

Results of Sample Vital Registration with Verbal Autopsy to Improve Malawi's Health Programs

May 2018



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This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of the MEASURE Evaluation cooperative agreement AID-OAA-I-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. TR-18-246

ISBN: 978-1-64232-020-6











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ACKNOWLEDGMENTS

This Sample Vital Registration with Verbal Autopsy (SAVVY) study would not have been possible without the generous contributions of our local partners and colleagues. We thank our colleagues from the Malawi National Statistical Office and the Ministry of Health's Central Monitoring and Evaluation Division. We are also indebted to the other stakeholders in the vital statistics arena, including the National Registration Bureau, the Karonga Prevention Study, and the Bloomberg Data for Health Initiative, who provided crucial input in the process and the results. We thank the interviewers and the respondents who took the time to contribute to knowledge in Malawi.

Funding for this work was provided by the United States Agency for International Development (USAID) and the United States President's Emergency Plan for AIDS Relief (PEPFAR). We appreciate the technical support that our USAID colleagues provided and the collaboration of the United States Census Bureau.

We thank MEASURE Evaluation's knowledge management team for editorial and production services.

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ABBREVIATIONS

ANC	antenatal care
ARI	acute respiratory infection
ART	antiretroviral therapy
ASFR	age-specific fertility rate
CMED	Central Monitoring and Evaluation Division
CRVS	civil registration and vital statistics
EA	enumeration area
HMIS	health management information system
HSSP	Health Sector Strategic Plan
ICD-10	International Classification of Diseases and Related Health Problems, 10th
	Revision
IPT	intermittent presumptive treatment
IRS	indoor residual spraying
ITN	insecticide-treated bed nets
MDHS	Malawi Demographic and Health Survey
M&E	monitoring and evaluation
MMR	maternal mortality ratio
MOH	Ministry of Health
NCD	noncommunicable disease
NSO	National Statistical Office
NRB	National Registration Bureau
PEPFAR	United States President's Emergency Plan for AIDS Relief
RDT	rapid diagnostic testing
SAVVY	Sample Vital Registration with Verbal Autopsy
SI	strategic information
USAID	United States Agency for International Development
VA	verbal autopsy
WHO	World Health Organization

EXECUTIVE SUMMARY

Vital statistics serve as an important data source for both government and nongovernmental entities to plan health programs. Specifically, measurement of causes of death are essential to understanding the health of a nation and where greater resources are needed to ensure that services prevent avoidable deaths. Measuring trends in cause of death helps countries like Malawi recognize the successes, failures, and opportunities related to health policies and initiatives.

Malawi has a nascent vital statistics system and lacks sufficient data on national and subnational level causes of death. While the vital statistics system is being gradually built, the interim solution for collecting quality data on causes of death is being applied. This is Sample Vital Registration with Verbal Autopsy (SAVVY), a sample-based vital registration system. Strengthening vital statistics is identified as a necessary key intervention in the Government of Malawi's 2017 to 2022 Health Sector Strategic Plan II (HSSP II) (Government of the Republic of Malawi, 2017).

The objective of SAVVY in Malawi is to provide nationally representative estimates of age- and sexdisaggregated cause-specific mortality fractions. It relies on community-based data to capture both hospitaland community-based deaths. SAVVY is designed to collect reliable and timely data that illuminate current mortality issues to inform policies, programs, and monitoring and evaluation of health programs. In the Malawi context, objectives also included creating awareness of vital statistics, contributing to the development of the vital statistics program, and building capacity within the Government of Malawi to implement mortality surveillance. The baseline survey for SAVVY was implemented by the National Statistical Office (NSO) and the Central Monitoring and Evaluation Division (CMED) of the Ministry of Health (MOH), with technical assistance from the United States Census Bureau and the United States Agency for International Development- and United States President's Emergency Plan for AIDS Relief (PEPFAR)-funded MEASURE Evaluation. Funding for this work came from PEPFAR.

A representative sample for the study and ongoing SAVVY surveillance was selected from a sampling frame comprised of listing information from the 2008 Malawi Population and Housing Census (National Statistical Office, 2008). The sample was designed to be representative at the urban/rural and zonal levels. A baseline enumeration census was completed in late 2014 to collect basic information on household residents, as well as death events. Health surveillance assistants then applied the World Health Organization (WHO) standardized verbal autopsy questionnaires to households where a death had been reported. Respondents were the caretakers of the deceased at the time of death or someone else who was knowledgeable about the death. A team of physicians reviewed the verbal autopsy data on an ongoing basis throughout fieldwork and assigned a cause of death according to International Classification of Diseases and Related Health Problems 10th Revision (ICD-10) standards.

The baseline SAVVY census (the initial stage of data collection) provides essential household characteristics, as well as denominators for fertility and mortality indicators. Interviews were completed at 170,417 households, most of which were in rural areas. Results of the baseline census show that the average household size is 4.6 and the total fertility rate is 3.8. Rural residents marry earlier than their urban counterparts, and women in general are more likely to be widowed. By the age of typical educational

completion (25–29), 65.4 percent had completed primary school, 30.7 percent secondary, and 3.9 percent postsecondary. Self-employment was the largest share of employment status, with many respondents working into old age. Orphans, where one or more parent is deceased, made up 7.6 percent of respondents below age 18. Reported deaths over the previous 12 months suggest a crude death rate of 6.8 deaths per 1,000. The infant mortality rate was 46.3 deaths per 1,000 live births, and the under-five mortality rate was 75.6 deaths per 1,000 live births.

Verbal autopsy results highlight the causes of death in Malawi. The leading cause of death nationally is malaria (18.5%), followed by HIV-associated illnesses (13.8%), injuries and accidents (6.5%), and diseases of the circulatory system (5.9%). There is variation in the leading causes of death by place of residence. Urban areas see a higher burden of HIV-related illnesses compared to rural areas (22.9% and 12.9%, respectively), and rural areas see a higher burden of malaria-related deaths than urban areas (19.5% and 9.2%, respectively). Additionally, HIV-related deaths are higher among women than among men (14.5% and 13.4%, respectively), but men share the larger burden of deaths associated with injuries and accidents (8.5% and 3.9%, respectively).

As anticipated, death rates are highest in the 50 and older age group (25 per 1,000 population) followed by 1to 4-year-olds (nine per 1,000 population). There are gender differences in death rates across residence types. There are notable differences in malaria, with higher death rates for males than for females (144 and 101, respectively), while the opposite is true for HIV. Leading causes of death also vary by zone: HIV is the leading cause of death in the South West, but malaria is the leading cause of death in all other zones. The North zone also has a relatively high death rate from perinatal and neonatal conditions compared to other zones, and the Central West zone has a particularly high death rate for infectious and parasitic diseases.

Among neonates, the leading cause of death is maternal-related complications, which made up 31.5 percent of deaths, followed by birth asphysia or other respiratory problems. These afflictions affect rural areas at a greater rate than urban areas. For children under five more broadly, the leading cause of death is malaria, followed by perinatal and neonatal conditions. These two conditions make up nearly 60 percent of deaths. For children ages 1–4 years, the all-cause death rate was 732 children for every 100,000 children, with higher rates found in the Central West zone. For children 5–14 years, malaria accounts for 38.2 percent of deaths, far above any other cause of death and greatly affecting children in the rural areas compared to urban areas. The overall death rate for this age group is 251 deaths per 100,000 children ages 5–14.

Adults 15 and older are most affected by HIV-related deaths, accounting for nearly one in five deaths. This is distantly followed by malaria, diseases of the circulatory system, and injuries and accidents. HIV-related diseases affect women more than men (21.9% and 17.8%, respectively) and affect both urban and rural residents. These results vary by zone, with malaria being the leading cause of death in the Central East zone.

Nationally, 69.1 percent of people sought and received treatment for the illness that led to their death. Most of those who sought treatment received it from a government hospital or clinic (82.2%). Other people sought treatment at private facilities, traditional healers, or at their home. Those in the South West zone were least likely to receive treatment prior to their death (62.1%). When data are filtered down to age groups, they show that fewer than half of infants received any treatment before death.

Approximately the same proportion of people died at a hospital as died at home (43.3% and 44.1%, respectively). A smaller proportion died at a health center or other place. Urban residents were more likely to die in a hospital than rural residents, who were more likely to die at home. There are slight differences in place of death based on the cause of death.

The number of maternal deaths identified in the data set are few, so generalizations are difficult to make. Even so, maternal-related complications remain the third leading cause of death among girls and women ages 12–50 (11.6% of deaths). Most of those deaths occurred in a hospital.

These data should be used to inform health programs and services in Malawi. Reducing preventable disease is one of the Sustainable Development Goals. Only with good-quality data are decision makers able to understand the trends in mortality that affect the citizens of Malawi.

CHAPTER 1. INTRODUCTION

Rational and effective public health policy and practice demand accurate and reliable statistics on births, deaths, and cause of death. Such data need to reliably measure trends and the progress of major initiatives in poverty reduction and the fight against AIDS, tuberculosis, malaria, and other diseases disproportionately affecting the poor. Malawi needs to formulate, monitor, and evaluate health policies and interventions based on information derived from the country's population data rather than relying on models. Unfortunately, Malawi, along with most of the world's poorest countries, lacks a well-functioning civil registration and vital statistics (CRVS) system to generate these important data.

Historically, Malawi has had to rely on limited data sources and inadequate information in setting up health sector priorities and assessing program progress and impact (O'Hagan, et al. 2017). There is, therefore, a need to move toward routine capture of vital events in the communities and households and the integration of these data in the health information system. The civil registration system in Malawi is still developing and cannot yet generate the needed vital statistics (see Box 1).

Building a fully functional civil registration system with high coverage and quality data will require extended time and substantial resources. One interim solution is a sample-based vital registration system using verbal autopsies. Sample Vital Registration with Verbal Autopsy (SAVVY) can serve as a key source of vital statistics, including cause of death information, until the civil registration system reaches full maturity. SAVVY collects data on demographic and health indicators that can be used for planning, implementing, and evaluating policies and programs that are effective, equitable, and beneficial to reduce the burden of disease. **Box 1.** The National Registration Bureau (NRB) was established in 2005 with the mandate of overseeing the establishment and implementation of a civil registration system in Malawi. The National Registration Act, signed into law in January 2010, provides for the registration of persons and of births, marriages, and deaths. The NRB has established districtlevel offices led by District Registrars who are charged with collecting, aggregating, and reporting vital events. While NRB announced universal and compulsory registration and issuance of birth and death certificates in the country starting in 2015, implementation was rolled out in phases. The initial focus was on birth registration in pilot areas. All births occurring in health facilities of the three districts of Chitipa, Ntcheu, and Blantyre, including Bwaila Hospital in Lilongwe, were registered before the mother's discharge, for processing and issuance of birth certificates. Birth registration was rolled out to all districts countrywide in 2017. Mass registration of the population age 16 and above for a national ID began in May 2017, with a goal of registering 9 million people by year's end. Death registration began in the pilot regions in early 2018.

SAVVY has been used in countries such as Tanzania, Zambia, and Mozambique, where the vital registration systems are either nonexistent, nascent, or unable to ascertain causes of death. It can be used as an interim measure while a country is setting up a universal vital registration system, which requires sufficient infrastructure, local capacity, and, more importantly, sufficient funds and national commitment.

This method is a practical option for collecting information on mortality, particularly cause specific all-age mortality, which is not available from any other source. SAVVY is a replicated methodology that builds on techniques, experience, and expertise from around the world.

Rationale of Study

Malawi currently lacks a full-fledged civil registration system; hence, most of its mortality and fertility data are generated through population-based surveys and censuses, which have well-known limitations. The system of civil registration is just beginning in Malawi, and relationships and infrastructure are currently being formalized with the relevant government and nongovernment stakeholders. As the system is still in development, this makes generation of usable vital statistics to inform health policy difficult. There is a need to use existing data and methods such as SAVVY, while at the same time making sure that a national vital registration system being championed by the National Registration Bureau (NRB) is fully established and operational.

The health management information system (HMIS), large-scale household surveys, surveillance, and population censuses are among the main data sources that comprise Malawi's strategic information (SI) system. While the MOH oversees most of the health information system, the National Statistical Office (NSO) and NRB lead the census and civil registration system, respectively. Within the MOH, the Central Monitoring and Evaluation Division (CMED) is mandated to oversee the overall coordination of SI activities, whereas monitoring and evaluation (M&E) units exist within specific health departments to assume planning, implementation, and monitoring responsibilities. While there are strong stakeholders engaged in the HMIS, the data still are not adequate, especially data for decision making as it relates to causes of death in Malawi.

As such, the Government of Malawi's Health Sector Strategic Plan II (HSSP II) identified strengthening vital statistics as one of the key interventions needed to effectively generate, manage, disseminate, and utilize critical health information at all levels of the health system.

The rationale for using SAVVY is to complement the existing data, fill the gaps in data, and facilitate continuous collection of data. Specifically, SAVVY is designed to be a sustainable community-based data collection system that can generate accurate and reliable vital statistics and mortality indicators at various levels when fully implemented. The community-based data have the advantage of providing data on deaths occurring at home, a substantial proportion of deaths in the country. These home deaths are not captured elsewhere and constitute a missing data element in the current HMIS, especially in rural areas.

Objective of Study

The main objective of SAVVY is to provide nationally representative estimates of age- and sex-disaggregated cause-specific mortality fractions. The information generated is expected to help inform decision making in policy and programming in the health sector. It will also help in establishing a functional vital statistics system in the country.

Specific Objectives

- To collect detailed, accurate, and timely data that will reveal current mortality to inform policy development, program formulation, and continuous M&E of health interventions
- To sensitize and create awareness of the availability and importance of vital statistics data to planners and policymakers
- To contribute to the development of an effective and efficient national system of civil registration
- To ensure that mortality rates and cause of death fractions will be continuously collected
- To build capacity within Malawi in several keys areas, such as ICD-10 certification and coding of cause of death
- To support and strengthen CMED and other stakeholders' capacity in reporting, recording, compilation, analysis, and dissemination of vital statistics for the country
- To assist NSO and CMED in the design and implementation of SAVVY across the country.

Implementing Partners

Key partners in SAVVY implementation were the National Statistical Office, MOH (CMED), and the National Registration Bureau. Local leaders also played a key role, including the district government, traditional authorities, and village chiefs. Physicians and medical officers provided an essential role in coding the cause of death for verbal autopsies. Funding was provided by PEPFAR. Technical support was provided by the United States Census Bureau and MEASURE Evaluation, which is funded by the United States Agency for International Development (USAID) and PEPFAR.

CHAPTER 2. METHODS

Implementation of the SAVVY system begins with the establishment of a representative sample of small areas, followed by demographic surveillance in these areas through a baseline census. The baseline census then serves as a vehicle for identifying births and deaths within the surveillance area in the previous 12 months. These deaths are followed up with verbal autopsy interviews and the certification and coding of cause of death. In designing the SAVVY system, Malawi wanted to achieve linkages with the nascent civil registration system and provide support for further development of civil registration. Malawi also hoped to maintain ongoing demographic and mortality surveillance within the SAVVY sites. Thus, it was decided to respect administrative boundaries when forming the SAVVY sites and to design larger SAVVY sites with substantial populations. This chapter presents the specific methods Malawi followed in the design, implementation, and analysis of SAVVY.

Sample Design and Sample Size

The SAVVY sampling frame is based on the listing information and cartography from the 2008 Malawi Population and Housing Census. The sampling design for SAVVY in Malawi aimed to be representative at the national, urban/rural, and MOH zone levels. The health ministry divides Malawi into five zones (North, Central East, Central West, South East, and South West) for the delivery of healthcare programs and M&E.¹ Table 2.1 shows the allocation of districts by health zone and Figure 2.1 shows the distribution across Malawi.

North zone	Central East zone	Central West zone	South East zone	South West zone
Chitipa	Nkhotakota	Mchinji	Mangochi	Blantyre
Karonga	Ntchisi	Lilongwe	Machinga	Mwanza
Nkhata Bay	Dowa	Dedza	Zomba	Chiradzulu
Rumphi	Salima	Ntcheu	Mulanje	Chikwawa
Mzimba	Kasungu		Balaka	Nsanje
Likoma				Neno
_				

Table 2.1. Distribution of districts, by MOH zones

¹ The MOH zones follow the borders of the country's three major regions—North, Central, and South, with the Central region divided into the Central East and Central West health zones and the South region divided into the South East and South West health zones.

Figure 2.1. Map of selected SAVVY sites, by MOH zones



A two-stage sample design was employed for SAVVY. In the first stage, the country of Malawi was divided into five health zones, with the exclusion of the island district of Likoma.² Within each health zone, enumeration areas (EAs) were identified and used as the initial first-stage unit. The EAs were defined by the 2008 Malawi Population and Housing Census. The first-stage strata consist of the combination of health zones and an urban/rural status. The urban strata consist of the three major urban areas: Mzuzu City, Lilongwe City, and Blantyre City belonging to the North zone, Central West zone, and South West zone,

² Likoma represents about 0.07 percent of the population of Malawi, and the corresponding cost of enumeration and surveillance would be relatively high.

respectively. The Central East zone did not contain any urban population based on the 2008 census (see Table 2.2). The urban population in the South East zone was only 2.5 percent in 2008 (Municipality of Zomba) and was deemed too small to contain an urban SAVVY site. All urban areas other than Lilongwe City, Blantyre City, and Mzuzu City were grouped with rural areas to form the "expanded" rural stratum. Thus, there were a total of eight first-stage strata. For each of the eight strata, an ordered list of EAs was compiled, and EAs were randomly selected with probability proportional to size within the strata. The measure of size for the selection was defined by the 2008 Census population counts.

Zone	Population Size	Zone Share of Total Population	Urban Share of Zone Population
North	1,644,838	12.7	7.6
Central East	2,037,083	15.8	0.0
Central West	3,440,553	26.6	19.2
South East	3,089,010	23.9	2.5
South West	2,705,592	20.9	22.9
Total	12,917,076	100.0	11.5

Table 2.2. Zone population size and urban share in 2008 Population and Housing Census

The initial sample of EAs was used to define the sample SAVVY sites that were the ultimate first-stage unit. The SAVVY sites included the initial sample EA and all of the adjacent EAs that would make a reasonable geographic unit for the administration of the survey. For example, the SAVVY site included all EAs of a village that included the sample EA and then adjacent villages within the same traditional authority. Thus, the sample SAVVY sites are each a cluster of EAs. A total of 37 SAVVY sites were selected, with 7 in the three major cities and 30 in areas outside of those three cities (see Table 2.3 for the allocation across the strata). Table 2.4 shows the district and ward or traditional authority for each of the 37 SAVVY sites.

Table 2.3. Distribution of SAVVY sites, by stratum

Number of SAVVY S		AVVY Sites
Stratum	Urban	Rural
North zone urban (Mzuzu city)	1	
North zone rural		5
Central East zone rural		6
Central West zone urban (Lilongwe city)	3	
Central West zone rural		6
South East zone rural		8
South West zone urban (Blantyre city)	3	
South West zone rural		5
Total	7	30

Table 2.4. Location of the 37 SAVVY sites, by health zone

	District	Traditional Authority or	Urban or Rural					
SAVVY Site Number		Ward	Designation					
North Zone								
01	Chitipa	TA Mwenemisuku	Rural					
02	Karonga	Mwirang'ombe	Rural					
03	Rumphi	TA Chikulamayembe	Rural					
04	Mzimba	TA Mtwalo	Rural					
05	Mzimba	TA Mzikubola	Rural					
06	Mzuzu	Zolozolo ward	Urban					
Central East Zone								
07	Kasungu	STA M'nyanja	Rural					
08	Kasungu	TA Santhe	Rural					
09	Nkhotakota	TA Malenga Chanzi	Rural					
10	Ntchisi	STA Chilooko	Rural					
11	Dowa	TA Chiwere	Rural					
12	Salima	TA Karonga	Rural					
Central West Zone								
13	Lilongwe City	Area 7	Urban					
14	Lilongwe City	Area 25	Urban					
15	Lilongwe City	Area 50	Urban					
16	Lilongwe	TA Chadza	Rural					
17	Lilongwe	TA Mazengera	Rural					
18	Lilongwe	TA Malili	Rural					
19	Mchinji	STA Mduwa	Rural					
20	Dedza	TA Kaphuka	Rural					
21	Ntcheu	TA Kwataine	Rural					
Southern East Zone			·					
22	Mangochi	TA Chimwala	Rural					
23	Mangochi	TA Chowe	Rural					
24	Machinga	TA Sitola	Rural					
25	Zomba	TA Kuntumanji	Rural					
26	Zomba	STA Mbiza	Rural					
27	Mulanje	Laston Njema	Rural					
28	Phalombe	TA Mkhumba	Rural					
29	Balaka	TA Msamala	Rural					
Southern West Zone								
30	Blantyre City	Ndirande South Ward	Urban					
31	Blantyre City	Mzedi Ward	Urban					
32	Blantyre City	Chigumula Ward	Urban					

SAVVY Site Number	District	Traditional Authority or Ward	Urban or Rural Desianation
33	Chiradzulu	TA Likoswe	Rural
34	Blantyre	TA Kuntaja	Rural
35	Thyolo	STA Kwethemule	Rural
36	Chikwawa	TA Ngabu	Rural
37	Chikwawa	TA Makhwira	Rural

For the second stage, a census of households was attempted within each SAVVY site (cluster of EAs). However, not every household completed an interview. The 37 SAVVY sites included approximately 173,000 households, with a population of nearly 800,000 or about 5 percent of Malawi's estimated 2014 population.

Baseline Census

The baseline enumeration census was implemented by the National Statistical Office in August–October 2014 following sensitization of local leaders in the 37 SAVVY sites. Paper questionnaires were used to collect basic information on all usual household residents, along with births and deaths in the previous twelve months (see questionnaire in Appendix A). All households within the SAVVY sites were visited and data were collected on the head of household, along with each household member's age, sex, marital status, education, and occupation. For children under age 18, data on orphanhood status were also collected. Retrospective birth and death events in the previous 12 months were gathered. The reference time period for births and deaths was August 1, 2013 to July 31, 2014. One goal of the baseline census was to provide demographic and socioeconomic indicators of the population in the sampled registration system. A second goal was to identify deaths in the past year that were then followed up with verbal autopsies to determine cause of death.

Verbal Autopsy Questionnaires

Verbal autopsies (VAs) were administered using the merged 2007 and 2012 World Health Organization (WHO) standardized verbal autopsy questionnaires. Malawi SAVVY used all three of the WHO-endorsed international standardized VA questionnaires for specific age groups. One questionnaire was used for neonates under 28 days old, another for children 28 days to 14 years of age, and a third questionnaire was used for adults ages 15 years and above. The questionnaires were adapted somewhat to fit the specific needs of Malawi and its unique situation. For example, the list of facilities for receiving treatment was modified to reflect Malawi's facility types and scorpion was added to the list of animal/insect bites. Each questionnaire gathered basic demographic information on the deceased, such as their sex and age, an account of the events that led to their death, what the respondent believed the cause of death to be, the place of death, any health services sought by the deceased during the illness that led to death, and most importantly, information on the symptoms and their durations suffered by the deceased during the terminal stage of the disease that led to death. The questionnaires appear in Appendix A.

Verbal Autopsy Fieldwork and Data Collection

The MOH held multiple workshops to train over 50 health surveillance assistants from the 37 SAVVY sites to conduct the verbal autopsies. Fieldwork took place from late 2015 to late 2016. Paper questionnaires were

used. Once the VA interviewer arrived at a household on the SAVVY death list, an appropriate respondent who lived with or cared for the deceased was identified before proceeding with the interview. When an appropriate respondent was absent or not available at that time, another day was scheduled to conduct the interview. The VA interviewer made up to three attempts to visit the household to find an appropriate respondent. If by the third visit it was not possible to complete the interview, the interviewers were instructed to complete the questionnaire with as much information as was available, including the name of the deceased, their sex and approximate age at death, and their place of death. If possible, the qualitative information outlining the chain of events leading to death was also included.

Interviews were conducted in the former residence of the deceased. The interviewer first asked the age of the deceased in order to determine which of the three VA questionnaires to complete. The interviewers were instructed to complete the questionnaires during the interview. In most cases, interviewers were able to complete the VA during the first visit. Completed VA questionnaires were reviewed by zonal health officers for quality and completeness before being transferred to the MOH, in Lilongwe.

Certifying and Coding Cause of Death

There are several methods available to assign the causes of death from VA questionnaires, including physician review (Lozano, et al. 2011), expert algorithms, and data-driven algorithms such as regression, neural networks, and Bayesian approaches. Malawi selected physician review as the preferred method. A team of about 20 physicians, recruited from all regions of the country, attended training on death certification and coding in accordance with the standards set by the International Classification of Diseases 10th revision (ICD-10).

Physicians were trained to use the international death certificate to assign the cause of death (copy of form appears in Appendix A). The international death certificate is part of the ICD-10 procedures and is used to assign the underlying and direct causes of death, as well as to identify other significant conditions that contribute to death. The certificate is composed of two parts. Part I lists medical conditions in the order of their causal relationship and allows physicians to register up to four conditions that represented the chain of events leading to death. The order of these events is important because each condition gives rise to another in the line above it. The condition on the lowest line is the underlying cause and the condition on the top line lists the direct cause of death. Part II of the death certificate is used to acknowledge other significant conditions that contributed to death but were not related to the sequence of events listed in Part I. In Parts I and II, each line has a place for recording the time interval between the onset of each condition and death. Finally, in Part I, the ICD code for each listed condition is filled in. The ICD-10 manual, Volume 2, section 4.1.12, "Summary of linkages by code number," provided guidance for determining the final underlying cause of death and code, as did the Vital Statistics ICD-10 ACME Decision Tables for Classifying Underlying Causes of Death, 2006.

Two physicians independently reviewed each VA questionnaire and completed an international death certificate. In cases where there was disagreement, the questionnaires were returned to the two physicians and they were allowed to work together to produce a final, ratified death certificate, which was keyed into a database.

Data Processing

Data processing for the baseline census, verbal autopsies, and international death certificates was done using the Census and Survey Processing System (CSPro). Data processing was managed by the National Statistical Office. The data processing team was composed of a programmer, a supervisor, and about 30 data entry personnel. Double key data entry was employed to increase accuracy. Data entry occurred in two phases.

During the first phase, information from the baseline census questionnaire for all households within the 37 SAVVY sites was entered into a database. Once data from the baseline census questionnaires were entered, a death listing file was created. This file contained a list of deaths reported in each household (name, age, and sex of deceased) along with geographic and administrative classifications for the household and name of the head of household. At this stage, each death was assigned a unique identification number so that deaths could later be linked to their completed VA forms and death certificates.

During the second phase of data entry, VA questionnaires that had returned from the field underwent a quality control review at the National Statistics Office to ensure that the identification number was unique and matched with the baseline census questionnaire. Once they were reviewed and any necessary corrections made, they were entered into a VA database. The completed international death certificates that accompanied VA questionnaires were also reviewed for correct identification numbers and then entered into a death certificate database.

Once data entry was completed, the VA database and death certificate database were merged using the unique identifier assigned to each death. This merged file and the baseline census data file are the source of the analyses presented in this report.

Response Rates

The response rate for the baseline census was 98.4 percent (170,417 households out of 173,143 households in the SAVVY area completed the baseline census questionnaire). A total of 5,289 deaths were reported on the baseline census questionnaires, and VAs were completed for 3,531 deaths or a response rate of 66.8 percent. Physicians were able to assign a cause of death in 98.2 percent of the cases and selected undetermined cause for 7.1 percent (see Table 2.5).

	Baseline Census			Verbal Autopsy		
Zone/Residence	Total Households to Be Interviewed	Completed Household Interviews	Response Rate	Deaths Identified	Completed VA	Response Rate
North	28,431	28,066	98.7	863	643	74.5
Central East	29,497	29,311	99.4	906	730	80.6
Central West	36,357	35,915	98.8	1,076	693	64.4
South East	40,931	40,640	99.3	1,333	795	59.6
South West	37,927	36,485	96.2	1,111	670	60.3
Urban	27,577	26,121	94.7	601	309	51.4
Rural	145,566	144,296	99.1	4,688	3222	68.7
Total	173,143	170,417	98.4	5,289	3531	66.8

Table 2.5. Response rate for baseline census, verbal autopsy, and death certificate, by zone and residence

Tabulation

Baseline census data were cleaned in CSPro, including through the use of batch edits and imputations. The baseline census data set, along with the combined VA and death certificate data set, were then converted from CSPro to Stata for the purposes of further cleaning, tabulation, and analysis. Tabulation was performed in order to provide detailed information about demographic and socioeconomic characteristics of the population in the SAVVY sites and the causes of death by age group, sex, area of residence, use of health services, and place of death. Generally, only the immediate and underlying causes of death were tabulated for analysis. The underlying cause of death is of particular interest to health professionals and policymakers, because it represents the condition that sets off the sequence of morbid events or conditions leading directly to death. The immediate cause of death, in contrast, suggests opportunities for treatment to prevent death.

Statistical Significance of Results

All tables in this report, with the exception of appendix tables, show results only if the number of unweighted (actual) cases is 20 or higher. If the table cell is based on fewer than 20 unweighted cases, an asterisk is shown in the table. Unless otherwise specified, results in the tables, figures, and text are based on the weighted results. All direct or implied comparisons in the text are significantly different at the 95 percent confidence level unless otherwise stated. This means that the 95 percent confidence interval for the difference of the estimates being compared does not include zero. All confidence intervals were calculated using Stata 14 and tested using Z-scores. It should be noted that this report does not make comparisons of individual leading causes of death with the category of "other" causes of death. The "other" category is comprised of all other causes of death that were not individually listed as leading causes.

Limitations of the Survey

Retrospective death histories gathered using verbal autopsy, such as those included in the Malawi SAVVY system, are susceptible to error. Estimates derived from a sample survey are affected by two types of errors: (1) nonsampling errors and (2) sampling errors. Sampling error occurs when the characteristics of a sample are measured instead of those of the entire population (as from a census). Note that sample-based estimates will vary depending on the particular sample selected from the population, but all estimates attempt to approximate the actual figures. Measures of the magnitude of sampling error reflect the variation in the estimates over all possible samples that could have been selected from the population using the same sampling, data collection, and processing methods. Standard errors are primarily measures of the magnitude of sampling error. For this report, the appendix contains estimates and standard errors for key variables.

In addition to sampling errors, nonsampling errors may be introduced during any phase of data collection or processing. For example, operations such as editing, reviewing, or keying data from questionnaires may introduce error into the estimates. Nonsampling errors may also be the result of mistakes made in the field, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and errors made when filling out questionnaires.

The number of births and deaths reported in the baseline census appear to be too low. The total fertility rate is 3.8. While there is evidence that fertility has been declining in Malawi, no other studies have estimated such a low level. The 2015–16 Malawi Demographic and Health Survey reported a total fertility rate of 4.4 for nearly the same period as the SAVVY baseline census (National Statistical Office and ICF, 2017). The crude death rate for the SAVVY baseline census was only 6.8, while an estimate of around 9 was expected. However, given the possible underreporting of births, the infant and child mortality rates calculated from the baseline census are consistent with the latest Demographic and Health Survey figures of 42 infant deaths per 1,000 live births (46.3 from SAVVY baseline census) and 63 under-five deaths per 1,000 live births (75.6 from the SAVVY baseline census).

Verbal autopsy data may be affected by recall bias. Some respondents may not have accurately recalled if the death of a loved one occurred within the specified timeframe of one year prior to August 1, 2014. Furthermore, the circumstances that led to death may not have been recollected accurately by the respondent. Some verbal autopsies were not conducted until December 2016, which could involve a recall period exceeding three years.

Physician review for assigning causes of death from data collected by verbal autopsy can be prone to misclassification; certain causes of death are easier to assign from a verbal autopsy than others (Mobley, et al., 1996; Chandramohan, Maude, Rodrigues, & Hayes, 1998; Rodriguez, et al., 1998; Kahn, Tollman, Garenne, & Gear, 2000; Marsh, Sadruddin, Fikree, Krishnan, & Darmstadt, 2003). For these reasons, readers of this report should use the study results with appropriate caution.

CHAPTER 3. BASELINE SAVVY CENSUS RESULTS

The 2014 baseline census is the foundation for the SAVVY system. The baseline census serves as the instrument to identify the vital events of births and deaths in the previous 12-month period. In addition, the baseline census provides the denominators for calculating fertility and mortality rates. The baseline census was conducted August–October 2014 in the 37 SAVVY sites across the five MOH zones. The response rate for the baseline census was 98.4 percent. Interviews were completed for 170,417 households with total residents of 785,428 (unweighted numbers). Results presented in this chapter are weighted figures.

Demographic Characteristics of the SAVVY Population

Age-Sex Structure

Of the residents of the SAVVY sites, 48.9 percent were male, and 51.1 percent were female. The sex ratio of the population was 95.5 males per 100 females. The age and sex structure of the population is shown in Figure 3.1.



Figure 3.1. National population pyramid, 2013–2014

Figure 3.2 shows the distribution of the population by sex across age groups for the SAVVY sites and the National Statistical Office projections for 2014 based on the 2008 census.





Sources: SAVVY Baseline Census and Malawi NSO

Residence

Approximately 84 percent of the population in SAVVY sites were rural residents and 16 percent were urban. Figures 3.3 and 3.4 show the population distribution by sex and age for SAVVY rural and urban residents, respectively.





Figure 3.4. Urban population pyramid, 2013–2014



The mean household size is calculated as the ratio of the total household population to the number of households in an area. The average household size is 4.6, similar to the average household size in the 2008 census (4.6), Integrated Household Survey 2010-2011 (4.6), and the 2014 MDG Endline Survey (4.5). Average household size is slightly larger in urban areas (4.7) compared with rural areas (4.6). Household size ranges from 4.4 in the South East zone to 4.8 in the Central East zone.

Fertility

The 2014 baseline census asked females ages 12–49 years about their current fertility. Specifically, data on live births in the past 12 months (August 1, 2013–July 31, 2014) were collected. A total of 475,683 births were reported, with 96.6 percent of women reporting a single birth in the previous 12 months, 3.1 percent two births, and 0.3 percent three births. The sex ratio at birth was 98.6. The age-specific fertility rates of women giving birth in the 12-month period are shown in Figure 3.5 for national, urban, and rural. The age pattern of fertility is similar in both urban and rural areas, with peak fertility occurring among women ages 20–24. The total fertility rate was 3.8 (4.0 in rural areas and 3.1 in urban areas).



Figure 3.5. Age-specific fertility rates: Malawi SAVVY baseline census

Socioeconomic Characteristics of the SAVVY Population

Marital Status

In February 2015, the Malawi Parliament passed the Marriage, Divorce and Family Relations Act, which set 18 as the minimum age for both males and females to marry. Previous legislation had set the minimum age at 16 for marriage. However, at that time, the constitution was not consistent with the new law. Malawi's constitution stated that girls and boys ages 15–18 may be married with parental consent. Furthermore, the constitution did not prohibit marriage of children under age 15 but rather instructed the government to discourage such marriages. However, in early 2017, the parliament amended the constitution to remove the provision allowing children between the ages of 15 and 18 to marry with parental consent.

Studies of child marriage point to multiple factors encouraging child marriage, including dowry payments, pregnancy, and a means to escape poverty. According to the UN Population Fund, in Malawi in 2012, fifty percent of girls were married before age 18 (UN Women, 2015). The 2014 MDG Endline Survey found that 49.9 percent of women and 9.1 percent of men ages 20–49 years were first married or in union before age 18.

The baseline census also shows that many girls marry or live in union before age 18.³ Among girls age 15, 4.8 percent had already married or were in unions. For the age group 18–19, just over half (51.8 percent) of females had already married or were in union, while for similarly aged males the share was only 7.6 percent.

Both men and women tend to marry earlier in rural areas as compared to urban areas (Figures 3.6 and 3.7). For example, among urban male residents ages 20–24, only 30.0 percent had married or were in union, while among their rural counterparts the share was about half (49.3%). A similar pattern is observed for women, with 39.3 percent of urban female residents ages 18-19 having married or in union as compared to approximately 53.6 percent of rural female residents of the same age group.

³ The baseline census asked the marital status of all residents age 12 years and above with response categories of married, living together, divorced, separated, widowed, and never married.

Figure 3.6. Marital status, by age and sex: Rural







A longer life expectancy for females contributes to a high rate of widowhood for older women as compared to older men (Figure 3.8). Among women ages 55–59, one in four was already a widow. Over half of all women in their 70s were widowed, while less than 10 percent of men in their 70s were widowed.





Educational Status

The education system in Malawi consists of eight years of primary education (typically ages 6 through 13), two years of lower secondary (ages 14 to 15), and two years of upper secondary (ages 16 to 17). Access to higher education remains limited. There has been a push to increase access to early childhood development programs. In the baseline census, the highest level of education attended was collected for all people age 5 and above.

Among five-year-olds who had attended school, about one-third had attended preschool or kindergarten, while two-thirds had started primary school. The distribution was roughly the same for boys and girls. Among all six-year-olds, 79.6 percent had attended school, and of those, 91.7 percent had attended primary school. By age 8 the share reporting having ever attended school rose to 94.2 percent.

It is interesting to examine the educational level of the age group 25–29, as they will have largely completed their schooling. The highest level of education attended for 25–29-year-olds was the primary level for 65.4 percent, secondary level for 30.7 percent, and postsecondary level for 3.9 percent. Education levels were higher for men than women, with only 27.2 percent of women ages 25–29 receiving education beyond the primary level, whereas 42.4 percent of men the same age went beyond primary school (Figure 3.9). Educational levels are also higher for urban residents compared with rural residents (data not shown).



Figure 3. 9. Highest educational level attended for population ages 25-29 (percent): National

Employment

Household population ages 10 and over were asked about their employment status.⁴ Malawians were most likely to be self-employed (36.5%). Nearly one-third (31.3%) were full-time students, although this status applied primarily to the population ages 10–19. The next most common employment status was not working (17.8%). Only 7.8 percent of the 10 and over population had wage employment. For women, economic activity through self-employment or wage employment peaked in their 40s (at 67.7%) and then slowly declined (Figure 12). Nevertheless, half of women ages 70–74 still reported self-employment. Given the major role of agriculture in the economy, many people continue to work as they grow older. The importance of small-scale agriculture is likely the explanation for the continued need to work. According to the Integrated Household Survey 2010–2011, 85 percent of Malawi households were engaged in agricultural activities in 2011 (94% in rural areas compared to 38% in urban areas). Average cultivated area is only 1.4 hectares, and both men and women are important labour inputs for cultivation. The levels of wage employment and self-employment are higher for men (Figure 3.10).

⁴ Response choices included wage employment, self-employed, not working, full-time student, homemaker, unpaid family worker, retired, and other.


Figure 3.10. Female employment status, by age: National

Men are more likely to be engaged in wage employment (peak of 22.4% at ages 40–44) than women (peak of 6.6% at ages 35–39). A higher share of women report their employment status as not working compared to men (Figures 3.10 and 3.11).



Figure 3.11. Male employment status, by age: National

Retirement is not an option for many in Malawi. Among the population aged 60 and over, only 6.0 percent of men described themselves as retired, and an even lower 1.5 percent of women reported this employment status.

Several notable differences in employment status exist between rural and urban residents. Contributing factors include the high dependence on small-scale agriculture in rural areas and the higher concentration of non-farm enterprises in urban areas. About 36 percent of urban households in Malawi operate non-farm enterprises, while the share is only 17 percent among rural households (IHS 2010–2011). When we compare the employment status for males ages 25–29 across rural and urban areas, we see that over half are engaged in wage employment in urban areas, while only 16.4 percent are in rural areas (Figure 3.12). In rural areas, the majority of young men are self-employed. The share not working among males ages 25–29 is higher in rural areas (13.4%) compared with 7.6 percent in urban areas. For young women ages 25–29, some of the same differences exist. For example, a much higher share (15.5%) of women ages 25–29 in urban areas receive a wage, while only 4.3 percent do in rural areas (Figure 3.13). In rural areas, more than half of young women are self-employed. More young women are able to focus on the role of homemaker and not seek income in urban areas (20.8%) than in rural areas (8.5%). However, the share of young women not working is similar in urban and rural areas.



Figure 3.12. Employment status of male population, ages 25–29 (percent)

• Wage employment • Self-employed • Not working • Other



Figure 3.13 Employment status of the female population, ages 25-29 (percent)

Orphanhood

An orphan is defined as a person below 18 years of age who has lost at least one biological parent. The SAVVY baseline census results show that 7.6 percent of children under age 18 were orphans. Table 3.1 shows that 6.2 percent had their father deceased, as compared to 2.6 percent whose mother had died. The share of children who had lost their biological father or biological mother was lower than the share in the 2008 census (7.5% and 2.1%, respectively). There were 1.2 percent of children ages 0–17 who had lost both parents, down from 2.8 percent in the 2008 census.

Background	Both	Only mother	Only father	Both		Percentage with one or both	Number of
characteristic	alive	alive	alive	dead	Total	parents dead	children
Age							
0–4	97.86	1.61	0.36	0.17	100.00	2.14	2,536,725
5–9	94.00	4.08	1.20	0.73	100.00	6.00	2,594,603
10–14	88.73	7.30	2.06	1.91	100.00	11.27	2,354,735
15–17	82.71	10.76	2.97	3.56	100.00	17.29	956,955
0–17	92.45	4.97	1.38	1.20	100.00	7.55	8,443,019
Male	92.33	5.01	1.43	1.24	100.00	7.67	4,209,696
Female	92.57	4.93	1.34	1.16	100.00	7.43	4,233,323
Urban	93.17	4.03	1.52	1.28	100.00	6.83	1,002,336
Rural	92.35	5.09	1.36	1.19	100.00	7.65	7,440,683
North zone	92.68	5.18	1.14	1.00	100.00	7.32	1,119,167
Central East zone	94.26	3.89	1.19	0.65	100.00	5.74	1,451,729
Central West zone	94.05	3.92	1.16	0.87	100.00	5.95	2,177,766
South East zone	90.12	6.40	1.71	1.77	100.00	9.88	2,037,012
South West zone	91.49	5.37	1.61	1.53	100.00	8.51	1,657,345

The share of children with a deceased biological mother was higher in urban areas (2.8%) than in rural areas (2.6%) (p-value < 0.001), while the share with a deceased biological father was statistically higher in rural areas (6.3%) than in urban areas (5.3%) (Chi-square p-value < 0.001).

Orphanhood rates were lowest in the Central East and Central West zones and highest in the South East and South West zones.

Mortality

SAVVY area households reported deaths of usual household residents during the previous 12-month period of August 1, 2013 to July 31, 2014. The reported deaths and usual household resident population suggests a crude death rate of 6.8.⁵ Figure 3.14 shows the age and sex distribution of the deaths nationally. See Appendix Table 4 for the age and sex distribution of deaths at the urban, rural, and health zone levels. Age-specific death rates by five-year age group and sex are shown in Table 3.2 for national, urban, and rural. See Appendix Table 5 for age-specific death rates for the five health zones. The infant mortality rate was 46.3 deaths per 1,000 live births and the under-five mortality rate was 75.6 deaths per 1,000 live births. Across the five zones, the infant mortality rate ranged from 35.7 in the North zone to 49.5 in the Central West zone (Figure 3.15).



Figure 3.14. Distribution of deaths nationally, by sex and age group: 2013–2014

⁵ Ideally, the population as of January 31, 2014 should be used as the denominator to calculate the crude death rate.

Table 3.2. Age-specific death rates, by sex and area of residence: 2013–2014

		National			Urban				Rural
Age Group (years)	Both			Both			Both		
	Sexes	Male	Female	Sexes	Male	Female	Sexes	Male	Female
Total	6.8	7.8	5.8	4.9	5.5	4.2	7.1	8.1	6.0
0	45.7	49.5	42.0	35.4	40.2	30.4	47.2	50.9	43.6
1–4	6.8	7.4	6.2	3.3	3.1	3.5	7.3	7.9	6.6
0–4	14.2	15.3	13.1	9.7	10.6	8.7	14.8	15.9	13.7
5–9	1.8	2.0	1.5	0.8	1.1	0.6	1.9	2.1	1.6
10–14	1.4	1.5	1.2	1.0	1.1	0.9	1.4	1.6	1.3
15–19	1.8	2.0	1.6	1.1	0.8	1.4	1.9	2.2	1.6
20–24	2.2	3.0	1.6	2.2	3.1	1.4	2.2	2.9	1.7
25–29	3.5	4.1	3.0	2.6	2.9	2.4	3.7	4.4	3.1
30–34	5.6	7.4	3.9	3.9	4.9	2.8	5.9	7.9	4.2
35–39	6.7	8.0	5.3	5.8	5.6	6.1	6.8	8.5	5.2
40–44	7.9	9.7	5.8	8.0	8.4	7.2	7.9	9.9	5.7
45–49	9.1	10.5	7.5	7.9	8.6	7.0	9.2	10.8	7.6
50–54	9.4	14.2	5.6	11.8	16.3	7.1	9.2	14.0	5.5
55–59	13.7	16.8	10.8	12.7	12.1	13.6	13.8	17.4	10.6
60–64	17.1	22.5	12.3	19.5	13.1	28.9	16.9	23.5	11.3
65–69	20.1	29.3	12.6	27.3	31.4	22.1	19.6	29.1	12.1
70–74	30.8	40.7	22.8	34.5	42.2	24.6	30.6	40.6	22.7
75–79	39.6	47.0	34.3	52.2	43.3	60.6	39.0	47.2	33.2
80–84	53.4	60.5	48.6	73.9	84.6	64.0	52.5	59.2	48.0
85+	122.0	140.0	111.3	335.0	386.4	288.3	114.8	129.3	106.3



Figure 3.15. Infant mortality rate and under-five mortality rate, by residence

CHAPTER 4. MORTALITY AND CAUSES OF DEATH FROM VERBAL AUTOPSIES

International and national policymakers require credible disease burden estimates to establish public health priorities, develop disease prevention and control strategies, and evaluate progress towards achieving health objectives. Disease burden estimates are also important for identifying potential gaps in available information to prioritize areas of research. Data on mortality by age, sex, and cause are primary inputs for assessing population health status and a cornerstone of the evidence base for health policy, in combination with other epidemiological and socioeconomic information. While medically certified cause-of-death data from complete civil registration systems are the "gold standard" for such statistics, these are generally not available in over two-thirds of all countries.

Worldwide each year, an estimated 2.7 million babies die in the first 4 weeks of life (the neonatal period), and at least another 2.6 million are stillborn (World Health Organization, 2016). Almost all of these deaths (99%) occur in low- and middle-income countries, and approximately half occur at home, often unnamed and uncounted (Lawn, Osrin, Adler, & Cousens, 2008). While many factors account for this huge death toll, the lack of data contributes to program, policy, and social invisibility. Information on infant and child mortality is relevant to a demographic assessment of the population and is an important indicator of the country's socioeconomic development and quality of life. Such information can also help identify children who may be at higher risk of death and lead to strategies that reduce this risk, such as the promotion of birth spacing.

The 2015–16 Malawi Demographic and Health Survey (MDHS) estimated mortality of various categories (National Statistical Office and ICF, 2017). The perinatal mortality rate was 35 deaths per 1,000 pregnancies.⁶ The causes of stillbirths and early neonatal deaths are closely linked, and it can be difficult to determine whether a death is one or the other. The perinatal mortality rate encompasses both stillbirths and early neonatal deaths are closely linked, and quality of service around delivery. The 2015–16 MDHS estimated the neonatal mortality rate at 27 deaths per 1,000 live births.⁷ This means that one of every 37 children in Malawi dies in the first month of life. The infant mortality rate was estimated at 42 deaths per 1,000 live births, implying that one of every 24 children dies before their first birthday. A closer look at the infant mortality rate showed that almost 64 percent of infant deaths occur during the neonatal period. The under-five mortality rate was estimated at 63 deaths per 1,000 live births, translating to one of every 16 children dying before their fifth birthday.

The 2015–16 MDHS estimated that 184 of 1,000 women and 218 of 1,000 men age 15 would die before reaching age 50. The maternal mortality ratio was estimated as 439 maternal deaths per 100,000 live births. However, the 2015–16 MDHS reports only mortality levels, without going into the specifics of the causes of those deaths.

⁶ Perinatal deaths include stillbirths (pregnancy loss that occurs after seven months of gestation) and early neonatal deaths (deaths of live births within the first seven days of life). The perinatal mortality rate is calculated as the number of perinatal deaths per 1,000 pregnancies of seven or more months' duration. The perinatal rate from the 2015–16 MDHS is for the five years before the survey.

⁷ Neonatal mortality is the probability of dying within the first month of life.

This chapter, therefore, presents information on the levels, trends, and causes of mortality in Malawi from the sample-based vital registration with verbal autopsy baseline census. It focuses on overall mortality, cause-specific, perinatal, neonatal, infant, under-five, and adult mortality rates.

Mortality Overview

This overview section presents the distribution of leading causes of death and cause-specific death rates by sex, area of residence, and zone.

Figure 4.1 presents an overview of the leading causes of death for all ages and both sexes combined. Malaria was the leading cause of death, accounting for 18.5 percent of all deaths, followed by HIV-related disease (13.8%). Accidents and external causes were the third leading cause of death, at 6.5 percent. Malnutrition was the ninth leading cause of death, estimated at 3.3 percent of all deaths.



Figure 4.1. Distribution of leading causes of death (percent): 2013–2014

Figure 4.2 shows the leading causes of death by area of residence. The leading cause of death in urban areas was HIV-related disease at 22.9 percent, followed by malaria at 9.2 percent, while the order was reversed in rural areas (19.5% due to malaria and 12.9% due to HIV-related disease). Urban areas also had a higher share of deaths attributed to injuries and accidents and diseases of the circulatory system than rural areas. On the other hand, rural areas had a higher share of deaths attributed to infectious and parasitic diseases, perinatal and neonatal conditions, and malnutrition compared to urban areas.





Figure 4.3 presents the leading causes of deaths by males and females. There is not much difference by sex in the share of deaths attributed to malaria while a gap was evident for HIV-related disease—14.5 percent of female deaths were due to HIV while the share of male deaths was lower at 13.4 percent. Injuries and accidents accounted for a higher share of male deaths (8.5 percent) than of female deaths (only 3.9 percent). A difference by sex was also seen for deaths due to perinatal and neonatal conditions—6.6 percent of all female deaths and 5.4 percent of all male deaths.



Figure 4.3. Leading causes of death by sex (percent): 2013-2014

Table 4.1 shows death rates by age groups, sex, and area of residence. Overall age-specific deaths rates were highest in the 50 and older age group for both males and females and across urban and rural areas. At the national level, for every 1,000 people ages 50 and over, 25 people died in 2013–2014. The age-specific death rate was higher for men than women, 31 and 20 deaths per 1,000 population, respectively. Across areas of residence, little difference was observed in the age-specific death rate for those ages 50 and over, as the death rates were 26 for urban areas compared to 25 for rural areas. In urban areas, death rates for men and women ages 50 and over were similar (26 and 25, respectively), while in rural areas a notable difference was found (32 for men and 20 for women).

The next highest age group in terms of death rates was one- to four-year-olds at the national and rural levels. At the national level, the age-specific death rate for those ages 1–4 years was nine deaths per 1,000 population. Across areas of residence, the death rate was higher in rural areas (10) than in urban areas (4). In urban areas, there was no difference by sex in the death rate for the 1–4 years age group, while the death rate was higher for young male children than young female children in rural areas (11 and nine, respectively).

		Nation	al		Urban	I	Rural			
Age Group (Years)	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	
<1	5	5	5	3	3	3	6	6	6	
1-4	11	8	9	4	4	4	11	9	10	
5–14	3	3	3	2	2	2	4	3	3	
15–24	3	2	2	2	1	2	3	2	2	
25–49	8	4	6	7	4	6	8	4	6	
50 and older	31	20	25	26	25	26	32	20	25	

Table 4.1. Age-specific death rates, by sex and area of residence: 2013–2014

Table 4.2 shows cause-specific death rates by sex and area of residence. Overall malaria is the leading cause of death nationally at about 122 deaths per 100,000 population; however, the death rate for males was higher than for females (144 and 101, respectively). The second leading cause of death is HIV-related disease, with a death rate of 91 deaths per 100,000 population. The death rate due to HIV disease is higher for males than females (in both urban and rural areas) and higher in urban areas (106) compared to rural areas (89). Death rates due to perinatal and neonatal conditions remain high nationally at 39 deaths per 100,000 population. The death rate is much higher in rural areas at 42 deaths per 100,000 population, compared to 19 deaths per 100,000 population in urban areas. Deaths due to malnutrition remain a challenge, as the figures show that mortality due to malnutrition is 22 deaths per 100,000 population. Across the areas of residence, death rates due to malnutrition are higher in rural areas compared to urban areas, at 24 and eight deaths per 100,000 population, respectively.

	National			Urban			Rural		
Cause of Death	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
Malaria	144	101	122	40	45	42	160	109	134
HIV-related disease	103	80	91	115	96	106	101	77	89
Infectious & parasitic diseases	56	31	43	27	19	23	60	33	46
Injuries and accidents	65	21	43	52	20	36	67	22	44
Perinatal and neonatal condition	42	36	39	19	19	19	45	39	42
Disease of the circulatory systems	43	35	39	39	36	38	44	35	39
Pneumonia/ARI	39	24	31	37	13	26	39	26	32
Tuberculosis	43	17	29	40	5	23	43	18	30
Neoplasms	32	24	28	26	16	21	33	25	29
Malnutrition	22	21	22	8	7	8	24	23	24

Table 4.2. Cause-specific death rates, by area of residence and sex: 2013–2014

Table 4.3 shows cause-specific death rates by zone for 2013–14. While malaria is the leading cause of death at the national level, the breakdown by zone shows an inconsistent pattern. Malaria is the leading cause of death in the North (84 deaths per 100,000 population), Central East (162), Central West (124) and South East (144) zones but not in the South West zone. Instead, HIV-related disease was the leading cause of death in the South West zone.

	Zone								
Cause of Death	North	Central East	Central West	South East	South West				
Malaria	84	162	124	144	84				
HIV disease	62	40	77	120	138				
Infectious & parasitic diseases	39	42	62	32	36				
Injuries and accidents	64	43	35	34	50				
Perinatal and neonatal condition	57	39	36	32	39				
Disease of the circulatory systems	44	32	35	41	43				
Pneumonia/ARI	42	26	35	30	25				
Tuberculosis	27	37	27	30	28				
Neoplasms	27	25	24	35	28				
Malnutrition	16	31	22	22	17				

Table 4.3. Cause-specific death rates, by zone: 2013–2014 (per 100,000 population)

Death rates from HIV-related disease were highest in the South West at 138 deaths per 100,000 population, followed by the South East zone at 120 deaths per 100,000 population. The Central East zone was hit the least by HIV-related diseases, with a death rate of 40 per 100,000 population.

The North zone stands out with a higher death rate due to perinatal and neonatal conditions (57 deaths per 100,000 population) compared to the other zones. Similarly, the Central West zone stands out for the highest death rate due to infectious and parasitic diseases (62 deaths per 100,000 population) compared to other zones.

Neonatal and Under-Five Mortality

This section examines the mortality situation for neonates and children less than five years of age, including the leading causes of death for both neonates and under-fives.

Figure 4.4 shows the five leading causes of death in 2013–14 for children less than five years old. Malaria was the leading cause of death, accounting for 30.2 percent of all deaths to children under the age of five, followed by perinatal and neonatal conditions at 27.7 percent. Malnutrition was responsible for about 9 percent of under-five deaths, pneumonia 6 percent, and diarrhoeal disease 3.3 percent.



Figure 4.4. Five leading causes of death for children under age five (percent): 2013–2014

Figure 4.5 shows the leading causes of death for children under age five by area of residence in 2013–14. The rankings of the leading causes of death differ between rural and urban areas. In rural areas, making up the majority of the sample, malaria was the leading cause (31.4%), followed by perinatal and neonatal condition (27.5%), malnutrition (8.8%), pneumonia (5.8%), and diarrhoeal disease (2.7%). In urban areas, perinatal and neonatal conditions was the leading cause (31.2%), followed by diarrhoeal disease (13.2%), malaria (11.1%), and pneumonia and malnutrition (both about 9%). Malnutrition accounted for a similar share of deaths in both urban and rural areas.

Figure 4.5. Five leading causes of death for children under age five, by area of residence (percent): 2013– 2014



Figure 4.6 shows the top five causes of death for children under age five by sex for 2013–14. There were no clear variations across the sexes. The largest sex differential was a 1.7 percentage point gap between males and females for perinatal and neonatal conditions (26.9% and 28.6%, respectively).



Figure 4.6. Five leading causes of death for children under age five by sex (percent): 2013–2014

■Male ■Female

Figure 4.7 shows the distribution of causes of deaths during the neonatal period in 2013–14. Overall, maternal-related complications accounted for 31.5 percent of deaths among neonates, followed by birth asphyxia and prematurity and low birth weight (each accounting for about 26 percent of neonate deaths). Bacterial sepsis contributed about 7 percent to neonatal deaths, while newborns affected by maternal complications of pregnancy was the cause for 3.9 percent of deaths and malaria 2.2 percent of deaths.





Figure 4.8 shows the leading causes of deaths among neonates by place of residence. In rural areas, the share of neonate deaths due to maternal-related complications is 50 percent higher than in urban areas (32.2% and 22.8%, respectively). While at the national level birth asphyxia and prematurity appear to have the same impact, the breakdown by area of residence shows that the problems are more pronounced in rural areas. Birth asphyxia was the cause of death for 27.4 percent of deceased neonates in rural areas but only 15.6 percent in urban areas. An urban and rural gap is also apparent for prematurity and low birth weight, with the share for this cause of death among neonates in rural areas exceeding the share in urban areas (26.8% and 21.6%, respectively). However, the picture is the reverse for bacterial sepsis for the newborn. Bacterial sepsis accounts for 18.5 percent of neonate deaths in urban areas, triple the share in rural areas (5.9%).



Figure 4.8. Leading causes of death for neonates, by area of residence (percent): 2013–2014

Figure 4.9 shows the leading causes of deaths for newborns, by sex. Female babies were more likely to die from maternal-related complications and birth asphyxia, while male babies were more likely to die from prematurity and low birth weight. On the other hand, bacterial sepsis and malaria did not show statistical differences across the sexes.



Figure 4.9. Leading causes of death among newborns, by sex (percent): 2013–2014

Table 4.4 shows cause-specific death rates for children ages 1–4 years by sex and area of residence.⁸ The national death rate for all causes was 732 children for every 100,000 children ages 1–4 years. The death rate for males was higher than for females (839 and 627, respectively) at the national level, and this relationship held in urban and rural areas, although the sex effect was more pronounced in rural areas. In urban areas, the all-causes death rate was 302 deaths per 100,000 children, less than half the rate in rural areas (790). Comparison between the sexes showed that more males died than females, especially in rural areas, where death rates were 910 and 671 for males and females, respectively.

Looking at specific causes, malaria has the highest rate at 313 deaths per 100,000 children ages 1–4 years, but with a major gap between urban and rural areas. Malaria is more prominent in rural areas with a death rate of 347, compared to only 58 deaths per 100,000 children ages 1–4 years in urban areas. Malnutrition death rates are also noticeably higher in rural areas than the cities. The opposite situation was found for diarrhoeal disease, with a higher cause-specific death rate in urban areas (58 deaths per 100,000 children ages 1–4) than in rural areas (30 deaths per 100,000 children ages 1–4). Diarrhoeal disease could flourish in the squatter areas of cities, where residents are exposed to unhygienic conditions.

⁸ There were fewer than 20 unweighted cases of deaths to infants age 1 to 11 months. Therefore, no statistics are presented for this age group.

Table 4.4. Cause-specific death rates for children ages 1–4, by sex and area of residence: 2014 (per 100,000 children ages 1–4 years)

	National			Urban			Rural		
Cause of Death	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
All causes	732	839	627	302	309	295	790	910	671
Malaria	313	354	272	58	73	42	347	392	303
Malnutrition	91	103	79	46	70	21	97	108	87
Pneumonia/ARI	61	65	56	49	98	0	62	61	64
Diarrhoeal diseases	33	34	32	58	24	91	30	35	25
HIV disease	23	33	14	0	0	0	26	37	16
Perinatal and neonatal condition	18	17	18	0	0	0	20	20	21
Injuries and accidents	16	25	6	21	25	18	15	25	4

Table 4.5 shows cause-specific death rates for children ages 1–4 years across the zones during 2013–14. The Central East zone had the highest death rate of young children dying, with 905 deaths per 100,000 children ages 1–4 years, followed by the Central West zone (818), and South East zone (698). The South West zone and North zone had the lowest death rates at around 600.

Table 4.5. Cause-specific death rates for children ages	1–4, by zone: 2013–2014 (per	100,000 children ages
1–4 years)		

	National	North	Central	Central	South	South
Cause of Death			East	West	East	West
All causes	732	597	905	818	698	598
Malaria	313	198	414	330	366	209
Malnutrition	91	60	143	109	56	87
Pneumonia/ARI	61	89	68	47	55	63
Diarrhoeal diseases	33	16	36	28	25	59
HIV disease	23	10	14	33	40	7
Perinatal and neonatal						
condition	18	66	15	8	12	11
Injuries and accidents	16	25	26	13	13	7
Meningitis	7	25	6	0	7	7

Cause-specific death rates show that the threat of malaria is particularly high in the Central East, Central West, and South East zones. Young children appear to be particularly vulnerable in the North zone to pneumonia and perinatal and neonatal conditions (death rates of 89 and 66, respectively). Malnutrition is more likely to kill young children in the Central East and Central West zones (death rates are 143 and 109, respectively). The death rate due to HIV-related disease for children ages 1–4 is highest in the South East and Central West zones.

Mortality in Children 5–14 Years

This section presents leading causes of mortality among children ages 5–14 years, with a focus on area of residence, sex, and zone.

Figure 4.10 shows leading causes of death in children ages 5–14 during 2013–14. Malaria was by far the leading cause of death among children in the 5–14 age group (representing 38.2 percent of all deaths). The next five leading causes of death (injuries and accidents, pneumonia, malnutrition, diarrhoeal disease, and HIV-related disease) collectively do not account for as large a share as malaria.





Figure 4.11 shows the leading causes of death among 5–14-year-old children by area of residence. Malaria dominated as a cause of death in rural areas among children age 5–14 years (40.3%). However, in urban areas, malaria accounted for only 10.5 percent of deaths to children in this age group, similar to the share for HIV-related disease and lagging behind the share due to pneumonia (19.3%). Deaths due to pneumonia, diarrhoeal disease and HIV-related disease were higher in urban areas compared to rural areas. On the other hand, the share of deaths due to injuries and accidents was higher in rural areas at 8.7 percent, compared to 3.0 percent in urban areas for children ages 5–14 years.





Figure 4.12 shows the leading causes of deaths for children 5–14 years by sex. Malaria accounted for a larger share of deaths among males ages 5–14 years (43.6%) compared with females ages 5–14 (31.6%). The pattern, however, was different for malnutrition, as this cause of death represented 9.7 percent of all female deaths while only 4.0 percent of all male deaths to children ages 5–14 years. Among males ages 5–14 years, HIV-related disease was the cause of death for 5.8 percent, while among females it was the cause of death for only 3.1 percent.





■ Male ■ Female

Table 4.6 shows cause-specific death rates for children 5–14 years old by sex and area of residence during 2013–14. The overall rate was 251 deaths per 100,000 children ages 5–14, with higher rates for males than females (276 and 226, respectively). However, the death rate was higher in rural areas than in urban areas (264 and 153, respectively). In both cities and rural areas, the death rate was higher for male children ages 5–14 than female children.

Death rates due to malaria, injuries and accidents, and malnutrition were appreciably higher in rural areas than urban areas for children ages 5–14 years. On the other hand, death rates due to pneumonia and HIV-related disease were higher in cities than in rural areas for these same children.

	National			Urban			Rural		
Cause of Death	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
All causes	251.01	276.26	226.25	153.25	186.75	121.16	263.93	287.94	240.32
Malaria	95.81	120.56	71.54	16.11	32.92	0.00	106.35	132.00	81.12
Injuries and accidents	20.71	21.88	19.55	4.53	0.00	8.88	22.84	24.74	20.98
Pneumonia/ ARI	17.54	17.36	17.72	29.53	45.89	13.86	15.95	13.63	18.24
Malnutrition	16.54	11.14	21.84	3.77	0.00	7.39	18.23	12.60	23.78
Diarrhoeal diseases	12.71	15.38	10.10	11.61	14.46	8.88	12.86	15.50	10.26
HIV disease	11.41	15.98	6.93	16.87	14.46	19.18	10.69	16.18	5.29

Table 4.6. Cause-specific death rates for children ages 5–14, by sex and area of residence: 2014 (per 100,000 children ages 5–14 years)

Table 4.7 shows all cause and cause-specific death rates across the zones for 5–14-year-old children. Death rates were fairly similar for this age group across the five zones, ranging from 217 in the South West zone to 285 in the Central East zone. The higher death rate in the Central East zone was as a result of the high malaria death rate (137). The death rate for diarrhoeal diseases among children ages 5–14 years was unusually high in the South West zone (29).

Table 4.7. Cause-specific death rates for children ages 5–14, by zone: 2013–2014 (per 100,000 children ages 5–14 years)

Cause of death	National	North	Central East	Central West	South East	South West
All causes	251	224	285	253	266	217
Malaria	96	57	137	99	122	50
Injuries and						
accidents	21	28	18	15	20	27
Pneumonia/ARI	18	28	11	13	18	22
Malnutrition	17	13	23	11	21	16
Diarrhoeal						
diseases	13	9	6	8	12	29
HIV disease	11	13	0	13	15	14

Mortality in Adults 15 Years and Older

This section presents leading causes of mortality in 2013–14 among the adult population ages 15 years and older with detail by residence, sex, and zone.

Figure 4.13 shows the distribution of the leading causes of death among adults ages 15 years and older. HIV-related disease accounted for 19.5 percent of all deaths among the adult population and was the leading cause of death. Malaria was a distant second, accounting for 11.5 percent of all deaths among the population ages 15 years and older. Diseases of the circulatory system followed at 9.3 percent, then injuries and accidents (7.9%), tuberculosis (6.8%), neoplasms (that is, tumors) (6.3%), other infectious and parasitic diseases (5.2%), pneumonia/ARI (3.8%), diarrhoeal disease and senility/old age (both 2.8%). All other specific causes identified by the physician coders were responsible for 15.7 percent of all adult deaths. For 8.4 percent of all adult deaths, the cause was ill-defined or undetermined.

Figure 4.8. Leading causes of death (top 10) among adults ages 15 years and older (percent)



Figure 4.14 presents the distribution of adult deaths by cause for urban and rural areas. HIV-related disease was the leading cause of death in both rural and urban areas; however, the share in urban areas was higher at 29.6 percent compared to 18.2 percent in rural areas. In the major cities, diseases of the circulatory system was the second leading cause of death among adults, accounting for 11.0 percent, followed by injuries and accidents (9.1%) and then malaria (8.3%). In rural areas, malaria was the second leading cause of death at 11.9 percent, followed by diseases of the circulatory system (9.1%) and injuries and accidents (7.8%). Pneumonia/ARI accounted for 4.0 percent of adult deaths in rural areas but only 2.2 percent in the cities.



Figure 4.9. Leading causes of death among adults ages 15 and older in urban and rural areas: 2013–2014

Figure 4.15 shows the leading causes of death among adults ages 15 and older by sex. HIV-related disease was the leading cause of death for both males and females; however, the share was higher for females (21.9%) compared to males (17.8%). The male and female shares of death were similar for malaria, neoplasms, and diarrhoeal disease. Females ages 15 and above had a higher share of deaths due to disease of the circulatory system than their male counterparts (10.3% and 8.6%, respectively). A higher share of women's deaths was due to senility/old age than men's deaths (5.0% versus 1.2%); this may be due, in part, to higher life expectancy for females. Men, on the other hand, have a higher share of deaths due to injuries and accidents, tuberculosis, infectious and parasitic diseases, and pneumonia/ARI than women.

21.9 HIV disease 17.8 11.9 112 Malaria 10.3 Disease of the circulatory system 4.4 Injuries & accidents 10.4 47 Tuberculosis 8.4 Neoplasms 3.9 Remainder of infectious & parasitic diseases Pneumonia/ARI Diarrhoeal diseases 5.0 Senility/oldage 5.2 Maternal causes 0.0 All other causes combined 13.6 III-defined & undetermined causes Female Male

Figure 4.10. Leading causes of death among adults ages 15 and older, by sex: 2013–2014

Table 4.8 shows the shares for the leading causes of death for adults ages 15 years and above, by zone, in 2013–2014. In all zones except Central East, HIV-related disease accounted for the largest share of adult deaths. In the South East zone, nearly one in four adult deaths was due to HIV-related disease, while in the South West zone the share was even higher: 28.3 percent. The share of deaths from HIV-related disease was lowest in the Central East zone (10.2 percent)—second to malaria, which accounted for 16.6 percent of all adult deaths in that zone. In the Central West and South East zones, malaria was the second leading cause of death among adults. In the South West zone, disease of the circulatory system was the second leading cause (10.3%). In the North zone, the second most common cause of death among adults was injuries and accidents, closely followed by disease of the circulatory system and malaria.

Table 4.8. Le	eading causes of	adult deaths (top	o 15) ages 15 y	ears and above	, by zone and i	nationally:
SAVVY Mala	awi, 2013–2014					

	Nationa	Nort	Centra	Centra	Souther	Souther
Cause of Death	I	h	l East	l West	n East	n West
HIV disease	19.5	13.4	10.2	16.5	24.4	28.3
Malaria	11.5	9.6	16.6	11.9	11.8	7.9
Disease of the circulatory system	9.3	10.4	8.5	8.7	9.1	10.3
Injuries and accidents	7.9	11.4	9.3	7.1	5.8	8.2
Tuberculosis	6.8	5.6	9.0	6.6	6.9	6.3
Neoplasms	6.3	6.2	6.9	5.7	7.4	5.1
Remainder of infectious and parasitic						
conditions	5.2	5.5	4.5	7.8	3.5	4.2
Pneumonia/ARI	3.8	5.4	3.8	5.4	3.3	1.4
Diarrhoeal diseases	2.8	2.6	3.8	1.6	3.4	3.2
Senility/old age	2.8	2.4	1.9	3.0	3.1	2.9
Maternal causes	2.1	2.0	2.5	2.8	0.7	2.8
Diabetes mellitus	1.9	3.0	2.4	1.0	1.5	2.3
Asthma	1.8	0.3	2.2	2.1	2.4	1.1
Chronic obstructive pulmonary disease	1.3	2.1	0.8	1.2	1.6	1.2
Other & unspecified disorders of the digestive						
system	1.3	1.5	1.1	1.5	1.1	1.5
All other causes combined	7.3	9.8	10.6	7.4	5.7	5.0
III-defined & undetermined causes	8.4	8.8	5.9	9.9	8.2	8.2

CHAPTER 5. TREATMENT RECEIVED AND PLACE OF DEATH

This chapter summarizes the care the deceased received for the illness that led to their death, as well as the place of their death. Treatment received and place of death are analysed by different demographic characteristics, including area of residence, sex, age, and zone, as well as cause of death.

Treatment Categories and Definitions

Interviewers asked verbal autopsy respondents whether the deceased had received any treatment for the illness that led to death. If the respondents answered yes, they were then asked where the deceased received treatment. The possible choices are listed below:

- Care at home by family members or others
- Care from a traditional healer
- Care from a government clinic
- Care from a government hospital
- Care from a private clinic
- Care from a private hospital
- Care from a pharmacy/drug seller/store

The respondent also had the option of responding "other" and having the source of care written in, or indicating that they did not know where treatment was received.

Consolidation of Treatment Variables

Some categories of treatment were consolidated, with the result that there were six treatment-source variables used for the analysis. Private clinic and private hospital were combined because neither were highly used, and it provides a good comparison for government clinics and hospitals. Very few respondents identified a pharmacy, drug seller, or store as the source of treatment; therefore, this choice was combined with "other."

Treatment by Demographic Characteristics

Overall, 69.1 percent of decedents received treatment of some form (Figure 5.1). Among those receiving treatment, Table 5.1 shows that the majority received treatment from a government hospital (65.2%) followed by treatment at a government clinic (17.0%) and treatment at a private clinic or hospital (14.0%).



Figure 5.1. Decedents receiving treatment for illness that led to death (percent)

Figure 5.1 shows that there was little difference between the share receiving treatment before death in urban and rural areas (68.7% and 69.2%, respectively). However, there were differences in the source of the treatment. In urban areas, 80.3 percent sought treatment from a government hospital while in rural areas the share was lower at 63.7 percent (Table 5.1). Rural residents were more likely to rely on a government clinic or private clinic or hospital than urban residents.

Table 5.1.	Treatment received.	by area of residence	and source of	treatment (percent)	: 2013-2014

Treatment Type	National	Urban	Rural
Home	1.3	0.8	1.4
Traditional healer	1.5	0.4	1.6
Government clinic	17.0	11.4	17.6
Government hospital	65.2	80.3	63.7
Private clinic or hospital	14.0	7.1	14.7
Other	0.9	0.0	1.0

There is a slight disparity in the receipt of care by sex. Among all decedents, 70.1 percent of men and 68.0 of women reportedly sought care (data not shown). This disparity is largest in the urban population, where 70.1 percent of men and 66.6 percent of women sought care.

Among all ages groups, "government hospital" was the most commonly cited place of treatment (Table 5.2). Because there are small sample sizes for place of treatment once the data are disaggregated by age group, percentage distribution of location of treatment is not presented where fewer than 20 deaths are captured. This is particularly true for the under-one age group. This is also the age group that reported the lowest share seeking treatment at 36 percent of deaths, while 73.3 percent of deaths among individuals 25–49 years were preceded by some form of treatment.

Age Group (Years)	Treatment Received	Government Clinic	Government Hospital	Private Clinic or Hospital	Other**
< 1	36.0	*	60.9	*	*
1–4	72.6	25.7	53.5	16.5	*
5–14	72.3	22.1	61.4	13.9	*
15–24	67.8	*	72.6	*	*
25–49	73.3	14.8	68.1	12.9	4.2
50+	70.9	13.0	69.2	13.6	4.2
* Unweighted sample of SAVVY deaths was less than 20					
** "Other" includes the categories of home, traditional healer, and other					

Table 5.2. Any treatment received and source of treatment, by age group (percent): 2013–2014

Less than half of all infants dying from perinatal and neonatal conditions received any treatment before death (Table 5.3). The share receiving treatment was over 80 percent for those dying from malaria, HIV, tuberculosis, and neoplasms. Of those perinatal and neonatal deaths where treatment was sought, 59.2 percent sought treatment at a government hospital, and approximately 19 percent went to a government clinic and 19 percent to a private facility. Individuals suffering from malnutrition went to government clinics for treatment more than any other leading cause of death.

Cause of Death	Treatment Received	Government Clinic	Government Hospital	Private Hospital or Clinic	Other*
Malaria	82.6	21.7	61.7	13.3	3.3
HIV disease	81.9	17.1	67.6	13.8	1.6
Remainder of infectious & parasites	68.7	19.2	56.8	15.8	8.3
Injuries and accidents	36.6	12.2	71.3	12.3	4.2
Disease of the circulatory system	75.1	8.4	71.8	16.0	3.8
Perinatal and neonatal condition	43.6	18.9	59.2	19.0	2.9
Pneumonia/ARI	69.9	22.2	58.4	17.9	1.5
Tuberculosis	84.7	8.2	72.2	15.4	4.2
Neoplasms	82.8	9.8	71.4	14.0	4.8
Malnutrition	77.1	28.3	59.7	9.2	2.8

Table 5.3. Any treatment received and source of treatment, by cause of death (percent): 2013-2014

* "Other" includes the categories of home, traditional healer, and other

A variable for clinical treatment was created that includes the deceased visiting a government hospital, government clinic, private clinic, or private hospital. Figure 5.2 shows the percentage of people by zone who received clinical treatment for the illness that led to their death. The share was lowest in the South West zone at 62.1 percent and highest in the Central East zone at 70.6 percent (Figure 5.2).¹



Figure 5.2. Clinical treatment received, by area (percent): 2013-2014

Many of the deceased experienced a delay in seeking treatment owing to a variety of causes, some of which are socioeconomic (see Table 5.4). Nearly two-thirds of the deceased travelled to a facility for treatment. Among those, 62.3 percent used motorized transport to reach the facility. As many as 21.1 percent in Central East and 14.6 percent on average across zones said there was a problem during admission. Some of the problems identified included treatment of the patient by the provider and facility in general (10.5% nationally). A similar number said they faced trouble in getting medication.

Among all deceased, whether treatment was sought or not, distance to the hospital/health facility was more than two hours for as many as 38.8 percent. For approximately a quarter of respondents, it was not clear if medical treatment was necessary, and 20.9 percent used traditional medicine. Nearly three-quarters of respondents (72.9%) reported that costs for treatment had an effect on other household expenditures.
Table 5.4. Background information and context in the final days before death for all causes, by zone:Malawi, 2013–2014

Details	National	North	Central East	Central West	South East	South West
The deceased travelled to a	N=104,86 4	N=13,3 85	N=17,193	N=27,617	N=25,0 95	N=21,57 4
hospital/health facility	65.8	63.7	70.6	66.8	64.9	63.3
Motorized transport was used to get to	N=69,028	N=8,52 7	N=12,131	N=18,438	N=16,2 85	N=13,64 7
the hospital or health facility	62.3	66.1	67.6	53.1	55.3	76.0
There were problems during admission to the hospital/health facility	14.6	10.6	21.1	13.8	15.6	11.2
There were problems with the way the deceased was treated in the hospital/health facility (medical treatment, procedures, interpersonal attitudes, respect, dignity)	10.5	7.9	7.7	10.4	11.2	14.1
There were problems getting medications, or diagnostic tests in the hospital/health facility	10.0	9.2	7.1	9.8	10.8	12.6
Takes more than 2 hours to get to the	N=104,86 4	N=133 85	N=17,193	N=27,617	N=25,0 95	N=21,57 4
nearest hospital/health facility from the deceased's home	38.8	45.0	41.3	32.9	39.0	40.2
There were doubts about whether medical care was needed	25.5	24.5	21.5	24.1	31.8	23.6
Traditional medicine was used for treatment	20.9	19.8	16.4	21.0	25.4	19.8
Telephone or cell phone was used to call for help	39.3	44.3	42.6	19.5	39.2	59.2
Over the course of illness, the total costs of care and treatment prohibited other household payments	72.9	60.7	76.7	82.8	72.4	65.2

Place of Death

Respondents were given five choices about where the deceased passed away: in a hospital, at another health facility, at home, other, or unknown. Figure 5.3 shows the percentage of deaths that occurred in each location where the location of death was known. Approximately 44 percent of deaths occurred in a hospital, 43 percent of deaths took place at home, 10 percent occurred in a health center, and 3 percent took place at another location.

Figure 5.3. Place of death, national (percent)



The place of death differed by area of residence. Figure 5.4 shows that urban residents were more likely to die in a hospital than rural residents (60.7% versus 42.6%). A higher share of deaths among rural residents took place at home (45.0%) than that of urban residents (30.6%).



Figure 5.4. Place of death, by residence (percent)

Place of death varied across the five zones. The share dying in a hospital ranged from 37.4 percent in the South East zone to 54.0 percent in the Central East zone (Table 5.5). The converse was true for deaths at home, with the lowest share in the Central East zone at 34.5 percent and the highest share in the South East zone at 50.1 percent.

Zone	Hospital	Health Center	Home	Other*
North	43.4	12.7	41.9	2.1
Central East	54.0	6.8	34.5	4.7
Central West	43.0	7.1	44.8	5.1
South East	37.4	11.6	50.1	0.9
South West	46.4	9.3	42.8	1.1
* "Other" includes the				

Table 5.5. Place of death by zone (percent): 2013–2014

Place of Death by Demographic Characteristics

Over half of deaths due to HIV disease occurred in a hospital, while over half of deaths due to disease of the circulatory system, tuberculosis, and neoplasms occurred at home (Table 5.6).

Cause of Death	Hospital	Health Center	Home	Other*
Malaria	49.1	14.7	34.1	2.0
HIV disease	53.2	5.3	41.4	0.1
Remainder of infectious and parasites	43.8	9.8	43.8	2.6
Injuries and accidents	40.3	3.8	35.8	20.2
Disease of the circulatory system	45.1	2.5	51.8	0.5
Perinatal and neonatal condition	48.7	17.4	31.1	2.8
Pneumonia/ARI	38.9	12.1	46.6	2.3
Tuberculosis	45.4	3.7	50.2	0.7
Neoplasms	42.5	2.0	55.6	0.0
Malnutrition	39.1	13.1	45.5	2.3

* "Other" includes the categories of home, traditional healer, and other

CHAPTER 6. DEATHS FROM SPECIFIC CAUSES

The population of Malawi remains vulnerable to morbidity and mortality due to a number of reasons. The Sample Vital Registration with Verbal Autopsy (SAVVY) survey looked at mortality due to all causes but identified two major specific causes—malaria and HIV/AIDS—as accounting for 18.5 percent and 13.8 percent of all deaths, respectively. In addition, two groups of causes—external and noncommunicable diseases (NCDs)—were notable. Noncommunicable diseases were among the leading causes, including diseases of the circulatory system and tumours. As a group, NCDs were responsible for one in four deaths. External causes of death accounted for 6.5 percent of all deaths in the country. This chapter focuses on these major causes and describes the mortality of these diseases according to age, sex, and geographical location.

Malaria

Malaria remains one of the leading causes of morbidity and mortality in Malawi, especially among children. The government, through the Malaria Control Program, has implemented several strategies to reduce the number of deaths caused by malaria among the population. The strategies include:

- Distribution of insecticide-treated bed nets (ITN) to households.
- Use of intermittent presumptive treatment (IPT) of malaria in pregnancy
- Increasing access to and availability of malaria drugs in health facilities
- Use of indoor residual spraying (IRS) in malaria endemic areas
- Use of rapid diagnostic testing (RDT), especially in facilities with limited microscopic services

According to the MDHS 2015–16, the percentage of households that own at least one ITN increased from 27 percent in 2004 to 57 percent in 2010 but did not change between 2010 and 2015–16. During the same reporting period, the use of ITN among children under five years increased from 15 percent in 2004 to 39 percent in 2010 and to 43 percent in 2015–16. Among pregnant women, the use of ITN increased from 15 percent in 2004 to 35 percent in 2010 and to 44 percent in 2015–16. On the other hand, the use of indoor spraying was reported in only 5 percent of the households during the 12 months prior to the survey (2015–16). Application of intermittent preventive treatment during pregnancy increased in the latest MDHS. The percentage of women who took at least three doses of SP/Fansidar during their last pregnancy rose to 30 percent in 2015–16, up from 18 percent in 2010, while 89 percent of pregnant women received at least one dose, up from 86 percent in 2010. Two-thirds of children under age 5 presenting with fever received advice or treatment, and 52.0 percent had blood taken from a finger or heel for testing. Despite these strategies and the expanded program coverage, deaths from malaria remain a concern in Malawi.

Zone	Female	Male	Both
North	13.2	13.2	13.2
Central East	21.8	28.1	25.4
Central West	20.6	18.0	19.1
South East	21.0	21.4	21.2
South West	13.3	11.7	12.4
All zones	18.3	18.7	18.5

Table 6.1. Malaria share of total deaths, by zone and sex (percent): Malawi, 2013–2014

Malaria accounted for 18.5 percent of all deaths in Malawi in 2013–14. Table 6.1 shows mortality due to malaria was highest in the Central East zone (25%), followed by the South East zone (21.2%), and lowest in the South West zone (12.4%). There was no statistically significant difference in mortality due to malaria between females and males (18.3% and 18.7%, respectively) at the national level. However, the contribution of malaria to total mortality was higher among males than females in the Central East zone, but there was no difference between males and females in the North and South East zones. The contribution of malaria was higher among women than men in the Central West and South West zones.

Table 6.2. Malaria share of total deaths, by age and sex (percent): Malawi, 2013–2014

Age (Years)	Female	Male	Both
0-4	28.7	29.2	29.0
5–14	31.5	40.4	37.0
15+	11.1	10.5	10.7
All ages	18.3	18.7	18.5

Malaria accounted for 29 percent of deaths among young children ages 0–4, 37 percent of all deaths among children ages 5–14, and 10.7 percent of deaths among the population ages 15 and older (Table 6.2). Among the age group 5–14, malaria accounted for a higher share of deaths among males (40.4%) than females (31.5%).

Number				Percentage	;	
Age	Male	Female	Total	Male	Female	Total
0–4	3,893	3,155	7,048	20.2	16.4	36.6
5–14	3,197	1,898	5,094	16.6	9.9	26.4
15+	4,072	3,047	7,119	21.1	15.8	37.0
Total	11,162	8,099	19,261	57.9	42 .1	100.0

Table 6.3. Number of malaria deaths, by age and sex

Over 19,000 people are estimated to have died from malaria in Malawi during August 2013–July 2014 (Table 6.3). Of those who died from malaria, about 58 percent were male and 42 percent were female. The age distribution of those dying from malaria was 37 percent ages 0–4, 26 percent ages 5–14, and 37 percent ages 15 and older.

Age (Years)	Sex	Hospital	Health Center	Home	Other	N (Weighted)
	Female	48.7	16.4	32.0	2.9	3,081
0–4	Male	48.8	25.2	21.1	5.0	3,794
	All	48.8	21.2	26.0	4.0	6,875
	Female	45.6	22.4	30.9	1.1	1,894
5–14	Male	54.6	19.4	24.6	1.3	3,041
	All	51.2	20.6	27.0	1.2	4,935
	Female	48.1	6.0	45.9	0.0	2,965
15+	Male	48.6	2.8	47.6	1.0	3,976
	All	48.4	4.2	46.9	0.6	6,941
All ages	Female	47.4	14.1	37.1	1.4	8,001
	Male	50.4	15.2	31.9	2.5	10,903
	All	49.1	14.7	34.1	2.0	18,904

Table 6.4. Place of death when cause of death is malaria, by age and sex: Malawi, 2013–2014

Table 6.4 shows the place of death for those dying from malaria by sex and age. Nearly half of all deaths due to malaria took place in a hospital (49.1%), followed by 34.1 percent at home and 14.7 percent in a health center. The proportion of adults dying at a health facility other than a hospital was smaller than the proportions observed among children below 15 years. A higher share of deaths due to malaria took place at home among adults than among children ages 0–4 years and 5–14 years.

Table 6.5. Access to treatment and place of treatment for malaria deaths, by zone (percent): Malawi, 2013–2014

	National	North	Central East	Central West	South East	South West
	N=18,530	N=1,744	N=4,070	N=5,163	N=5,257	N=2,296
% who received treatment	82.2	76.7	85.0	81.8	86.3	73.1
Place of treatment	N=15,072	N=1,338	N=3,432	N=4,225	N=4,439	N=1,638
Home	*	*	*	*	*	*
Traditional healer	*	*	*	*	*	*
Government facilities	83.6	82.2	87.0	82.2	90.0	63.7
Private facilities	13.2	14.1	11.5	12.7	7.8	31.7
Pharmacy and other	*	*	*	*	*	*
* Unweighted sample of SA						

At the national level, 82.2 percent of people who died from malaria accessed treatment prior to death (Table 6.5). The share accessing treatment before death ranged from 73.1 percent in the South West zone to 86.3 percent in the South East zone. Of those seeking treatment, the overwhelming majority went to government facilities (83.6%) followed by private facilities (13.2%). The South West zone stands out with more than double the national share seeking treatment from private facilities (31.7%).

Table 6.6. Background information and context in the final days before death for malaria deaths, by zone: Malawi, 2013–2014

			Central	Central	South	South
Details	National	North	East	West	East	West
	N=19,413	N=1,766	N=4,364	N=5,277	N=5,324	N=2,682
The deceased travelled to a						
hospital/health facility	78.7	72.5	75.9	80.6	87.1	66.9
	N=15,280	N=1,281	N=3,314	N=4,255	N=4,635	N=1,795
Motorized transport was used						
to get to the hospital or						
health facility	53.9	59.7	66.4	43.5	47.8	66.9
There were problems during						
admission to the						
hospital/health facility	17.4	12.8	24.0	13.2	19.9	11.8
There were problems with the						
way the deceased was						
treated in the hospital/health						
facility (medical treatment,						
procedures, interpersonal						
attitudes, respect, dignity)	11.6	11.1	7.8	7.7	12.8	25.1
There were problems getting						
medications, or diagnostic						
tests in the hospital/health						
facility	9.8	15.9	5.5	8.2	9.9	16.8
	N=19,413	N=1,766	N=4,364	N=5,277	N=5,324	N=2,682
Takes more than 2 hours to						
get to the nearest						
hospital/health facility from						
the deceased's home	44.5	47.7	43.3	46.1	47.6	34.7
There were doubts about						
whether medical care was						
needed	24.8	30.2	19.6	24.3	29.1	21.9
Traditional medicine was used						
for treatment	16.1	20.3	10.6	19.5	17.0	13.9
Telephone or cell phone was						
used to call for help	41.1	45.2	45.4	18.3	46.6	65.9
Over the course of illness, the						
total costs of care and						
treatment prohibited other						
household payments	77.3	66.1	80.2	86.3	73.9	68.9

The survey found that three-quarters of patients who had died from malaria had travelled to a hospital or health facility prior to their deaths (Table 6.6). The highest share of patients who had travelled to a hospital or health facility resided in the South East zone (87.1%), and the lowest share resided in the South West zone (66.9%). Motorized transport was used in just over half (53.9%) of all cases to convey these patients to the hospital or health facility at the national level. The share relying on motorized transport was highest in the South West (66.9%) and Central East (66.4%) zones. Less than half of the patients who died from malaria used motorized transport to travel to a hospital or health facility in the Central West (43.5%) and South East (47.8%) zones. It takes more than two hours to travel from home to the nearest hospital or health facility for 44.5 percent of those who died from malaria. The share more than two hours away from the nearest hospital or health facility was similar across the zones except for the South West zone, where only about a third of those dying from malaria spent that length of time.

Nationally, 17.4 percent of those who died from malaria experienced problems during admission to the hospital or health facility (Table 6.6). Once admitted, 11.6 percent reported issues with medical or personal treatment. Nearly one in ten stated that there were problems obtaining medications or diagnostic tests at the hospital or health facility.

The survey also sought to learn if there were any problems with the way the deceased were treated in the hospital/health facility in terms of medical treatment, procedures, interpersonal attitudes, respect, and dignity. Overall, 11.6 percent indicated problems in the way they were treated at the hospital/health facility (Table 6.6). The proportion of relatives who reported any problem in the way the patient who died due to malaria was treated at health facilities was higher in the Western, South Eastern, and Northern zones, ranging from 11 percent to a high of 25 percent. In Central East and Central West, these proportions were 7.8 and 7.7 percent, respectively.

The seriousness of the malaria illness was not always evident to the family of those who died from malaria. About one quarter stated that there were doubts about whether the deceased needed medical care (Table 6.6). A portion of the deceased and their families (16.1%) still relied on traditional medicine for treatment. Over the course of the illness, the total costs of care and treatment prohibited about three-fourths of households from meeting other financial obligations. Treatment costs prohibited over 86.3 percent of patient's households from paying for other household costs in the Central West zone, 80.2 percent in the Central East, 73.9 percent in the South East, 68.9 percent in the South West, and 66.1 percent in the North zone. The survey found that three-quarters of patients who had died from malaria had travelled to a hospital or health facility prior to their deaths (Table 6.6). The highest share of patients who had travelled to a hospital or health facility resided in the South East zone (87.1%), and the lowest share resided in the South West zone (66.9%). Motorized transport was used in just over half (53.9%) of all cases to convey these patients to the hospital or health facility at the national level. The share relying on motorized transport was highest in the South West (66.9%) and Central East (66.4%) zones. Less than half of the patients who died from malaria used motorized transport to travel to a hospital or health facility in the Central West (43.5%) and South East (47.8%) zones. It takes more than two hours to travel from home to the nearest hospital or health facility for 44.5 percent of those who died from malaria. The share more than two hours away from the nearest hospital or health facility was similar across the zones except for the South West zone, where only about a third of those dying from malaria spent that length of time.

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HIV-Related Deaths

Malawi started provision of antiretroviral therapy (ART) services to HIV-infected patients in 2004. As of the fourth quarter of 2016, 679,052 people were on ART (MOH program data). The ART coverage is 70 percent among adults (age 15 and older) and 68 percent for children below 15 years of age. Services are provided in 739 health facilities, both public and private. The viral suppression for patients on ART treatment was 76 percent (Columbia University, 2016).

MDHS 2015–16 showed that 42 percent of women and 48 percent of men have comprehensive knowledge about the modes of HIV transmission and preventions, a slight increase from 2010 MDHS (women 41% and

men 45%). Only 1 percent of women reported having more than one sexual partner in the past 12 months compared to 13 percent of men. Use of a condom during the last sexual intercourse was 27 percent among women and slightly higher among men at 30 percent. Knowledge on where to get HIV testing was nearly universal at 95 percent and 96 percent for women and men, respectively, but a higher share of women than men (83% versus 70%) have ever been tested for HIV. In the 12 months before the MDHS 2015–16, 44 percent of women and 42 percent of men had been tested for HIV.

The HIV prevalence rate among the population ages 15–49 was 8.8 percent in the MDHS 2015–16. However, it was higher among women (10.8%) as compared to men (6.4%). HIV prevalence was lower among young people ages 15–24 at 3.0 percent, but with an even wider disparity between women and men (4.9% versus 1.0%).



Figure 6.1. Estimates for AIDS deaths (2016 model versus 2017 model)

Figure 6.1 estimates that AIDS deaths based on the Spectrum 2017 model are slightly lower for adults and slightly higher for children, compared with the 2016 model. The estimated number of new infections in 2016 (36,300) exceeds the number of AIDS deaths (24,100). This means that the HIV-positive population continued to grow by 12,200 in 2016. The baseline census counted 14,504 HIV-related deaths (see Table 6.9) in the 2013–2014 period. The difference in figures can be explained by differences in definitions, assignment of deaths to HIV and differences in methodology (estimation versus surveillance). VA has been found to be a reliable method for measuring HIV-related deaths (Lopman, et al. 2011).

Zone	Female	Male	Both
North	11.2	8.7	9.8
Central East	6.7	6.0	6.3
Central West	12.9	11.2	11.9
South East	17.3	17.8	17.6
South West	21.2	19.8	20.4
All zones	14.5	13.4	13.8

Table 6.7. HIV-related disease share of total deaths, by zone and sex (percent): Malawi, 2013–2014

Table 6.7 indicates that among all causes of death nationally, 13.8 percent were related to HIV. The zone with the highest proportion of deaths due to HIV was the South West zone at 20.4 percent, followed by the South East zone at 17.6 percent. The Central East zone had the lowest share at 6.3 percent.

Nationally, mortality due to HIV is slightly higher among females at 14.5 percent, compared to males at 13.4 percent. In the North, Central West, and South West zones, a higher share of all deaths is due to HIV for females than males. However, there is no statistical difference between females and males in share of HIV-related deaths in the Central East and South East zones.

Age Group	Female	Male	Both
0–14	2.6	4.0	3.3
15–24	32.2	12.5	20.8
25–44	39.4	30.4	33.6
45–54	28.2	20.6	23.5
50+	10.6	10.8	10.7
All ages	14.5	13.4	13.8

Table 6.8. HIV-related disease share of total deaths, by age and sex (percent): Malawi, 2013–2014

Table 6.8 shows the share of deaths due to HIV by age and sex. The age group with the highest share of deaths attributable to HIV was 25–44 years at 33.6 percent, followed by the age group 45–54 years at 23.5 percent, and then the age group 15–24 years at 20.8 percent. For these three age groups, a higher share of female deaths compared to male deaths are due to HIV. In particular, for the age group 15–24, HIV-related deaths account for nearly a third of all female deaths, while for males it is only 12.5 percent. For the oldest age group (50 and older), there is no difference between women and men in the share of deaths due to HIV. The age group with the lowest share dying from HIV is 0–14 years at 3.3 percent. For children under age 15, HIV accounted for a higher share of deaths to boys (4.0%) as compared to girls (2.6%).

Table 6.9. Number of HIV-related deaths, by age and sex

			Number			Percentage
Age	Male	Female	Total	Male	Female	Total
0–4	399	232	632	2.75	1.60	4.35
5–14	392	245	637	2.70	1.69	4.39
15+	7,194	6,041	13,235	49.60	41.65	91.25
Total	7,985	6,519	14,504	55.05	44.95	100.00

An estimated 14,500 died from HIV-related disease in 2013–14 (Table 6.9). Of those dying from HIV-related disease, 55 percent were male and 45 percent were female. Less than 10 percent of those dying from HIV-related disease were under the age of 15.

Age (Years)	Sex	Hospital	Health Center	Home	Other	N (Weighted)
	Female	*	*	*	*	*
0-14	Male	45.1	16.4	38.5	0.0	790
	All	42.5	21.9	34.1	1.5	1,227
	Female	58.4	0.0	41.6	0.0	848
15–24	Male	42.5	6.2	51.2	0.0	478
	All	52.7	2.2	45.1	0.0	1,326
	Female	52.2	1.5	46.4	0.0	2,769
25–44	Male	57.6	6.6	35.8	0.0	3,823
	All	55.3	4.4	40.3	0.0	6,592
	Female	68.0	3.9	28.1	0.0	762
45–54	Male	50.8	0.0	49.2	0.0	933
	All	58.5	1.8	39.7	0.0	1,695
	Female	53.6	3.5	42.9	0.0	1,580
55+	Male	47.8	4.6	47.5	0.0	1,860
	All	50.5	4.1	45.4	0.0	3,440
All ages	Female	54.3	4.1	41.3	0.3	6,397
	Male	52.3	6.3	41.4	0.0	7,885
	All	53.2	5.3	41.4	0.1	14,282
* Unweighted so	ample of SAV	VY deaths was	less than 20			

Table 6.10. Place of death when cause of death is HIV-related disease, by age and sex: Malawi, 2013–2014

Table 6.10 shows that more than half of those dying from HIV-related causes died in a hospital (53.2), while 41.4 percent died at home and 5.3 percent died in health centers. The highest share dying in a hospital occurred among the 45–54 age group (58.5%), while the lowest share was found for the 0–14 age group

(42.5%). However, a relatively high share of the age group 0–14 died in health centers (21.9%) compared to all other age groups.

	National	North	Central East	Central West	South East	South West
	N=14,269	N=1,308	N=1,052	N=3,297	N=4,353	N=4,259
% who received treatment	81.3	82.1	81.4	84.6	84.9	74.8
Place of treatment	N=11,423	N=1,055	N=807	N=2,788	N=3,657	N=3,116
Home	*	*	*	*	*	*
Traditional healer	*	*	*	*	*	*
Government facilities	84.3	81.6	92.2	80.9	87.3	82.7
Private facilities	14.1	11.7	2.3	19.1	10.9	17.3
Pharmacy and other	*	*	*	*	*	*
* Unweighted sample of SAV	/VY deaths w	as less than	20			

Table 6.11. Access to treatment and place of treatment for HIV-related deaths, by zone (percent): Malawi, 2013–2014

An above-average share of patients who died from HIV-related causes, similar to malaria, received treatment before death. Overall, 81.3 percent received treatment before death, with more than eight out of ten accessing that treatment at a government clinic or government hospital (Table 6.11). Another 14.1 percent received treatment at a private clinic or private hospital. The share receiving treatment before death ranged from 74.8 percent in the South West zone to 84.9 percent in the South East zone. Reliance on government clinics and hospitals reached a high of 92.2 percent in the Central East zone. Differences between males and females in accessing treatment and place of treatment were minimal (not shown).

Table 6.12. Background information and context in the final days before death for HIV-related deaths, by zone: Malawi, 2013–2014

Details	National	North	Central East	Central West	South East	South West
	N=14,503	N=1,308	N=1,077	N=3,297	N=4,414	N=4,407
The deceased travelled to a						
hospital/health facility	76.8	90.6	78.9	83.8	71.7	72.1
	N=11,143	N=1,185	N=849	N=2,765	N=3,164	N=3,180
Motorized transport was used to						
get to the hospital or health facility	64.5	67.6	74.3	59.4	54.9	74.8
There were problems during						
admission to the hospital/health						
facility	15.6	4.8	29.0	14.2	21.1	11.9
There were problems with the way						
the deceased was treated in the						
hospital/health facility (medical						
treatment, procedures,						
interpersonal attitudes, respect,						
dignity)	11.5	1.6	8.9	12.7	15.2	11.1
There were problems getting						
medications, or diagnostic tests in						
the hospital/health facility	10.0	3.4	8.8	8.2	14.7	9.5
	N=14,503	N=1,308	N=1,077	N=3,297	N=4,414	N=4,407
Takes more than 2 hours to get to						
the nearest hospital/health facility						
from the deceased's home	38.6	34.9	45.2	28.7	44.8	39.4
There were doubts about whether						
medical care was needed	30.5	29.7	9.1	34.6	39.6	23.9
Traditional medicine was used for						
treatment	19.3	20.7	11.4	14.8	24.7	18.8
Telephone or cell phone was used						
to call for help	47.2	54.4	52.0	30.6	36.2	67.5
Over the course of illness, the total						
costs of care and treatment						
prohibited other household						
payments	80.6	77.8	69.1	94.1	78.5	76.1

Table 6.12 provides background on issues related to hospital or health facility accessibility and treatment. About three-quarters of those who died from an HIV-related disease travelled to a hospital or health facility; 64.5 percent using motorized transport. Nearly 40 percent of the deceased lived more than two hours from the nearest hospital or health facility. One in 10 reported difficulty obtaining medications or diagnostic tests at the hospital or health facility. Eight out of ten households reported that over the course of the deceased's HIV-related illness, the cost of care and treatment prohibited the household from making other expenditures.

External Causes

Deaths due to external causes accounted for 6.5 percent of all deaths from the SAVVY survey in 2013–14. Included among external causes are deaths resulting from road traffic accidents, assault, accidental poisoning, intentional self-harm, accidental falls, exposure to smoke and flames, and accidental drowning. The distribution of all external causes of death by type for children (under 15 years) and adults (15 and older) is shown in Table 6.13. Road traffic accidents accounted for 32.4 percent of all external causes of death among adults and 25.7 percent among children. Accidental drowning claimed more children than adults, accounting for 20.7 percent of all external cause deaths to children.

	15+ \	(ears	0–14	Years
Deaths from External Causes and Injuries	n	%	n	%
Road traffic accidents	1,683	32.4	407	25.7
Assault	863	16.6	0	0.0
Accidental poisoning by and exposure to noxious substances	488	9.4	0	0.0
Intentional self-harm	405	7.8	19	1.2
Accidental falls	240	4.6	162	10.2
Exposure to smoke, fire, and flames	223	4.3	222	14.0
Accidental drowning and submersion	202	3.9	328	20.7
All other external causes	1,089	21.0	448	28.3
All deaths from external causes and injuries	5,192	100.0	1,585	100.0
Note: Ordered by leading causes in 15+ years age group				

Table 6.13. Deaths from external causes and injuries, by type and age group: Malawi, 2013–2014

Males were at higher risk for external causes of death with this category, accounting for 8.6 percent of all male deaths and only 3.8 percent of all female deaths (Table 6.14). There were too few female deaths from external causes to calculate reliable estimates of shares by zone. For males, the South East zone had the lowest share at 7.1 percent, and the North zone had the highest share at 12.7 percent.

Zone	Female	Male	Both				
North	*	12.7	9.9				
Central East	*	9.1	6.8				
Central West	*	7.4	5.4				
South East	*	7.1	5.0				
South West	*	8.8	7.3				
All zones	3.8	8.6	6.5				
* Unweighted sample of SAVVY deaths was less than 20							

Table 6.14. External causes and injuries share of total deaths, by zone and sex (percent): Malawi, 2013–2014

There were about 6,800 deaths from injuries and accidents in Malawi in 2013–14 with nearly three times as many male deaths as female deaths (74.2% versus 25.8%, respectively) (Table 6.15). About 6 percent of victims were under age 5 and about 17 percent were ages 5–14, and 77 percent were ages 15 and over.

	Number					
Age	Male	Female	Total	Male	Female	Total
0–4	329	88	417	4.85	1.29	6.15
5–14	654	514	1,168	9.65	7.59	17.24
15+	4,042	1,150	5,192	59.65	16.97	76.62
Total	5,025	1,751	6,777	74.16	25.84	100.00

Table 6.15. Number of deaths from injuries and accidents, by age and sex

Owing to the nature of external causes of death, one out of five deaths took place somewhere other than a hospital, health center, or home (Table 6.16). Nevertheless, 40.3 percent died in a hospital, 35.8 percent at home, and 3.8 percent at a health center. Females were more likely to die at home or in a health center, while males were more likely to die in a hospital or somewhere other than a hospital, health center, or home.

Age (Years)	Sex	Hospital	Health Center	Home	Other	N (Weighted)
	Female	*	*	*	*	601
0-14	Male	50.6	12.3	22.5	14.5	983
	All	47.3	10.5	24.8	17.4	1,585
	Female	29.8	6.7	53.3	10.2	1,089
15 +	Male	40.4	0.5	35.0	24.1	4,103
	All	38.1	1.8	39.9	21.2	5,192
All ages	Female	34.0	7.0	44.5	14.5	1,691
	Male	42.3	2.7	32.9	22.0	5,141
	All	40.3	3.8	35.8	20.0	6,832
* Unweighted sa	mple of SAV	/Y deaths wo	is less than 20			
+ N enclosed in b	oracket show	ing unweight	ted			

Table 6.16. Place of death when death is from exter	nal causes and injuries	, by age and sex (percent):
Malawi, 2013–2014			

Table 6.17 shows that nationally, only 36.1 percent of those who died from external causes accessed treatment before death. The sudden and serious nature of many external causes may limit opportunities to seek treatment before death. The share accessing treatment ranged from 25.3 percent in the Central East zone to 44.3 percent in the South West zone. Over 80 percent of those who sought treatment obtained treatment at a government clinic or government hospital (not shown).

Table 6.17. Access to	treatment for externa	causes of death, by zo	one (percent): Malawi, 2013–2014
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	National	North	Central East	Central West	South East	South West
	N=5,807	N=1,305	N=726	N=1,286	N=1,087	N=1,403
% who received treatment	36.1	31.2	25.3	43.3	29.1	44.3

Table 6.18 shows that prior to death, 42 percent of those who died from external causes travelled to a hospital or health facility but did not necessarily receive treatment. The highest share of deceased who had travelled to a hospital or health facility was in the South West zone (57.6%), followed by the South East zone (50.5%). The share traveling to a hospital or health facility was similar in the Central West and the North zones at 38.7 percent and 38.6 percent, respectively. The most common mode of transport to the hospital or health facility was motorized transport (68.3%) at the national level. Reliance on motorized transport was highest in the South East zone at 78 percent. Motor transport use in the Central West and South West zones was similar at 69.7 percent and 67.8 percent, respectively. The share using motor transport was lowest in the Central East zone (48.4%). The homes of one-third of those dying from external causes were more than two hours from the nearest health facility. The time needed to reach the nearest health facility was the least for those residing in the Central West zone and greatest for those in the South West zone.

Table 6.18. Background information and context in the final days before death for external causes of death, by zone (percent): Malawi, 2013–2014

Details	National	North	Central East	Central West	South East	South West
	N=6,832	N=1,331	N=1,165	N=1,493	N=1,262	N=1,581
The deceased travelled to a hospital/health facility	42.0	38.6	20.0	38.7	50.5	57.6
	N=2,872	N=513	N=233	N=578	N=637	N=911
Motorized transport was used						
facility	68.3	64.5	48.4	69.7	78.0	67.8
There were problems during admission to the	10.0	14.0	10 (22.2	00.0	00.7
hospital/health tacility	19.9	16.0	10.6	22.3	23.0	20.7
treated in the hospital/health facility (medical treatment, procedures, interpersonal						
attitudes, respect, dignity)	17.4	19.7	10.6	11.0	23.0	17.9
There were problems getting medications, or diagnostic tests in the hospital/health						
facility	18.3	15.7	10.6	19.3	23.0	18.0
	N=6,832	N=1,331	N=1,165	N=1,493	N=1,262	N=1,581

Dotails	National	North	Central	Central	South	South
			East	west	Edst	west
Takes more than 2 hours to get						
to the nearest hospital/health						
facility from the deceased's						
home	33.6	35.5	26.8	20.2	35.7	48.1
There were doubts about						
whether medical care was						
needed	18.5	21.6	10.8	17.5	20.2	21.3
Traditional medicine was used						
for treatment	8.3	6.5	4.3	8.2	8.6	12.6
Telephone or cell phone was						
used to call for help	30.2	31.0	6 1	21.5	3/1	51.6
Over the course of illness, the	50.2	51.7	0.1	21.5	54.1	51.0
total costs of care and						
treatment prohibited other						
household payments	46.9	33.6	35.3	55.6	52.7	53.7

Nationally, almost 20 percent of those dying from external causes experienced problems during admission to the hospital or health facility, and 18.3 percent experienced problems getting medications or diagnostic tests in the hospital or health facility (Table 6.18).

The survey also sought to learn if there were any problems with the way the deceased was treated in the hospital or health facility in terms of medical treatment, procedures, interpersonal attitudes, respect, and dignity. Overall, 17.4 percent indicated problems in the way the deceased was treated (Table 6.18).

Over the course of illness that led to death from external causes, the total costs of care and treatment prohibited 46.9 percent of patients' families from paying for other household expenses nationally (Table 6.18). Treatment costs prohibited over 55.6 percent of patients in paying for other household costs in the Central West zone, 53.7 percent in the South West zone, 52.7 percent in the South East zone, 35.3 percent in the Central East zone, and 33.6 percent in the North zone.

Deaths from Noncommunicable Diseases

One out of four deaths of adults ages 15 and older in the SAVVY survey was from an NCD during 2013–2014. Among deaths from NCDs, 36.5 percent were owing to diseases of the circulatory system; 25.1 percent to cancer; 12.5 percent to chronic respiratory conditions; 11.5 percent to diseases of the digestive system; 10.3 percent to endocrine, nutritional, and metabolic diseases; and 4.1 percent to diseases of the nervous system (Table 6.19).

Table 6.19. Causes of deaths from NCDs among adults 15+ years

	Age 15+ Years			
Conditions in NCDs	Count	%		
Diseases of the circulatory system	6,181	36.5		
Hypertension	2,510	14.8		
Stroke	2,355	13.9		
CVD	135	0.8		
All other diseases of the circulatory system	1,181	7.0		
Cancer	4,255	25.1		
Malignant G.I. tract and other	1,011	6.0		
Malignant cervix/other parts	561	3.3		
Breast	183	1.1		
Kaposi's Sarcoma	90	0.5		
All other cancers	2,410	14.2		
Chronic respiratory conditions	2,123	12.5		
Asthma	1,176	6.9		
Other chronic obstructive pulmonary	924	5.4		
All other chronic respiratory diseases	23	0.1		
Diseases of the digestive system	1,958	11.5		
Diseases of liver	795	4.7		
Esophagus, stomach, and duodenum	99	0.6		
Hernias	94	0.6		
All other diseases of the digestive system	970	5.7		
Endocrine, nutritional, metabolic diseases	1,751	10.3		
Diabetes Mellitus	1,311	7.7		
Malnutrition	414	2.4		
All other endocrine, nutritional, and metabolic diseases	26	0.2		
Disease of the nervous system	687	4.1		
Epilepsy	657	3.9		
All other diseases of the nervous system	30	0.2		
Total	16,955	100		

Noncommunicable diseases accounted for a higher share of female deaths (28.0%) compared with male deaths (23.8%) (Table 6.20). The share of all deaths from NCDs did not vary greatly across the five zones, ranging from 22.8 percent in the South West zone to 28.8 percent in the North zone.

Table 6.20. Percentage contribution of NCD causes of mortality on all causes of death, by zone and sex, for adult deaths 15+ years: Malawi, 2013–2014

Zone	Female	Male	Both
North	31.0	27.3	28.8
Central East	30.1	26.4	27.8
Central West	28.8	20.3	23.8
South East	26.4	27.2	26.8
South West	25.6	20.6	22.8
All zones	28.0	23.8	25.5

Malawi experienced an estimated 21,100 deaths from noncommunicable conditions (Table 6.21). More males died from noncommunicable conditions than females with shares of 53.5 percent and 46.5 percent, respectively. Four out of five dying from noncommunicable conditions were ages 15 and older. However, the number of young children under age 5 dying from NCDs is notable, accounting for 12.3 percent of all such deaths, and nearly 70 percent higher than for children ages 5–14.

	Number			Percent		
Age	Male	Female	Total	Male	Female	Total
0–4	1,425	1,176	2,601	6.8	5.6	12.3
5–14	570	968	1,538	2.7	4.6	7.3
15+	9,291	7,664	16,955	44.0	36.3	80.4
Total	11,286	9,809	21,095	53.5	46.5	100.0

More than half of all adults who died from an NCD died at home, 40.8 percent died at a hospital, and 5.3 percent died at other health facilities (Table 6.22). A higher share of female adults dying from an NCD died at home (58.3%) than did male adults (48.8). In contrast, a higher share of male adults dying from an NCD died in a hospital (45.9%) than did female adults (34.7).

Place of Death	Male	Female	Both
Hospital	45.9	34.7	40.8
Other health facility	4.3	6.6	5.3
Home	48.8	58.3	53.2
Other	1.0	0.4	0.7
N =	9,035	7,621	16,656

Table 6.22. Place of death, by sex, for NCD causes of death among adults 15+ years (percent): Malawi, 2013–2014

About three-quarters of those dying from an NCD accessed treatment prior to their death (Table 6.23). The highest share accessing treatment prior to death was found in the Central West zone (83.5%) and the lowest share was in the South West zone (59.0%). Of those receiving treatment, 82.1 percent accessed treatment at a government clinic or hospital, and 14.0 percent received treatment from a private clinic or hospital.

Table 6.23. Background information and context in the final days before death for NCD causes of death, by zone, among adult deaths 15+ years (percent): Malawi, 2013–2014

Details	National	North	Central East	Central West	South East	South West
	N=16,955	N=2,467	N=2,697	N=4,071	N=4,305	N=3,415
The deceased travelled to						
a hospital/health facility	67.9	66.6	76.7	66.5	59.7	74.1
	N=11,518	N=1,644	N=2,067	N=2,706	N=2,569	N=2,532
Motorized transport was						
used to get to the hospital						
or health facility	74.4	84.2	66.9	71.8	65.4	85.8
There were problems						
during admission to the						
hospital/health facility	11.2	6.1	16.2	17.5	9.4	5.5

Details	National	North	Central East	Central West	South East	South West
There were problems with						
the way the deceased was						
treated in the						
hospital/health facility						
(medical treatment,						
procedures, interpersonal						
attitudes, respect, dignity)	10.2	8.6	6.2	19.5	5.0	10.0
There were problems						
getting medications, or						
diagnostic tests in the						
hospital/health facility	8.7	7.7	5.0	14.5	5.2	9.9
	N=16,955	N=2,467	N=2,697	N=4,071	N=4,305	N=3,415
Takes more than 2 hours to						
get to the nearest						
hospital/health facility from						
the deceased's home	33.8	34.4	34.9	28.0	27.5	47.2
There were doubts about						
whether medical care was						
needed	28.7	31.5	30.7	29.1	31.1	21.8
Traditional medicine was						
used for treatment	27.2	22.2	30.4	25.4	31.4	24.9
Telephone or cell phone						
was used to call for help	46.4	57.6	52.7	28.4	42.0	60.6
Over the course of illness,						
the total costs of care and						
treatment prohibited other						
household payment	76.8	69.6	88.7	91.7	68.1	65.5

About two-thirds of adults dying from an NCD travelled to a hospital or health facility before death (Table 6.23). Among this population, 74.4 percent used motorized transport to get to the hospital or health facility. About one in 10 experienced problems during admission, in the way they were treated, and in obtaining medications or diagnostics tests at the hospital or health facility.

Over the course of illness from the NCDs, the total cost of care and treatment prohibited 76.9 percent of patients' families from paying for other household expenses (Table 6.23). Prohibitive treatment costs affected a low of 65.5 percent of patient households in the South West zone and a high of 91.7 percent of patient households in the Central West zone.

CHAPTER 7. MATERNAL MORTALITY

The Malawi National Community Health Strategy 2017–2022 (MOH, Government of Malawi, 2017) has two primary health outcome goals, one of which is the reduction of maternal mortality by 20 percent from the maternal mortality ratio (MMR) of 439 deaths per 100,000 live births estimated in the 2015–16 MDHS to 350 per 100,000 live births. This goal is also in alignment with the current Health Sector Strategic Plan II 2017–2022. The maternal mortality ratio estimate of 439 represents the seven-year period before data collection (centered around 2012). The SAVVY baseline census and verbal autopsies estimated a maternal mortality ratio of 328 for the 2013–2014 period.

While both the 2015–16 MDHS and the SAVVY MMR estimates suggest that Malawi did not achieve the MDG goal of reducing the 1990-level MMR by 75 percent by 2015, there have been large decreases in maternal mortality over the past 20 years. The Government of Malawi attributes this reduction to increases in skilled birth attendance and antenatal care visits. Malawi will attempt to further reduce maternal deaths by "promoting ANC [antenatal care] facility visits, educating mothers and spouses on dangerous signs during pregnancy, educating women on correct use of Misoprostol after delivery in the community, and other health promotion efforts that save the lives of mothers" (MOH, 2017, p. 10). According to the WHO, "a maternal-related death is defined as the death of a woman while pregnant or during delivery, or in the 42 days after the delivery or within 42 days of termination of pregnancy, if the death is not due to accident or violence."

It should be noted that only 53 unweighted deaths attributable to maternal causes were identified in the SAVVY sample. Due to the small number, it is difficult to draw conclusions or represent data at a subnational level. The data presented in the remainder of this chapter are weighted.

Figure 7.1 Percentage distribution of top 15 leading causes of death in women ages 12–50 years, Malawi, 2013–2014



Figure 7.1 shows that maternal causes of death still greatly affect girls and women between the ages of 12 and 50. It is the third leading cause of death, responsible for 11.6 percent of deaths in that age range. This share is lower than the 2015–16 MDHS finding of 16 percent of deaths to women ages 15–49 classified as maternal deaths, but the studies use different methods of identifying deaths.⁹

⁹ The 2015–16 MDHS identified only 198 maternal deaths (unweighted) in the seven-year period before the survey using the sisterhood method (NSO & ICF, 2017).





The majority of maternal deaths take place in a hospital, as seen in Figure 7.2. Nearly two out of three women who die of maternal deaths die in a hospital, while 15.4 percent die in another type of health facility, and the remaining 19.5 percent die at home. Malawi lacks coverage in comprehensive and basic emergency obstetric care, with only 53 percent of hospitals being able to provide these services, according to the Health Sector Strategic Plan. Nevertheless, a higher share of deaths due to a maternal cause occurred at a hospital than for all causes on average (44.1%; Chapter 5).

Age	Maternal Deaths (n)	%	Age-Specific Fertility Rate (ASFR)
<15	61	3.9	3.5
15-19	249	16.0	119
20-29	565	36.2	182.7
30-39	446	28.6	116.1
40+	239	15.3	32.1
All ages	1,559	100.0	119.0

Table 7.1. Age distribution (percent) for maternal deaths, Malawi

The 2015–16 MDHS found that only 13 out of the 198 maternal deaths (unweighted) were to women ages 15–19. However, the Health Sector Strategy Plan suggests that adolescent pregnancies account for one in five maternal deaths and unsafe abortions account for another 17 percent of maternal deaths. The SAVVY survey found that 19.9 percent of maternal deaths were to women under age 20, more consistent with the Health Sector Strategy Plan than the 2015–2016 MDHS.

The age group most affected by maternal deaths is women ages 20–29 (see Table 7.1) at 36.2 percent, followed by women ages 30–39 at 28.6 percent. Similar rates were found in the age groups 15–19 and 40+, with a smaller number of girls under 15 dying of maternal causes. The age-specific fertility rate (ASFR) is highest among the 20–29 age group, consistent with a high share of all maternal deaths in that age group. The two age groups—15–19 and 40+—have similar shares of all maternal deaths; however, the ASFR is nearly four times higher among the 15–19 age group, suggesting that pregnancy is riskier for older women. The very low ASFR for girls under age 15, coupled with a 3.9 percent share of all maternal deaths, points to high risk for this age group, as well.

Figure 7.3 shows that the greatest burden of maternal deaths is found in rural areas compared to urban areas. Four out of five maternal deaths are of women living in rural areas. Urban residency does not appear to offer lower risk of maternal mortality. Only 16 percent of the population resides in urban areas, and the total fertility rate is lower in urban areas compared to rural areas (3.1 and 4.0, respectively). Yet, nearly 18 percent of all maternal deaths were to women in urban areas.



Figure 7.3. Place of residence for women who died from maternal causes (percent): Malawi

Figure 7.4. Percentage distribution women who received treatment prior to death from maternal causes, Malawi



Government health facility Private health facility

Nearly 55 percent of women sought and received treatment in the period leading up to her death (see Figure 7.4). This share receiving treatment is lower than the average for all deaths (69.1%).

Of those women who did seek treatment, four out of five went to a government health facility (clinic or hospital) for treatment, as seen in Figure 7.5. A small percentage (16.2%) sought care at a private health facility (clinic or hospital). These shares are comparable to the average for all causes of death.



Figure 7.5. Percentage distribution of place of treatment for those who received treatment prior to death from maternal causes, Malawi

CHAPTER 8. DISCUSSION

While data from the health information system in Malawi, as well as nonroutine surveys, have been able to provide insight into the major issues facing the health system in Malawi, this is the first time that comprehensive data on mortality have been available. With scientific accuracy, the government of Malawi can now definitively report on the leading causes of death. These are malaria, HIV-related illnesses, injuries and accidents, diseases of the circulatory system, perinatal and neonatal conditions, pneumonia/ ARI, tuberculosis, neoplasms, and malnutrition.

Just knowing the top 10 causes of death is not enough. While these national data provide an essential overview of the country as a whole, these causes of death do not affect all groups equally. Demographic characteristics of the deceased are related to their cause of death, place of treatment, treatment-seeking behavior, and death rates. One specific characteristic is whether the deceased lived in an urban or rural enumeration area. People in rural areas are affected by malaria, infectious and parasitic diseases, and perinatal and neonatal conditions more compared to urban areas. Adults in urban areas are more likely to die of HIV than rural residents. Neonates and children in rural areas die at higher rates than their urban counterparts. While there are no major differences in treatment-seeking behaviour, urban residents are more likely to seek care at a government hospital and rural residents more likely to seek care in private facilities. This is also reflected in where people die. Urban residents are more likely to die in a hospital, whereas rural residents are more likely to die at home.

The reasons for these urban and rural differences are not evident in the data. Further contextual exploration is necessary to understand the causes of those differences. Potential sources of difference include prevalence of infectious disease vectors, types of employment and physical risk, access to health services, distance from health facilities, knowledge of available health services, trust in health services, and financial and personal costs of seeking treatment. While some of these urban/rural differences can be addressed more easily by the health system, others may require a more multifaceted approach.

The urban and rural differences are heightened when looking at the zonal level. For example, over half of all deaths are at home in South East, the highest rate of any zone. HIV-associated deaths in the South West (218.3 deaths per 100,000) are very high compared to the Central East (71.3 deaths per 100,000). The opposite trend is found when looking at malaria in those two zones. Diseases of the circulatory system were highest in the North and South West, but lowest in the Central East zone. Injuries and accidents were also highest in the North zone. Pneumonia as a cause of death was low in the South West zone, and diarrhoeal disease is low in the Central West. This type of subnational data is essential for understanding where the greatest burden of disease is and where programs should be focused.

Not only is geography important to consider when understanding mortality data, it is also essential to look at sex- and age-disaggregated data to see which groups are disadvantaged. For example, women are more affected by HIV-related deaths than men, but men are more often killed by malaria than women. While this is consistent with trends in other countries (Chersich & Rees, 2008), it is important to understand the underlying gender dynamics that cause these differences. It could be men having greater exposure to

mosquitos while working or giving up space under the bednet for the family. It could be women being unable to negotiate condom use within a relationship. While sex and gender differences are difficult to address without changing societal norms, having the data to identify the differences is the first step.

Background characteristics affecting health can also help us better understand mortality data, and this is provided in the baseline census results. With limited levels of higher education, the general population may not have access to health education and knowledge. High rates of self-employment may affect individuals' ability to seek healthcare and take time away from their employment. Women's fertility rates, while not high in comparison to regional averages (United Nations, 2015), increase women's engagement with the health system, but also put them at risk of maternal morbidities and death. With 7.6 percent of people below 18 being classified as orphans, they are vulnerable to health risks and lack of access to care. These contextual factors are important for designing programs that are best suited for the entire population, but particularly populations at risk.

Some of the gaps in service, as well as in health-seeking behaviours, are identified in the SAVVY data. The treatment received is partly dependent upon the cause of death, but rates for certain treatable illness can be improved. Particularly causes of death such as infectious diseases or parasitic diseases, perinatal and neonatal conditions, and pneumonia/ARI treatment have low rates of treatment prior to death. While it is not realistic or advisable that all deaths occur in a hospital, it is a proxy for healthcare at the end of life. More than half of people who died from HIV-related illness died in a hospital, but half of people who died of circulatory system diseases died at home.

Not all deaths are avoidable, but some causes of death can be reduced if not eradicated. Many of the neonatal and under-five causes of death are avoidable and should be a focus of interventions. Particularly birth asphyxia, maternal-related complications, and sepsis have simple low-cost solutions for many of the causes of these illnesses. Maternal deaths could be avoided in many cases with access to emergency obstetric care or increased uptake of antenatal care. The leading cause of death is malaria, a treatable illness.

One in four deaths was caused by a noncommunicable death among adults age 15 and older. Diseases such as cancer, diseases of the circulatory system, diseases of the respiratory system, and other NCDs are a large share of the disease burden. These data highlight the need to focus not only on infectious disease and injury, but also on NCDs that are increasing worldwide and particularly affect low- and middle-income countries (Di Cesare, et al., 2013).

There are limitations to these data. The data provide a snapshot of mortality during a period in time, but disease burden and mortality trends are constantly changing. For the greatest utility of these data, SAVVY should be repeated regularly to identify trends. Additionally, these data do not tell us the "why" of mortality. While there are clues as to why certain people die of the things they die from, there are contextual factors that should be further explored to understand this quantitative data. Lastly, there was a gap in time between the baseline census and the verbal autopsies that could have affected recall and most definitely affected response rates (Serina et al. 2016).

Despite these limitations, this study provides the first comprehensive data on cause of death in Malawi. It gives stakeholders an opportunity to consider how their policies and programs are having an impact on people's lives. Stakeholders should engage with these data to inform their decision making at both the national and subnational levels. It is essential to meeting the Sustainable Development Goal 3 targets of reducing maternal mortality, ending preventable childhood deaths, ending the AIDS, tuberculosis, malaria, and tropical disease epidemics, reducing mortality from NCDs, and halving deaths from injuries and accidents.

REFERENCES

Chandramohan, D., Maude, G. H., Rodrigues, L. C., Hayes, R. J. (1998). Verbal autopsies for adult deaths: Their development and validation in a multicenter study. *Tropical Medicine & International Health*, 3 (6), 436-446. Retrieved from <u>https://www.ncbi.nlm.nih.gov/pubmed/9657505</u>

Chersich, M. F., & Rees, H. V. (2008). Vulnerability of women in southern Africa to infection with HIV: Biological determinants and priority health sector interventions. *AIDS* 22 (Suppl 4), S27–S40. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/19033753

Columbia University, ICAP. (2016) Population-based HIV impact assessment. 2016. Malawi population-based HIV impact assessment MPHLA 2015–2016 summary sheet: Preliminary findings. New York: ICAP. Retrieved from http://phia.icap.columbia.edu/wp-content/uploads/2016/09/MALAWI-Factsheet.FIN.pdf.

Di Cesare, M., Khang, Y., Asaria, P., Blakely, T., Cowan, M. J., Farzadfar, F.,... Ezzati, M. (2013). Inequalities in non-communicable diseases and effective responses. *The Lancet*, 381 (9866), 585–597. Retrieved from http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)61851-0/abstract

Government of the Republic of Malawi. (2017). *Health sector strategy plan II 2017–2022*. Lilongwe, Malawi. Retrieved from <u>http://www.health.gov.mw/index.php/downloads</u>.

Kahn, K., Tollman, S. T., Garenne, M., & Gear, J. S. S. (2000). Validation and application of verbal autopsies in a rural area of South Africa. *Tropical Medicine & International Health*, 5 (11), 824–831. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/11123832

Lawn, J. E., Osrin, D., Adler, A., & Cousens, S. (2008). Four million neonatal deaths: Counting and attribution of cause of death. *Paediatric and Perinatal Epidemiology* 22(5), 410–416.

Lopman, B., Cook, A., Smith, J., Chawira, G., Urassa, M., Kumogola, Y., ... Boerma, T. (2010). Verbal autopsy can consistently measure AIDS mortality: A validation study in Tanzania and Zimbabwe. *Journal of Epidemiology and Community Health*, 64 (4), 330–334. Retrieved from https://www.researchgate.net/publication/38034198 Verbal Autopsy can consistently measure AIDS m ortality a validation study in Tanzania and Zimbabwe

Lozano, R., Lopez, A. D., Atkinson, C., Naghavi, M., Flaxman, A. D., & Murray, C. J. L. (2011). Performance of physician-certified verbal autopsies: Multisite validation study using clinical diagnostic gold standards. *Population Health Metrics*, 9 (32). Retrieved from <u>http://www.pophealthmetrics.com/content/9/1/32</u>.

Marsh, D. R., Sadruddin, S., Fikree, F. F., Krishnan, C., & Darmstadt, G. L. (2003). Validation of verbal autopsy to determine the cause of 137 neonatal deaths in Karachi, Pakistan. *Paediatric and Perinatal Epidemiology*, 17 (2), 132–142. Retrieved from <u>https://www.ncbi.nlm.nih.gov/pubmed/12675779</u>

Mobley, C. C., Boerma, J. T., Titus, S., Lohrke, B., Shangula, K., & Black, R.E. (1996). Validation study of a verbal autopsy method for causes of childhood mortality in Namibia. *Journal of Tropical Pediatrics*, 42 (6), 365–369. Retrieved from <u>https://www.ncbi.nlm.nih.gov/pubmed/9009566</u>

Ministry of Health, Government of Malawi. (2017). *National community health strategy 2017–2022*. Lilongwe, Malawi. Retrieved from <u>http://www.health.gov.mw/index.php/downloads</u>.

National Statistical Office (NSO) [Malawi]. (2010). Population and housing census 2008 population projections analytical report: Volume 7. Zomba, Malawi: NSO. Retrieved from <u>http://www.nsomalawi.mw/index.php?option=com_content&view=article&id=106:2008-population-and-housing-census&catid=8</u>

National Statistical Office (NSO) [Malawi] & ICF. (2017). 2015–16 Malawi demographic and health survey key findings. Zomba, Malawi, and Rockville, Maryland, USA: NSO and ICF. Retrieved from https://dhsprogram.com/pubs/pdf/SR237/SR237.pdf

O'Hagan, R., Marx, M. A., Finnegan, K. E., Naphini, P., Ng'ambi, K., Laija, K., Wilson, E., Park, L., Wachepa, S., Smith, J., Gombwa, L., Misomali, A., Mleme, T., & Yosefe, S. (2017). National assessment of data quality and associated systems-level factors in Malawi. *Global Health: Science and Practice*, 5(3), 367–381.

Rodriguez, L., Reyes, H., Tome, P., Ridaura, C., Flores, S., & Guiscafre, H. (1998). Validation of the verbal autopsy method to ascertain acute respiratory infection as cause of death. *Indian Journal of Pediatrics*, 65 (4), 579–584. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/10773908

Serina, P., Riley, I., Hernandez, B., Flaxman, A. D., Praveen, D., Tallo, V., ... Lopez, A. D. L. (2016). What is the optimal recall period for verbal autopsies? Validation study based on repeat interviews in three populations. *Population Health Metrics*, 14 (40). Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5101705/

United Nations. (2015). *World fertility patterns 2015–data booklet* (ST/ESA/SER.A/370). New York: UN, Department of Economic and Social Affairs (DESA), Population Division. Retrieved from http://www.un.org/en/development/desa/population/publications/pdf/fertility/world-fertility-patterns-2015.pdf

World Health Organization. (2016). True magnitude of stillbirths and maternal and neonatal deaths underreported. News release 16 August. Retrieved from http://www.who.int/mediacenter/news/releases/2016/stillbirths-neonatal-deaths/en/.

APPENDIX 1. EDUCATION

Table A.1. Highest level of education for population age 5 and older who have ever attended school, by sex and age: National

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
Both sexes	Religence of Kinderganen	- Thirday	occontactly	ingrici	rorar	it (weighted)
5		66 1	0.0	0.0	100.0	284.534
6	8.3	91.7	0.0	0.0	100.0	436.290
7	1.7	98.3	0.0	0.0	100.0	490.262
8	0.6	99.4	0.0	0.0	100.0	496,185
9	0.2	99.8	0.0	0.0	100.0	470,873
10	0.1	99.8	0.1	0.0	100.0	546,906
11	0.0	99.6	0.3	0.0	100.0	426,245
12	0.0	99.1	0.8	0.0	100.0	476,289
13	0.0	97.5	2.5	0.0	100.0	378,573
14	0.0	94.2	5.8	0.0	100.0	475,497
15	0.0	88.6	11.3	0.0	100.0	356,607
16	0.0	79.8	20.0	0.2	100.0	301,478
17	0.0	71.3	28.4	0.3	100.0	268,305
18	0.0	67.9	31.4	0.7	100.0	361,487
19	0.0	64.3	34.5	1.1	100.0	284,904
20-24	0.0	63.5	33.7	2.8	100.0	1,377,327
25-29	0.0	65.4	30.7	3.9	100.0	1,064,526
30-34	0.0	72.3	24.7	2.9	100.0	886,233
35-39	0.0	72.3	24.7	2.9	100.0	675,389
40-44	0.0	77.8	18.3	3.9	100.0	455,405
45-49	0.0	82.3	13.9	3.8	100.0	294,189
50-54	0.1	85.7	11.0	3.2	100.0	286,752
55-59	0.1	86.2	10.9	2.9	100.0	171,170
60-64	0.0	88.9	8.7	2.3	100.0	160,446
65-69	0.1	89.7	8.5	1.7	100.0	117,411
70-74	0.1	91.4	6.7	1.9	100.0	83,672
75-79	0.0	92.5	6.1	1.4	100.0	51,917
80-84	0.0	94.9	4.0	1.2	100.0	34,757
85+	0.1	94.3	4.5	1.2	100.0	26,392
Total	1.3	81.4	15.7	1.6	100.0	11,740,021
Males						
5	33.2	66.8	0.0	0.0	100.0	138,609
6	8.6	91.4	0.0	0.0	100.0	212,387
7	2.0	98.0	0.0	0.0	100.0	241,395
Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
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8	0.7	99.3	0.0	0.0	100.0	242,019
9	0.2	99.8	0.0	0.0	100.0	232,914
10	0.1	99.8	0.1	0.0	100.0	270,889
11	0.1	99.7	0.2	0.0	100.0	199,896
12	0.0	99.3	0.6	0.0	100.0	241,347
13	0.0	97.8	2.1	0.0	100.0	185,825
14	0.0	94.8	5.2	0.0	100.0	241,057
15	0.0	90.2	9.8	0.0	100.0	186,286
16	0.0	82.8	17.1	0.0	100.0	156,156
17	0.0	73.4	26.3	0.2	100.0	141,009
18	0.0	66.4	33.0	0.7	100.0	128,060
19	0.0	60.0	38.8	1.2	100.0	128,060
20-24	0.0	56.4	40.3	3.2	100.0	520,648
25-29	0.0	57.6	37.3	5.1	100.0	520,648
30-34	0.0	60.4	35.5	4.1	100.0	441,613
35-39	0.0	64.0	32.3	3.7	100.0	367,791
40-44	0.0	70.7	24.4	4.9	100.0	264,170
45-49	0.0	76.6	18.2	5.1	100.0	168,150
50-54	0.1	80.0	15.3	4.7	100.0	148,727
55-59	0.1	81.4	14.8	3.7	100.0	97,954
60-64	0.0	84.4	12.4	3.2	100.0	90,094
65-69	0.0	85.5	12.2	2.2	100.0	66,136
70-74	0.0	87.0	10.2	2.8	100.0	47,688
75-79	0.1	89.3	8.8	1.9	100.0	29,761
80-84	0.0	91.8	6.5	1.6	100.0	19,525
85+	0.0	92.9	5.7	1.4	100.0	14,860
Total	1.2	78.2	18.6	2.0	100.0	5,908,742
Females						
5	34.6	65.4	0.0	0.0	100.0	145,925
6	8.0	92.0	0.0	0.0	100.0	223,904
7	1.5	98.5	0.0	0.0	100.0	248,867
8	0.5	99.5	0.0	0.0	100.0	254,166
9	0.2	99.8	0.0	0.0	100.0	237,959
10	0.1	99.8	0.1	0.0	100.0	276,016
11	0.0	99.6	0.4	0.0	100.0	226,349
12	0.0	98.9	1.0	0.0	100.0	234,942
13	0.0	97.2	2.8	0.0	100.0	192,749
14	0.0	93.7	6.3	0.0	100.0	234,441
15	0.0	87.0	13.0	0.0	100.0	170,321
16	0.0	76.6	23.2	0.3	100.0	145,322

A.g.o	Nurrony or kindorgation	Primary	Secondary	Highor	Total	N (Woightod)
Age	Norsely of kinderganen	Plimary	Secondary	nigner		
17	0.0	68.9	30.7	0.4	100.0	127,296
18	0.0	69.4	29.9	0.7	100.0	184,927
19	0.0	67.9	31.0	1.1	100.0	156,844
20-24	0.0	69.6	27.9	2.5	100.0	740,108
25-29	0.0	72.8	24.5	2.7	100.0	543,878
30-34	0.0	77.2	20.8	2.0	100.0	444,621
35-39	0.0	82.2	15.8	2.0	100.0	307,598
40-44	0.0	87.5	10.0	2.5	100.0	191,235
45-49	0.0	89.8	8.2	2.0	100.0	126,040
50-54	0.1	91.9	6.4	1.6	100.0	138,025
55-59	0.1	92.7	5.6	1.7	100.0	73,217
60-64	0.0	94.7	4.1	1.2	100.0	70,352
65-69	0.1	95.1	3.8	1.0	100.0	51,275
70-74	0.2	97.2	2.1	0.6	100.0	35,984
75-79	0.0	96.9	2.4	0.7	100.0	22,157
80-84	0.0	98.8	0.7	0.5	100.0	15,232
85+	0.2	96.1	2.9	0.9	100.0	11,532
Total	1.3	84.7	12.9	1.1	100.0	5,831,279

Table A.2. Highest level of education for population age 5 and older who have ever attended school	l, by
sex and age: Urban	

Age	Nurserv or kindergarten	Primary	Secondary	Hiaher	Total	N (Weighted)
Both sexes						
5	25.0	75.0	0.0	0.0	100.0	43,693
6	3.8	96.2	0.0	0.0	100.0	55,461
7	0.7	99.3	0.0	0.0	100.0	61,108
8	0.2	99.8	0.0	0.0	100.0	58,518
9	0.2	99.8	0.0	0.0	100.0	58,301
10	0.1	99.5	0.4	0.0	100.0	62,226
11	0.0	98.7	1.3	0.0	100.0	52,288
12	0.1	96.6	3.3	0.0	100.0	56,461
13	0.1	90.0	10.0	0.0	100.0	47,456
14	0.0	80.1	19.8	0.0	100.0	56,870
15	0.1	67.1	32.9	0.0	100.0	43,368
16	0.0	51.2	47.9	0.9	100.0	39,527
17	0.0	38.9	59.9	1.1	100.0	35,748
18	0.0	36.8	60.0	3.2	100.0	47,467

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
19	0.0	33.1	62.5	4.4	100.0	39,712
20-24	0.0	35.1	55.9	9.0	100.0	225,432
25-29	0.0	36.5	53.8	9.7	100.0	208,708
30-34	0.0	39.6	51.4	9.0	100.0	172,268
35-39	0.0	43.3	47.4	9.2	100.0	127,435
40-44	0.0	49.7	39.2	11.1	100.0	73,355
45-49	0.0	53.5	36.0	10.5	100.0	43,414
50-54	0.0	57.5	29.8	12.7	100.0	37,161
55-59	0.0	59.1	27.9	13.0	100.0	21,888
60-64	0.0	62.7	25.7	11.7	100.0	16,424
65-69	0.0	70.0	20.6	9.4	100.0	10,523
70-74	0.0	74.0	17.4	8.6	100.0	5,515
75-79	0.0	79.9	13.6	6.5	100.0	3,370
80-84	0.0	81.2	14.0	4.8	100.0	2,144
85+	0.0	79.3	16.4	4.2	100.0	1,086
Total	0.8	59.4	34.2	5.6	100.0	1,706,927
Males						
5	24.7	75.3	0.0	0.0	100.0	22,434
6	3.9	96.1	0.0	0.0	100.0	27,714
7	0.8	99.2	0.0	0.0	100.0	29,615
8	0.3	99.7	0.0	0.0	100.0	28,206
9	0.2	99.8	0.0	0.0	100.0	28,910
10	0.1	99.5	0.4	0.0	100.0	30,647
11	0.0	99.5	0.5	0.0	100.0	23,905
12	0.1	97.6	2.3	0.0	100.0	28,192
13	0.2	90.5	9.3	0.0	100.0	21,829
14	0.1	81.6	18.3	0.0	100.0	28,354
15	0.0	70.2	29.8	0.0	100.0	22,321
16	0.0	57.3	42.4	0.3	100.0	19,305
17	0.1	40.7	58.2	1.0	100.0	18,009
18	0.0	34.4	62.6	3.0	100.0	23,752
19	0.0	27.7	67.9	4.4	100.0	18,457
20-24	0.0	26.8	62.6	10.6	100.0	102,968
25-29	0.0	28.2	60.3	11.5	100.0	105,064
30-34	0.0	29.6	59.7	10.8	100.0	92,084
35-39	0.0	34.4	54.9	10.7	100.0	74,611
40-44	0.0	40.7	46.8	12.4	100.0	45,774
45-49	0.1	44.5	43.3	12.2	100.0	25,495
50-54	0.0	48.4	35.7	15.9	100.0	19,972
55-59	0.0	51.5	34.1	14.4	100.0	13,163

Age	Nursery or kindorgarten	Primane	Secondary	Highor	Total	N (Weighted)
Age 40.44		Finitely 54.0			100.0	
45.40	0.0	J0.7	27.4	10.0	100.0	10,336
70.74	0.0	62.4	20.7	10.7	100.0	3 344
70-74	0.0	72.1	19.4	10.5	100.0	1 830
20.84	0.0	72.1	10.4	5.0	100.0	1,037
85+	0.0	76.0	16.1	7 1	100.0	1,203
Total	0.0	54.1	39.3	7.1	100.0	874 439
Females	0.0	54.1		0.0	100.0	074,000
5	25.3	747	0.0	0.0	100.0	21.260
6	3.8	94.7	0.0	0.0	100.0	27,200
7	0.7	70.2 00 3	0.0	0.0	100.0	31 /9/
8	0.2	99.8	0.0	0.0	100.0	30 312
0	0.2	90 8	0.0	0.0	100.0	29 391
10	0.2	99.6	0.0	0.0	100.0	31 579
11	0.0	98.1	1.9	0.0	100.0	28 383
12	0.0	95.5	1.7	0.0	100.0	28,363
13	0.0	89.5	10.5	0.0	100.0	25,207
14	0.0	78.7	21.3	0.0	100.0	28,516
15	0.0	63.8	36.1	0.0	100.0	21,047
16	0.0	45.4	53.1	1.5	100.0	20,222
17	0.0	37.2	61.6	1.0	100.0	17 739
18	0.0	39.3	57.4	3.3	100.0	23 715
19	0.0	37.8	57.9	4.3	100.0	21.255
20-24	0.0	42.0	50.2	7.8	100.0	122,464
25-29	0.0	44.8	47.3	7.9	100.0	103,644
30-34	0.0	51.1	41.8	7.0	100.0	80,184
35-39	0.0	56.0	36.8	7.2	100.0	52,824
40-44	0.0	64.6	26.6	8.9	100.0	27,582
45-49	0.0	66.2	25.6	8.2	100.0	17,919
50-54	0.0	68.1	22.9	9.0	100.0	17,189
55-59	0.0	70.7	18.5	10.8	100.0	8,725
60-64	0.0	72.6	19.2	8.2	100.0	6,068
65-69	0.0	81.6	11.2	7.2	100.0	4,156
70-74	0.0	85.5	8.8	5.6	100.0	2,149
75-79	0.0	89.2	7.8	3.0	100.0	1,531
80-84	0.0	89.1	7.7	3.2	100.0	861
85+	0.0	83.9	16.1	0.0	100.0	442
Total	0.8	64.9	29.9	4.4	100.0	832,290

Table A.3. Highest level of education for population age 5 and older who have ever attended school, by sex and age: Rural

Ago	Nursony or kindorgation	Primane	Socondary	Highor	Total	N (Woightod)
Roth source	Norsery of kinderganen	Phintary	Secondary	nigher	Total	n (weighted)
5	25.5	64.5	0.0	0.0	100.0	240 840
6	8.9	91.1	0.0	0.0	100.0	380 829
7	19	98.1	0.0	0.0	100.0	429 1.54
8	0.7	99.3	0.0	0.0	100.0	437.667
9	0.2	99.8	0.0	0.0	100.0	412,572
10	0.1	99.8	0.1	0.0	100.0	484,680
11	0.1	99.8	0.2	0.0	100.0	373,957
12	0.0	99.5	0.5	0.0	100.0	419,828
13	0.0	98.6	1.4	0.0	100.0	331,117
14	0.0	96.1	3.8	0.0	100.0	418,627
15	0.0	91.6	8.4	0.0	100.0	313,240
16	0.0	84.1	15.8	0.0	100.0	261,951
17	0.0	76.3	23.6	0.2	100.0	232,557
18	0.0	72.6	27.1	0.3	100.0	314,020
19	0.0	69.4	30.0	0.6	100.0	245,192
20-24	0.0	69.0	29.3	1.6	100.0	1,151,895
25-29	0.0	72.4	25.1	2.5	100.0	855,818
30-34	0.0	75.9	22.5	1.6	100.0	713,966
35-39	0.0	79.0	19.5	1.5	100.0	547,954
40-44	0.0	83.2	14.3	2.5	100.0	382,050
45-49	0.0	87.3	10.1	2.6	100.0	250,776
50-54	0.1	89.9	8.3	1.8	100.0	249,591
55-59	0.1	90.2	8.4	1.4	100.0	149,282
60-64	0.0	91.9	6.8	1.3	100.0	144,022
65-69	0.1	91.7	7.4	0.9	100.0	106,888
70-74	0.1	92.6	5.9	1.4	100.0	78,157
75-79	0.0	93.4	5.5	1.0	100.0	48,547
80-84	0.0	95.8	3.3	0.9	100.0	32,613
85+	0.1	94.9	4.0	1.0	100.0	25,306
Total	1.3	85.2	12.6	0.9	100.0	10,033,094
Males						
5	34.8	65.2	0.0	0.0	100.0	116,175
6	9.3	90.7	0.0	0.0	100.0	184,673
7	2.1	97.9	0.0	0.0	100.0	211,780
8	0.8	99.2	0.0	0.0	100.0	213,813
9	0.2	99.8	0.0	0.0	100.0	204,003

Age	Nurserv or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
10		99.8	0.1	0.0	100.0	240.242
11	0.1	99.7	0.2	0.0	100.0	175.991
12	0.0	99.6	0.4	0.0	100.0	213.155
13	0.0	98.8	1.2	0.0	100.0	163,996
14	0.0	96.5	3.4	0.0	100.0	212,703
15	0.0	92.9	7.1	0.0	100.0	163,965
16	0.0	86.4	13.6	0.0	100.0	136,851
17	0.0	78.2	21.6	0.1	100.0	123,000
18	0.0	71.3	28.4	0.3	100.0	152,808
19	0.0	65.5	33.9	0.6	100.0	109,603
20-24	0.0	62.2	36.0	1.8	100.0	534,251
25-29	0.0	65.0	31.5	3.5	100.0	415,584
30-34	0.0	68.5	29.1	2.4	100.0	349,529
35-39	0.0	71.5	26.5	2.0	100.0	293,180
40-44	0.0	77.0	19.7	3.3	100.0	218,397
45-49	0.0	82.4	13.7	3.9	100.0	142,655
50-54	0.1	84.9	12.2	2.9	100.0	128,755
55-59	0.1	86.0	11.9	2.1	100.0	84,791
60-64	0.0	88.0	10.2	1.8	100.0	79,738
65-69	0.0	88.0	10.7	1.3	100.0	59,769
70-74	0.0	88.5	9.2	2.2	100.0	44,322
75-79	0.1	90.4	8.2	1.4	100.0	27,922
80-84	0.0	93.0	5.7	1.3	100.0	18,241
85+	0.0	93.6	5.2	1.1	100.0	14,216
Total	1.3	82.3	15.1	1.2	100.0	5,034,104
Females						
5	36.1	63.9	0.0	0.0	100.0	124,665
6	8.6	91.4	0.0	0.0	100.0	196,156
7	1.6	98.4	0.0	0.0	100.0	217,374
8	0.6	99.4	0.0	0.0	100.0	223,854
9	0.2	99.8	0.0	0.0	100.0	208,569
10	0.1	99.9	0.1	0.0	100.0	244,438
11	0.0	99.8	0.2	0.0	100.0	197,966
12	0.0	99.4	0.6	0.0	100.0	206,673
13	0.0	98.4	1.6	0.0	100.0	167,122
14	0.0	95.7	4.2	0.0	100.0	205,925
15	0.0	90.2	9.7	0.0	100.0	149,275
16	0.0	81.6	18.3	0.1	100.0	125,100
17	0.0	74.1	25.7	0.2	100.0	109,557
18	0.0	73.8	25.8	0.4	100.0	161,212

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
19	0.0	72.6	26.8	0.6	100.0	135,589
20-24	0.0	75.0	23.5	1.5	100.0	617,644
25-29	0.0	79.4	19.1	1.5	100.0	440,235
30-34	0.0	83.0	16.2	0.8	100.0	364,437
35-39	0.0	87.7	11.4	0.9	100.0	254,774
40-44	0.0	91.4	7.2	1.4	100.0	163,654
45-49	0.0	93.8	5.3	0.9	100.0	108,121
50-54	0.1	95.3	4.1	0.6	100.0	120,836
55-59	0.1	95.7	3.8	0.5	100.0	64,492
60-64	0.0	96.7	2.7	0.6	100.0	64,285
65-69	0.1	96.3	3.1	0.5	100.0	47,119
70-74	0.2	97.9	1.6	0.3	100.0	33,835
75-79	0.0	97.5	2.0	0.5	100.0	20,625
80-84	0.0	99.4	0.2	0.4	100.0	14,371
85+	0.2	96.5	2.4	0.9	100.0	11,091
Total	1.4	88.0	10.1	0.6	100.0	4,998,990

Table A.4. Highest level of education for population age 5 and older who have ever attended school, by sex and age: North

A .co	Nursony or kindorgarton	Primany	Socondary	Highor	Total	N (Woightod)
Both sexes	Noisely of Kinderganen	riindiy	secondary	nignei	Total	N (Weighied)
5	45.7	54.3	0.0	0.0	100.0	44,907
6	9.8	90.2	0.0	0.0	100.0	72,328
7	2.0	98.0	0.0	0.0	100.0	80,402
8	0.8	99.2	0.0	0.0	100.0	81,675
9	0.3	99.7	0.0	0.0	100.0	79,613
10	0.1	99.7	0.2	0.0	100.0	92,128
11	0.0	99.8	0.2	0.0	100.0	76,567
12	0.1	99.1	0.8	0.0	100.0	80,202
13	0.0	97.3	2.7	0.0	100.0	66,593
14	0.0	93.3	6.6	0.0	100.0	81,515
15	0.1	84.2	15.8	0.0	100.0	64,474
16	0.0	73.8	26.1	0.0	100.0	55,862
17	0.0	63.3	36.3	0.3	100.0	47,631
18	0.0	58.9	40.4	0.7	100.0	63,510
19	0.0	53.8	45.1	1.1	100.0	48,807

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
20-24		54.0	43.1	29	100.0	234.572
25-29	0.0	58.8	37.5	3.8	100.0	167.678
30-34	0.0	63.0	34.1	2.9	100.0	134.516
35-39	0.0	66.5	30.6	2.9	100.0	104.667
40-44	0.0	71.8	24.2	4.0	100.0	78.941
45-49	0.1	77.1	18.4	4.5	100.0	50,171
50-54	0.0	80.3	16.1	3.5	100.0	50.318
55-59	0.0	81.1	15.8	3.0	100.0	29,542
60-64	0.1	84.8	12.0	3.2	100.0	27,269
65-69	0.2	84.6	12.6	2.6	100.0	20,601
70-74	0.2	87.0	10.4	2.4	100.0	15,911
75-79	0.0	88.2	10.5	1.3	100.0	10,209
80-84	0.0	89.7	7.9	2.4	100.0	6,551
85+	0.0	90.0	8.7	1.3	100.0	4,277
Total	1.6	77.1	19.6	1.7	100.0	1,971,436
Males						
5	23.5	76.5	0.0	0.0	100.0	19,595
6	6.8	93.2	0.0	0.0	100.0	29,554
7	1.4	98.6	0.0	0.0	100.0	33,602
8	0.7	99.3	0.0	0.0	100.0	32,742
9	0.2	99.8	0.0	0.0	100.0	32,643
10	0.2	99.7	0.0	0.0	100.0	38,701
11	0.1	99.7	0.2	0.0	100.0	30,366
12	0.0	99.7	0.3	0.0	100.0	34,701
13	0.0	98.9	1.1	0.0	100.0	25,567
14	0.0	97.2	2.7	0.0	100.0	34,889
15	0.0	94.2	5.8	0.0	100.0	25,930
16	0.0	89.3	10.7	0.0	100.0	23,482
17	0.1	81.9	17.9	0.1	100.0	21,617
18	0.0	75.4	24.4	0.2	100.0	24,320
19	0.0	71.2	28.5	0.3	100.0	19,315
20-24	0.0	67.0	31.4	1.6	100.0	85,601
25-29	0.0	66.1	30.3	3.6	100.0	64,781
30-34	0.1	69.2	28.4	2.4	100.0	57,619
35-39	0.0	70.3	27.8	2.0	100.0	50,194
40-44	0.1	79.2	17.4	3.3	100.0	37,028
45-49	0.0	85.6	10.5	4.0	100.0	26,906
50-54	0.1	87.6	9.6	2.6	100.0	24,787
55-59	0.1	90.3	8.1	1.5	100.0	17,708
60-64	0.0	89.1	9.9	1.1	100.0	13,127

Age	Nurserv or kinderaarten	Primary	Secondary	Hiaher	Total	N (Weighted)
65-69	0.0	86.0	12.3	1.7	100.0	10,678
70-74	0.0	89.2	9.2	1.7	100.0	8,021
75-79	0.3	88.6	9.2	1.9	100.0	6,310
80-84	0.0	96.0	3.5	0.6	100.0	3,919
85+	0.0	96.3	2.2	1.4	100.0	2,669
Total	0.9	83.9	14.1	1.2	100.0	836,370
Females						
5	44.7	55.3	0.0	0.0	100.0	21,308
6	9.4	90.6	0.0	0.0	100.0	31,067
7	1.6	98.4	0.0	0.0	100.0	34,720
8	0.5	99.5	0.0	0.0	100.0	35,191
9	0.3	99.7	0.0	0.0	100.0	32,502
10	0.1	99.6	0.2	0.0	100.0	37,809
11	0.1	99.9	0.1	0.0	100.0	30,239
12	0.1	98.9	1.0	0.0	100.0	34,265
13	0.0	97.4	2.6	0.0	100.0	27,390
14	0.1	92.2	7.8	0.0	100.0	32,580
15	0.1	80.8	19.1	0.0	100.0	24,647
16	0.1	67.9	32.0	0.0	100.0	22,851
17	0.0	59.5	40.0	0.5	100.0	19,700
18	0.0	58.9	40.4	0.7	100.0	26,984
19	0.0	56.0	42.7	1.3	100.0	20,713
20-24	0.0	58.8	38.5	2.7	100.0	93,940
25-29	0.0	65.9	31.6	2.4	100.0	74,480
30-34	0.0	71.3	27.0	1.6	100.0	63,090
35-39	0.0	78.1	20.5	1.5	100.0	51,944
40-44	0.0	85.1	12.9	2.0	100.0	34,509
45-49	0.1	88.9	9.7	1.3	100.0	26,241
50-54	0.0	91.0	7.9	1.1	100.0	26,191
55-59	0.0	91.2	7.4	1.4	100.0	15,703
60-64	0.1	94.6	4.6	0.7	100.0	13,808
65-69	0.3	93.3	4.9	1.4	100.0	10,522
70-74	0.2	96.5	2.9	0.4	100.0	7,337
75-79	0.0	95.1	4.4	0.5	100.0	4,696
80-84	0.0	96.4	1.5	2.1	100.0	2,893
85+	0.0	95.0	5.0	0.0	100.0	1,718
Total	1.6	80.8	16.6	1.0	100.0	859,037

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
Both sexes	Noisely of Kindergunen	Thinary	Secondary	Ingrier	Torar	(Weighled)
5	24.0	76.0	0.0	0.0	100.0	44 907
6	6.1	93.9	0.0	0.0	100.0	72,328
7	1.3	98.7	0.0	0.0	100.0	80.402
8	0.5	99.5	0.0	0.0	100.0	81,675
9	0.2	99.8	0.0	0.0	100.0	79,613
10	0.1	99.9	0.0	0.0	100.0	92,128
11	0.0	99.8	0.2	0.0	100.0	76,567
12	0.0	99.6	0.4	0.0	100.0	80,202
13	0.0	98.8	1.2	0.0	100.0	66,593
14	0.0	96.8	3.1	0.0	100.0	81,515
15	0.0	93.3	6.7	0.0	100.0	64,474
16	0.0	87.3	12.7	0.0	100.0	55,862
17	0.0	81.0	18.8	0.1	100.0	47,631
18	0.0	76.1	23.7	0.2	100.0	63,510
19	0.0	73.4	26.2	0.4	100.0	48,807
20-24	0.0	72.0	26.8	1.2	100.0	234,572
25-29	0.0	72.3	25.1	2.6	100.0	167,678
30-34	0.0	76.3	22.0	1.6	100.0	134,516
35-39	0.0	78.8	19.8	1.4	100.0	104,667
40-44	0.0	84.2	13.1	2.6	100.0	78,941
45-49	0.0	89.6	7.7	2.7	100.0	50,171
50-54	0.1	91.4	6.7	1.8	100.0	50,318
55-59	0.1	92.6	6.2	1.1	100.0	29,542
60-64	0.0	92.2	7.0	0.8	100.0	27,269
65-69	0.0	90.3	8.2	1.5	100.0	20,601
70-74	0.0	93.4	5.7	0.9	100.0	15,911
75-79	0.2	92.4	6.1	1.3	100.0	10,209
80-84	0.0	98.0	1.8	0.3	100.0	6,551
85+	0.0	96.0	1.8	2.2	100.0	4,277
Total	0.9	86.5	11.8	0.9	100.0	1,971,436
Males						
5	23.5	76.5	0.0	0.0	100.0	20,779
6	6.8	93.2	0.0	0.0	100.0	35,032
7	1.4	98.6	0.0	0.0	100.0	38,516
8	0.7	99.3	0.0	0.0	100.0	40,259
9	0.2	99.8	0.0	0.0	100.0	38,796

Table A.5. Highest level of education for population age 5 and older who have ever attended school, by sex and age: Central East

Ago	Nurrony or kindorgarter	Primane	Sacondary	Highor	Total	N (Moightod)
10			Secondary			
10	0.2	77./	0.0	0.0	100.0	45,160
10	0.1	77./	0.2	0.0	100.0	30,701
12	0.0	77./	0.3	0.0	100.0	37,274
1.4	0.0	70.7 07.0	1.1	0.0	100.0	33,007
14	0.0	9/.2	5.8	0.0	100.0	33,130
14	0.0	74.Z	10.7	0.0	100.0	29,090
17	0.0	07.3 91.0	10.7	0.0	100.0	27,070
17	0.1	75.4	24.4	0.1	100.0	23,301
10	0.0	73.4	24.4	0.2	100.0	32,017
20.24	0.0	/1.2	20.3	1.4	100.0	110,457
20-24	0.0	67.0	30.3	1.0	100.0	84 778
20.24	0.0	00.1	30.3	3.0	100.0	04,770
30-34	0.1	07.Z	20.4	2.4	100.0	63,430
33-37	0.0	70.3	27.0	2.0	100.0	56,205
40-44	0.1	/ Y.Z	17.4	3.3	100.0	44,/13
40-49	0.0	83.6 97.7	10.5	4.0	100.0	27,002
50-54	0.1	0.76	9.0	2.0	100.0	27,333
55-57	0.1	90.3	0.1	1.5	100.0	17,720
60-64	0.0	87.1	7.7	1.1	100.0	13,661
03-07	0.0	00.0	12.3	1./	100.0	0.049
70-74	0.0	09.Z	9.2	1./	100.0	9,048
75-79	0.3	00.0	9.2	1.7	100.0	3,737
00-04	0.0	90.0	3.5	0.0	100.0	3,279
Tatal	0.0	70.3	2.2	1.4	100.0	2,300
Fomalos	0.9	03.7	14.1	1.2	100.0	771,517
Females	24.5	75 5	0.0	0.0	100.0	24 129
5	24.5	/ 3.3	0.0	0.0	100.0	24,128
0	5.4	74.0	0.0	0.0	100.0	37,290
0	1.1	70.7 00.4	0.0	0.0	100.0	41,000
0	0.4	77.0	0.0	0.0	100.0	41,413
7	0.1	100.0	0.0	0.0	100.0	40,017
10	0.0	100.0	0.0	0.0	100.0	40,700
10	0.0	77.0	0.2	0.0	100.0	40,787
12	0.0	77.4	0.6	0.0	100.0	40,708
14	0.1	70./	1.2	0.0	100.0	33,386
14	0.0	96.5	3.5	0.0	100.0	42,365
15	0.0	92.5	/.5	0.0	100.0	31,403
10	0.0	85.1	14.9	0.0	100.0	26,//2
1/	0.0	80.0	19.9	0.2	100.0	22,070
18	0.0	/6.8	23.0	0.2	100.0	31,493

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
19	0.0	75.4	24.2	0.4	100.0	25,827
20-24	0.0	76.4	22.7	0.9	100.0	123,915
25-29	0.0	78.7	19.8	1.5	100.0	82,900
30-34	0.0	83.0	16.1	1.0	100.0	69,058
35-39	0.0	88.6	10.5	0.8	100.0	48,462
40-44	0.0	90.9	7.5	1.6	100.0	34,228
45-49	0.0	94.7	4.3	1.0	100.0	22,508
50-54	0.0	96.0	3.2	0.8	100.0	22,986
55-59	0.2	96.0	3.4	0.5	100.0	11,814
60-64	0.0	96.4	3.1	0.5	100.0	11,609
65-69	0.0	96.3	2.6	1.1	100.0	8,619
70-74	0.0	98.9	1.1	0.0	100.0	6,863
75-79	0.0	97.8	1.8	0.4	100.0	4,270
80-84	0.0	100.0	0.0	0.0	100.0	3,252
85+	0.0	95.6	1.1	3.3	100.0	1,717
Total	0.9	89.2	9.4	0.5	100.0	979,920

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
Both sexes						
5	30.6	69.4	0.0	0.0	100.0	73,126
6	8.2	91.8	0.0	0.0	100.0	108,140
7	1.9	98.1	0.0	0.0	100.0	121,778
8	0.9	99.1	0.0	0.0	100.0	128,802
9	0.2	99.8	0.0	0.0	100.0	121,641
10	0.1	99.7	0.1	0.0	100.0	139,504
11	0.0	99.4	0.6	0.0	100.0	111,642
12	0.0	98.7	1.3	0.0	100.0	116,432
13	0.0	96.4	3.6	0.0	100.0	95,310
14	0.0	92.2	7.8	0.0	100.0	120,494
15	0.0	86.6	13.4	0.0	100.0	90,689
16	0.0	78.0	21.7	0.4	100.0	78,449
17	0.0	70.5	29.1	0.4	100.0	71,366
18	0.0	66.0	32.7	1.3	100.0	91,028
19	0.0	62.0	36.0	2.0	100.0	75,447
20-24	0.0	59.4	36.2	4.4	100.0	388,086
25-29	0.0	60.2	34.2	5.6	100.0	310,778
30-34	0.0	63.4	31.7	4.9	100.0	260,095
35-39	0.0	68.1	26.9	5.0	100.0	188,300
40-44	0.0	75.1	19.2	5.7	100.0	126,878
45-49	0.0	79.0	15.8	5.2	100.0	78,368
50-54	0.1	82.9	11.9	5.1	100.0	76,471
55-59	0.1	83.7	11.5	4.7	100.0	42,468
60-64	0.0	87.6	8.4	4.0	100.0	41,446
65-69	0.1	90.3	8.0	1.6	100.0	29,757
70-74	0.1	90.8	6.3	2.8	100.0	21,822
75-79	0.0	93.9	4.6	1.5	100.0	13,005
80-84	0.0	95.8	2.7	1.4	100.0	9,106
85+	0.0	96.8	2.2	1.0	100.0	7,322
Total	1.1	78.4	17.9	2.6	100.0	3,137,750
Males						
5	29.9	70.1	0.0	0.0	100.0	36,742
6	7.7	92.3	0.0	0.0	100.0	51,487
7	2.0	98.0	0.0	0.0	100.0	60,202
8	1.0	99.0	0.0	0.0	100.0	62,469
9	0.3	99.7	0.0	0.0	100.0	61.059

Table A.6. Highest level of education for population age 5 and older who have ever attended school, by sex and age: Central West

Ace	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
10		99.7	0.1		100.0	67 228
11	0.1	99.7	0.3	0.0	100.0	50 256
12	0.0	99.0	1.0	0.0	100.0	59.095
13	0.0	96.9	3.0	0.0	100.0	46.625
14	0.0	93.1	6.9	0.0	100.0	61,941
15	0.0	87.5	12.5	0.0	100.0	46,473
16	0.0	81.1	18.9	0.1	100.0	39,752
17	0.0	73.1	26.4	0.5	100.0	36,838
18	0.0	64.6	34.3	1.1	100.0	44,517
19	0.0	58.2	39.8	1.9	100.0	34,735
20-24	0.0	52.9	42.2	4.9	100.0	179,887
25-29	0.0	53.2	40.0	6.8	100.0	156,920
30-34	0.0	54.9	39.1	6.0	100.0	134,488
35-39	0.1	60.4	33.6	6.0	100.0	106,912
40-44	0.0	68.7	24.6	6.7	100.0	75,921
45-49	0.0	74.7	19.1	6.2	100.0	47,292
50-54	0.0	77.6	15.6	6.7	100.0	39,595
55-59	0.0	78.6	15.8	5.7	100.0	24,450
60-64	0.0	83.2	11.4	5.3	100.0	23,284
65-69	0.2	85.9	11.5	2.4	100.0	15,681
70-74	0.0	85.4	10.2	4.4	100.0	11,609
75-79	0.0	89.8	8.3	1.9	100.0	6,529
80-84	0.0	93.2	4.2	2.7	100.0	4,944
85+	0.0	94.7	3.1	2.2	100.0	3,368
Total	1.1	75.0	20.8	3.1	100.0	1,590,296
Females						
5	31.4	68.6	0.0	0.0	100.0	36,384
6	8.7	91.3	0.0	0.0	100.0	56,653
7	1.7	98.3	0.0	0.0	100.0	61,577
8	0.8	99.2	0.0	0.0	100.0	66,333
9	0.2	99.8	0.0	0.0	100.0	60,582
10	0.1	99.8	0.1	0.0	100.0	72,276
11	0.0	99.1	0.8	0.0	100.0	61,386
12	0.1	98.3	1.6	0.0	100.0	57,337
13	0.0	95.8	4.2	0.0	100.0	48,685
14	0.0	91.4	8.6	0.0	100.0	58,553
15	0.0	85.8	14.2	0.0	100.0	44,216
16	0.0	74.8	24.5	0.7	100.0	38,697
17	0.0	67.7	32.0	0.3	100.0	34,529

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
18	0.0	67.4	31.2	1.4	100.0	46,511
19	0.0	65.3	32.7	2.0	100.0	40,712
20-24	0.0	65.1	30.9	4.0	100.0	208,199
25-29	0.0	67.3	28.3	4.4	100.0	153,858
30-34	0.0	72.6	23.8	3.6	100.0	125,607
35-39	0.0	78.2	18.1	3.7	100.0	81,388
40-44	0.1	84.7	11.0	4.3	100.0	50,957
45-49	0.0	85.6	10.8	3.6	100.0	31,076
50-54	0.2	88.5	7.9	3.4	100.0	36,876
55-59	0.2	90.7	5.8	3.3	100.0	18,018
60-64	0.0	93.3	4.4	2.3	100.0	18,163
65-69	0.0	95.1	4.2	0.7	100.0	14,077
70-74	0.3	97.0	1.9	0.9	100.0	10,213
75-79	0.0	98.0	0.8	1.2	100.0	6,476
80-84	0.0	99.0	1.0	0.0	100.0	4,162
85+	0.0	98.6	1.4	0.0	100.0	3,954
Total	1.2	82.0	14.9	2.0	100.0	1,547,454

Table A.7. Highest level of education for population age 5 and older who have ever attended school, by sex and age: South East

A.c.o.	Nursery or kindergarten	Primary	Socondary	Highor	Total	N (Woightod)
Both sexes	Noisery of Kinderganen	rnnary	Secondary	nigner	Total	N (Weighied)
5	39.1	60.9	0.0	0.0	100.0	74,104
6	10.6	89.4	0.0	0.0	100.0	113,824
7	2.4	97.6	0.0	0.0	100.0	124,184
8	0.5	99.5	0.0	0.0	100.0	122,546
9	0.1	99.9	0.0	0.0	100.0	111,322
10	0.0	99.9	0.0	0.0	100.0	132,260
11	0.0	99.8	0.1	0.0	100.0	97,915
12	0.0	99.5	0.5	0.0	100.0	116,474
13	0.0	98.8	1.2	0.0	100.0	90,248
14	0.0	96.3	3.7	0.0	100.0	114,046
15	0.0	91.7	8.3	0.0	100.0	80,766
16	0.0	84.5	15.5	0.0	100.0	64,721
17	0.0	77.5	22.4	0.1	100.0	55,972
18	0.0	75.5	24.3	0.1	100.0	84,300

A		Duiteration	Co o constan	112-14	Telel	
Age	Nursery of kindergarten	Primary	Secondary	Higher		N (Weighted)
19	0.0	/1.9	27.8	0.4	100.0	62,895
20-24	0.0	72.9	25.9	1.2	100.0	299,334
25-29	0.0	/4.8	22.8	2.4	100.0	226,664
30-34	0.0	/8.4	20.0	1.6	100.0	185,219
35-39	0.0	01.0	17.1	1.2	100.0	135,328
40-44	0.0	85.2	12.7	2.1	100.0	52,917
40-49	0.0	07.0	8.4	1.7	100.0	52,817
50-54	0.1	92.0	6.6	1.3	100.0	31,422
55-59	0.1	92.0	6.2	1.0	100.0	30,123
60-64	0.0	93.0	8.U	1.0	100.0	32,022
00-09	0.0	94.9	4.5	0.0	100.0	15 500
70-74	0.1	93.1	5.4	1.3	100.0	13,329
7J-77	0.0	96.1	1.7	0.0	100.0	5.940
85+	0.0	95.1	3.4	0.0	100.0	5 452
Total	1.7	94.5	4.7	0.0	100.0	2 400 809
Males	1.7	00.5	11.1	0.7	100.0	2,800,807
5	37.1	62.9	0.0	0.0	100.0	35.601
6	11.3	88.7	0.0	0.0	100.0	56,471
7	3.0	97.0	0.0	0.0	100.0	60,906
8	0.4	99.6	0.0	0.0	100.0	59,682
9	0.1	99.9	0.0	0.0	100.0	55,718
10	0.1	99.8	0.1	0.0	100.0	66,673
11	0.1	99.8	0.1	0.0	100.0	45,983
12	0.0	99.5	0.5	0.0	100.0	58,750
13	0.0	99.0	1.0	0.0	100.0	45,516
14	0.0	96.3	3.6	0.0	100.0	57,769
15	0.0	92.8	7.2	0.0	100.0	43,745
16	0.0	86.6	13.4	0.0	100.0	34,853
17	0.0	78.6	21.4	0.0	100.0	29,689
18	0.1	73.2	26.7	0.0	100.0	40,706
19	0.0	64.7	34.9	0.4	100.0	25,530
20-24	0.0	65.3	33.5	1.2	100.0	130,818
25-29	0.0	66.9	29.7	3.4	100.0	106,515
30-34	0.0	71.2	26.3	2.5	100.0	90,196
35-39	0.0	74.8	23.5	1.7	100.0	73,416
40-44	0.0	79.6	17.4	3.0	100.0	50,508
45-49	0.0	85.8	11.5	2.8	100.0	31,670
50-54	0.1	88.0	9.6	2.3	100.0	27,214

A.g.o	Nursony or kindorgaton	Primany	Socondary	Highor	Total	N (Woightod)
55-59		20 0	secondary 8.4		100.0	17 589
60-64	0.0	89.8	8.7	1.4	100.0	18 544
65-69	0.0	92.7	6.5	0.8	100.0	13 424
70-74	0.0	90.6	7 7	1.7	100.0	9 810
7.5-79	0.0	97.0	30	0.0	100.0	5 450
80-84	0.0	93.7	5.7	0.6	100.0	3.567
85+	0.0	95.3	4.7	0.0	100.0	3.108
Total	1.7	84.0	13.4	1.0	100.0	1,299,422
Females						
5	40.8	59.2	0.0	0.0	100.0	38,503
6	10.0	90.0	0.0	0.0	100.0	57,353
7	1.9	98.1	0.0	0.0	100.0	63,278
8	0.5	99.5	0.0	0.0	100.0	62,864
9	0.1	99.9	0.0	0.0	100.0	55,605
10	0.0	100.0	0.0	0.0	100.0	65,587
11	0.0	99.8	0.2	0.0	100.0	51,933
12	0.0	99.4	0.6	0.0	100.0	57,723
13	0.0	98.5	1.5	0.0	100.0	44,732
14	0.0	96.2	3.8	0.0	100.0	56,277
15	0.0	90.3	9.7	0.0	100.0	37,021
16	0.0	82.1	17.8	0.1	100.0	29,868
17	0.0	76.3	23.6	0.2	100.0	26,283
18	0.0	77.8	22.0	0.2	100.0	43,595
19	0.0	76.7	22.9	0.3	100.0	37,364
20-24	0.0	78.8	19.9	1.3	100.0	168,516
25-29	0.0	81.9	16.7	1.4	100.0	120,149
30-34	0.0	85.2	14.0	0.7	100.0	95,023
35-39	0.0	89.7	9.6	0.7	100.0	61,911
40-44	0.0	93.5	5.7	0.8	100.0	33,906
45-49	0.1	95.3	3.9	0.7	100.0	21,147
50-54	0.1	96.5	3.1	0.3	100.0	24,208
55-59	0.0	96.9	2.8	0.3	100.0	12,533
60-64	0.0	97.3	2.3	0.5	100.0	13,478
65-69	0.0	98.2	1.4	0.5	100.0	9,011
70-74	0.4	97.5	1.4	0.7	100.0	5,719
75-79	0.0	100.0	0.0	0.0	100.0	3,086
80-84	0.0	100.0	0.0	0.0	100.0	2,373
85+	0.0	94.8	5.2	0.0	100.0	2,344
Total	1.8	89.0	8.7	0.5	100.0	1,301,387

Table A.8. Highest level of education for population age 5 and older who have ever attended school, by sex and age: South West

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
Both sexes						
5	30.3	69.7	0.0	0.0	100.0	51,495
6	5.9	94.1	0.0	0.0	100.0	81,377
7	0.8	99.2	0.0	0.0	100.0	95,576
8	0.4	99.6	0.0	0.0	100.0	95,229
9	0.2	99.8	0.0	0.0	100.0	93,151
10	0.1	99.8	0.2	0.0	100.0	106,503
11	0.1	99.6	0.4	0.0	100.0	79,515
12	0.0	99.0	1.0	0.0	100.0	94,216
13	0.1	96.4	3.5	0.0	100.0	73,466
14	0.0	92.6	7.3	0.0	100.0	91,973
15	0.0	86.7	13.3	0.0	100.0	70,101
16	0.0	74.4	25.3	0.3	100.0	56,113
17	0.0	63.1	36.4	0.5	100.0	52,020
18	0.0	60.4	38.5	1.1	100.0	71,346
19	0.0	58.9	39.6	1.5	100.0	57,728
20-24	0.0	57.9	38.3	3.7	100.0	275,794
25-29	0.0	61.9	34.0	4.1	100.0	220,145
30-34	0.0	65.3	31.7	3.0	100.0	185,694
35-39	0.0	68.5	28.5	3.0	100.0	144,957
40-44	0.0	74.0	22.1	3.8	100.0	93,635
45-49	0.0	78.6	17.4	3.9	100.0	59,687
50-54	0.1	83.5	13.1	3.3	100.0	57,563
55-59	0.0	83.1	13.3	3.6	100.0	35,628
60-64	0.1	87.2	10.7	2.0	100.0	32,774
65-69	0.0	88.3	9.7	2.0	100.0	23,418
70-74	0.0	92.7	5.8	1.5	100.0	15,053
75-79	0.0	90.7	6.7	2.6	100.0	9,163
80-84	0.0	94.7	4.3	1.0	100.0	6,348
85+	0.4	91.9	6.0	1.6	100.0	4,954
Total	1.0	78.6	18.6	1.8	100.0	2,334,619
Males						
5	29.9	70.1	0.0	0.0	100.0	25,892
6	6.5	93.5	0.0	0.0	100.0	39,843
7	0.8	99.2	0.0	0.0	100.0	48,169
8	0.4	99.6	0.0	0.0	100.0	46,867
9	0.2	99.8	0.0	0.0	100.0	44,698

Age	Nursery or kindergarten	Primary	Secondary	Higher	Total	N (Weighted)
10	0.1	99.7	0.2	0.0	100.0	53,128
11	0.1	99.7	0.3	0.0	100.0	37,510
12	0.0	99.2	0.7	0.0	100.0	49,507
13	0.1	97.0	2.9	0.0	100.0	35,110
14	0.0	93.4	6.6	0.0	100.0	47,307
15	0.0	88.8	11.2	0.0	100.0	37,067
16	0.0	76.8	23.0	0.2	100.0	28,978
17	0.1	65.5	34.2	0.3	100.0	27,305
18	0.0	57.6	41.2	1.2	100.0	35,001
19	0.0	54.3	43.9	1.8	100.0	25,500
20-24	0.0	48.6	47.0	4.4	100.0	130,256
25-29	0.0	52.3	42.1	5.6	100.0	107,654
30-34	0.0	55.8	40.1	4.1	100.0	93,852
35-39	0.0	60.4	36.0	3.6	100.0	81,064
40-44	0.0	66.4	28.9	4.7	100.0	56,000
45-49	0.0	72.5	22.6	4.9	100.0	34,619
50-54	0.1	77.8	17.4	4.7	100.0	29,797
55-59	0.0	77.6	17.6	4.7	100.0	20,479
60-64	0.1	83.6	14.0	2.3	100.0	19,479
65-69	0.0	85.2	12.4	2.4	100.0	14,372
70-74	0.0	90.6	7.5	1.9	100.0	9,200
75-79	0.0	88.8	7.6	3.7	100.0	5,533
80-84	0.0	92.1	6.8	1.1	100.0	3,796
85+	0.0	91.0	7.8	1.2	100.0	3,155
Total	0.9	74.7	22.1	2.3	100.0	1,191,137
Females						
5	30.7	69.3	0.0	0.0	100.0	25,602
6	5.3	94.7	0.0	0.0	100.0	41,534
7	0.8	99.2	0.0	0.0	100.0	47,407
8	0.4	99.6	0.0	0.0	100.0	48,362
9	0.2	99.8	0.0	0.0	100.0	48,453
10	0.1	99.8	0.1	0.0	100.0	53,376
11	0.1	99.5	0.5	0.0	100.0	42,005
12	0.0	98.7	1.3	0.0	100.0	44,708
13	0.0	95.9	4.1	0.0	100.0	38,356
14	0.0	91.8	8.1	0.0	100.0	44,666
15	0.0	84.3	15.7	0.0	100.0	33,034
16	0.0	71.8	27.8	0.4	100.0	27,134
17	0.0	60.6	38.8	0.6	100.0	24,715

Age	Nurserv or kinderaarten	Primary	Secondary	Hiaher	Total	N (Weighted)
18	0.1	63.2	35.8	0.9	100.0	36,345
19	0.0	62.4	36.3	1.3	100.0	32,228
20-24	0.0	66.3	30.5	3.1	100.0	145,538
25-29	0.0	71.0	26.2	2.8	100.0	112,491
30-34	0.0	74.9	23.1	2.0	100.0	91,842
35-39	0.0	78.7	18.9	2.3	100.0	63,893
40-44	0.0	85.3	12.1	2.6	100.0	37,635
45-49	0.0	87.1	10.3	2.6	100.0	25,068
50-54	0.1	89.6	8.6	1.7	100.0	27,765
55-59	0.0	90.5	7.4	2.2	100.0	15,149
60-64	0.0	92.4	5.9	1.7	100.0	13,295
65-69	0.0	93.2	5.3	1.5	100.0	9,046
70-74	0.0	96.0	3.1	0.9	100.0	5,852
75-79	0.0	93.7	5.3	1.0	100.0	3,630
80-84	0.0	98.5	0.6	0.8	100.0	2,553
85+	1.2	93.5	3.0	2.4	100.0	1,800
Total	1.0	82.6	15.1	1.3	100.0	1,143,482

APPENDIX 2. EMPLOYMENT

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
Both sexes										
10 and older	7.8	36.5	17.8	31.3	3.2	1.4	0.3	1.6	100.0	10,804,060
10-14	0.2	0.9	8.6	89.4	0.2	0.7	0.0	0.1	100.0	2,354,735
15-19	1.5	13.3	18.1	62.1	2.5	1.8	0.0	0.6	100.0	1,635,460
20-24	8.0	42.2	24.4	15.6	6.0	1.9	0.0	1.9	100.0	1,472,649
25-29	14.5	54.2	19.6	2.3	5.6	1.7	0.0	2.1	100.0	1,160,541
30-34	15.0	58.6	17.6	0.5	4.5	1.4	0.0	2.4	100.0	991,259
35-39	15.6	60.3	16.3	0.2	3.8	1.4	0.0	2.5	100.0	793,116
40-44	16.0	61.1	15.7	0.1	3.3	1.4	0.0	2.4	100.0	570,644
45-49	14.5	62.3	16.1	0.1	3.2	1.2	0.3	2.3	100.0	373,464
50-54	11.7	61.0	19.3	0.1	3.0	1.7	0.6	2.5	100.0	394,714
55-59	11.0	61.0	18.8	0.0	3.0	1.7	1.4	3.1	100.0	244,821
60-64	7.9	59.2	23.6	0.1	2.4	1.6	2.4	2.7	100.0	243,637
65-69	5.7	56.8	27.1	0.1	1.9	1.7	3.2	3.5	100.0	189,177
70-74	4.1	54.4	31.5	0.1	1.7	1.0	3.7	3.6	100.0	144,588
75-79	2.5	47.6	38.7	0.1	1.4	1.2	5.1	3.3	100.0	96,125
80+	1.8	35.8	51.2	0.2	1.5	0.8	4.3	4.5	100.0	139,130
Males										
10 and older	12.6	36.7	12.8	34.3	0.2	1.3	0.5	1.6	100.0	5,241,864
10-14	0.3	0.9	8.5	89.4	0.1	0.7	0.0	0.1	100.0	1,166,015
15-19	2.0	10.0	14.9	70.4	0.5	1.7	0.0	0.6	100.0	817,322
20-24	12.8	41.1	18.6	23.3	0.5	1.9	0.0	1.8	100.0	672,010

Table A.9. Population by age group and employment status: National

	Wage	Self	Not	Full time		Unpaid family				Ν
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
25-29	23.4	57.2	12.3	3.3	0.2	1.5	0.0	2.1	100.0	555,636
30-34	24.2	60.6	10.8	0.5	0.1	1.2	0.0	2.6	100.0	475,968
35-39	24.2	61.9	10.0	0.2	0.1	1.0	0.0	2.6	100.0	404,606
40-44	24.4	61.6	10.4	0.1	0.1	1.1	0.0	2.4	100.0	303,393
45-49	22.6	62.6	10.9	0.0	0.1	1.1	0.4	2.2	100.0	194,869
50-54	21.0	61.6	12.4	0.1	0.1	1.4	1.0	2.5	100.0	175,304
55-59	19.4	62.1	11.5	0.0	0.0	1.6	2.2	3.1	100.0	118,054
60-64	14.0	61.9	15.7	0.0	0.1	1.4	4.2	2.7	100.0	114,100
65-69	10.6	59.9	18.7	0.0	0.1	1.7	5.6	3.5	100.0	85,381
70-74	8.2	59.2	21.8	0.1	0.2	0.8	6.3	3.4	100.0	64,710
75-79	5.3	55.8	25.5	0.2	0.3	1.1	8.6	3.2	100.0	40,483
80+	3.9	45.2	37.8	0.1	0.5	0.8	8.3	3.4	100.0	54,016
Females										
10 and older	3.4	36.4	22.5	28.6	5.9	1.5	0.2	1.7	100.0	5,562,196
10-14	0.2	0.9	8.6	89.3	0.3	0.7	0.0	0.1	100.0	1,188,721
15-19	1.0	16.6	21.4	53.9	4.6	1.9	0.0	0.7	100.0	818,138
20-24	4.0	43.1	29.2	9.2	10.6	1.9	0.0	2.0	100.0	800,639
25-29	6.2	51.5	26.3	1.4	10.6	1.8	0.0	2.0	100.0	604,904
30-34	6.5	56.7	23.9	0.4	8.7	1.6	0.0	2.3	100.0	515,291
35-39	6.6	58.6	22.9	0.1	7.6	1.7	0.0	2.4	100.0	388,510
40-44	6.5	60.5	21.7	0.1	7.1	1.7	0.0	2.4	100.0	267,250
45-49	5.7	62.0	21.7	0.1	6.5	1.4	0.1	2.4	100.0	178,595
50-54	4.2	60.5	24.9	0.1	5.4	2.0	0.3	2.5	100.0	219,411
55-59	3.2	60.0	25.5	0.1	5.7	1.7	0.7	3.1	100.0	126,767
60-64	2.6	56.8	30.6	0.1	4.5	1.8	0.9	2.7	100.0	129,537
65-69	1.7	54.2	34.0	0.1	3.4	1.7	1.3	3.6	100.0	103,797
70-74	0.7	50.4	39.3	0.2	2.9	1.1	1.7	3.7	100.0	79,879
75-79	0.4	41.7	48.3	0.1	2.2	1.2	2.6	3.5	100.0	55,641

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
80+	0.4	29.9	59.7	0.2	2.1	0.8	1.8	5.1	100.0	85,115

Table A.10. Population by age group and employment status: Urban

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
Both sexes										
10 and older	23.2	22.9	13.3	32.6	6.7	0.3	0.6	0.4	100.0	1,472,464
10-14	0.4	0.2	2.3	96.5	0.2	0.2	0.0	0.1	100.0	278,300
15-19	3.3	4.5	13.7	72.9	4.6	0.6	0.0	0.3	100.0	208,456
20-24	19.6	21.3	24.4	22.0	11.9	0.5	0.0	0.3	100.0	228,866
25-29	34.3	33.5	17.8	3.2	10.5	0.3	0.0	0.3	100.0	212,975
30-34	38.7	38.9	12.6	0.9	8.3	0.1	0.0	0.4	100.0	176,422
35-39	41.2	41.2	9.5	0.4	7.1	0.1	0.0	0.6	100.0	131,807
40-44	46.0	37.4	9.3	0.1	6.5	0.2	0.0	0.6	100.0	77,405
45-49	42.8	40.0	9.6	0.2	6.2	0.2	0.5	0.5	100.0	46,066
50-54	38.9	37.7	13.7	0.2	6.9	0.2	1.7	0.7	100.0	40,579
55-59	39.3	34.0	13.4	0.1	7.0	0.2	5.1	1.1	100.0	24,378
60-64	32.2	31.8	17.1	0.2	5.1	0.2	12.1	1.2	100.0	18,306
65-69	26.5	29.7	21.9	0.1	5.2	0.0	14.8	1.7	100.0	12,351
70-74	21.6	27.5	25.5	0.0	4.5	0.0	16.6	4.4	100.0	6,871
75-79	14.4	23.9	33.8	0.0	3.1	0.0	21.0	3.9	100.0	4,420
80+	11.1	14.7	52.2	0.3	1.6	0.0	13.4	6.7	100.0	5,263
Males										
10 and older	35.6	22.9	6.7	33.0	0.3	0.2	0.8	0.5	100.0	752,669

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
10-14	0.5	0.2	2.5	96.4	0.0	0.2	0.0	0.1	100.0	134,339
15-19	4.9	4.3	9.8	79.4	0.6	0.6	0.0	0.4	100.0	103,155
20-24	31.9	21.9	14.8	30.1	0.6	0.4	0.0	0.3	100.0	104,561
25-29	53.1	34.4	7.6	4.1	0.2	0.2	0.0	0.4	100.0	106,840
30-34	57.0	37.1	4.3	0.8	0.2	0.0	0.0	0.6	100.0	93,473
35-39	56.3	39.2	3.2	0.4	0.2	0.0	0.0	0.7	100.0	75,934
40-44	61.3	34.0	3.7	0.1	0.0	0.1	0.0	0.7	100.0	47,328
45-49	60.5	35.5	2.7	0.0	0.2	0.0	0.5	0.6	100.0	26,082
50-54	60.3	32.3	4.4	0.2	0.1	0.0	1.9	0.8	100.0	20,794
55-59	58.9	28.9	5.2	0.1	0.1	0.3	5.5	1.0	100.0	13,876
60-64	47.3	31.5	6.3	0.0	0.1	0.1	13.1	1.5	100.0	10,914
65-69	40.6	28.8	10.2	0.0	0.0	0.0	19.3	1.1	100.0	6,840
70-74	35.6	27.4	10.4	0.0	0.5	0.0	22.7	3.4	100.0	3,871
75-79	28.0	26.1	15.0	0.0	1.5	0.0	28.1	1.2	100.0	2,146
80+	22.6	17.0	36.8	0.0	0.0	0.0	21.4	2.2	100.0	2,518
Females										
10 and older	10.2	22.9	20.2	32.2	13.4	0.4	0.4	0.4	100.0	719,795
10-14	0.3	0.2	2.2	96.6	0.3	0.3	0.0	0.1	100.0	143,961
15-19	1.8	4.6	17.5	66.6	8.6	0.6	0.0	0.3	100.0	105,300
20-24	9.3	20.7	32.5	15.2	21.4	0.6	0.0	0.2	100.0	124,304
25-29	15.5	32.7	28.1	2.3	20.8	0.5	0.0	0.2	100.0	106,135
30-34	18.0	41.0	21.9	1.0	17.5	0.3	0.0	0.3	100.0	82,949
35-39	20.5	43.8	18.1	0.4	16.5	0.3	0.0	0.4	100.0	55,873
40-44	21.8	42.6	18.1	0.1	16.7	0.3	0.0	0.5	100.0	30,078
45-49	19.7	45.9	18.6	0.4	14.1	0.4	0.5	0.4	100.0	19,984
50-54	16.5	43.4	23.4	0.2	14.0	0.3	1.6	0.6	100.0	19,785

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
55-59	13.3	40.7	24.2	0.0	16.0	0.0	4.5	1.3	100.0	10,502
60-64	9.9	32.3	33.0	0.5	12.5	0.3	10.7	0.8	100.0	7,392
65-69	9.0	30.8	36.5	0.3	11.8	0.0	9.1	2.5	100.0	5,511
70-74	3.5	27.5	45.0	0.0	9.5	0.0	8.8	5.7	100.0	3,001
75-79	1.5	21.7	51.5	0.0	4.7	0.0	14.2	6.4	100.0	2,275
80+	0.6	12.7	66.3	0.6	3.1	0.0	6.1	10.7	100.0	2,746

4.50	Wage	Self	Not	Full time	Homomakor	Unpaid family	Potirod	Othor	Total	N (Woightod)
Both sexes	employment	employed	working	siodem	nomemaker	worker	Keineu	Oner	Total	(weighied)
10 and older	5.4	38.7	18.5	31.1	2.6	1.6	0.3	1.8	100.0	9,331,596
10-14	0.2	1.0	9.4	88.4	0.2	0.8	0.0	0.1	100.0	2,076,436
15-19	1.2	14.6	18.8	60.6	2.2	2.0	0.0	0.7	100.0	1,427,005
20-24	5.9	46.1	24.3	14.5	4.9	2.1	0.0	2.2	100.0	1,243,783
25-29	10.0	58.9	20.0	2.1	4.6	1.9	0.0	2.5	100.0	947,566
30-34	9.9	62.8	18.7	0.4	3.7	1.7	0.0	2.9	100.0	814,837
35-39	10.5	64.1	17.7	0.2	3.1	1.6	0.0	2.8	100.0	661,309
40-44	11.3	64.8	16.7	0.1	2.8	1.6	0.0	2.6	100.0	493,238
45-49	10.5	65.5	17.0	0.1	2.8	1.4	0.2	2.6	100.0	327,398
50-54	8.5	63.7	20.0	0.1	2.6	1.9	0.5	2.8	100.0	354,135
55-59	7.9	64.0	19.4	0.0	2.5	1.8	1.0	3.3	100.0	220,443
60-64	5.9	61.5	24.1	0.1	2.2	1.7	1.7	2.8	100.0	225,331
65-69	4.3	58.6	27.5	0.1	1.7	1.8	2.4	3.6	100.0	176,827
70-74	3.2	55.7	31.8	0.1	1.5	1.0	3.1	3.6	100.0	137,717
75-79	1.9	48.8	38.9	0.1	1.3	1.3	4.3	3.3	100.0	91,704
80+	1.4	36.6	51.2	0.1	1.5	0.8	3.9	4.4	100.0	133,868
Males							1			
10 and older	8.7	39.0	13.9	34.5	0.2	1.5	0.5	1.8	100.0	4,489,195
10-14	0.2	1.0	9.3	88.5	0.1	0.8	0.0	0.1	100.0	1,031,676
15-19	1.5	10.8	15.6	69.1	0.5	1.9	0.0	0.6	100.0	714,167
20-24	9.2	44.7	19.3	22.1	0.5	2.2	0.0	2.1	100.0	567,448
25-29	16.4	62.6	13.4	3.2	0.2	1.8	0.0	2.5	100.0	448,796

Table A.11. Population by age group and employment status: Rural

	Wage	Salf	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
30-34	16.2	66.3	12.4	0.5	0.1	1.5	0.0	3.1	100.0	382,495
35-39	16.8	67.1	11.6	0.2	0.0	1.3	0.0	3.0	100.0	328,672
40-44	17.6	66.7	11.6	0.1	0.1	1.3	0.0	2.7	100.0	256,066
45-49	16.8	66.8	12.2	0.0	0.1	1.2	0.4	2.5	100.0	168,786
50-54	15.7	65.5	13.5	0.1	0.1	1.5	0.9	2.8	100.0	154,510
55-59	14.1	66.5	12.3	0.0	0.0	1.8	1.8	3.4	100.0	104,178
60-64	10.4	65.2	16.7	0.0	0.1	1.5	3.2	2.8	100.0	103,186
65-69	8.0	62.6	19.4	0.0	0.1	1.9	4.4	3.7	100.0	78,541
70-74	6.4	61.3	22.6	0.1	0.1	0.8	5.2	3.4	100.0	60,839
75-79	4.1	57.4	26.0	0.3	0.2	1.2	7.5	3.3	100.0	38,338
80+	3.0	46.6	37.9	0.1	0.6	0.8	7.7	3.5	100.0	51,498
Females										
10 and older	0.1	1.0	9.5	88.3	0.3	0.7	0.0	0.0	100.0	332,637
10-14	0.1	1.0	9.5	88.3	0.3	0.7	0.0	0.0	100.0	1,188,721
15-19	0.9	18.3	21.9	52.0	4.0	2.1	0.0	0.8	100.0	818,138
20-24	3.0	47.2	28.6	8.1	8.7	2.1	0.0	2.3	100.0	800,639
25-29	4.3	55.5	26.0	1.2	8.5	2.1	0.0	2.4	100.0	604,904
30-34	4.3	59.7	24.3	0.3	7.0	1.9	0.0	2.6	100.0	515,291
35-39	4.3	61.1	23.7	0.1	6.1	1.9	0.0	2.7	100.0	388,510
40-44	4.6	62.8	22.2	0.1	5.8	1.9	0.0	2.6	100.0	267,250
45-49	3.9	64.0	22.1	0.1	5.6	1.5	0.1	2.6	100.0	178,595
50-54	3.0	62.2	25.0	0.1	4.5	2.2	0.2	2.7	100.0	219,411
55-59	2.3	61.8	25.6	0.1	4.8	1.8	0.3	3.3	100.0	126,767
60-64	2.1	58.3	30.4	0.1	4.0	1.9	0.3	2.8	100.0	129,537
65-69	1.3	55.5	33.9	0.1	2.9	1.7	0.9	3.6	100.0	103,797

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
70-74	0.6	51.3	39.1	0.2	2.6	1.2	1.4	3.7	100.0	79,879
75-79	0.4	42.6	48.2	0.1	2.1	1.3	2.1	3.3	100.0	55,641
80+	0.4	30.4	59.5	0.2	2.0	0.8	1.6	4.9	100.0	85,115

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
Both sexes										
10 and older	4.8	40.5	13.8	35.7	2.6	0.2	0.7	1.7	100.0	1,445,200
10-14	0.2	0.7	7.3	91.3	0.1	0.3	0.0	0.2	100.0	330,201
15-19	0.5	11.7	14.3	70.5	1.8	0.4	0.0	0.8	100.0	232,185
20-24	3.9	44.9	20.3	23.6	4.7	0.3	0.0	2.3	100.0	182,079
25-29	8.7	64.5	15.0	4.2	4.4	0.3	0.0	2.9	100.0	141,584
30-34	9.0	70.2	12.3	0.9	4.0	0.2	0.0	3.4	100.0	123,010
35-39	9.8	73.1	10.2	0.3	3.8	0.1	0.0	2.7	100.0	104,834
40-44	11.8	72.8	9.5	0.2	2.9	0.1	0.0	2.8	100.0	74,178
45-49	11.8	73.0	9.7	0.2	2.9	0.1	0.6	1.7	100.0	55,677
50-54	9.4	71.2	13.3	0.1	2.6	0.1	1.3	2.1	100.0	55,107
55-59	8.6	69.8	13.1	0.1	3.1	0.1	2.8	2.3	100.0	37,147
60-64	3.8	66.5	19.7	0.1	2.9	0.2	4.6	2.2	100.0	30,757
65-69	2.9	62.5	24.0	0.0	2.4	0.1	6.7	1.5	100.0	26,106
70-74	2.6	53.7	31.4	0.2	3.5	0.0	7.0	1.6	100.0	20,233
75-79	1.5	45.1	40.6	0.4	2.1	0.0	8.5	1.6	100.0	14,951
80+	0.7	31.6	52.6	0.3	4.1	0.0	9.8	0.9	100.0	17,152
Males										
10 and older	7.4	39.3	9.4	39.5	0.1	0.2	1.2	2.9	100.0	702,838
10-14	0.2	0.6	7.0	91.5	0.0	0.3	0.0	0.3	100.0	166,059
15-19	0.6	6.5	11.6	79.5	0.1	0.3	0.0	1.4	100.0	115,778
20-24	5.1	41.1	16.3	33.0	0.2	0.3	0.0	4.1	100.0	86,562
25-29	13.7	65.2	9.4	6.1	0.2	0.3	0.0	5.2	100.0	65,814

Table A.12. Population by age group and employment status: North

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
30-34	14.3	72.1	6.4	1.0	0.1	0.1	0.0	6.1	100.0	58,632
35-39	14.7	75.7	4.7	0.3	0.0	0.0	0.0	4.5	100.0	50,923
40-44	18.0	72.4	4.8	0.1	0.0	0.1	0.0	4.5	100.0	37,769
45-49	19.6	71.9	4.5	0.1	0.1	0.1	1.1	2.7	100.0	27,653
50-54	17.2	70.9	6.3	0.1	0.3	0.0	2.2	3.1	100.0	25,571
55-59	15.1	71.1	5.5	0.1	0.1	0.0	4.9	3.2	100.0	18,302
60-64	6.9	71.8	8.6	0.1	0.0	0.4	9.1	3.1	100.0	13,938
65-69	6.0	67.2	10.8	0.0	0.3	0.1	12.7	2.8	100.0	11,512
70-74	5.3	60.4	17.9	0.0	0.7	0.0	12.9	2.7	100.0	9,039
75-79	2.7	53.4	25.9	0.5	0.2	0.0	14.8	2.5	100.0	7,144
80+	1.5	39.7	37.3	0.0	2.5	0.0	18.3	0.8	100.0	8,142
Females										
10 and older	2.3	41.6	18.0	32.1	5.0	0.2	0.2	0.6	100.0	742,362
10-14	0.2	0.8	7.7	91.0	0.1	0.2	0.0	0.0	100.0	164,141
15-19	0.5	16.8	17.0	61.4	3.5	0.5	0.0	0.3	100.0	116,407
20-24	2.9	48.4	23.9	15.0	8.7	0.3	0.0	0.8	100.0	95,518
25-29	4.4	63.9	19.9	2.6	8.1	0.3	0.0	0.9	100.0	75,771
30-34	4.2	68.4	17.8	0.8	7.7	0.2	0.0	0.9	100.0	64,379
35-39	5.1	70.7	15.4	0.2	7.4	0.2	0.0	1.1	100.0	53,911
40-44	5.4	73.1	14.3	0.2	6.0	0.1	0.0	1.0	100.0	36,409
45-49	4.2	74.2	14.8	0.3	5.6	0.1	0.1	0.7	100.0	28,024
50-54	2.6	71.5	19.3	0.1	4.6	0.1	0.6	1.3	100.0	29,536
55-59	2.3	68.6	20.5	0.2	6.0	0.2	0.8	1.4	100.0	18,844
60-64	1.3	62.1	29.0	0.0	5.3	0.0	0.9	1.5	100.0	16,819
65-69	0.4	58.8	34.4	0.0	4.0	0.0	2.0	0.5	100.0	14,594
70-74	0.4	48.3	42.2	0.4	5.7	0.0	2.3	0.7	100.0	11,194

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
75-79	0.5	37.6	54.1	0.4	3.8	0.0	2.7	0.9	100.0	7,807
80+	0.0	24.3	66.5	0.6	5.5	0.0	2.2	0.9	100.0	9,010

Table A.13. Population by age group and employment status: Central East

	Wage	Solf	Not	Full time		Uppoid family				N
100	employment	employed	working	student	Homemaker	worker	Potirod	Other	Total	(Weighted)
Both sexes	employment	employed	working	siddeni	nomeniakei	worker	Kemeu	Onier	TOTAL	(Weighied)
10 and older	3.2	57.6	ΔΔ	33.4	0.4	0.5	0.2	0.2	100.0	1 816 791
	0.2	07.0		00.1	0.1	0.0	0.2	0.2	100.0	1,010,771
10-14	0.1	1.7	5.5	92.0	0.1	0.5	0.0	0.1	100.0	403,592
15-19	0.6	25.4	6.9	65.0	0.6	1.4	0.0	0.1	100.0	289,057
20-24	3.3	73.7	4.4	16.7	1.0	0.9	0.0	0.2	100.0	247,965
25-29	6.2	87.5	2.7	2.6	0.5	0.3	0.0	0.3	100.0	182,816
30-34	6.2	90.7	1.9	0.4	0.5	0.1	0.0	0.3	100.0	151,695
35-39	6.3	91.3	1.6	0.2	0.3	0.0	0.0	0.3	100.0	123,856
40-44	7.2	90.5	1.4	0.1	0.5	0.0	0.0	0.3	100.0	100,932
45-49	6.6	91.4	1.4	0.0	0.2	0.1	0.1	0.2	100.0	65,254
50-54	5.1	92.9	1.2	0.1	0.2	0.0	0.4	0.2	100.0	68,116
55-59	3.9	92.8	1.9	0.0	0.3	0.0	0.9	0.2	100.0	43,180
60-64	3.7	92.6	1.6	0.0	0.2	0.0	1.4	0.4	100.0	41,319
65-69	2.6	91.4	3.1	0.1	0.1	0.1	2.0	0.6	100.0	31,816
70-74	1.2	89.2	6.3	0.1	0.1	0.0	2.7	0.4	100.0	26,163
75-79	0.5	81.6	13.1	0.1	0.0	0.1	4.0	0.6	100.0	18,270
80+	0.8	61.3	31.2	0.1	0.3	0.1	3.6	2.6	100.0	22,762

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
Males			0.4	05.0	0.1		0.0		100.0	005.007
10 and older	5.0	54.4	3.4	35.9	0.1	0.6	0.3	0.2	100.0	885,087
10-14	0.1	17	5 /	92.1	0.1	0.4	0.0	0.1	100.0	194 039
15-19	0.7	1.7	6.6	72.1	0.1	1.4	0.0	0.1	100.0	146 763
20-24	4.8	65.9	3.8	24.0	0.2	1.4	0.0	0.1	100.0	116 134
25-29	9.3	84.8	1.4	3.8	0.0	0.5	0.0	0.3	100.0	90,712
30-34	9.8	88.4	0.7	0.5	0.0	0.1	0.0	0.5	100.0	71,516
35-39	10.1	89.0	0.3	0.3	0.0	0.0	0.0	0.3	100.0	62,416
40-44	10.8	88.2	0.6	0.0	0.0	0.0	0.0	0.3	100.0	51,640
45-49	10.6	88.4	0.5	0.0	0.0	0.0	0.2	0.3	100.0	32,480
50-54	9.0	89.6	0.4	0.0	0.0	0.0	0.7	0.2	100.0	32,269
55-59	6.9	90.3	1.2	0.0	0.0	0.0	1.3	0.4	100.0	21,270
60-64	6.3	90.2	0.7	0.0	0.0	0.1	2.4	0.4	100.0	19,722
65-69	5.1	89.8	1.1	0.0	0.0	0.0	3.2	0.7	100.0	15,339
70-74	2.4	88.9	3.9	0.2	0.0	0.0	4.4	0.3	100.0	12,155
75-79	1.2	86.3	5.1	0.2	0.0	0.0	6.7	0.5	100.0	7,877
80+	2.0	72.0	19.3	0.0	0.0	0.0	5.0	1.7	100.0	8,756
Females										
10 and older	1.5	60.7	5.3	31.0	0.8	0.5	0.1	0.2	100.0	931,704
10.14									100.0	
10-14	0.1	1.6	5.6	92.0	0.2	0.6	0.0	0.0	100.0	207,553
15-19	0.5	31.8	7.2	57.9	1.1	1.4	0.0	0.1	100.0	142,294
20-24	2.0	80.6	4.8	10.3	1.6	0.5	0.0	0.3	100.0	131,831
25-29	3.0	90.2	3.9	1.4	0.9	0.2	0.0	0.3	100.0	92,103

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
30-34	3.0	92.7	2.9	0.3	0.8	0.1	0.0	0.2	100.0	80,179
35-39	2.5	93.6	2.8	0.1	0.6	0.0	0.0	0.3	100.0	61,440
40-44	3.4	92.9	2.2	0.1	1.1	0.0	0.0	0.3	100.0	49,292
45-49	2.6	94.4	2.3	0.0	0.4	0.1	0.1	0.1	100.0	32,774
50-54	1.5	95.8	1.9	0.2	0.3	0.0	0.1	0.2	100.0	35,847
55-59	1.0	95.2	2.7	0.1	0.5	0.0	0.5	0.1	100.0	21,910
60-64	1.4	94.8	2.5	0.0	0.4	0.0	0.5	0.4	100.0	21,597
65-69	0.3	92.9	5.0	0.1	0.2	0.1	0.8	0.5	100.0	16,478
70-74	0.3	89.4	8.4	0.0	0.1	0.0	1.2	0.5	100.0	14,007
75-79	0.0	78.1	19.2	0.0	0.0	0.2	1.8	0.7	100.0	10,393
80+	0.0	54.7	38.7	0.1	0.5	0.1	2.8	3.1	100.0	14,006

Table A.14. Population by age group and employment status: Central West

	Wage	Self	Not	Full time		Unpaid family				Ν
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
Both sexes										
10 and older	10.6	31.9	22.6	27.5	4.0	2.4	0.3	0.7	100.0	2,944,670
10-14	0.2	1.0	14.9	82.4	0.2	1.2	0.0	0.1	100.0	602,216
15-19	1.9	10.6	25.6	56.6	2.8	2.2	0.0	0.2	100.0	429,695
20-24	10.2	34.9	29.7	14.3	7.4	2.8	0.0	0.6	100.0	422,792
25-29	19.2	44.9	22.8	2.1	7.1	3.3	0.0	0.7	100.0	340,983
30-34	20.5	50.1	19.3	0.5	5.9	2.7	0.0	1.0	100.0	291,817
35-39	20.8	51.7	18.5	0.2	4.7	2.8	0.0	1.2	100.0	224,539
40-44	20.7	52.3	19.0	0.2	4.2	2.5	0.0	1.2	100.0	161,710

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
45-49	18.3	54.1	18.9	0.1	4.3	2.7	0.2	1.2	100.0	99,010
50-54	14.4	54.1	22.5	0.2	4.0	3.4	0.6	0.9	100.0	105,329
55-59	14.2	54.7	20.7	0.0	4.0	3.7	1.3	1.3	100.0	60,023
60-64	9.3	53.1	27.9	0.2	2.9	2.9	3.2	0.6	100.0	62,419
65-69	6.8	50.3	32.8	0.1	2.5	3.1	3.4	1.1	100.0	46,611
70-74	4.6	49.9	36.0	0.3	1.7	1.4	3.9	2.2	100.0	38,039
75-79	3.3	40.5	43.8	0.1	1.5	1.3	6.5	3.0	100.0	23,304
80+	2.0	33.3	57.3	0.3	0.6	0.2	2.9	3.4	100.0	36,183
Males										
10 and older	16.8	32.8	17.4	29.3	0.2	2.3	0.4	0.8	100.0	1,445,462
10-14	0.3	1.1	14.9	82.1	0.1	1.2	0.0	0.1	100.0	295,165
15-19	2.7	9.1	22.8	62.7	0.5	2.0	0.0	0.2	100.0	214,004
20-24	15.9	35.0	24.2	21.0	0.5	2.6	0.0	0.8	100.0	193,712
25-29	29.7	47.9	15.4	2.9	0.2	3.1	0.0	0.8	100.0	168,854
30-34	31.9	51.2	12.4	0.6	0.1	2.5	0.0	1.2	100.0	145,623
35-39	30.9	52.8	11.9	0.3	0.1	2.5	0.0	1.5	100.0	119,141
40-44	30.5	52.4	13.4	0.2	0.1	2.2	0.0	1.2	100.0	88,678
45-49	26.7	55.5	13.3	0.1	0.3	2.6	0.2	1.3	100.0	54,494
50-54	25.3	53.5	16.1	0.1	0.0	3.0	0.7	1.2	100.0	47,266
55-59	24.4	53.3	14.2	0.1	0.0	4.5	1.6	2.0	100.0	29,477
60-64	16.2	55.9	20.1	0.0	0.1	2.1	4.8	0.7	100.0	30,391
65-69	12.4	54.6	23.3	0.0	0.1	3.5	5.0	1.1	100.0	20,026
70-74	9.6	55.3	26.5	0.2	0.1	1.0	5.9	1.4	100.0	16,856
75-79	7.9	49.4	29.6	0.3	0.0	2.6	9.6	0.6	100.0	8,762
80+	4.8	45.4	41.6	0.2	0.2	0.2	5.9	1.6	100.0	13,015

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
Females										
10 and older	4.7	31.0	27.5	25.8	7.7	2.5	0.2	0.6	100.0	1,499,208
10-14	0.2	0.8	14.9	82.6	0.3	1.1	0.0	0.0	100.0	307,052
15-19	1.1	12.1	28.5	50.6	5.1	2.4	0.0	0.1	100.0	215,691
20-24	5.3	34.9	34.5	8.6	13.3	3.0	0.0	0.4	100.0	229,080
25-29	8.9	41.9	30.1	1.3	13.8	3.5	0.0	0.5	100.0	172,129
30-34	9.2	49.0	26.2	0.4	11.6	2.9	0.0	0.8	100.0	146,194
35-39	9.4	50.5	26.0	0.2	9.9	3.1	0.0	0.8	100.0	105,399
40-44	8.8	52.1	25.8	0.2	9.2	2.8	0.0	1.2	100.0	73,032
45-49	7.9	52.4	25.9	0.3	9.3	3.0	0.3	1.0	100.0	44,516
50-54	5.6	54.6	27.7	0.2	7.2	3.7	0.4	0.6	100.0	58,063
55-59	4.4	56.1	27.1	0.0	7.8	2.9	1.1	0.6	100.0	30,546
60-64	2.6	50.4	35.3	0.3	5.5	3.7	1.7	0.5	100.0	32,028
65-69	2.6	47.0	40.0	0.1	4.3	2.7	2.1	1.1	100.0	26,585
70-74	0.7	45.7	43.6	0.4	2.9	1.7	2.2	2.8	100.0	21,183
75-79	0.6	35.1	52.5	0.0	2.4	0.6	4.5	4.4	100.0	14,541
80+	0.5	26.4	66.1	0.4	0.8	0.1	1.3	4.4	100.0	23,168

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
Both sexes										
10 and older	5.0	32.9	20.8	32.0	2.8	1.4	0.1	5.0	100.0	2,422,128
10-14	0.2	0.5	6.7	91.7	0.1	0.6	0.0	0.1	100.0	561,745
15-19	1.7	12.5	18.9	60.0	2.6	2.4	0.0	1.9	100.0	363,380
20-24	5.9	40.3	28.1	11.5	5.8	2.2	0.0	6.3	100.0	324,408
25-29	9.3	51.9	24.4	1.6	5.2	1.0	0.0	6.6	100.0	253,657
30-34	9.1	55.0	23.2	0.2	4.1	1.1	0.0	7.3	100.0	216,305
35-39	9.3	56.2	22.7	0.1	3.1	1.0	0.0	7.6	100.0	170,394
40-44	10.2	56.3	22.1	0.1	2.7	1.3	0.0	7.4	100.0	117,404
45-49	9.0	56.7	22.8	0.0	2.6	1.0	0.1	7.9	100.0	78,040
50-54	7.3	52.6	27.3	0.1	2.4	1.4	0.3	8.7	100.0	86,130
55-59	5.6	53.6	26.4	0.0	2.1	1.3	0.7	10.3	100.0	53,669
60-64	5.2	52.1	30.0	0.0	1.7	1.3	1.1	8.5	100.0	59,256
65-69	3.7	48.9	32.2	0.1	1.4	1.1	1.2	11.5	100.0	46,633
70-74	3.4	43.1	39.1	0.0	0.9	1.1	1.7	10.7	100.0	33,287
75-79	1.6	38.7	46.9	0.1	1.3	1.4	1.4	8.6	100.0	21,888
80+	2.0	30.3	53.0	0.1	1.6	1.1	2.1	9.9	100.0	35,933
Males										
10 and older	7.7	34.8	15.6	36.1	0.1	1.3	0.3	4.1	100.0	1,143,560
10-14	0.2	0.5	7.0	91.5	0.1	0.6	0.0	0.1	100.0	280,386
15-19	1.8	9.7	14.2	70.4	0.1	2.8	0.0	1.1	100.0	181,038
20-24	9.2	43.0	21.3	18.8	0.3	2.7	0.0	4.8	100.0	138,294
25-29	14.9	60.0	16.3	2.3	0.2	0.8	0.0	5.5	100.0	115,808
30-34	14.5	61.4	16.7	0.3	0.0	0.9	0.0	6.3	100.0	99,631

Table A.15. Population by age group and employment status: South East
	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
35-39	14.4	61.7	16.5	0.2	0.0	0.5	0.0	6.8	100.0	83,641
40-44	15.1	61.1	16.4	0.0	0.1	0.8	0.0	6.4	100.0	61,124
45-49	13.8	60.1	18.6	0.0	0.1	0.6	0.2	6.6	100.0	40,365
50-54	13.8	56.1	19.9	0.1	0.2	1.4	0.5	8.0	100.0	35,500
55-59	9.5	59.6	19.7	0.0	0.0	0.7	1.2	9.2	100.0	24,531
60-64	8.5	57.0	22.8	0.0	0.2	1.3	2.1	8.1	100.0	26,271
65-69	6.2	51.8	27.2	0.0	0.0	1.2	2.5	11.2	100.0	20,213
70-74	7.2	49.7	28.3	0.0	0.0	1.3	3.1	10.5	100.0	14,529
75-79	2.9	44.9	37.8	0.2	0.4	0.9	2.7	10.2	100.0	9,189
80+	4.6	37.9	41.9	0.0	0.5	1.1	4.7	9.4	100.0	13,041
Females										
10 and older	2.6	31.2	25.6	28.3	5.1	1.4	0.0	5.7	100.0	1,278,568
10-14	0.1	0.6	6.4	92.0	0.2	0.6	0.0	0.1	100.0	281,359
15-19	1.7	15.4	23.6	49.6	5.0	2.1	0.0	2.6	100.0	182,341
20-24	3.5	38.2	33.2	6.1	9.8	1.8	0.0	7.4	100.0	186,114
25-29	4.6	45.1	31.2	0.9	9.4	1.2	0.0	7.5	100.0	137,849
30-34	4.6	49.5	28.8	0.1	7.5	1.3	0.0	8.2	100.0	116,674
35-39	4.3	50.9	28.8	0.1	6.0	1.5	0.0	8.4	100.0	86,753
40-44	4.8	51.2	28.2	0.1	5.5	1.8	0.0	8.5	100.0	56,281
45-49	3.8	52.9	27.2	0.1	5.2	1.5	0.1	9.2	100.0	37,676
50-54	2.7	50.1	32.5	0.0	4.0	1.4	0.1	9.2	100.0	50,630
55-59	2.3	48.6	32.0	0.0	3.8	1.9	0.2	11.3	100.0	29,138
60-64	2.6	48.2	35.8	0.1	2.9	1.3	0.2	8.8	100.0	32,985
65-69	1.7	46.7	35.9	0.2	2.5	1.1	0.2	11.7	100.0	26,420
70-74	0.5	38.0	47.5	0.0	1.5	1.0	0.5	10.9	100.0	18,757
75-79	0.6	34.2	53.6	0.0	1.9	1.8	0.5	7.4	100.0	12,699

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
80+	0.5	26.0	59.2	0.1	2.2	1.2	0.6	10.1	100.0	22,893

Table A.16. Population by age group and employment status: South West

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
Both sexes										
10 and older	13.1	26.4	21.8	31.2	5.0	1.7	0.4	0.3	100.0	2,175,271
10-14	0.3	0.6	6.0	92.0	0.4	0.6	0.0	0.1	100.0	456,982
15-19	2.2	7.8	20.0	63.3	4.3	2.1	0.0	0.2	100.0	321,144
20-24	13.6	26.6	31.8	16.3	9.4	2.1	0.0	0.2	100.0	295,404
25-29	22.8	38.7	25.7	2.1	8.7	1.8	0.0	0.2	100.0	241,501
30-34	23.2	43.9	23.9	0.5	6.5	1.6	0.0	0.4	100.0	208,432
35-39	25.4	45.1	21.6	0.1	5.7	1.6	0.0	0.4	100.0	169,493
40-44	25.7	45.3	21.1	0.0	5.6	1.9	0.0	0.4	100.0	116,420
45-49	24.1	45.9	22.8	0.0	5.1	1.3	0.4	0.4	100.0	75,483
50-54	19.9	45.1	26.2	0.1	5.2	2.4	0.8	0.4	100.0	80,032
55-59	20.7	43.0	26.8	0.0	5.0	2.2	1.6	0.6	100.0	50,803
60-64	15.3	43.3	31.2	0.0	4.4	2.4	2.7	0.7	100.0	49,886
65-69	11.5	41.4	36.1	0.1	2.9	3.1	4.3	0.6	100.0	38,012
70-74	7.9	41.1	40.2	0.1	2.8	1.8	4.6	1.4	100.0	26,867
75-79	5.4	35.1	46.5	0.0	2.2	2.9	6.2	1.6	100.0	17,712
80+	2.8	27.8	56.7	0.1	1.8	2.2	6.1	2.5	100.0	27,101
Males										
10 and older	21.9	27.3	13.7	34.3	0.5	1.2	0.6	0.3	100.0	1,064,917

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
10-14	0.4	0.5	5.8	92.5	0.2	0.6	0.0	0.1	100.0	228,366
15-19	3.4	5.4	15.2	72.7	1.5	1.6	0.0	0.3	100.0	159,739
20-24	23.5	27.0	21.7	24.6	1.4	1.7	0.0	0.2	100.0	137,308
25-29	39.5	41.6	14.1	3.2	0.3	1.1	0.0	0.2	100.0	114,449
30-34	38.7	46.9	12.2	0.6	0.1	0.9	0.0	0.5	100.0	100,566
35-39	39.8	47.2	11.3	0.2	0.1	0.9	0.0	0.5	100.0	88,485
40-44	39.4	47.0	11.6	0.1	0.1	1.2	0.0	0.6	100.0	64,183
45-49	37.8	47.4	12.9	0.0	0.0	1.0	0.6	0.4	100.0	39,877
50-54	36.3	45.3	15.3	0.0	0.1	1.3	1.1	0.5	100.0	34,698
55-59	37.2	44.0	13.5	0.0	0.2	1.8	2.6	0.6	100.0	24,474
60-64	27.5	45.9	19.0	0.0	0.3	2.1	4.2	0.8	100.0	23,778
65-69	21.1	44.9	23.8	0.0	0.1	2.7	7.1	0.3	100.0	18,292
70-74	15.5	45.5	28.5	0.0	0.2	1.2	7.6	1.5	100.0	12,130
75-79	12.2	46.8	26.6	0.0	0.7	2.0	10.6	1.1	100.0	7,511
80+	4.7	36.4	43.5	0.0	0.0	2.1	10.6	1.9	99.2	11,062
Females										
10 and older	4.7	25.6	29.6	28.2	9.3	2.1	0.2	0.3	100.0	1,110,354
10-14	0.3	0.7	6.3	91.5	0.6	0.6	0.0	0.1	100.0	228,617
15-19	1.0	10.3	24.8	54.1	7.1	2.5	0.0	0.2	100.0	161,405
20-24	5.0	26.3	40.5	9.2	16.4	2.4	0.0	0.1	100.0	158,096
25-29	7.8	36.0	36.1	1.2	16.3	2.4	0.0	0.2	100.0	127,052
30-34	8.7	41.1	34.8	0.4	12.4	2.3	0.0	0.2	100.0	107,867
35-39	9.7	42.9	32.9	0.1	11.7	2.4	0.0	0.3	100.0	81,008
40-44	8.9	43.2	32.7	0.0	12.3	2.7	0.0	0.3	100.0	52,237
45-49	8.8	44.3	33.9	0.0	10.8	1.7	0.2	0.3	100.0	35,606
50-54	7.3	44.9	34.5	0.1	9.0	3.3	0.5	0.3	100.0	45,334

	Wage	Self	Not	Full time		Unpaid family				N
Age	employment	employed	working	student	Homemaker	worker	Retired	Other	Total	(Weighted)
55-59	5.3	42.0	39.2	0.1	9.6	2.5	0.7	0.6	100.0	26,329
60-64	4.2	40.9	42.3	0.1	8.1	2.6	1.3	0.5	100.0	26,109
65-69	2.7	38.1	47.5	0.2	5.5	3.5	1.8	0.8	100.0	19,720
70-74	1.7	37.5	49.8	0.1	5.0	2.3	2.2	1.3	100.0	14,736
75-79	0.4	26.5	61.1	0.0	3.4	3.6	3.0	2.0	100.0	10,200
80+	0.9	21.8	65.8	0.1	3.1	2.3	3.0	2.9	100.0	16,039

APPENDIX 3. MARITAL STATUS

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
Both sexes		L	L					
12	0.5	0.3	0.0	0.1	0.0	99.0	100.0	485,450
13	0.7	0.4	0.0	0.1	0.0	98.7	100.0	386,093
14	1.0	0.3	0.0	0.1	0.0	98.6	100.0	486,209
15	2.0	0.7	0.1	0.1	0.0	97.0	100.0	367,079
16	4.4	1.2	0.4	0.5	0.1	93.5	100.0	311,796
17	7.8	2.1	0.5	0.8	0.0	88.7	100.0	278,081
18-19	23.3	5.1	1.2	1.4	0.1	68.9	100.0	678,505
20-24	50.6	9.7	2.6	2.9	0.3	33.9	100.0	1,472,649
25-29	69.8	11.6	3.6	3.3	0.7	11.0	100.0	1,160,541
30-34	75.8	10.7	4.4	3.7	1.6	3.8	100.0	991,259
35-39	77.0	10.0	4.5	3.6	2.9	2.0	100.0	793,116
40-44	77.0	8.9	4.7	3.5	4.7	1.3	100.0	570,644
45-49	75.5	8.5	4.8	3.2	7.2	0.8	100.0	373,464
50-54	72.4	6.5	5.5	3.2	11.7	0.6	100.0	394,714
55-59	69.7	6.3	5.1	3.1	15.2	0.5	100.0	244,821
60-64	65.4	5.5	5.2	2.9	20.7	0.3	100.0	243,637
65-69	58.8	5.0	5.9	2.7	27.3	0.4	100.0	189,177
70-74	54.5	3.6	5.1	2.1	34.4	0.3	100.0	144,588
75-79	46.7	3.5	4.6	2.2	42.5	0.4	100.0	96,125
80+	34.6	2.7	4.1	1.6	56.5	0.5	100.0	139,130
12 and older	48.4	6.9	3.0	2.4	4.7	34.7	100.0	9,807,077
Males		I	L					
12	0.5	0.4	0.0	0.1	0.0	99.0	100.0	246,387
13	0.6	0.3	0.0	0.1	0.0	99.0	100.0	189,592
14	0.6	0.2	0.0	0.0	0.0	99.1	100.0	246,785
15	0.7	0.5	0.0	0.1	0.0	98.6	100.0	192,257
16	1.0	0.4	0.0	0.1	0.0	98.4	100.0	161,363
17	1.4	0.5	0.0	0.1	0.0	98.0	100.0	145,773
18-19	5.6	1.5	0.1	0.3	0.0	92.4	100.0	317,929
20-24	36.7	7.8	0.7	1.0	0.0	53.7	100.0	672,010
25-29	66.6	12.2	1.5	1.6	0.1	17.9	100.0	555,636
30-34	78.1	11.6	1.8	2.0	0.3	6.1	100.0	475,968
35-39	81.3	11.5	1.9	1.7	0.5	3.0	100.0	404,606

Table A.17. Marital status by age group: National

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		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
40-44	83.3	10.1	2.0	2.0	0.7	1.9	100.0	303,393
45-49	83.7	9.8	2.2	1.9	1.3	1.1	100.0	194,869
50-54	84.3	8.4	2.2	1.7	2.2	1.1	100.0	175,304
55-59	84.3	8.2	1.8	1.9	3.0	0.8	100.0	118,054
60-64	84.2	7.4	2.3	1.8	3.8	0.4	100.0	114,100
65-69	81.4	7.0	3.1	1.8	5.9	0.7	100.0	85,381
70-74	81.5	5.6	3.2	1.6	7.7	0.3	100.0	64,710
75-79	77.8	5.0	3.2	2.4	11.0	0.7	100.0	40,483
80+	69.2	5.3	3.1	1.9	19.8	0.7	100.0	54,016
12 and older	48.2	6.9	1.2	1.2	1.0	41.5	100.0	4,758,613
Females								
12	0.6	0.3	0.0	0.1	0.0	99.1	100.0	239,063
13	0.8	0.4	0.1	0.2	0.0	98.5	100.0	196,501
14	1.3	0.4	0.1	0.1	0.0	98.1	100.0	239,424
15	3.4	0.9	0.2	0.2	0.0	95.2	100.0	174,822
16	8.0	2.1	0.7	0.9	0.1	88.2	100.0	150,433
17	14.9	4.0	1.0	1.5	0.0	78.6	100.0	132,308
18-19	38.8	8.2	2.2	2.4	0.1	48.2	100.0	360,576
20-24	62.2	11.3	4.2	4.4	0.5	17.3	100.0	800,639
25-29	72.7	11.0	5.5	4.9	1.2	4.7	100.0	604,904
30-34	73.6	9.9	6.8	5.2	2.8	1.6	100.0	515,291
35-39	72.5	8.5	7.1	5.5	5.4	0.9	100.0	388,510
40-44	69.7	7.5	7.8	5.2	9.2	0.6	100.0	267,250
45-49	66.6	7.1	7.7	4.6	13.7	0.4	100.0	178,595
50-54	62.9	4.9	8.1	4.5	19.3	0.3	100.0	219,411
55-59	56.1	4.6	8.2	4.2	26.5	0.3	100.0	126,767
60-64	48.8	3.9	7.7	3.9	35.5	0.2	100.0	129,537
65-69	40.2	3.4	8.1	3.3	44.9	0.1	100.0	103,797
70-74	32.6	2.0	6.7	2.5	55.9	0.2	100.0	79,879
75-79	24.2	2.4	5.7	2.0	65.5	0.3	100.0	55,641
80+	12.7	1.1	4.6	1.4	79.8	0.3	100.0	85,115
12 and older	48.6	6.8	4.7	3.5	8.2	28.2	100.0	245,644

Table A.18. Marital status by age group: Urban

		Living				Never		N
Age	Married	together	Divorced	Separated	Widowed	married	Total	(Weighted)
Males								
12	0.3	0.1	0.0	0.0	0.1	99.5	100.0	28,484
13	0.6	0.0	0.1	0.0	0.0	99.4	100.0	21,968
14	0.6	0.0	0.0	0.2	0.1	99.2	100.0	28,638
15	0.5	0.0	0.1	0.0	0.0	99.4	100.0	22,488
16	0.7	0.0	0.0	0.1	0.0	99.2	100.0	19,524
17	1.4	0.2	0.0	0.1	0.0	98.3	100.0	18,161
18-19	1.8	1.2	0.1	0.2	0.1	96.6	100.0	42,983
20-24	16.2	12.1	0.8	0.8	0.0	70.0	100.0	104,561
25-29	43.6	24.1	1.4	1.8	0.2	28.8	100.0	106,840
30-34	61.2	23.7	1.9	2.6	0.4	10.2	100.0	93,473
35-39	67.3	22.9	2.3	2.4	0.7	4.3	100.0	75,934
40-44	71.7	19.6	2.6	2.6	1.3	2.2	100.0	47,328
45-49	71.8	19.6	1.8	2.7	2.5	1.6	100.0	26,082
50-54	73.8	17.4	2.2	2.7	3.2	0.7	100.0	20,794
55-59	73.6	16.0	1.4	2.7	5.5	0.8	100.0	13,876
60-64	76.2	12.6	2.3	2.1	6.2	0.6	100.0	10,914
65-69	75.3	11.8	3.6	0.9	7.6	0.8	100.0	6,840
70-74	69.5	13.5	4.9	1.8	9.4	0.9	100.0	3,871
75-79	67.2	4.9	6.7	4.9	15.4	0.9	100.0	2,146
80+	55.2	9.8	3.3	1.5	30.3	0.0	100.0	2,518
12 and								
older	38.8	14.6	1.3	1.5	0.9	42.8	100.0	697,420
Females								
12	0.5	0.2	0.1	0.0	0.0	99.2	100.0	28,520
13	0.9	0.1	0.1	0.0	0.1	98.8	100.0	25,908
14	1.1	0.2	0.0	0.0	0.2	98.4	100.0	28,864
15	2.2	0.6	0.0	0.2	0.0	97.0	100.0	21,285
16	4.4	3.3	0.4	0.7	0.0	91.2	100.0	20,510
17	6.6	7.3	0.4	0.8	0.1	84.7	100.0	17,924
18-19	20.2	16.5	1.2	1.4	0.1	60.7	100.0	45,582
20-24	42.6	24.1	2.4	2.7	0.3	27.8	100.0	124,304
25-29	58.1	24.7	3.3	3.6	1.2	9.1	100.0	106,135
30-34	64.5	21.2	3.9	4.6	2.5	3.4	100.0	82,949
35-39	65.5	16.3	5.0	5.6	5.8	1.8	100.0	55,873
40-44	64.5	15.3	4.3	4.4	10.7	0.8	100.0	30,078
45-49	57.9	14.0	5.5	4.7	17.0	1.0	100.0	19,984
50-54	61.3	10.2	4.4	3.1	20.6	0.4	100.0	19,785

		Living				Never		N
Age	Married	together	Divorced	Separated	Widowed	married	Total	(Weighted)
55-59	54.2	8.6	3.6	3.4	30.1	0.1	100.0	10,502
60-64	47.8	5.2	5.0	3.4	38.0	0.6	100.0	7,392
65-69	36.7	5.1	7.0	2.5	48.0	0.7	100.0	5,511
70-74	30.7	2.7	5.4	1.8	58.1	1.3	100.0	3,001
75-79	18.4	3.9	3.3	1.6	72.4	0.4	100.0	2,275
80+	9.0	0.9	5.5	0.6	81.9	2.1	100.0	2,746
12 and								
older	41.4	15.8	2.8	2.8	4.9	32.4	100.0	659,126

Table A.19. Marital status by age group: Rural

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
Males								
12	0.6	0.4	0.0	0.1	0.0	98.9	100.0	217,903
13	0.6	0.4	0.0	0.1	0.0	98.9	100.0	167,624
14	0.6	0.3	0.0	0.0	0.0	99.1	100.0	218,147
15	0.8	0.6	0.0	0.1	0.0	98.5	100.0	169,769
16	1.1	0.5	0.0	0.1	0.0	98.3	100.0	141,839
17	1.4	0.5	0.0	0.1	0.0	97.9	100.0	127,612
18-19	6.2	1.6	0.1	0.3	0.0	91.8	100.0	274,947
20-24	40.4	7.0	0.7	1.1	0.0	50.7	100.0	567,448
25-29	72.1	9.4	1.5	1.6	0.1	15.3	100.0	448,796
30-34	82.3	8.6	1.8	1.9	0.3	5.1	100.0	382,495
35-39	84.6	8.8	1.8	1.6	0.5	2.7	100.0	328,672
40-44	85.5	8.3	1.9	1.8	0.6	1.8	100.0	256,066
45-49	85.5	8.3	2.3	1.8	1.2	1.0	100.0	168,786
50-54	85.7	7.2	2.2	1.5	2.1	1.1	100.0	154,510
55-59	85.7	7.1	1.9	1.8	2.7	0.8	100.0	104,178
60-64	85.1	6.8	2.3	1.8	3.6	0.4	100.0	103,186
65-69	81.9	6.6	3.1	1.9	5.7	0.7	100.0	78,541
70-74	82.3	5.1	3.1	1.6	7.6	0.3	100.0	60,839
75-79	78.4	5.0	3.0	2.2	10.8	0.7	100.0	38,338
80+	69.9	5.1	3.1	1.9	19.3	0.7	100.0	51,498
12 and older	49.8	5.6	1.2	1.1	1.0	41.3	100.0	4,061,193
Females	1							
12	0.6	0.3	0.0	0.1	0.0	99.0	100.0	210,543
13	0.8	0.5	0.1	0.2	0.0	98.5	100.0	170,593
14	1.4	0.4	0.1	0.1	0.0	98.0	100.0	210,560
15	3.6	0.9	0.2	0.3	0.0	95.0	100.0	153,537
16	8.5	1.9	0.8	0.9	0.1	87.8	100.0	129,924
17	16.2	3.4	1.1	1.6	0.0	77.6	100.0	114,383
18-19	41.5	7.0	2.4	2.6	0.1	46.4	100.0	314,994
20-24	65.8	9.0	4.6	4.7	0.5	15.4	100.0	676,335
25-29	75.8	8.0	5.9	5.1	1.3	3.8	100.0	498,770
30-34	75.4	7.7	7.4	5.4	2.8	1.3	100.0	432,342
35-39	73.7	7.2	7.5	5.5	5.4	0.7	100.0	332,637
40-44	70.4	6.5	8.3	5.3	9.0	0.6	100.0	237,173
45-49	67.6	6.3	7.9	4.5	13.2	0.4	100.0	158,611
50-54	63.0	4.4	8.5	4.6	19.2	0.2	100.0	199,626
55-59	56.3	4.3	8.7	4.3	26.2	0.3	100.0	116,265

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
60-64	48.9	3.9	7.9	3.9	35.3	0.2	100.0	122,145
65-69	40.4	3.3	8.2	3.4	44.7	0.1	100.0	98,286
70-74	32.7	2.0	6.8	2.5	55.9	0.2	100.0	76,878
75-79	24.4	2.3	5.8	2.0	65.2	0.3	100.0	53,366
80+	12.8	1.1	4.6	1.4	79.8	0.2	100.0	82,369
12 and older	49.7	5.5	4.9	3.6	8.7	27.6	100.0	4,389,337

Table A.20. Marital status by age group: North

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
Males								
12	0.6	0.1	0.0	0.0	0.0	99.3	100.0	34,919
13	0.9	0.1	0.0	0.1	0.0	99.0	100.0	25,785
14	0.8	0.0	0.1	0.0	0.0	99.0	100.0	35,301
15	0.6	0.0	0.0	0.1	0.0	99.4	100.0	26,139
16	2.0	0.2	0.0	0.1	0.0	97.7	100.0	23,696
17	1.0	0.4	0.2	0.0	0.0	98.3	100.0	21,859
18-19	5.6	1.3	0.1	0.4	0.0	92.6	100.0	44,085
20-24	31.6	6.7	0.5	1.2	0.1	60.1	100.0	86,562
25-29	60.3	14.1	0.8	2.3	0.2	22.4	100.0	65,814
30-34	72.8	14.1	1.0	3.6	0.4	8.1	100.0	58,632
35-39	76.7	14.5	1.2	3.2	0.4	4.1	100.0	50,923
40-44	81.1	11.7	1.8	3.0	0.7	1.7	100.0	37,769
45-49	79.0	14.0	1.7	2.5	1.8	1.0	100.0	27,653
50-54	80.7	11.8	1.8	2.1	2.3	1.3	100.0	25,571
55-59	81.1	9.7	1.4	2.5	4.7	0.5	100.0	18,302
60-64	81.3	10.0	1.2	2.2	4.5	0.7	100.0	13,938
65-69	79.3	9.2	2.1	1.8	6.7	0.9	100.0	11,512
70-74	82.4	6.2	1.3	1.3	8.2	0.6	100.0	9,039
75-79	77.8	4.9	0.9	1.9	13.6	1.0	100.0	7,144
80+	71.0	6.1	1.2	1.0	19.5	1.2	100.0	8,142
12 and older	44.2	7.6	0.8	1.6	1.2	44.5	100.0	632,783
Females								
12	0.7	0.0	0.0	0.0	0.0	99.2	100.0	34,582
13	0.9	0.2	0.0	0.3	0.0	98.6	100.0	27,633
14	1.2	0.0	0.1	0.2	0.0	98.5	100.0	32,893
15	4.6	1.6	0.3	0.5	0.0	93.0	100.0	24,824

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
16	10.4	1.9	0.7	1.6	0.1	85.3	100.0	23,214
17	15.8	4.9	1.1	2.7	0.0	75.5	100.0	19,894
18-19	36.3	8.6	1.5	3.0	0.1	50.5	100.0	48,476
20-24	56.8	12.6	2.6	5.3	0.5	22.2	100.0	95,518
25-29	70.2	13.8	2.9	6.3	1.0	5.8	100.0	75,771
30-34	72.2	12.9	3.8	6.3	2.7	2.1	100.0	64,379
35-39	72.7	10.8	4.0	6.2	5.5	0.8	100.0	53,911
40-44	70.4	10.1	4.2	5.3	9.4	0.6	100.0	36,409
45-49	66.2	10.1	3.5	4.2	15.5	0.5	100.0	28,024
50-54	62.7	6.6	3.2	3.6	23.2	0.6	100.0	29,536
55-59	55.6	5.6	3.8	3.7	30.8	0.5	100.0	18,844
60-64	50.2	4.6	2.1	3.4	39.4	0.2	100.0	16,819
65-69	41.3	4.1	2.1	1.8	50.4	0.2	100.0	14,594
70-74	35.4	1.7	0.9	1.2	60.5	0.3	100.0	11,194
75-79	28.1	2.6	1.3	0.9	67.1	0.1	100.0	7,807
80+	13.6	2.1	1.4	0.6	81.9	0.4	100.0	9,010
12 and older	46.6	8.0	2.3	3.9	8.9	30.4	100.0	673,329

Table A.21. Marital statu	s by	age	group:	Central	East
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		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
Males								
12	0.4	0.0	0.0	0.0	0.0	99.6	100.0	39,907
13	0.5	0.0	0.0	0.1	0.0	99.5	100.0	33,559
14	0.2	0.0	0.0	0.0	0.0	99.8	100.0	39,858
15	0.7	0.1	0.0	0.1	0.0	99.2	100.0	33,987
16	0.6	0.0	0.1	0.0	0.1	99.3	100.0	29,605
17	0.9	0.1	0.0	0.1	0.0	98.9	100.0	26,306
18-19	4.9	1.1	0.0	0.2	0.1	93.7	100.0	56,864
20-24	39.6	5.7	0.6	0.9	0.0	53.1	100.0	116,134
25-29	72.3	7.0	1.2	1.2	0.1	18.2	100.0	90,712
30-34	84.3	6.5	2.0	1.3	0.1	5.7	100.0	71,516
35-39	88.1	5.9	1.9	1.3	0.3	2.5	100.0	62,416
40-44	89.1	5.9	1.9	1.2	0.5	1.5	100.0	51,640
45-49	88.7	5.2	2.5	1.4	1.3	0.9	100.0	32,480
50-54	89.3	4.6	2.0	1.2	1.8	1.1	100.0	32,269
55-59	89.4	5.0	2.1	1.2	2.0	0.4	100.0	21,270
60-64	88.2	4.1	3.3	0.8	3.5	0.1	100.0	19,722
65-69	84.0	4.5	3.9	1.6	5.8	0.3	100.0	15,339
70-74	81.4	3.5	3.7	1.3	10.0	0.2	100.0	12,155
75-79	76.3	5.1	5.3	1.4	11.6	0.2	100.0	7,877
80+	75.0	3.3	4.7	1.1	15.2	0.6	100.0	8,756
12 and older	50.6	4.0	1.2	0.8	0.9	42.5	100.0	802,371
Females								
12	0.5	0.0	0.0	0.0	0.0	99.5	100.0	41,405
13	0.6	0.1	0.0	0.1	0.0	99.3	100.0	34,065
14	1.0	0.0	0.0	0.1	0.0	98.8	100.0	43,090
15	2.1	0.2	0.2	0.0	0.0	97.5	100.0	31,996
16	5.1	0.6	0.3	0.4	0.0	93.6	100.0	27,456
17	10.9	2.4	0.7	0.9	0.0	85.1	100.0	23,045
18-19	37.5	5.8	1.8	1.5	0.2	53.3	100.0	59,798
20-24	66.4	7.3	4.0	3.5	0.2	18.6	100.0	131,831
25-29	79.6	5.7	5.1	4.3	0.9	4.4	100.0	92,103
30-34	81.4	5.3	6.3	4.3	1.7	1.1	100.0	80,179
35-39	80.2	5.5	6.0	4.4	3.4	0.6	100.0	61,440
40-44	77.6	4.1	7.3	4.1	6.4	0.5	100.0	49,292
45-49	74.4	4.4	7.4	4.0	9.3	0.4	100.0	32,774
50-54	70.0	3.6	7.9	5.0	13.4	0.1	100.0	35,847
55-59	62.2	4.7	8.3	3.5	21.0	0.3	100.0	21,910

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
60-64	56.4	3.2	6.4	1.9	31.8	0.2	100.0	21,597
65-69	46.7	2.9	7.7	1.8	40.9	0.0	100.0	16,478
70-74	37.7	2.6	5.6	1.5	52.5	0.1	100.0	14,007
75-79	25.2	1.7	3.7	2.0	67.5	0.0	100.0	10,393
80+	16.0	0.4	2.7	0.5	80.1	0.3	100.0	14,006
12 and older	51.6	4.1	4.1	2.7	7.1	30.4	100.0	842,711

Table A.22. Marital status by age group: Central West

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
Males								
12	0.6	0.1	0.0	0.0	0.0	99.3	100.0	60,920
13	0.5	0.0	0.0	0.0	0.1	99.5	100.0	48,003
14	0.7	0.0	0.0	0.0	0.0	99.2	100.0	64,117
15	0.9	0.2	0.0	0.0	0.0	99.0	100.0	48,510
16	1.0	0.1	0.1	0.0	0.0	98.9	100.0	41,911
17	1.4	0.3	0.0	0.1	0.0	98.2	100.0	38,674
18-19	4.4	1.4	0.1	0.3	0.1	93.7	100.0	84,910
20-24	31.7	10.1	0.7	1.1	0.1	56.4	100.0	193,712
25-29	61.6	15.1	1.6	1.7	0.2	19.8	100.0	168,854
30-34	75.9	13.7	1.8	2.0	0.2	6.4	100.0	145,623
35-39	78.2	15.1	1.8	1.5	0.4	3.0	100.0	119,141
40-44	80.1	13.5	1.8	2.0	0.6	2.1	100.0	88,678
45-49	81.3	13.2	1.7	1.8	1.1	0.9	100.0	54,494
50-54	83.9	10.5	1.7	1.5	1.5	0.8	100.0	47,266
55-59	81.8	11.6	1.2	1.8	2.6	1.0	100.0	29,477
60-64	82.0	10.9	1.7	1.8	3.2	0.3	100.0	30,391
65-69	81.5	9.4	2.5	1.8	4.2	0.7	100.0	20,026
70-74	78.0	9.1	3.0	1.9	7.8	0.2	100.0	16,856
75-79	76.1	6.4	1.7	3.6	10.8	1.3	100.0	8,762
80+	64.3	7.6	2.7	2.9	21.9	0.6	100.0	13,015
12 and older	47.1	9.1	1.1	1.2	0.8	40.7	100.0	1,323,338
Females								
12	0.7	0.0	0.1	0.1	0.0	99.1	100.0	59,179
13	0.8	0.0	0.1	0.2	0.0	98.8	100.0	50,042
14	0.9	0.0	0.0	0.1	0.1	98.9	100.0	60,418
15	2.5	0.7	0.2	0.4	0.0	96.2	100.0	45,918

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
16	5.4	1.6	0.6	0.7	0.1	91.6	100.0	40,464
17	9.9	3.4	1.0	1.5	0.1	84.1	100.0	36,162
18-19	31.9	10.8	1.6	2.3	0.1	53.3	100.0	93,148
20-24	58.5	14.5	3.2	4.3	0.3	19.1	100.0	229,080
25-29	70.5	13.8	4.4	4.6	0.9	5.8	100.0	172,129
30-34	72.4	12.6	5.8	4.9	2.4	2.0	100.0	146,194
35-39	70.9	11.3	5.8	5.7	4.9	1.5	100.0	105,399
40-44	68.6	10.0	7.1	5.9	7.8	0.6	100.0	73,032
45-49	65.6	9.8	7.7	4.6	11.4	0.8	100.0	44,516
50-54	62.1	7.2	8.2	4.9	17.4	0.3	100.0	58,063
55-59	57.3	5.5	8.1	4.3	24.4	0.5	100.0	30,546
60-64	47.9	5.8	6.7	5.2	34.0	0.4	100.0	32,028
65-69	41.8	5.2	8.3	4.8	39.5	0.3	100.0	26,585
70-74	31.6	3.5	7.2	3.6	53.9	0.1	100.0	21,183
75-79	23.6	4.3	6.3	2.8	62.6	0.4	100.0	14,541
80+	12.0	1.4	4.3	1.8	80.0	0.4	100.0	23,168
12 and older	47.4	9.0	4.1	3.6	7.3	28.6	100.0	1,361,795

Table A.23. Marital status by age group: South East

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
Males								
12	0.4	0.0	0.0	0.1	0.0	99.4	100.0	59,739
13	0.5	0.0	0.0	0.1	0.0	99.3	100.0	46,478
14	0.5	0.0	0.0	0.0	0.0	99.5	100.0	58,922
15	0.6	0.2	0.0	0.0	0.0	99.1	100.0	45,156
16	0.6	0.2	0.0	0.2	0.1	98.9	100.0	36,228
17	1.5	0.3	0.0	0.1	0.0	98.2	100.0	30,782
18-19	7.9	1.1	0.2	0.4	0.0	90.4	100.0	68,873
20-24	48.8	6.0	1.0	0.9	0.0	43.3	100.0	138,294
25-29	77.6	7.4	2.0	1.3	0.1	11.6	100.0	115,808
30-34	85.8	7.1	2.0	1.5	0.2	3.4	100.0	99,631
35-39	87.8	6.5	1.7	1.1	0.7	2.1	100.0	83,641
40-44	87.1	6.9	2.4	1.3	0.7	1.6	100.0	61,124
45-49	87.6	6.1	2.8	1.4	1.0	1.2	100.0	40,365
50-54	86.1	5.6	3.2	1.4	2.6	1.2	100.0	35,500
55-59	87.4	5.2	2.4	1.3	2.5	1.1	100.0	24,531

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N (Weighted)
60-64	87.0	4.3	3.1	2.0	3.0	0.6	100.0	26,271
65-69	82.7	6.1	4.1	1.2	5.4	0.5	100.0	20,213
70-74	84.6	3.5	3.7	1.7	6.0	0.6	100.0	14,529
75-79	81.6	3.3	4.1	2.0	8.3	0.7	100.0	9,189
80+	71.2	3.6	4.0	1.4	19.0	0.8	100.0	13,041
12 and older	51.8	4.3	1.4	0.9	0.9	40.7	100.0	1,028,314
Females								
12	0.2	0.1	0.0	0.1	0.0	99.6	100.0	58,462
13	0.7	0.2	0.1	0.1	0.0	98.9	100.0	45,613
14	1.4	0.2	0.0	0.0	0.0	98.3	100.0	57,390
15	4.2	0.7	0.3	0.2	0.0	94.6	100.0	37,946
16	11.3	2.3	0.9	1.0	0.1	84.3	100.0	30,953
17	22.5	3.4	1.7	1.6	0.0	70.8	100.0	27,413
18-19	49.0	5.6	4.0	2.5	0.1	38.9	100.0	86,029
20-24	70.5	6.8	6.9	4.1	0.7	11.0	100.0	186,114
25-29	76.0	6.3	9.1	4.5	1.6	2.7	100.0	137,849
30-34	74.0	6.1	11.0	4.7	3.2	0.9	100.0	116,674
35-39	71.9	4.9	11.9	4.8	6.0	0.5	100.0	86,753
40-44	66.7	4.7	13.0	4.3	10.8	0.6	100.0	56,281
45-49	64.6	4.2	11.4	4.1	15.5	0.2	100.0	37,676
50-54	59.5	2.5	12.7	4.3	20.8	0.2	100.0	50,630
55-59	53.4	2.7	12.6	4.7	26.3	0.2	100.0	29,138
60-64	44.2	3.0	13.4	3.6	35.7	0.1	100.0	32,985
65-69	37.0	1.4	12.3	3.5	45.7	0.1	100.0	26,420
70-74	31.7	0.9	11.3	2.3	53.8	0.1	100.0	18,757
75-79	22.5	0.8	10.3	1.5	64.5	0.5	100.0	12,699
80+	11.9	0.6	7.3	1.6	78.3	0.3	100.0	22,893
12 and older	50.3	4.1	7.5	3.2	8.9	26.0	100.0	1,158,674

Table A.24. Marital status by age group: South West

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N=
Males								
12	0.6	1.6	0.0	0.0	0.0	97.6	100.0	50,901
13	1.0	1.7	0.0	0.0	0.0	97.3	100.0	35,767
14	0.7	1.2	0.0	0.1	0.0	98.0	100.0	48,588
15	0.9	2.1	0.1	0.1	0.1	96.7	100.0	38,466
16	1.2	1.9	0.0	0.1	0.0	96.8	100.0	29,924
17	2.1	1.4	0.0	0.1	0.2	96.2	100.0	28,151
18-19	5.5	2.6	0.1	0.2	0.0	91.6	100.0	63,198
20-24	32.2	8.9	0.7	1.1	0.0	56.9	100.0	137,308
25-29	62.1	15.8	1.5	1.8	0.2	18.6	100.0	114,449
30-34	72.6	15.2	1.9	2.2	0.5	7.6	100.0	100,566
35-39	77.4	13.4	2.6	2.0	0.9	3.8	100.0	88,485
40-44	81.0	10.9	2.3	2.6	1.1	2.2	100.0	64,183
45-49	82.1	9.5	2.6	2.5	1.7	1.6	100.0	39,877
50-54	81.2	9.7	2.4	2.3	3.3	1.2	100.0	34,698
55-59	82.0	8.8	2.0	2.6	3.7	0.8	100.0	24,474
60-64	82.4	7.4	2.1	2.4	5.3	0.5	100.0	23,778
65-69	78.9	6.3	2.8	2.8	7.8	1.3	100.0	18,292
70-74	82.2	5.0	3.7	1.7	7.1	0.3	100.0	12,130
75-79	76.6	5.1	3.7	2.9	11.4	0.3	100.0	7,511
80+	66.8	5.6	2.7	2.5	22.0	0.4	100.0	11,062
12 and older	46.6	8.6	1.3	1.4	1.2	40.8	100.0	971,807
Females								
12	0.7	1.3	0.1	0.0	0.1	97.9	100.0	45,436
13	1.2	1.6	0.1	0.1	0.1	96.9	100.0	39,149
14	2.2	1.8	0.1	0.1	0.0	95.7	100.0	45,633
15	4.1	1.4	0.1	0.2	0.1	94.2	100.0	34,139
16	8.8	4.0	1.1	0.9	0.2	85.0	100.0	28,347
17	16.7	6.0	0.6	1.0	0.0	75.8	100.0	25,795
18-19	38.4	9.6	1.9	2.8	0.1	47.2	100.0	73,125
20-24	57.6	14.7	3.7	5.3	0.5	18.3	100.0	158,096
25-29	68.7	14.2	5.0	5.3	1.8	5.0	100.0	127,052
30-34	70.0	12.0	6.0	6.4	3.7	1.9	100.0	107,867
35-39	69.5	9.5	6.8	6.5	6.9	0.8	100.0	81,008
40-44	66.8	8.2	6.4	6.0	11.8	0.8	100.0	52,237
45-49	62.8	6.9	7.1	5.8	17.0	0.3	100.0	35,606
50-54	62.2	4.8	6.3	4.4	22.2	0.2	100.0	45,334
55-59	52.9	4.9	6.8	4.3	30.9	0.2	100.0	26,329

		Living				Never		
Age	Married	together	Divorced	Separated	Widowed	married	Total	N=
60-64	48.4	3.0	6.6	4.4	37.6	0.0	100.0	26,109
65-69	35.8	3.3	6.9	3.4	50.5	0.1	100.0	19,720
70-74	28.5	1.1	5.8	2.8	61.4	0.4	100.0	14,736
75-79	23.0	2.1	4.7	2.5	67.6	0.2	100.0	10,200
80+	11.5	1.3	4.7	1.8	80.5	0.1	100.0	16,039
12 and older	47.0	8.5	4.1	4.1	9.1	27.2	100.0	1,011,955

APPENDIX 4. AGE-SPECIFIC DEATH RATES

North zone			
	Both sexes	Male	Female
0	37.3	41.7	32.9
1-4	5.3	5.1	5.5
5-14	1.8	2.1	1.5
15-24	2.1	2.8	1.5
25-39	4.0	5.6	2.6
40-64	10.6	14.0	7.4
65+	49.9	55.6	45.0
Total	6.5	7.6	5.5
Central East zone			
Age group	Both sexes	Male	Female
0	42.7	45.6	39.8
1-4	8.6	8.5	8.6
5-14	1.9	2.0	1.8
15-24	1.6	2.0	1.1
25-39	3.9	4.9	3.0
40-64	9.2	11.7	6.7
65+	37.0	48.2	28.1
Total	6.4	7.3	5.5
Central West zone			
Age group	Both sexes	Male	Female
0	48.2	50.9	45.4
1-4	7.3	8.5	6.0
5-14	1.6	2.0	1.2
15-24	2.1	2.3	2.0
25-39	4.1	5.0	3.1
40-64	10.0	13.2	6.7
65+	41.3	50.3	35.1
Total	6.6	7.6	5.6
South East zone			
Age group	Both sexes	Male	Female
	46.6	50.7	42.7
1-4	7.4	8.8	6.0

Table A.25. Age-specific death rates, by age group, sex, and zone: Malawi, 2013–2014

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5-14	1.5	1.5	1.4
15-24	2.0	2.3	1.7
25-39	6.7	8.4	5.2
40-64	11.5	15.2	8.1
65+	42.7	50.1	37.6
Total	7.4	8.5	6.3
South West zone			
Age group	Both sexes	Male	Female
0	49.2	54.3	44.2
0 1-4	49.2 4.9	54.3 4.5	44.2 5.3
0 1-4 5-14	49.2 4.9 1.2	54.3 4.5 1.4	44.2 5.3 1.0
0 1-4 5-14 15-24	49.2 4.9 1.2 2.2	54.3 4.5 1.4 2.8	44.2 5.3 1.0 1.6
0 1-4 5-14 15-24 25-39	49.2 4.9 1.2 2.2 6.2	54.3 4.5 1.4 2.8 7.4	44.2 5.3 1.0 1.6 5.0
0 1-4 5-14 15-24 25-39 40-64	49.2 4.9 1.2 2.2 6.2 11.8	54.3 4.5 1.4 2.8 7.4 13.3	44.2 5.3 1.0 1.6 5.0 10.2
0 1-4 5-14 15-24 25-39 40-64 65+	49.2 4.9 1.2 2.2 6.2 11.8 40.8	54.3 4.5 1.4 2.8 7.4 13.3 46.5	44.2 5.3 1.0 1.6 5.0 10.2 36.2

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This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of the MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. TR-18-246

ISBN: 978-1-64232-020-6









