8	12.3	n/s
<i>Other Urban</i>	12.4	4.4	***
<i>Rural</i>	13.5	11.0	*
Zanzibar	14.3	13.5	n/s
Gender			
Female	11.2	9.3	n/s
Male	15.2	11.0	**
Age groups			
0-5 months	4.0	1.5	n/s
6-11 months	11.3	8.9	n/s
12-23 months	15.3	11.6	n/s
24-35 months	15.1	10.2	*
36-47 months	12.1	11.3	n/s
48-59 months	15.7	11.4	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

7.10 Underweight (BMI) of Women of Reproductive Age (15 - 49 years)

Body Mass Index (BMI) is used to classify an individual as underweight, normal, overweight or obese. It is defined as the weight of the individual in kilograms divided by their height in meters squared (weight [kg]/height[m]²). This indicator is estimated for women of reproductive age between 15-49 years, regardless of their pregnancy status. A BMI of less than 18.5 indicates that the respondent is underweight for their height and that they may have a chronic energy deficiency while a BMI greater than 25 is considered overweight.

In the NPS 2020/21, approximately 8.5 percent of women of reproductive age (15-49 years) were underweight. This proportion was highest in rural areas and lowest in urban areas of the country in both survey waves. However, there was a statistically significant increase (of 1.9 percentage points) in the share of underweight women in urban areas compared to NPS 2014/15.

Table 7.12 Percentage of Underweight (BMI) Women of Reproductive Age (15 - 49 years) by Area, Inclusive of All Women 15-49 Regardless of Pregnancy Status¹, Tanzania

Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	8.3	8.5	n/s
<i>Rural</i>	9.7	8.9	n/s
<i>Urban</i>	5.6	7.5	**
Tanzania Mainland	8.2	8.4	n/s
<i>Dar es Salaam</i>	5.4	7.5	n/s
<i>Other Urban</i>	5.5	7.0	n/s
<i>Rural</i>	9.7	8.9	n/s
Zanzibar	10.0	11.6	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

¹A variable for currently pregnant was only collected in Round 5; these tables are inclusive of all women 15-49 regardless of pregnancy status

7.11 Overweight

The opposite of underweight is overweight (high weight-for-height), which represents a measure of over-nutrition. Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. Using BMI values, overweight is defined as $25.0 \leq \text{BMI} < 30$ while obese is defined as $\text{BMI} \geq 30$. Major risk factors include the development of several chronic diseases, including diabetes, cardiovascular diseases and cancer. This indicator is estimated for women of reproductive age between 15-49 years, and excludes currently pregnant women when possible.

Table 7.12 presents results on the overweight or obesity (BMI) status of women of reproductive age (15 – 49) years, excluding women who are currently pregnant when possible. Overall, 47 percent of women of reproductive age (15 -49 years) are overweight, a significant increase from NPS 2014/15 where 38.8 percent of women were overweight. Women in urban areas were more likely to be overweight than in rural areas (60.5 percent and 40.3 percent, respectively). Women in Dar es Salaam were the most likely to be overweight compared to women in all other areas.

Between NPS 2014/15 and 2020/21 there were large and statistically significant increases in the percentage of overweight/obese women of reproductive age in all areas of the country except Zanzibar. The findings reveal that the largest increase – of about 12 percentage points – was observed in overweight women in Dar es Salaam. The slight increase in proportion of women of reproductive age who are overweight in Zanzibar, from 55.0 percent to 56.1 percent between NPS 2014/15 and NPS 2020/21, was not statistically significant.

Table 7.13 Percentage of Overweight/Obesity (BMI) of Women of Reproductive age (15 - 49 years) by Area, Excluding Women 15-49 Who are Currently Pregnant (NPS 2020/21 only¹)

Area	NPS 2014/15	NPS 2020/21	Sig ^a
Tanzania	38.8	47.0	***
<i>Rural</i>	32.1	40.3	***
<i>Urban</i>	50.9	60.5	***
Tanzania Mainland	38.3	46.7	***
<i>Dar es Salaam</i>	52.7	64.9	***
<i>Other Urban</i>	49.6	57.6	***
<i>Rural</i>	31.5	40.1	***
Zanzibar	55.0	56.1	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

¹ A variable for currently pregnant was only collected in NPS 2020/21; these tables exclude currently pregnant women 15-49 in NPS 2020/21 (NPS 2014/15 remains inclusive of all women 15-49)

CHAPTER EIGHT

8.0 Agriculture and Livestock

8.1 Introduction

The economy of Tanzania to a great extent is dependent on agriculture. Data from the Economic Survey 2021 reported that the agriculture sector contributed to 26.1 percent of the national Gross Domestic Product (GDP). The agriculture sector includes crop production, livestock keeping, fisheries, and forestry. When disaggregated, the data shows that crop production contributed 14.6 percent, livestock contributed 7.0 percent, forestry contributed 2.8 percent, and fisheries contributed 1.8 percent.

This chapter presents basic findings on agriculture from the NPS 2020/21, including trends of major agricultural performance indicators since the previous round. It presents indicators on both crop and livestock farming activities, including major indicators such as yields of main food and cash crops, as well as area planted, area harvested, quantity harvested and quantity sold, application of irrigation, fertilizer, seeds and pesticides on farms, farm implements and machinery, and income from off-farm activities. The chapter also covers access to extension services, livestock ownership, tropical livestock units, occurrence of animal diseases, vaccination, deworming, prevention of ticks and treatment of animals, feeding practices, source of water, housing, and mating methods.

8.2 Productivity of Major Food Crops

8.1.1 Average Yields of Maize (kg/area planted and harvested in hectares) by Type of Plot

Yield is computed as the quantity in kilograms (kg) harvested per unit area (hectare). In this report, yields are presented using both planted area and harvested area. In addition, when possible, yields are presented using two methods of plot measurement: farmer reported area as well as GPS-based area.

Overall, the average yield of maize calculated using area planted was 1,041 kg/ha in NPS 2020/21, a slight increase (5.9 percent) from 983 kg/ha in NPS 2014/15. In the NPS 2020/21, average maize yields increased by 8.0 percent for intercropped plots, 15.5 percent for plots with organic fertilizer, and 5.4 percent for plots with any fertilizer. In contrast, the average yield decreased for pure stand plots (6.9 percent) and for plots using inorganic fertilizer (2.1 percent). In the NPS 2020/21, the highest average yield calculated using area planted was from plots with inorganic fertilizer (1,650 kg/ha) and the lowest average yield was from intercropped plots (936 kg/ha).

Average yields of maize calculated using area *harvested* also improved, increasing from 1,737 kg/ha in NPS 2014/15 to 1,871 kg/ha in NPS 2020/21. The average yield using area harvested increased for all types of plots: pure stand plots (0.7 percent), intercropped plots (9.5 percent), plots with organic fertilizer (10.9 percent), plots with inorganic fertilizer (9.6 percent), and plots with any fertilizer (10.2 percent).

In the NPS 2020/21, the highest average yield calculated using area harvested was from plots with inorganic fertilizer (2,587 kg/ha) and the lowest average yield was from intercropped plots (1,808 kg/ha) (Table 8.1).

Table 8.1 Average Yields of Maize using Area Planted and Area Harvested by Type of Plot, Tanzania

Type of Plot	Using Farmer Reported Plot Areas			
	Quantity Harvested/Area Planted ¹		Quantity Harvested/Area Harvested ²	
	NPS 2014/15	NPS 2020/21	NPS 2014/15	NPS 2020/21
All Plots	983.2	1,040.7	1,737.3	1,870.5
Pure Stand Plots	1,231.1	1,146.6	1,919.8	1,933.5
Intercropped Plots	866.7	936.1	1,651.5	1,808.3
Plots with Organic Fertilizer	1,180.0	1,362.9	2,033.4	2,255.0
Plots with Inorganic Fertilizer	1,685.2	1,649.7	2,360.1	2,587.2
Plots with Any Fertilizer	1,390.9	1,465.4	2,167.8	2,389.0

¹ Yields were calculated as the quantity harvested (kilograms) over the area planted in hectares

² Yields were calculated as the quantity harvested (kilograms) over the area harvested in hectares

[^] The quantity harvested and the area variables (area harvested and area planted) were each winsorized at five percent to adjust for any outliers prior to calculation of the yield

Table 8.1a compares the average yield of maize from plots using farmer reported plot areas against using GPS-based plots areas. For farmer reported plot areas, the average yield in NPS 2020/21 was 1,041 kg/ha, and for GPS-based plot areas, the average yield was 1,437 kg/ha. Both measurements resulted in increases between the two survey waves, from 983.2 kg/ha to 1040.7 kg/ha for farmer reported areas and from 1,239.8 kg/ha to 1,437.3 kg/ha for GPS-based area measurements.

Using GPS-based plot areas, maize plots that used inorganic fertilizer again had the highest yields (1,969 kg/ha). Similarly, the lowest yield was again observed in intercropped plots at 1,303 kg/ha when using GPS plot measurements (Table 8.1a).

Table 8.1a Average Yields¹ of Maize (Quantity Harvested/Area Planted in Hectares) by Type of Plot, Tanzania

Type of Plot	Using Area Planted in Hectares			
	Using Farmer Reported Plot Areas (Mean)		Using GPS-Based Plot Areas (Mean)	
	NPS 2014/15	NPS 2020/21	NPS 2014/15	NPS 2020/21
All Plots	983.2	1,040.7	1,239.8	1,437.3
Pure Stand Plots	1,231.1	1,146.6	1,517.6	1,596.1
Intercropped Plots	866.7	936.1	1,119.6	1,302.6
Plots with Organic Fertilizer	1,180.0	1,362.9	1,412.0	1,884.4
Plots with Inorganic Fertilizer	1,685.2	1,649.7	2,196.1	1,969.1
Plots with Any Fertilizer	1,390.9	1,465.4	1,710.8	1,845.3

¹ Yields for this table were calculated as the quantity harvested (kilograms) over the area planted in hectares

[^] The quantity harvested and the area variables (area harvested and area planted) were each winsorized at five percent to adjust for any outliers prior to calculation of the yield

Table 8.1b presents the average yield of maize calculated using area *harvested* in hectares for both farmer reported plot areas and GPS-based measurements. Maize plots that used inorganic fertilizer consistently had the highest yields, regardless of the type of measurement used.

Table 8.1b Average Yields¹ of Maize (Quantity Harvested/Area Harvested in Hectares) by Type of Plot, Tanzania

Type of Plot	Using Area Harvested in Hectares			
	Using Farmer Reported Plot Areas (Mean)		Using GPS-Based Plot Areas (Mean)	
	NPS 2014/15	NPS 2020/21	NPS 2014/15	NPS 2020/21
All Plots	1,737.3	1,870.5	1,801.7	1,737.5
Pure Stand Plots	1,919.8	1,933.5	1,894.3	1,831.7
Intercropped Plots	1,651.5	1,808.3	1,758.1	1,644.8
Plots with Organic Fertilizer	2,033.4	2,255.0	2,036.0	2,068.6
Plots with Inorganic Fertilizer	2,360.1	2,587.2	2,285.5	2,302.3
Plots with Any Fertilizer	2,167.8	2,389.0	2,134.6	2,140.6

¹ Yields for this table were calculated as the quantity harvested (kilograms) over the area harvested in hectares

[^] The quantity harvested and the area variables (area harvested and area planted) were each winsorized at five percent to adjust for any outliers prior to calculation of the yield

8.1.2 Average Yields of Paddy (kg/area planted and harvested in hectares) by Type of Plot

Similar to maize, the average yield of paddy was also computed for both area planted and area harvested. Using the area planted, the average yield of paddy was 2,287 kg/ha in NPS 2020/21, an increase (22.2 percent) from 1,871 kg/ha in NPS 2014/15. In the NPS 2020/21, the average paddy yield increased by 16.3 percent in pure stand plots and 59.6 percent in intercropped plots, compared to NPS 2014/15. Average yield decreased in plots with organic fertilizer (7.7 percent), plots with inorganic fertilizer (18.1 percent), and plots with any fertilizer at all (12.3 percent). As with maize,

the highest average paddy yield calculated using area planted was again from plots using inorganic fertilizer (3,002 kg/ha), while the lowest average yield was from intercropped plots (1,782 kg/ha) and plots using organic fertilizer (1,789 kg/ha).

When using area *harvested*, the overall average yield of paddy also increased (19.7 percent) between rounds, from 2,638 kg/ha in NPS 2014/15 to 3,159 kg/ha in NPS 2020/21. Specific increases in average yields using area harvested were seen in pure stand plants (13.5 percent), intercropped plots (91.5 percent), plots with inorganic fertilizer (19.5 percent), and plots with any fertilizer (12.8 percent). A decrease in the average yield of paddy was only observed in plots with organic fertilizer (3.0 percent).

Unlike maize and paddy yields using area planted, the highest average yield of paddy calculated using area harvested was from intercropped plots (4,125 kg/ha), while the lowest average yield was from pure stand plots (3,085 kg/ha) (Table 8.2).

Table 8.2 Average Yields of Paddy (Kilogram /Area Planted and Harvested in Hectares) by Type of Plot, Tanzania

Type of Plot	Using Farmer Reported Plot Areas			
	Harvested/Area Planted ¹		Harvested/Area Harvested ²	
	NPS 2014/15	NPS 2020/21	NPS 2014/15	NPS 2020/21
All Plots	1,870.9	2,286.9	2,637.7	3,158.6
Pure Stand Plots	1,998.3	2,324.7	2,718.9	3,085.2
Intercropped Plots	1,112.1	1,789.4	2,154.1	4,124.8
Plots with Organic Fertilizer	1,930.4	1,781.6	4,628.6	3,297.3
Plots with Inorganic Fertilizer	3,666.8	3,002.4	3,364.2	4,021.3
Plots with Any Fertilizer	3,039.6	2,665.9	3,772.9	3,886.2

¹Yields were calculated as the amount harvested (kilograms) over the area planted in hectares

²Yields were calculated as the quantity harvested (kilograms) over the area harvested in hectares

[^] The quantity harvested and the area variables (area harvested and area planted) were each winsorized at five percent to adjust for any outliers prior to calculation of the yield

Table 8.2a compares the average yield of paddy from plots using farmer reported plot areas against using GPS-based plots areas⁶. For farmer reported plot areas, the average yield in NPS 2020/21 was 2,287 kg/ha, and for GPS-based plot areas, the average yield in NPS 2020/21 was 2,250 kg/ha. Both measurements showed increases between the two survey waves from 1,870.9 kg/ha to 2,286.9 kg/ha for farmer reported areas and from 1,801.1 kg/ha to 2,250.4 kg/ha for GPS-based area measurements. Similar to maize, paddy plots that used inorganic fertilizer consistently had the highest yields and intercropped plots had the lowest yields, regardless of measurement type (Table 8.2a).

⁶ Yields for this comparison were calculated as the quantity harvested (kilograms) over the area planted in hectares

Table 8.2a Average Yields¹ of Paddy (Quantity Harvested/Area Planted in Hectares) by Type of Plot, Tanzania

Type of Plot	Using Area Planted in Hectares			
	Using Farmer Reported Plot Areas (Mean)		Using GPS-Based Plot Areas (Mean)	
	NPS 2014/15	NPS 2020/21	NPS 2014/15	NPS 2020/21
All Plots	1,870.9	2,286.9	1,801.2	2,250.4
Pure Stand Plots	1,998.3	2,324.7	1,969.4	2,343.0
Intercropped Plots	1,112.1	1,789.4	870.9	1,477.3
Plots with Organic Fertilizer	1,930.4	1,781.6	1,960.3	1,853.6
Plots with Inorganic Fertilizer	3,666.8	3,002.4	3,594.6	2,968.6
Plots with Any Fertilizer	3,039.6	2,665.9	2,940.6	2,610.5

¹ Yields for this table were calculated as the quantity harvested (kilograms) over the area planted in hectares

[^] The quantity harvested and the area variables (area harvested and area planted) were each winsorized at five percent to adjust for any outliers prior to calculation of the yield

Using farmer reported plot areas and area *harvested*, the average yield of paddy from all plots increased from 2,638 kg/ha to 3,159 kg /ha between NPS 2014/15 and NPS 2020/21. Using GPS-based plot areas and area harvested, the average yield of paddy from all plots increased from 2,280 kg/ha to 2,847 kg/ha. Table 8.2b presents the average yield of paddy calculated using area harvested in hectares for both farmer reported plot areas and GPS-based measurements. Paddy plots that were intercropped consistently had the highest yields, followed by those using inorganic fertilizer (regardless of the type of measurement used).

Table 8.2b Average Yields¹ of Paddy (Quantity Harvested/Area harvested in hectares) by Type of Plot, Tanzania

Type of Plot	Using Area Harvested in Hectares			
	Using Farmer Reported Plot Areas (Mean)		Using GPS-Based Plot Areas (Mean)	
	NPS 2014/15	NPS 2020/21	NPS 2014/15	NPS 2020/21
All Plots	2,637.7	3,158.6	2,280.1	2,847.2
Pure Stand Plots	2,718.9	3,085.2	2,347.3	2,728.2
Intercropped Plots	2,154.1	4,124.8	1,880.1	4,402.7
Plots with Organic Fertilizer	4,628.6	3,297.3	3,842.7	3,288.0
Plots with Inorganic Fertilizer	3,364.2	4,021.3	2,786.4	3,384.9
Plots with Any Fertilizer	3,772.9	3,886.2	3,124.2	3,450.2

¹ Yields for this table were calculated as the amount harvested (kilograms) over the area harvested in hectares

[^] The quantity harvested and the area variables (area harvested and area planted) were each winsorized at five percent to adjust for any outliers prior to calculation of the yield

8.3 Households using Irrigation by Method, Tanzania

The share of Tanzanian households that irrigated their plots remained fairly low at 3 percent across the two waves. The share of households using surface irrigation in all fields increased from 1.4 percent in NPS 2014/15 to 2.2 percent in NPS 2020/21. Likewise, the proportion of households using surface irrigation in paddy fields, in particular, have increased from 2.0 percent in NPS 2014/15 to 4.3 percent in NPS 2020/21. However, households using surface irrigation in maize fields decreased from 1.8 percent in NPS 2014/15 to 1.1 percent in 2020/21 (Table 8.3).

Table 8.3 Percentage of Households Using Irrigation by Area, Tanzania

NPS 2014/15	Area					
	Dar es Salaam	Other Urban	Mainland Rural	Mainland	Zanzibar	Tanzania
Share of households using irrigation	13.4	3.9	2.7	3.0	4.5	3.0
Share of fields using irrigation (surface)	7.3	2.8	1.2	1.4	2.4	1.4
Share of maize fields using irrigation (surface)	6.6	3.8	1.5	1.8	0.0	1.8
Share of paddy fields using irrigation (surface)	0.0	2.1	1.8	1.8	8.9	2.0
Number of households using irrigation	6	6	41	53	9	62
NPS 2020/21						
Share of households using irrigation	14.1	2.4	2.9	3.0	5.7	3.0
Share of fields using irrigation (surface)	11.8	1.8	2.2	2.2	4.2	2.2
Share of maize fields using irrigation (surface)	0.0	1.1	1.1	1.1	0.0	1.1
Share of paddy fields using irrigation (surface)	4.6	1.2	4.7	4.3	7.7	4.3
Number of households using irrigation	6	9	47	62	4	66

Farming households use different irrigation technologies for their crops, including flooding, sprinkler, bucket/watering can, water hose and drip irrigation. Table 8.4 shows that flooding was the most common method of irrigation, with nearly half (47.1 percent) of farming households that irrigated their crops in NPS 2020/21 employed this method. The results also indicate slight decreases (not statistically significant) in the shares of households using flooding and bucket/watering can, by 3.6 and 8.9 percentage points, respectively, from NPS 2014/15 to NPS 2020/21. However, there was a statistically significant increase of 10.9 percentage points in the proportion of farming households that used sprinklers as a means of irrigation in NPS 2020/21 compared to NPS 2014/15. The proportion of farming households that used drip irrigation increased by 3.9 percentage points between NPS 2014/15 and NPS 2020/21, however this change was not statistically significant.

Table 8.4 Percentage of Households Using Irrigation by Method, Tanzania

Method of irrigation	NPS 2014/15	NPS 2020/21	Sig ^a
Flooding	50.7	47.1	n/s
Sprinkler	1.0	11.9	**
Drip irrigation	0.0	3.9	n/s
Bucket/watering can	34.8	25.9	n/s
Water hose	7.6	8.0	n/s
Other	5.9	4.1	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

[^] The proportion of total plots using irrigation was too small to conduct analyses at smaller geographic disaggregates

Farming households in Tanzania use different sources of water for irrigation including wells, boreholes, ponds/tanks, and rivers/streams. The most common and stable source of irrigation in both NPS 2014/15 and NPS 2020/21 was river/stream, which was used by around 65 percent of farming households that irrigated their crops in both waves of the NPS as shown in Table 8.5. There was a statistically significant increase of 15 percentage points in the proportion of farming households using an uncategorized (other) water source, from 8 percent in NPS 2014/15 to 23 percent in NPS 2020/21. The proportion of households that used a *well* decreased by half, from 12.7 percent in the NPS 2014/15 to 6.5 percent in NPS 2020/21.

Table 8.5 Percentage of Households Using Various Sources of Water for Irrigation, Tanzania

Source of water	NPS 2014/15	NPS 2020/21	Sig ^a
Well	12.7	6.5	n/s
Borehole	3.2	1.1	n/s
Pond/tank	13.2	8.7	n/s
River/stream	64.8	64.7	n/s
Other sources	7.9	22.9	*

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

[^] The proportion of plots using irrigation was too small to conduct analyses at smaller geographic disaggregates

8.4 Use of Agricultural Inputs

Table 8.6 presents the proportion of farm households using different agricultural inputs (fertilizers, pesticides, and improved seeds) in crop production, by location. The use of organic fertilizer was most common in Dar es Salaam (31.9 percent), while inorganic fertilizer was most common in Zanzibar (33.7 percent). In Tanzania Mainland, more than 20 percent of households used pesticides/herbicides in NPS 2020/21, though this was much less common in Zanzibar (6.5 percent). The use of improved seeds in NPS 2020/21 remained relatively common in all areas of Tanzania

except in Dar es Salaam, where the proportion of households using improved seeds fell from 59.2 percent to 27.2 percent across the two waves.

The uptake of agricultural inputs between the NPS 2014/15 and NPS 2020/21 was most notable in Zanzibar, where the proportion of farming households using fertilizers, pesticides, and improved seeds all increased. In Zanzibar, the largest increases were in the use of any fertilizer (which increased by 29.5 percentage points between NPS 2014/15 and NPS 2020/21) and improved seeds (32.5 percent). Use of pesticides/herbicides, one of the least common inputs, increased in all areas except Dar es Salaam, which reported a slight decrease (from 16.9 percent in NPS 2014/15 to 13.5 percent in NPS 2020/21). While there was an increase in the use of both fertilizers and pesticides in Other Urban areas in NPS 2020/21, the stratum also reported a 10.9 percentage point decrease in the use of improved seeds. The data also show a decrease in the use of organic fertilizer in Mainland households and in Rural Mainland households, while the use of any fertilizer, inorganic fertilizer, and pesticides showed an increase in these strata. Nearly half of agricultural households used improved seeds, though as mentioned earlier, this was no longer a common practice in Dar es Salaam in 2020/21.

Table 8.6 Percentage of Farm Households Using Fertilizer, Seeds, and Pesticides by Area, Tanzania

	Area					
			Tanzania Mainland			
Type of fertilizer	Tanzania	Mainland	Dar es Salaam	Other Urban	Rural	Zanzibar
NPS 2014/15						
Any fertilizer	31.9	32.1	32.5	34.9	31.7	19.0
Using organic fertilizers	21.1	21.4	29.5	15.5	22.0	4.7
Using inorganic fertilizers	15.9	16.0	6.9	27.2	14.5	14.3
Using	13.3	13.5	16.9	9.5	14.1	0.4
Improved seeds	46.2	46.6	59.2	57.9	44.7	15.1
NPS 2020/21						
Any fertilizer	36.8	36.8	39.0	42.4	35.9	48.5
Using organic fertilizers	23.3	23.3	31.9	24.5	23.0	22.6
Using inorganic fertilizers	20.1	20.1	17.6	29.7	18.7	33.7
Using	20.4	20.5	13.5	20.6	20.6	6.5
Improved seeds	47.0	47.0	27.2	47.0	47.2	47.6

Findings from Table 8.6b further show that the proportion of farming households using any fertilizer have increased by 4.9 percentage points in NPS 2020/21. Over one-third (36.8 percent) of agricultural households in Tanzania used fertilizer in 2020/21, marking a statistically significant increase (31.9 percent) from 2014/15. The uses of pesticides/insecticides showed a 6.3 percentage points increase in NPS 2020/21 compared with NPS 2014/15, though this was statistically not significant.

Table 8.6b Percentage of Farm Households using Fertilizer, Seeds, and Pesticides, Tanzania

Type of fertilizer	NPS 2014/15	NPS 2020/21	Sig ^a
Any fertilizer	31.9	36.8	*
Using organic fertilizers	21.1	23.3	n/s
Using inorganic fertilizers	15.9	20.1	n/s
Using pesticides/insecticides	13.3	20.4	n/s
Improved seeds	46.2	47.0	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

8.5 Agricultural Mechanization

One of the major drawbacks to farmers' production and average yield is the reliance on hand hoe for land cultivation. Table 8.7 reveals that the share of farming households that own tractors declined to just 0.2 percent in NPS 2020/21 from 3.3 percent reported in NPS 2014/15. The use of tractors in land cultivation also fell to 6.8 percent in NPS 2020/21 from 8.9 percent in NPS 2014/15. In contrast, 96 percent of farming households owned a hand hoe and 94.3 percent used it in NPS 2020/21. Furthermore, the proportion of households that possess animal traction (ox plough, ox seed planter) decreased in NPS 2020/21 as compared to NPS 2014/15. There was also a slight decrease in usage and ownership of farming technologies, including tractor ploughs, tractor harrows, and threshers. In general, findings reveal that the majority of households used hand hoes for land cultivation, which limits cultivated land expansion and leads to low productivity. Less common farm implements included hand-powered sprayers (11.8 percent owned and 18 percent used), and jerry cans/drums (7 percent owned and 6.4 percent used).

Table 8.7 Percentage of Farm Households Owning/Using Farm Implements and Machinery, Tanzania

Type of farm implements	NPS 2014/15		NPS 2020/21	
	Owned item	Used item	Owned item	Used item
Hand hoe	97.8	97.9	96.2	94.3
Hand powered sprayer	8.3	13.6	11.8	18.0
Ox plough	12.9	33.3	12.8	25.8
Ox seed planter	14.4	32.2	0.0	0.2
Ox cart	0.1	0.0	3.4	8.1
Tractor	3.3	8.9	0.2	6.8
Tractor plough	0.4	6.8	0.2	3.4
Tractor harrow	0.3	4.7	0.0	0.0
Sheller/thresher	0.1	0.3	0.3	3.1
Hand mill	0.2	0.8	0.1	0.1
Watering can	1.0	0.8	1.1	1.0
Farm buildings	6.1	5.8	3.2	3.3
Jerry cans/drums	4.6	4.0	7.0	6.4
Power tiller	0.1	0.5	0.1	1.3
Other	55.7	53.8	6.5	8.6

8.6 Off-Farm Income Generating Activities

Income from off-farm sources include all economic activities in rural and urban areas except agriculture (crops) livestock, forestry, and fishing. It includes all off-farming activities such as processing, marketing, manufacturing, wage, and contributory local employment. These activities are conducted by the households to generate more income to raise their living standards.

Table 8.8 indicates the percentage of farm households earning income from off-farm activities by survey wave, source, and area in Tanzania. Nationally, nearly two-thirds (63.2 percent) of agricultural households had at least one member working in wage employment, an increase of 9 percentage points from NPS 2014/15 to NPS 2020/21. There was also an increase in the proportion of agricultural households earning income from *both* wage and self-employment by almost 5 percentage points of households. Furthermore, the findings reveal that farm households in urban areas continue to be more likely to earn income from non-farm sources than those in rural areas, which is in line with the findings in NPS 2014/15.

Generally, the trend shows that the proportion of farming households earning income from non-farm sources has been increasing since the fourth round (NPS 2014/15), except for those with income generated from self-employment alone, which showed a small decrease between the two waves.

Table 8.8 Percentage of Farm Households Earning Income from Off-Farm Activities by Wave, Source of Income, and Area, Tanzania

Round	Source of Income	Rural	Urban	National
NPS 2014/15	Wage	50.7	60.3	54.0
	Self-employment	42.3	64.1	49.8
	Both wage and self-employment	18.8	31.2	23.8
NPS 2020/21	Wage	61.7	66.4	63.2
	Self-employment	41.6	62.9	48.6
	Both wage and self-employment	24.2	36.8	28.3

¹If any member of the household is engaged in off-farm activities

[^] This table is calculated using agricultural households as the denominator

8.7 Cash Crops

Table 8.9 presents the average area planted, area harvested, quantity harvested, and yield (kg/ha) of major annual cash crops (cotton and tobacco). The results indicate that on average, 1.0 ha and 0.8 ha, which accounted for 58.8 percent and 72.7 percent of the area planted with cotton and tobacco, respectively, was harvested by households. The total production of cotton and tobacco were 495.9 kg and 938.5 kg, respectively, while the average yields were 431 kg/ha and 1,311 kg/ha respectively.

Table 8.9 Cash Crops Average Area Planted, Area Harvested, Quantity Harvested, and Yield, by Major Cash Crops, Tanzania, NPS 2020/21

Crop	Area Planted (Ha)	Area Harvested (Ha)	Quantity Harvested (KG)	Yield (KG/Ha)
Cotton	1.7	1.0	495.9	430.5
Tobacco	1.1	0.8	938.5	1,310.7

Nearly three-quarters (72 percent) of agricultural households sold paddy, followed by nearly half (47.1 percent) who sold beans. Maize and sorghum were sold by a smaller proportion of households, at 36.2 percent and 26.6 percent, respectively. Total sales were highest for paddy and maize, followed by beans (Table 8.10).

Table 8.10 Quantity Harvested and Sold, and the Total Value of Sales (TZS) by Crop, Tanzania, NPS 2020/21

Crop	Total quantity harvested (tonnes)	Proportion of households that sold crop (%)	Total quantity sold (tonnes)	Total value of sales (TZS)
Maize	4,610,624.4	36.2%	691,727.8	251,430,245.50
Beans	258,008.7	47.1%	63,730.0	73,627,517.85
Paddy	2,299,695.2	72.0%	838,481.3	446,332,698.38
Cassava ¹	-	-	-	-
Sorghum	115,244.7	26.6%	22,457.7	10,193,610.70

¹ There were no households that sold cassava

[^] The quantity harvested, quantity sold, and total value of sales were each winsorized at five percent to adjust for any outliers

8.8 Extension Services

The use of extension services in Tanzania was relatively uncommon during both waves. Moreover, the findings show that the use of extension services from government sources – the most common source – significantly decreased from 7.8 percent to 4.9 percent between the NPS 2014/15 and NPS 2020/21. However, the proportion of households receiving extension service from large scale farmers significantly increased from 0.6 percent to 1.5 percent in NPS 2020/21 (Table 8.11).

Table 8.11 Proportion of Households Receiving Extension Services, Tanzania

Source	NPS 2014/15	NPS 2020/21	Sig ^a
Government extension	7.8	4.9	***
NGO	1.6	0.7	*
Cooperative/Farmer's association	1.5	1.1	n/s
Large scale farmer	0.6	1.6	**
Radio/Television	3.1	1.2	**

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

8.9 Livestock

8.1.3 Households Currently Owning/Keeping Livestock by Type

In Tanzania, livestock, which includes cattle, goats, sheep, pigs and chicken, are categorized as either indigenous or improved livestock. Nationally, chickens were the most kept indigenous livestock, with almost 43 percent of households owning chickens in NPS 2020/21, also marking an increase from 39.4 percent in NPS 2014/15. Improved species were rarely owned, with just 4.3 percent of agricultural households owning improved pigs, and 1.6 percent owning improved cattle in the NPS 2020/21 (Table 8.12).

Table 8.12 Percentage of Households Currently Own/Keep Animals by Type (Indigenous/Improved), Area, and Round

Type	NPS 2014/15						NPS 2020/21					
	Tanzania	Mainland	Dar es Salaam	Other Urban	Mainland Rural	Zanzibar	Tanzania	Mainland	Dar es Salaam	Other Urban	Mainland Rural	Zanzibar
Indigenous												
Cattle	17.3	17.6	0	4.4	25.2	7.3	14.4	14.6	0.3	4.1	25.2	5.6
Goats	17.9	18.3	0.5	6.4	25.6	1.8	14.4	14.8	0.8	4.2	25.6	1.7
Pigs	0	0	0	0	0	0	0	0	0	0	0	0
Sheep	7.7	7.9	0	0.8	11.7	0	6.3	6.5	0	2.2	11.7	0
Chicken	39.4	40.5	12	20.4	52.4	2.1	42.8	43.4	14.4	24.8	52.4	19.1
Improved												
Cattle	1.6	1.6	0.6	1.7	1.7	1.0	1.6	1.6	0.4	1.1	1.7	1.4
Goats	0.4	0.4	0.5	0.3	0.3	0	0.1	0.1	0	0	0.3	0
Pigs	3.5	3.6	0	1.6	4.9	0	4.3	4.4	0	1.6	4.9	0
Sheep	0	0	0.1	0	0	0	0	0	0	0	0	0
Chicken	0.8	0.8	0.2	0.2	1.1	0.3	0.4	0.4	0.5	0.6	1.1	0.7

8.1.4 Animal Health

Animal health is vital for increased animal performance and productivity. Ensuring farmers have the necessary tools, like modern vaccines, medicines, treatments, and access to veterinarians is essential in meeting this goal. The current findings indicate that a high percentage of households that own livestock reported the occurrence of poultry diseases – namely New Castle Disease (43.8 percent) and Fowl pox (8.7 percent). A further 5.0 percent of households with livestock reported the occurrence of diseases caused by worm infestations (Helminthiasis). CBPP, CCPP, FMD and ECF were also among diseases reported by households with livestock (6.1 percent, 5.5 percent, 3.1 percent and 2.2 percent, respectively).

Livestock owners also reported zoonotic diseases – namely Rabies, Anthrax, and Brucellosis (0.9 percent, 0.6 percent, and 0.3 percent, respectively) – though these were much less common.

Households who reported the occurrence of other diseases was just 2.8 percent. More than half of the households who owned livestock reported the occurrence of diseases as shown in Table 8.13.

Table 8.13 Percentage of Households Reporting Occurrence of Animal Diseases, Tanzania

Livestock diseases	NPS 2020/21	
	% <u>of</u> all households	% <u>of</u> households that owned livestock
Brucellosis (Ugonjwa wa kutupa mimba)	0.2	0.3
CBPP (Homa ya mapafu)	3.0	6.1
Lumpy skin disease (Mapele ngozi)	1.6	3.1
CCPP (Homa ya mapafu kwa mbuzi)	2.7	5.5
ECF (Ndigana kali)	1.1	2.2
Rabies (Kichaa cha mbwa)	0.5	0.9
FMD (Ugonwa wa miguu na midomo)	1.5	3.1
Anthrax (Kimeta)	0.3	0.6
BQ (Chambavu)	0.1	0.1
New Castle Disease (Kideli/Mdondo)	21.7	43.8
Fowl pox (Ndui)	4.3	8.7
Gomboro (Gumboro)	1.0	2.0
Helminthiosis	2.5	5.0
ASF (Homa ya nguruwe)	0.3	0.6
Tick borne disease	0.4	0.8
Typanosomiasis	0.3	0.6
Foot rot	0.8	1.6
Tetanus	0.0	0.0
Mange	0.2	0.4
Anaemia	0.0	0.0
Canine distemper	0.1	0.2
Others	2.8	5.6

Table 8.14 presents the proportion of households who vaccinated, dewormed, prevented ticks, and treated their animals. Generally, in Tanzania, 42.3 percent of households vaccinated all their livestock at least once a year. A further 32.4 percent of households reported deworming all their animals at least once a year, while 21.9 percent used tick prevention measures on all their animals. Households in Zanzibar appear to have less informed management practices in livestock keeping compared to Tanzania Mainland.

Table 8. 14 Percentage of Households Reported to Vaccinate, Deworm, Prevent Ticks and Treat Animals, Tanzania, NPS 2020/21

	NPS 2020/21					
	Tanzania	Mainland	Tanzania Mainland			Zanzibar
			Dar es Salaam	Other Urban	Rural	
Vaccination						
All animals at least once	42.3	42.5	29.1	43.3	43.0	18.4
Some animals	7.3	7.4	4.3	3.3	8.1	3.1
Deworming						
All animals at least once	32.4	32.5	27.2	28.3	33.3	27.0
Some animals	5.3	5.4	4.4	2.1	5.9	1.6
Tick's preventative measures						
All animals at least once	21.9	22.0	8.1	13.0	23.9	16.1
Some animals	1.6	1.6	1.2	1.4	1.7	2.9
Disease treatment						
All animals at least once	12.2	12.2	6.4	14.3	12.2	8.3
Some animals	3.5	3.5	1.2	2.9	3.7	2.9

8.10 Feeding, Housing Practices and Water Sources

For households that keep/own livestock, it is important to consider the feeding practices, housing conditions and availability of water sources for livestock. Utilizing good practices enable the animals to have good health and improves their productivity. The findings from NPS 2020/21 showed that 75.4 percent of households feed their livestock with a zero-grazing method. About 15 percent of livestock owning households used a free-range method, while both zero grazing and free-range methods were practiced by 27 percent of households.

Approximately 45 percent of households in Zanzibar used tap water for animals as compared to 22 percent of the households in Tanzania Mainland. Other prominent sources, though less common, include well, borehole, and river, which were used as water sources for livestock in 17.2 percent, 13.2 percent, and 11.2 percent of households in Tanzania, respectively. The most common forms of housing for livestock included sheds, inside the house, and in paddocks. About half the households reported that their animals are living in sheds (53 percent) and inside the house (48 percent), as shown in Table 8.15. Sheds were the most common form of housing in Dar es Salaam (80.2 percent) and Other Urban areas (69.2 percent), while very few households in these areas used paddocks. Keeping animals inside the households' dwelling was the most common form of animal housing in Mainland Rural areas.

Table 8.15 Percentage of Households Reporting Different Feeding Practices, Sources of Water, Housing and Mating Methods, Tanzania, NPS 2020/21

	NPS 2020/21					
	Tanzania	Mainland	Tanzania Mainland			Zanzibar
			Dar es Salaam	Other Urban	Rural	
Feeding practices						
Feeding	75.4	75.3	33.6	65.3	78.6	83.4
Grazing	15.2	15.3	16	19.4	14.7	4.1
Feeding and grazing	27.2	27.2	55.9	30.9	25.4	21.1
Source of water						
Tap water	22.4	22.2	47.3	44.1	17.9	44.7
Borehole	13.2	13.3	35.4	9.3	12.9	5.3
Dam	3.6	3.6	0	2.2	4	0
Well	17.2	17.3	7.9	16.1	18	6.4
River	11.2	11.3	2	7.8	12.3	0.7
Spring	4.5	4.5	2.6	0.3	5.2	0
Stream	3.3	3.4	0	3.1	3.5	0
Constructed water points	2.8	2.9	0	0	3.4	0
Rain water	3.1	3.1	0	1.4	3.5	0
Housing						
Sheds	53.4	53.4	80.1	69.2	49.9	53.4
Paddocks	23.5	23.5	1.6	8.9	26.6	19.5
Fence	4.5	4.6	0	1.6	5.2	0
Cage	0.4	0.4	0	0	0.4	0
Basket	0.2	0.2	2.8	0	0.1	0
Other	3.5	3.5	0	1.2	4.0	0.2
Inside the house	48.0	48.2	16.0	35.0	51.5	35.3
Mating methods						
Natural - own	28.9	29.1	44.6	33.7	27.8	14.2
Natural –	6.4	6.4	0.9	10.2	6.1	4.7
Artificial Insemination	0.4	0.4	1.2	1.4	0.2	0.7

8.11 Tropical Livestock Unit (TLU)

Tropical Livestock Units (TLU) are livestock numbers converted to a common unit. TLU is employed to fulfill different purposes such as: regulating land carrying capacity, observing stocking rates, identifying vulnerable populations in consideration of climate change and effects on food security, as well as an indicator for the predictor of wealth or diversification of income. The results show that there was no significant change in TLU between the NPS 2014/15 and NPS 2020/21, nationally or for any domain as shown in Table 8.16.

Table 8. 16 Tropical Livestock Unit (TLU) by Wave and Area, Tanzania

Area	NPS 2014/15	NPS 2020/21	Sig^a
Tanzania	1.2	1.1	n/s
<i>Rural</i>	1.7	1.5	n/s
<i>Urban</i>	0.3	0.3	n/s
Tanzania Mainland	1.2	1.1	n/s
<i>Dar es Salaam</i>	0.1	0.1	n/s
<i>Other Urban</i>	0.5	0.5	n/s
<i>Rural</i>	1.7	1.5	n/s
Zanzibar	0.2	0.3	n/s

^a Differences found to be statistically significant are indicated by level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; n/s = not significant

APPENDICES

Appendix A: Methodology for Consumption Aggregates

Consumption rather than income is used to measure the welfare of households in NPS. This Appendix outlines the principles involved in the construction of the consumption measure and describes the components and estimation procedure of the nominal household consumption expenditures. The methodology used for the NPS 2020/21 is identical to the methodology used for the NPS 2014/15 so that the aggregates for two rounds are broadly comparable. Note, however, that due to differences in the methodology these two aggregates are not comparable to the ones constructed for earlier rounds. In addition, due to plans to include rent and durables in upcoming consumption aggregates, efforts were made to include rent and durables in the NPS 2020/21. We also reconstructed the aggregates for NPS 2014/15 to include rent and durables. Thus, any comparative analysis using the NPS 2014/15 and NPS 2020/21 should use the new consumption aggregates, *consumption_real_y4* and *consumption_real_y5* respectively.

1.1 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 welfare 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, and for frequently used non-food items, it is usual to assume that all purchases are consumed. However, for other goods and services, such as housing or consumer durable goods, imputations have to be made to approximate consumption. 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 adjusted and reported for the period of 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 or a payment for a work, etc. 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, called unit values, can be obtained by dividing the monetary amount spent by the quantity purchased. Then the unit values are multiplied by quantity of food-item consumed by a household from different sources: self-produced, received as a gift or as a payment. The food component of the aggregate is a sum of imputed values of food consumption, across all food items the household consumed in the last 7 days, from all sources. The food consumed outside of home is valued as a sum of monetary expenditures on meals by all members of household.

1.2 Non-food component

Expenditure data on a wide range of non-food items are available in the NPS, 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.

Education expenditures are important component of the consumption aggregate and include all education related expenses from pre-school to tertiary education levels: school fees, uniform, textbooks, meals and lodging, transport, private tutoring and other expenses incurred while obtaining education. Education expenses were recorded for most recent school/academic year.

The NPS captures the health care seeking behaviour of households. Health expenditures are recorded on consultations, medicines, laboratory exams, hospitalization charges, transport and other out of pocket cost related to the health care. Elsewhere the motivation for excluding the health-related expenditures from aggregate is linked to consideration of health cost as a “regrettable necessity”. If a member of household falls ill and incurs medical expense this will increase total expenditures and therefore household’s assumed level of welfare when in fact, the opposite may be the case. Thus, to avoid the bias in ranking of households the decision was to exclude hospitalization or extraordinary medical related cost, but include current health care cost, like regular medicine, consultations, etc.

Non-food expenditures are valued at the purchase or self-reported acquisition value. Depending on the recall period the expenditures are annualized by a factor of $(365/7)$ for 7-day recall items or $(12/1)$ for one month recall items, except for a few items, like education which were calculated without annualization

1.3 Durable goods

Utilization of consumer durable goods (versus agricultural or other productive equipment), such as telephones, beds, bicycles, motorcycle, cars, air conditioners, etc., is an important component of the household welfare. Given that these goods last for many years, the expenditure on purchases is not the proper measure to consider. The right measure to estimate, for consumption purposes, is the

stream of services and benefits that households derive from the use of all consumer durable goods in their possession over the relevant reference period, normally over a year. This flow of utility is unobservable, but it can be assumed to be related to the value of the good and thus statistically imputed. The imputation is based on the hypothetical experiment whereby, on the one hand, household sells the good and obtains the interest gains and on the other hand, household benefits from using the good, but foregoes interest gain, and incurs the depreciation of the good. Difference between these two components reflect the cost the household is willing to pay to utilize the durable good. Mathematically the value of durables consumption could be approximated by the following formula: $p_t(r_t + \delta_t)$, where p_t is current value of the durable item, r_t is real interest rate (i.e., adjusted for inflation) and δ_t is annual depreciation rate for the durable item, which needs to be also imputed:

$$\delta = 1 - \left(\frac{p_t}{p_0}\right)^{1/t}.$$

Information on the number of the consumer durable goods owned, their age, and their likely value (current and original) is required to estimate the user cost of durables. Unfortunately, rounds 1 and 2 of the NPS only provide data on the number of durable goods owned by the household, while rounds 3, 4, and 5 asked for all required information - the number owned, age, and value. Calculating this consumption component in previous rounds would have involved making assumptions about their age, current value and lifespan. This might have resulted in an extremely imprecise estimation; thus, it was decided to exclude this component from the consumption aggregate in previous rounds. However, given availability of data and the importance of the durables for consumption aggregate, the flow of services from the use of consumer durables good was imputed and included in the NPS 2014/15 and NPS 2020/21 to ensure comprehensiveness of the welfare aggregate.

1.4 Housing

Living in a good dwelling with good housing conditions is considered to be an essential part of people's living standards. As in the case of durable goods, the objective is to measure the flow of services received by the household from occupying its dwelling. Housing cost is defined as (implicit) value or benefit that household receives from occupying a dwelling and not the expenditures on purchasing the dwelling itself. 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 households rent dwellings, imputations can be made for those households 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. In Rounds 4 and 5, both actual and potential rents are reported, which makes it possible to impute or predict the housing rent, based on hedonic regression model. The dependent variable is actual rent paid in logarithmic form, regressed on a set of housing characteristics variables like, location, number of rooms, material of roof, material of floor, material of wall, amenities/utilities (toilet, water sources, garbage collection etc.). The imputed rent is a predicted value of housing from regression, that was transformed back into TSh terms from log form, using Duan-Smearing method and applied to the households that own the housing or do not pay rent for dwelling. The challenge in estimating the rent is that rental market in some areas specifically in rural areas is quite thin. To overcome this, the hedonic model is applied at more aggregated strata levels, instead of disaggregated region levels.

1.5 Price adjustment

To ensure inter-household utility comparability, nominal consumption expenditures of the household must be adjusted for cost-of-living differences across space and time. To this end, temporal and spatial price adjustments are implemented to render consumption in real terms. Temporal differences are associated with the duration of the fieldwork (TSh 1,000 in January 2021 may not have the same value as in August 2021) 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)⁷. 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 data required to construct the price index 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 available 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 prices follow the same temporal and spatial differences as 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 (for 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).⁸ Price indices were estimated by stratum (an area) 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 only a few households were interviewed. In this context, price indices by stratum and quarter is the second best solution. 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

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

⁷ In the NPS 2020/21, the number of interviews conducted in December 2020 and January 2022 were negligible; therefore, these have been reallocated to the January 2021 and December 2021 months, respectively, for simplicity of quarter definitions.

⁸ See Deaton and Tarozzi (2000).

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 10 households by stratum and quarter (i.e., available record of 10 transactions) were included in the construction of the price indices. 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 A1: Fisher food price indices by stratum and quarter, NPS 2008/09 – NPS-SDD 2020/21

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

NPS 2014/2015	Oct-Dec 2014	Jan-Mar 2015	Apr-Jun 2015	Jul-Sep 2015
Dar es Salaam	1.00	1.09	1.15	1.18
Other urban	0.93	0.98	1.01	1.05
Rural	0.94	0.91	0.98	0.94
Zanzibar	0.89	0.86	0.85	0.99

NPS 2020/2021	Jan-Mar 2021	Apr-Jun 2021	Jul-Sep 2021	Oct-Dec 2021
Dar es Salaam	1.11	1.03	1.07	1.11
Other urban	1.02	0.99	1.00	1.05
Rural	0.97	0.99	0.96	1.00
Zanzibar	1.01	1.07	1.06	1.04

1.6 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 objective 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. While there is no agreement on a consistent methodology to calculate these scales, it is important to maintain the same scale across rounds. Most scales 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.⁹

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

⁹ See Deaton and Muellbauer (1986) or Deaton (1997).

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.

Welfare 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.

Table A2: Adult-equivalent scale by gender and age used in NPS

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 B: Standard Errors and Confidence Intervals for Selected Indicators

GINI COEFFICIENT, CONFIDENCE INTERVALS

Area	NPS 2014/15			NPS 2020/21		
	Gini	Lower CI	Upper CI	Gini	Lower CI	Upper CI
Tanzania	.416	.391	.441	.444	.403	.485
<i>Rural</i>	.399	.349	.448	.390	.361	.420
<i>Urban</i>	.340	.320	.361	.428	.360	.496
Tanzania Mainland	.419	.393	.445	.447	.405	.490
<i>Dar es Salaam</i>	.413	.317	.509	.385	.343	.427
<i>Other Urban</i>	.352	.325	.379	.387	.341	.432
<i>Rural</i>	.339	.318	.360	.429	.360	.496
Zanzibar	.301	.277	.324	.327	.283	.372

Persons involved in the 2020/21 National Panel Survey (NPS)

Survey Director	Dr. Albina Chuwa
Survey Coordinator	Emilian Karugendo/ Mlemba Abassy
Field Coordinator	Jocelyn Rwehumbiza / Khamis Abdul-rahman Msham
Data Manager	Ariv Severe/ Hashim Uzia
Assistant Data Manager	Yasinta Kafulila/ Rajab Sollo
Quality Control	David Danda/ Hellen Mtove / Magreth Maganda / Mariam Edmund / Phausta Ntigiti / Elide Mwanri / Tumaini Kalindile / Samuel Mwiru / Sylvia Meku/ John Mwangi/ David Mwaipopo/ Lemian Makori Alais/ Margreth Jacob/ Jillahoma Mussa/ Benjamin Kalekezi/ Elienea Mnguruta/ Loyce Lubonera/ Aleswa Zebedayo/ Zukhula Mlula/ Joyce Msoka.
Technical Advisors	Akuffo Amankwah, Amparo Palacios-Lopez, Darcey Johnson, Josephine Ofori Adofu, Maryam Gul, Gero Carletto, and Robert Swinkels

Supervisors / Enumerators / Drivers

Team 1	Team 2
Arusha, Manyara, Kilimanjaro, Tanga	Dar es Salaam, Pwani, Morogoro
Hemed S. Nkunya (Supervisor)	Kulwa Namkaa & Lathma Iddy (Supervisors)
Boi Salum	Hamdani Mosha
Jennifer Kakande	Hassanal Mohamed
Amina Twaha	Augustino Mathew
Ahmadi Toufiq	Getruda Emil Antony
Rashid Kamwe	Salma A. Ramadhani
David Ngirwa	Joseph Mgonja
August Elias	Philipo Sagamilwa
Stephen Maganga (Driver)	Benjamin Makasi (Driver)
Team 3	Team 4
Elias L. Bugumba (Supervisor)	Suma R. Tebela (Supervisor)
Dorice Godfrey Chambai	Samweli Mande
Jeremia Daniel Mfugwabo	Dorice Kalumuna
Hussein Sururu	Titus Aloyce
Grace Wella	Frank Lyimo
Done Jones	Colman Nyaki
William Sanga	Iness Tibenda
Seleman Hamis Mhando (Driver)	Filbert Munish (Driver)

Supervisors / Enumerators / Drivers

Team 5

Bahati Majaliwa Yusuph (**Supervisor**)
 Josephat Riite
 Godfrey S. Mwamasangula
 Rahim Mwere
 Rose Nyabukika
 Muhusin Iddi Abdallah
 Baraka Pearson
 Eliza C. Ngindo
 Abraham Karume (**Driver**)

Team 6

Salehe Chivanga Dadi (**Supervisor**)
 Benjamin Tesha
 Karim Mkombozi
 Grace Assenga
 Rajabu Wamara Hussein
 Flora Gabriel
 Twaha Biame
 Baruani Bakila
 Abdallah Panga (**Driver**)

Team 7

Happiness Magagula (**Supervisor**)
 Frank Mhando
 Grayson Barnabas
 John Bosco Swai
 Gonza Wilfred
 Hafidh Haruna Soud
 Emmanuel Getorare
 Wignus Mwangosi
 Joel Renatus (**Driver**)

Team 8

Rabia O. Said (**Supervisor**)
 Riziki Abdulla Haji
 Khatibu Jumbe Khatibu
 Omary Kasim Sleyum
 Khytham Ali Juma
 Ahmed Mwalim Mahfoudh
 Hidaya Mwalimu Juma
 Riziki Abdulla Haji
 Diwani Mrisho (**Driver**)

Chapter Writers

<i>Name</i>	<i>Institution</i>
<i>Abdallah Hussein</i>	University of Dodoma
<i>Aleswa Zebedayo</i>	Tanzania Food and Nutrition Centre
<i>Thabitha B. Kitingu</i>	Ministry of Livestock
<i>Beniamin Kalekezi</i>	Ministry of Agriculture
<i>Hilder Jacob Mwakatumbula</i>	REPOA
<i>Edith Mbatia</i>	Former UNICEF
<i>Goodiel Charles Moshi</i>	University of Dodoma
<i>Lemian Makori Alais</i>	East African Statistical Training Centre
<i>Emilian Karugendo</i>	NBS
<i>Jocelyn Rwehumbiza</i>	NBS
<i>Hellen Mtove</i>	NBS
<i>Magreth Maganda</i>	NBS
<i>Stephano Cosmas</i>	NBS
<i>Samuel Kawa</i>	NBS
<i>Mashini Milimo</i>	NBS
<i>Ariv Severe</i>	NBS
<i>Elide Mwanri</i>	NBS
<i>Magreth Jacob</i>	NBS
<i>Tumaini Mwakalindile</i>	NBS
<i>John Mwangi</i>	NBS
<i>Yasinta Kafulila</i>	NBS
<i>Johnia Kakiziba</i>	NBS
<i>Khamis Abdul-rahman Msham</i>	OCGS
<i>Rabia Omar said</i>	OCGS
<i>Shari. Khaatib Faki</i>	OCGS
<i>Ramadhan Ali Hassan</i>	OCGS

