



IsDB-OPHI BRIEFS

MULTIDIMENSIONAL POVERTY IN YEMEN
An analysis of changes over time and gender

No. 3
February 2026

IsDB - OPHI Briefs, No. 3

MULTIDIMENSIONAL POVERTY IN YEMEN

ISSN 3033-4365 (Print)

ISSN 3033-4373 (Online)

Islamic Development Bank (IsDB)

Oxford Poverty and Human Development Initiative (OPHI)

Citation: IsDB and OPHI (2026). Multidimensional Poverty in Yemen, IsDB-OPHI Briefs No. 3, Oxford Poverty and Human Development Initiative (OPHI) and IsDB (Islamic Development Bank), Oxford, UK.

This report is published under Creative Commons licence CC BY-NC-ND.

MULTIDIMENSIONAL POVERTY IN YEMEN

An analysis of changes over time and gender

IsDB-OPHI

February 2026

Acknowledgements

This publication was jointly prepared by the Islamic Development Bank (IsDB), and the Oxford Poverty and Human Development Initiative (OPHI) under the strategic guidance and direction of Areef Suleman, IsDB Group Chief Economist, and Sabina Alkire (Director, OPHI).

Contributors: Imed Drine, Manager, Economic Research Division (IsDB), Bukhari M.S. Sillah, Lead Economist (IsDB), Cheikh Ahmed Diop, Lead Economist (IsDB), Mustafa Yagci, Senior Economist (IsDB), Faisal Hassan Al Jehani, Operations Team Leader (IsDB), Abdul Rashid, Administrative Coordinator (IsDB); Corinne Mitchell, Director of Programmes and Operations, and Monica Pinilla-Roncancio, Researcher (OPHI).

Administrative and Technical Assistance: Abdul Rashid (IsDB).

Desktop Publishing and Designing: Taibah Sugati (IsDB).

Foreword

Fragility and conflict have emerged as increasingly pressing challenges worldwide. Fueled by geopolitical rivalries, protracted hostilities, economic instability, and climate shocks, these crises now transcend national borders, destabilizing entire regions and reversing decades of hard-won development progress.

In this context, poverty cannot be defined simply by a lack of income; it is a complex web of deprivations spanning health, education, livelihoods, and access to essential services.

Yemen serves as a stark illustration of this reality. Over a decade of conflict has dismantled the country's socio-economic foundations. Beyond the tragic loss of life and immediate suffering, the crisis has eroded governance, stifled economic activity, and weakened institutional capacity. This multidimensional emergency demands a nuanced understanding of poverty—one that accounts for the structural barriers preventing families from living with dignity.

In response, the Islamic Development Bank (IsDB), in partnership with the University of Oxford's Poverty and Human Development Initiative (OPHI), has launched a series of analytical briefs to examine the complex nature of poverty in fragile and conflict-affected member countries.

This Brief on Multidimensional Poverty in Yemen offers a rigorous analysis of the country's intricate landscape. By harmonizing pre-conflict baselines with recent surveys, the brief provides a comprehensive assessment of how deprivations in health, education, and living standards have evolved.

As a development institution, our mandate is to translate these findings into actionable policy frameworks that drive tangible progress in poverty reduction.

We remain committed to delivering integrated solutions that encompass financing, knowledge services, and institutional capacity development. This holistic approach is designed to provide member countries with the essential resources needed to build resilient, sustainable communities.

Central to our mission is an unwavering commitment to inclusive development, ensuring benefits reach all segments of society.

We call for concerted, timely action to reverse recent setbacks and forge a path toward a future grounded in environmentally sustainable, resilient, and inclusive strategies.

Recognizing the gravity of the situation, we urge all stakeholders to unite in implementing these evidence-based recommendations, with the shared objective of securing a more equitable and prosperous future for the people we serve.



Dr. Muhammad Al Jasser

President, Islamic Development Bank Group
Chairman, Board of Executive Directors

This policy brief has been prepared to shed light on the evolution of multidimensional poverty in Yemen over the past decade, a period marked by prolonged conflict and institutional fragmentation. The study compares the situation between 2013 and 2023, using harmonized data from the Demographic and Health Survey (DHS 2013) and the Multiple Indicator Cluster Survey (MICS 2023). By constructing a proxy Multidimensional Poverty Index (MPI), it seeks to capture the multiple deprivations faced by households across health, education, and living standards.

One of the central challenges in fragile and conflict-affected settings such as Yemen is limited access to accurate and reliable data. Continuous disruptions in data collection, weakened statistical institutions, and the absence of longitudinal datasets make it difficult to monitor poverty trends and understand the drivers of deprivation. Despite these obstacles, this analysis demonstrates how harmonizing existing datasets and applying a multidimensional approach can yield meaningful insights into the patterns and persistence of poverty.

The findings of this policy brief reveal that more than 60% of Yemen's population continues to live in multidimensional poverty, with stark regional disparities. While some governorates have experienced modest improvements, others—particularly those most affected by conflict—have seen worsening deprivation. The results also highlight significant gender-based inequalities, with women and girls facing higher levels of deprivation in education and health.

This report underscores the importance of investing in statistical capacity-building and data systems as a foundation for effective policymaking. Reliable and timely data are indispensable for designing targeted interventions, evaluating progress, and ultimately achieving sustainable and inclusive development.

To effectively reduce multidimensional poverty in Yemen, policy interventions should be tailored to each governorate's specific poverty profile and level of conflict exposure. Policies should focus on broadening access to basic services and social protection for the most vulnerable and conflict-affected populations, while promoting women's inclusion in education and employment as a central pathway to alleviating deprivation.

This analysis aims to contribute to the ongoing efforts of policymakers, development partners, and researchers to better understand and address the complex realities of poverty in Yemen and similar fragile contexts.

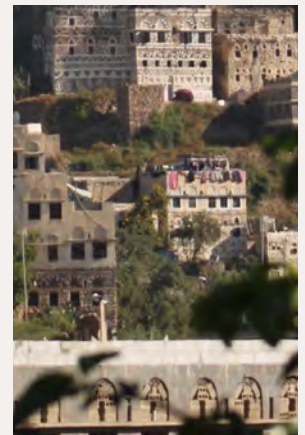
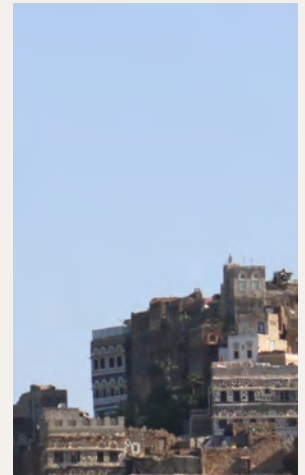
Areef Suleman

Group Chief Economist
Islamic Development Bank (IsDB)

Sabina Alkire

Director, Oxford Poverty and Human
Development Initiative (OPHI)

Table of Contents



Foreword	iv
Preface	v
Executive Summary	2

1. Introduction	4
2. Methodology	6
3. National and Regional MPI Changes Over Time	9
4. National MPI for Yemen: Gender Analysis	27
5. Policy Implications and Recommendations	30
6. References	31
7. Appendix	32



Executive Summary

Yemen has been in conflict since 2014, and the ongoing conflict has impacted the human, social and economic development of the country. It is estimated that more than 250,000 people have died directly by fighting or indirectly through lack of access to food, health services or general infrastructure; of those, 60% were children under 5 years old (Hanna, Bohl et al. 2021). The consequences of the ongoing conflict extend beyond the loss of human life, resulting in a significant impact on economic activity as well as monetary and non-monetary poverty (Hanna, Bohl et al. 2021).

However, quantifying the precise extent of the impact is arduous. Given the fragmented data collection since the start of the conflict, it is challenging to continuously monitor trends in monetary and non-monetary poverty levels following the onset of the conflict. In 2021, Yemen's national Multidimensional Poverty Index (MPI) was launched. It used the Yemen Human Development Survey (YHDS) 2021, which was representative for Al Bayda, Ta'iz, Hadramawt, Shabwah, Aden, Lahj, Ma'rib, Al Maharah and Ad Dali' governorates. In 2023, the Multiple Indicators Cluster Surveys (MICS) collected data representative of all governorates of the country, including those most affected by the conflict.

This report aims to provide a detailed analysis of multidimensional poverty and deprivation in Yemen and its 21 governorates between 2013 and 2023. Because of the country's lack of longitudinal data, we used the Demographic Health Survey (DHS-2013) and the MICS 2023. Both surveys are representative at the national level for rural and urban areas and the 21 governorates of the country. We computed a proxy multidimensional poverty index (MPI) using both sources of information, which was defined after a harmonisation process in both years to ensure the indicators were comparable. After the harmonisation process, a structure of three dimensions (health, education, and living standards) and ten indicators was computed using nested weights and a poverty line or poverty cutoff of 33%. Based on these results, a disaggregated analysis of the changes in multidimensional poverty levels was conducted.

Temporal analysis indicates that multidimensional poverty levels exhibited no statistically significant variation between 2013 and 2023. Thus, on average, more than 60% of the population in Yemen lives in



multidimensional poverty. However, it was observed that the poorest governorates in 2013 presented an increase in their levels of poverty and deprivation in general, and those governorates which include the largest cities in the country presented significant reductions in their levels of poverty and deprivation in most indicators included in the MPI. In the case of specific deprivations, an 11.4 percentage point (pp) increase in the percentage of people living in households with at least one child three years or younger that has not been vaccinated and an increase of 13.1 pp of people deprived of cooking fuel between 2013 and 2023. On the other hand, indicators such as overcrowding, access to electricity and school attendance presented an average reduction larger than 7 pp. Detailed analyses revealed that the reductions in these indicators were the result of demographic changes in the composition of households, which might be associated with migration as a result of conflict. On average, there was a reduction in the percentage of households with access to electricity using the public network, but a significant increase in the percentage of households who have access to electricity using solar panels or

other alternative energy sources. Finally, the school attendance indicator presented a reduction mainly due to changes in the percentage of children attending school in all governorates.

In addition to analysing changes over time, this report presents an intrahousehold analysis using the national MPI for Yemen. This analysis aims to understand intrahousehold inequalities in the levels of deprivation of men and women. We used the national MPI, because it includes a larger set of indicators computed at the individual level (i.e. health, child and maternal health, employment and education) and allows a better understanding of girls' and women's deprivations in the country. This analysis was conducted using the YHDS 2021, which only included information for specific governorates of the country. The results revealed that girls and women in Yemen present higher levels of deprivation in indicators related to education and health. For example, 26.5% of school-age girls do not attend school compared to 17.2% of school-age boys.

Regarding years of education, 43.2% of women older than 15 have less than 6 years of education compared to 28.6% of men in the same group. For vaccination, a lower percentage of girls presented this deprivation than boys in the same age group. Finally, in the case of employment indicators, women presented lower levels of deprivation in unemployment and underemployment. However, this does not mean they are less deprived, but that a larger percentage of women do not participate in the labour force.

Over 60% of the population remains poor, with 43.2% of women over 15 having less than six years of education

Main Findings

- From 2013 to 2023, the poverty levels in Yemen have not changed significantly at the national level. Still, the poorest governorates have seen increases in their levels of poverty and deprivation.
- The percentage of people deprived of vaccination and cooking fuel increased between 2013 and 2023. This was mainly due to the lack of access to vaccination services for children under three years and the increase in wood use as a primary material for cooking food.
- The poorest governorates in the country faced increases in their poverty levels between 2013 and 2023. In addition, a higher percentage of people presented on average the largest levels of deprivation in most indicators. This result could be associated with the adverse effects of conflict, which are increasing the gaps between governorates and preventing those living in the country's poorest regions from having access to opportunities and services.
- The analysis of the baskets of deprivations revealed that in Yemen, school attendance is one of the most important indicators; thus, a large percentage of people who lived in a household deprived of years of schooling also presented higher levels of deprivation in other indicators. This was a common problem for 2013 and 2023, revealing that the improvement in this area has not been enough to improve this deprivation.
- Women in Yemen face higher levels of poverty and deprivation. They have lower levels of education and labour market participation, which increase their vulnerability to chronic poverty.

1. Introduction

Yemen is a low-income country in West Asia, with an estimated population of over 39 million in 2023 (World Bank 2025). According to the last Human Development Report (2025), Yemen occupies the position 184 of 193 countries and a human development index score of 0.470, with an average life expectancy of 69.3 years, and a gross national income per capita of 1.018 USD, based on data from 2023. According to the Gender Development Index (2024), women in Yemen have a life expectancy 7 years higher than men. Still, the average level of education of women is 1.8 years, and their gross national income per capita is 150 USD lower than men (United Nations Development Programme (UNDP) 2024). Yemen has not had an improvement in their levels of human development since 1999. In this year, the levels of human development were similar to the ones observed in 2024, and the highest level of human development was achieved in 2013 (0.496) before the conflict started (Burchi, Malerba et al. 2022).

The country has been characterised as being one of the poorest countries in the Middle East and North Africa region (MENA), with almost half of the population living under the income poverty line in 2014 (World Bank 2024). Given the difficulties in data collection caused by the conflict, it has not been possible to conduct a poverty analysis in Yemen from a monetary perspective since 2014, and all poverty estimations until now, have been based on statistical analysis (simulations), instead of using data collected during the conflict.

In 2024, Yemen's national Multidimensional Poverty Index (MPI) was launched. The report, led by the United Nations Development Programme (UNDP) in collaboration with the World Bank and Oxford Poverty and Human Development Initiative (OPHI), was presented. The national MPI used the Yemen Human Development Survey (YHDS) 2021, and the national MPI includes six dimensions (education, health, child and maternal health, services, living standards, and employment) and 17 indicators. The national MPI, which is the product of the incidence (percentage of people living in multidimensional poverty) and intensity (average number of deprivations faced by poor people) of multidimensional poverty, was 0.386. Therefore, multidimensionally poor people face on average 38.6% of all possible deprivations in Yemen,

if all individuals were multidimensionally poor and deprived in all indicators. Ad Dali' and Al Bayda had the highest incidence of multidimensional poverty. Given the large population in Ta'iz governorate, it is estimated that 40% of multidimensionally poor people live in this region (United Nations Development Programme UNDP 2024).

Yemen has been in conflict since 2014, and as expected, the ongoing conflict has impacted the human, social and economic development of the country. It is estimated that more than 250,000 people have been killed directly by fighting or indirectly through lack of access to food, health services or general infrastructure; of those, 60% were children under 5 years old (Hanna, Bohl et al. 2021). The effects of the ongoing conflict go beyond the loss of human life, including the reduction of economic activity, the increase of monetary and non-monetary poverty and the increase of malnutrition (Hanna, Bohl et al. 2021).

To date, only the World Bank (2024) has presented an analysis of the data from the Yemen Multiple Indicator Cluster Survey 2023, which was the first



data source that collected information in all the 20 governorates of Yemen and allowed an analysis of the changes that have happened in the country since 2013. The analysis revealed that there has been a reduction in the provision of basic services such as improved sources of water, sanitation and electricity. In addition, Yemen has one of the highest levels of wasting, stunting and underweight children in the MENA region, and a large percentage of households have been internally displaced since 2014. Finally, more than a third of Yemenis lack livestock, productive assets, or savings, which reduces their chances of coping with the current situation in the country.

Although the analysis of the World Bank uses non-monetary indicators to understand the potential effects of conflict on the lives of people in Yemen, it does not use a multidimensional perspective of poverty. Thus, it is not possible to understand if the level of poverty has changed since 2013 and if people living in all governorates face the same types of deprivations. Aiming to contribute to this topic, this document presents the changes in multidimensional poverty in Yemen between 2013 and 2023 at the

national and sub-national levels to analyse the leading indicators contributing to poverty in 2013 and 2023. In addition, the report uses the national MPI for Yemen to analyse intrahousehold inequalities and provide a gender analysis of multidimensional poverty in the country.

The results of this report provide critical evidence to guide poverty reduction strategies in Yemen in the coming years. The MPI provides information regarding the incidence and intensity of multidimensional poverty as well as the composition of poverty and deprivation for different regions and for vulnerable groups. These results can be used as a road map for poverty reduction in each of the governorates of the country. The analysis of the deprivation packages reveals which categories affect most of the people in each governorate and can be used as evidence to prioritise strategies and programmes.



Between 2013 and 2023, Yemen saw a rise in deprivation despite aid efforts—and child malnutrition is among the highest in MENA

2. Methodology

This report uses two main methodological approaches. First, it analyses multidimensional poverty over time (2013 and 2023) and changes in the incidence, intensity and MPI on the national, rural and urban levels and for the 21 governorates of the country. In addition, the report analyses the changes in multidimensional poverty for households with a female head of household. Also, it analyses the most common combinations of deprivations in both survey years (2013 and 2023). Finally, the document analyses intrahousehold inequalities using the national MPI for Yemen.

2.1 Changes over time

Aiming to analyse the changes in poverty between 2013 and 2023, we computed an adapted national MPI using the Demographic Health Survey (DHS) 2013 and Multiple Indicator Cluster Survey (MICS) 2023. Both surveys are representative at the national level for rural and urban areas and the 21 governorates of the country. We computed a proxy MPI using both sources of information, which was defined after a harmonisation process in both survey years to ensure the indicators were comparable. After the harmonisation process, a structure of three dimensions (health, education, and living standards)

and ten indicators was computed using nested weights and a poverty line (or poverty cutoff) of 33%. Based on these results, a disaggregated analysis of the changes in multidimensional poverty levels was conducted (Table 1).

Using the information from DHS and MICS, we analysed the absolute and relative incidence, intensity and MPI changes between 2013 and 2023. In addition, we analysed the changes in the uncensored (percentage of people who are deprived in each indicator) and censored headcount ratios (percentage of people who are deprived in an indicator and are multidimensionally poor). The analysis was conducted for rural and urban areas, the 21 governorates of the country and according to the sex of the head of the household.

Additionally, to analyse changes over time, we conducted a detailed analysis of the most common combination of deprivations in each survey year, disaggregated by governorate. We aimed to understand which deprivations were more common for people in Yemen. Finally, we simulated the increases in poverty if the percentage of people deprived in different indicators continues to increase over time.

Table 1. Dimensions, indicators, deprivation cutoffs and weights for the harmonised MPI

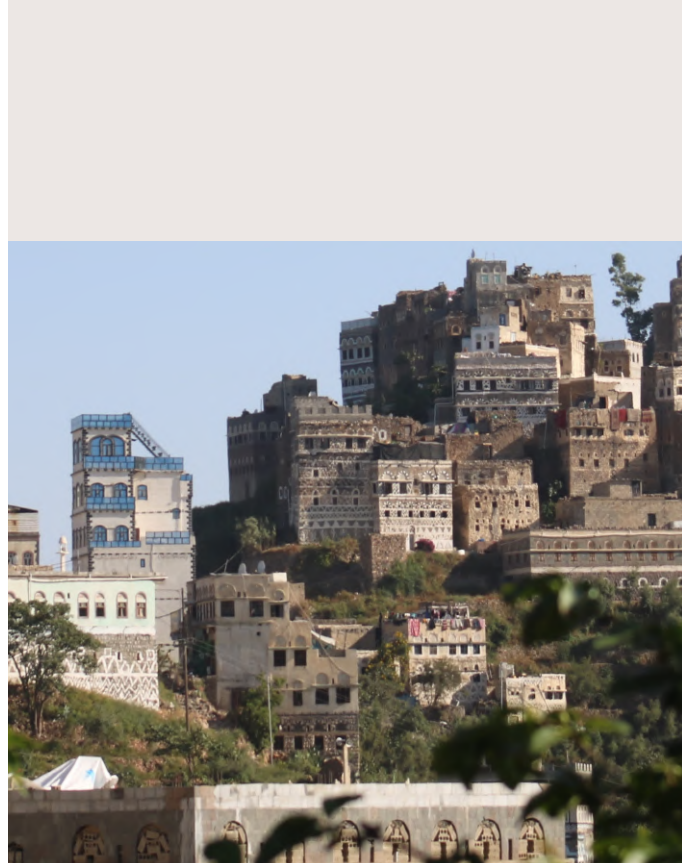
Dimension	Indicator	Deprivation cutoff A household is deprived if...	Weight
Education	Years of schooling	at least one member older than 14 and younger than 65 has fewer than six years of education	1/6
	School attendance	at least one school-aged child is not attending school	1/6
Health	Child mortality	at least one child has died in the last five years	1/9
	Vaccination	at least one child under 3 has not received the 'Diphtheria-Pertussis-Tetanus DPT vaccine	1/9
	Antenatal care	a woman who was pregnant in the last five years did not receive antenatal care, or delivery was at home and not attended by a doctor or nurse	1/9
Living standards	Water	the main source of water is an artesian well, well, wellspring or unprotected pool	1/15
	Sanitation	the main toilet is an open pit, non-flushed toilet, other facility or no toilet, or is not private	1/15
	Electricity	the main source of light is a private network, shared generator or candles.	1/15
	Cooking fuel	The cooking fuel is wood, coal/ charcoal, straw leaves, animal waste or other	1/15
	Overcrowding	A room is shared by three people or more	1/15

Note: The analysis uses cross-sectional data, and it is highly challenging to conclude the potential causes of any changes as the results are affected by demographic changes and migration (internal and external). In addition, the analysis focuses on understanding how, on average, multidimensional poverty has changed over time, and it is not possible to conclude if specific households changed their deprivation or poverty status over time.

2.2 Intra-household Analysis

To analyse if poverty is unequally distributed among men and women in Yemen, we used the national MPI for Yemen, which was published in February 2024 and used the Yemen Human Development Survey (YHDS) 2021 UNDP 2024). This survey aims to provide a detailed overview of welfare, food security and human development indicators in Yemen, enabling intra-household analysis to be conducted. Data is representative for Al Bayda, Ta'iz, Hadramawt, Shabwah, Aden, Lahj, Ma'rib, Al Maharah and Ad Dali'. The YHDS surveyed a sample of 1,681 households, 16 in each of 105 enumeration areas, themselves selected from the 1,200 enumeration areas visited by the national Yemen Household Budget Survey (HBS) in 2014.

The national MPI for Yemen has six dimensions and 17 indicators. Each dimension has the same weight (1/6), and the weight of each dimension is equally divided among the indicators. The poverty lines or poverty cutoff was set at 30%. Table 2 presents the structure of the national MPI for Yemen.



MPI includes six dimensions and 17 indicators, offering insights into how poverty is distributed within households and between men and women

Table 2. Dimensions, indicators, deprivation cutoffs and weights of the national MPI for Yemen.

Dimension	Indicator	Deprived if	Weight
Education	Years of schooling	An individual is deprived if he/she lives in a household where at least one member older than 14 and younger than 65 has fewer than six years of education.	8.3%
	School attendance	An individual is deprived if he/she lives in a household where at least one school-aged child is not attending school.	8.3%
Health	Health access	An individual is deprived if he/she lives in a household where at least one member did not have access to healthcare in the last 12 months, and the reason was not that the illness was minor.	5.5%
	Medical care for chronic diseases	An individual is deprived if he/she lives in a household where at least one member who has a chronic illness did not have access to health services, no matter the reason why he/she did not have access.	5.5%
	Food security	An individual is deprived if he/she lives in a household that implemented at least one coping strategy reducing food consumption.	5.5%
Maternal and children health	Vaccination	An individual is deprived if he/she lives in a household where at least one child has not received the DPT vaccine.	5.5%
	Child mortality	An individual is deprived if he/she lives in a household where at least one child has died in the last five years.	5.5%
	Antenatal and skilled birth care	An individual is deprived if he/she lives in a household where a woman who was pregnant in the last five years did not receive antenatal care, or the delivery was at home and not attended by a doctor or nurse.	5.5%
Services	Water	An individual is deprived if he/she lives in a household where the main source of water is artesian well, well, wellspring, or unprotected pool.	4.1%
	Sanitation	An individual is deprived if he/she lives in a household where the main toilet is open pit, non-flushed toilet, other facility, or no toilet, OR is not private.	4.1%
	Lightning	An individual is deprived if he/she lives in a household where the main source of light is private network, shared generator or candles, or it has electricity but the average number of hours per day that power is available was fewer than 15.	4.1%
	Internet ICT	An individual is deprived if he/she lives in a household without a computer/laptop, tablet and it does not have internet.	4.1%
Living standards	Cooking fuel	An individual is deprived if he/she lives in a household where the main source of cooking fuel is wood, coal/charcoal, straw-leaves, animal waste or other.	5.5%
	Overcrowding	An individual is deprived if he/she lives in a household where a room is shared by three people or more.	5.5%
	Housing materials	An individual is deprived if he/she lives in a household where the material of the walls, roof and floors is of poor quality.	5.5%
Employment	Unemployment	An individual is deprived if he/she lives in a household where at least one member older than 14 is unemployed.	8.3%
	Underemployment	An individual is deprived if he/she lives in a household where at least one member older than 14 who is working, is willing to work more hours.	8.3%

Using this structure, we computed the percentage of women deprived in indicators of education, health, maternal and children health, and employment. We aimed to understand the percentage of women who are deprived in each of these indicators, create the deprivation at the household level, and analyse if the percentage of men and women who are deprived differs between indicators.

3. National and Regional MPI Changes Over Time

This analysis uses DHS 2013 and MICS 2023 to compute a harmonised measure (Table 1) of multidimensional poverty. All the results are based on this measure and cannot be compared to the national MPI for Yemen or other measures. We aim to understand the changes in non-monetary indicators between 2013 and 2023 in Yemen.

Between 2013 and 2023, the incidence of multidimensional poverty decreased by 3.5 (percentage points), with an absolute decrease of the MPI by 0.02. Although these figures suggest a poverty reduction, the results are not statistically significant (Table 3). Figure 1 presents the absolute change in the incidence and intensity of multidimensional poverty (Figure 1).

At the national level, the percentage of people multidimensionally poor and deprived in access to water, vaccination and cooking fuel increased between 2013 and 2023. On the other hand, seven indicators showed a reduction in the proportion of people deprived and multidimensionally poor,

with overcrowding as the indicator with the largest reduction (12.6 percentage points), followed by electricity (8.0 pp) and school attendance (7.4 pp). Only changes in child mortality and access to water were not statistically significantly (Figure 2).

The relative change in the censored headcount ratios between 2013 and 2023 is presented in Figure 3, with vaccination and cooking fuel as the two indicators with the largest relative increase in the percentage of people who are deprived and multidimensionally poor and electricity as the indicator with the largest reduction in the censored headcount ratio. Indicators such as antenatal care, years of schooling and access to a clean water source presented a change lower than 10%.

Figure 2. Absolute changes in the censored headcount ratios between 2013 and 2023

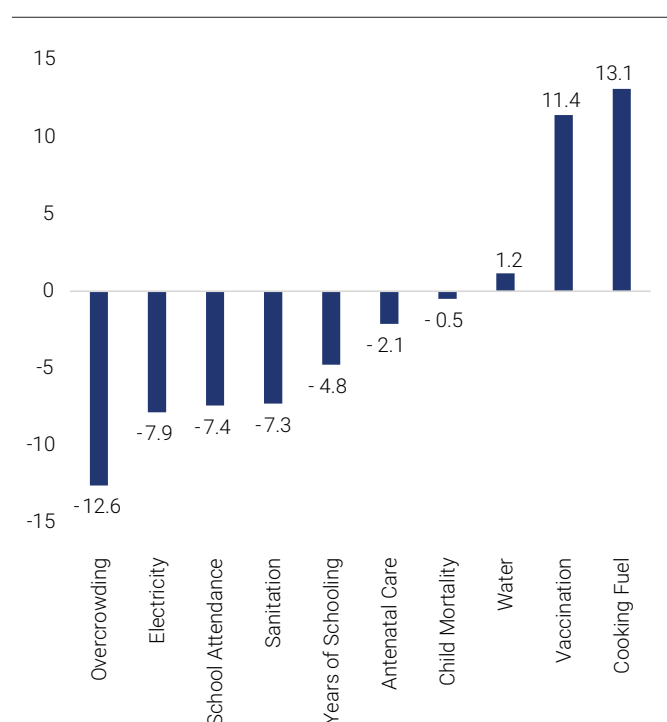


Figure 1. Absolute changes in the incidence and intensity of multidimensional poverty in Yemen 2013-2023

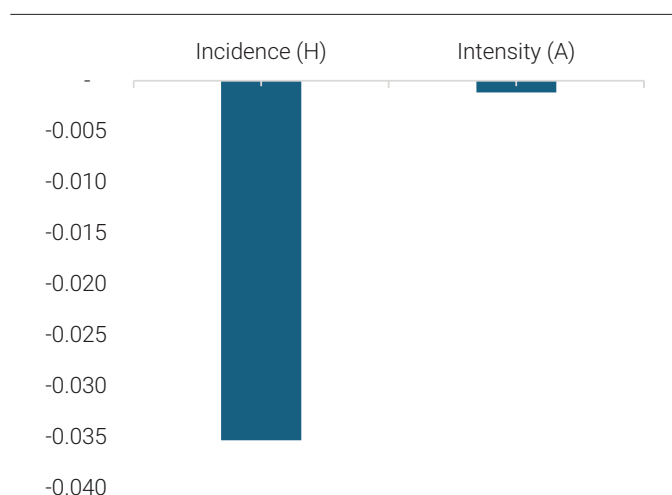
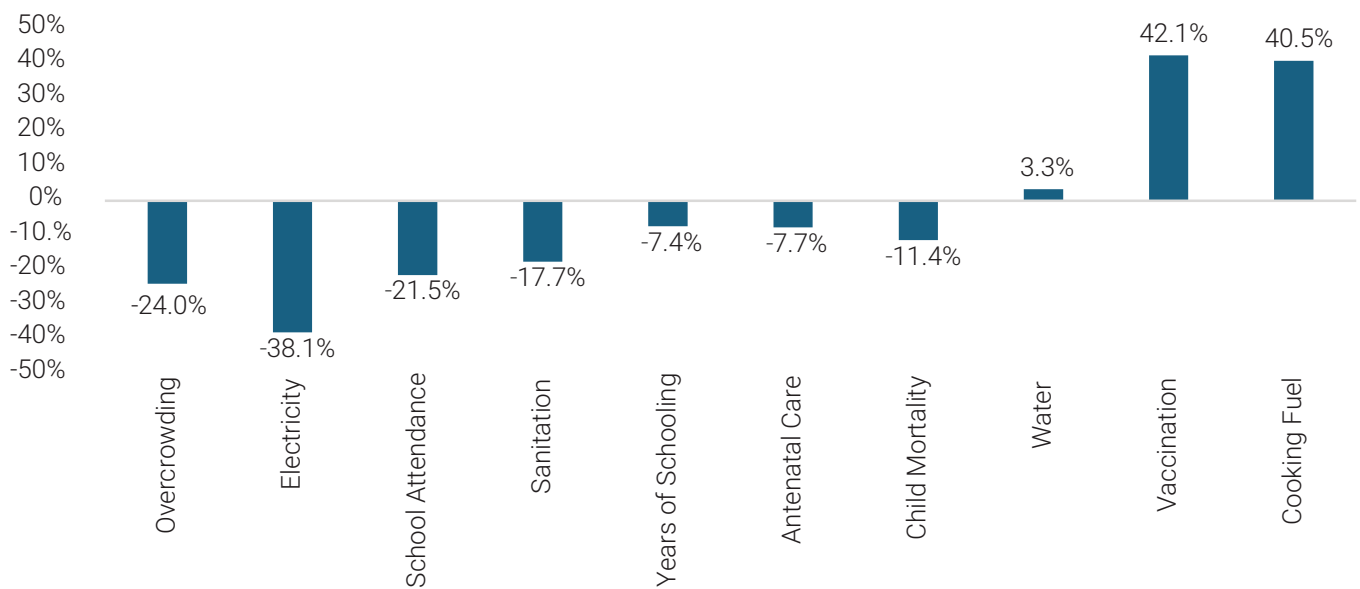


Table 3. Incidence, intensity and MPI in 2013 and 2023

	2013	Confidence Interval (95%)		2023	Confidence Interval (95%)	
Incidence (H)	66.0%	64.1%	68.0%	62.5%	60.7%	64.3%
Intensity (A)	53.2%	52.6%	53.9%	53.1%	52.4%	53.9%
MPI	0.352	33.9%	36.4%	0.332	31.9%	34.5%

Figure 3. Relative changes in the censored headcount ratios



3.1 Individual indicator analysis between 2013 and 2023

To better understand how deprivations relate, we analysed which deprivations were shared by the same households in 2013 and compared them to those in 2023. We first analysed if deprivations in child mortality and vaccination were associated, given that vaccination is a protective mechanism to reduce childhood morbidity and mortality. In the case of these indicators, we found that of the population in Yemen, less than 1% faced both deprivations simultaneously in 2013 and 2.7% in 2023. In the case of the percentage of people in Yemen deprived of vaccination, there was an increase from 29.5% to 46.5% between 2013 and 2023. Therefore, the percentage of households with at least one child

under three who did not receive the DPT vaccine increased. In the case of child mortality, there was no significant reduction in the percentage of households that reported that at least one child under five has died.

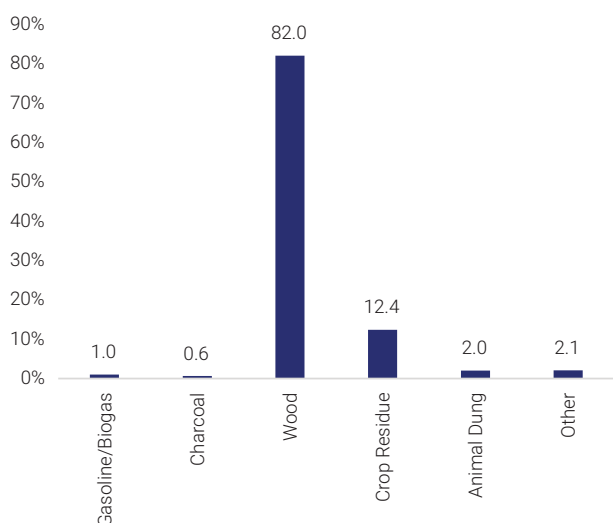
Vaccination: the proportion of people who were deprived in vaccination increased from 29.5% to 46% between 2013 and 2023. This increase was mainly because of a reduction in the percentage of children receiving the DPT vaccination in the same period, with the most considerable reductions in Al Bayda and Taizz, and the largest increase in Al Hudaydah and Sana'a City (Figure 4).

Figure 4. Percentage of people living in households deprived in vaccination between 2013 and 2023 by governorate



Cooking fuel: This indicator presented an increase of 13.1 pp between 2013 and 2023. When we analysed the primary sources of this change, we identified an increase in the percentage of households cooking with wood in this period, with only 35% of households reporting cooking with wood in 2013 and more than 52% of households reporting cooking with manufactured or traditional solid fuel stoves in 2023. In addition, there was an increase in the percentage of households reporting cooking in an open fire. Figure 5 presents the type of cooking fuels used by households in 2023 when cooking with a traditional cookstove, a liquid fuel stove, a manufactured solid fuel stove, a three-stone stove or other stoves, which correspond to more than 55% of the population of Yemen in 2023 (Figure 5).

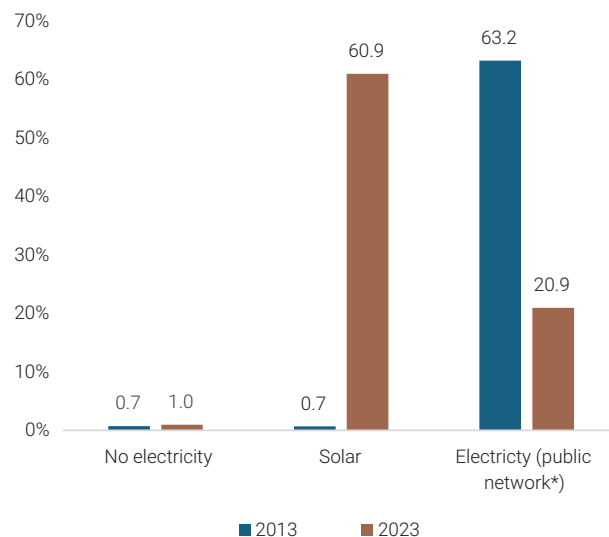
Figure 5. Type of cooking fuel used by households cooking with traditional stoves in 2023



Electricity: Between 2013 and 2023, an absolute reduction of almost eight percentage points was observed in the deprivation of these indicators, contrary to what was expected. However, the analysis revealed an increase in the percentage of the population using solar panels in 2023 compared to 2013. Although there was a meaningful reduction in the percentage of individuals living in households whose primary energy source was the public grid, this reduction was compensated for by using other sources of energy (Figure 6). Figure 7 presents the percentage of households using solar panels and electricity for the public/private grid. In the case of Aden, Mahara Al, and Haramaut, more than 85% of the households had a connection to the public grid. In the case of Al Bayda, Ib and Dhamar more than 80% of the population depends on solar panels.

Overcrowding: Between 2013 and 2023, the percentage of people deprived of overcrowding reduced from 60.9% to 49.6%. This reduction was seen because of a reduction in the household size and an increase in the average number of rooms per household (Table 4). However, this reduction was not constant in all governorates. For example, in the case of Raymah, the poorest governorate in the country, there was an average household size increase of almost two people between 2013 and 2023. By contrast, in Hasramaut, the governorate with the largest reduction in multidimensional poverty between 2013 and 2023, the average reduction was almost three people.

Figure 6. Main type of electricity per year



School attendance: Between 2013 and 2023, there was a reduction in the percentage of households with at least one child of school age who are not attending school. When we analysed some potential reasons for this reduction, we found a decrease in the percentage of children of school age in this period (28.9% to 22.8%). This reduction was seen in all governorates, but the most considerable reductions were seen in Sa'ada, Hajjah, and Shabwah, where the percentage of children decreased by more than seven percentage points (Figure 8).

Figure 7. Percentage of people with solar panels and electricity in 2023 by governorate

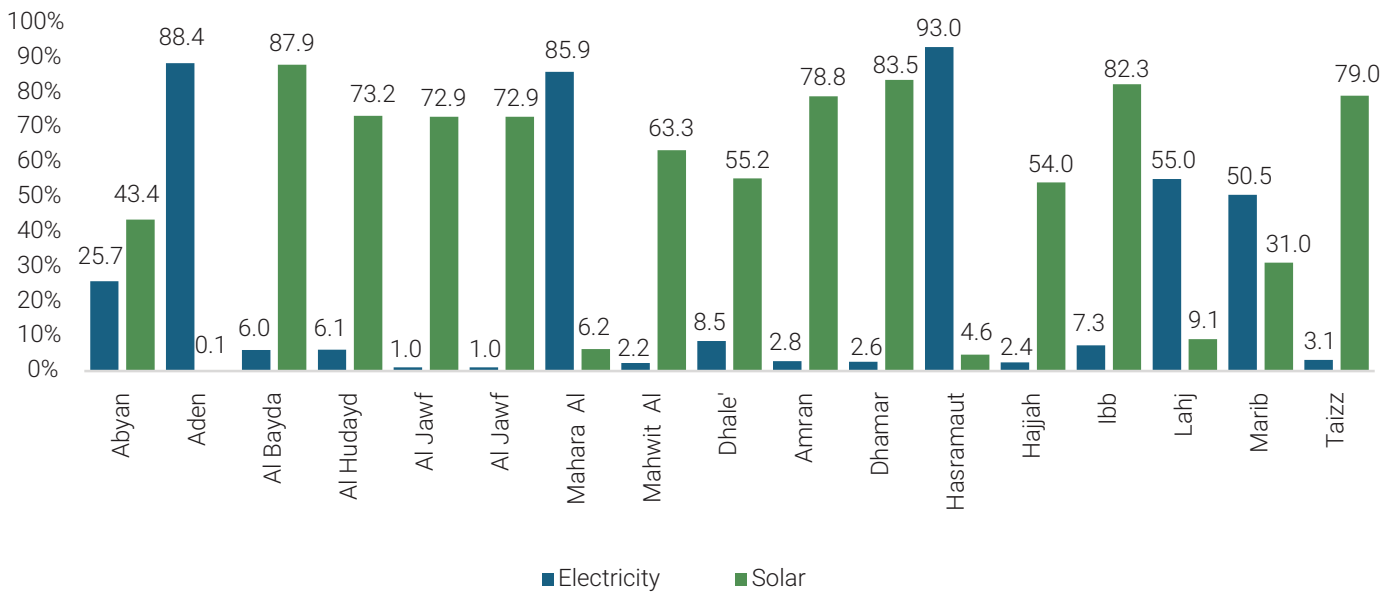
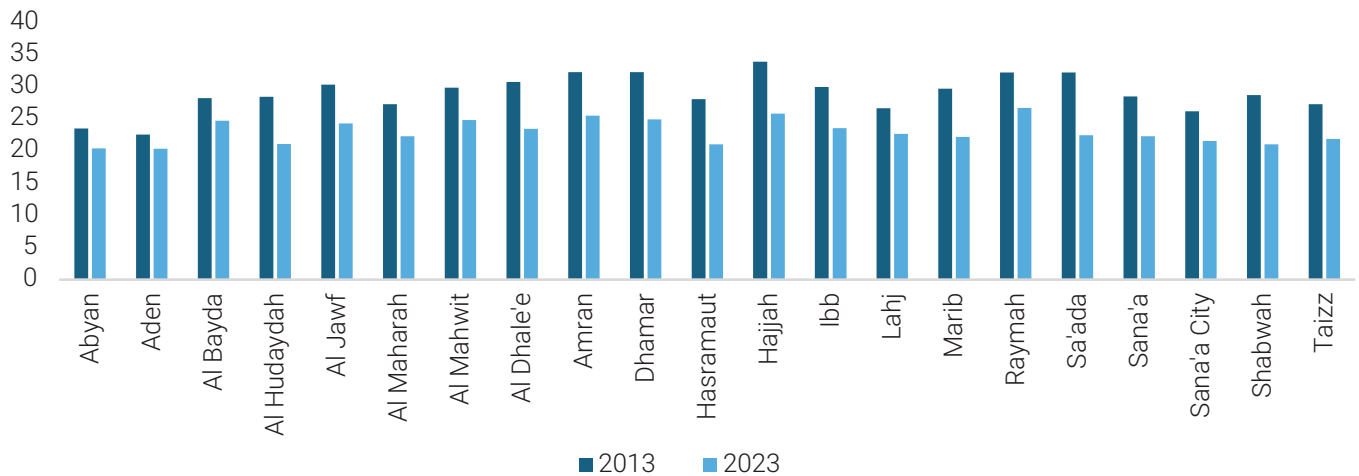


Table 4. Average size of household and number of rooms per year and by governorate

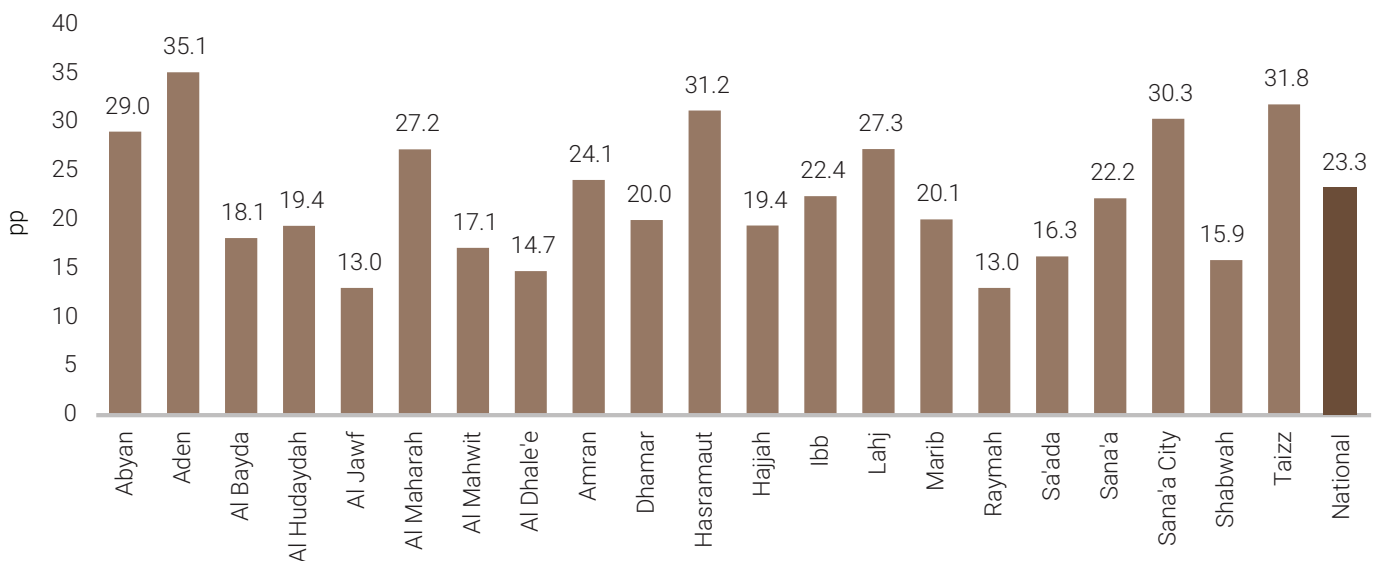
	2013		2023	
	Household Size	Number of Rooms	Household Size	Number of Rooms
Abyan	8.2	2.3	8.8	2.3
Aden	8.0	2.3	7.5	2.1
Al Bayda	11.3	3.5	9.7	3.9
Al Hudaydah	7.3	1.5	7.6	1.7
Al Jawf	8.1	2.7	6.4	2.8
Al Maharah	6.5	2.5	6.2	2.3
Al Mahwit	8.3	2.4	8.9	2.7
Al Dhale'e	9.0	2.7	8.2	2.9
Amran	9.0	2.8	9.0	3.1
Dhamar	8.2	2.4	9.1	2.8
Hasramaut	10.6	3.1	7.8	2.6
Hajjah	8.4	1.9	7.3	1.9
Ibb	8.5	2.6	8.3	2.7
Lahj	6.7	1.8	7.0	1.9
Marib	11.2	3.1	8.6	3.0
Raymah	8.0	2.2	9.8	2.5
Sa'ada	9.3	3.3	8.6	3.5
Sana'a	10.3	3.5	9.5	3.7
Sana'a City	7.7	3.0	7.8	3.4
Shabwah	12.2	3.5	11.6	3.4
Taizz	8.2	2.3	7.6	2.5

Figure 8. Percentage of school-age children by governorate in 2013 and 2023



In addition, the percentage of children attending school increased from 27.9 to 51.2%, representing an absolute increase of 23.3 pp. At the governorate level, the increase was larger in Aden (35.1 pp), Taizz (31.8 pp), and Hasramaut (31.2 pp). The lowest increase in school attendance was observed in Raymah and Al Jawd (13 pp) (Figure 9).

Figure 9. Absolute change in the percentage of school-age children attending school by governorate (2013 and 2023)



3.2 Analysis of packages of deprivation

When we analysed which set of deprivations presented the largest share of individuals deprived at the same time in 2013, we found that years of schooling, sanitation and overcrowding presented the largest percentage of the population deprived simultaneously, with 35% of the population in Yemen presenting this combination of deprivations. In 2023, the indicators with the largest percentage of people

deprived simultaneously were years of schooling, sanitation, and cooking fuel (Table 5). In both years, years of schooling were the indicator of most of the combinations of deprivations in Yemen. Thus, reducing deprivation in this indicator is fundamental to decreasing multidimensional poverty in the country.

Table 5. Combination of deprivations in 2013 and 2023

	2013	2023
Years of schooling, sanitation and overcrowding	35%	23%
Years of schooling, water and overcrowding	32%	23%
Years of schooling, school attendance and overcrowding	29%	19%
Years of schooling, water and sanitation	28%	27%
Years of schooling, sanitation and cooking fuel	26%	32%
Years of schooling, cooking fuel and overcrowding	26%	28%
Years of schooling, water and cooking fuel	23%	31%
Water, sanitation and cooking fuel	19%	25%
Years of schooling, vaccination and cooking fuel	10%	24%
Years of schooling, vaccination and overcrowding	22%	23%
Years of schooling, school attendance and cooking fuel	18%	21%

At the governorate level, we found that in Hajjah, Al Mahwit and Al Hudaydah, more than half of the population simultaneously presented deprivations in years of schooling, sanitation and overcrowding. By contrast, Aden, Al Maharah and Sana'a City did not show a combination of indicators with more than 20% of the population deprived; in the three governorates, the combinations of years of schooling, school attendance, overcrowding, and vaccination presented the largest share of the population deprived simultaneously. Table 6 presents the combinations of deprivations by governorate in 2013.

In 2023, more than 60% of the population in Al Jawd, Hajjah and Rayman were deprived of years of schooling, water and cooking fuel simultaneously. These three governorates also present a large percentage of the population deprived of years of education-sanitation-cooking fuel, and water-sanitation-cooking fuel. In 2013, Aden, Hasramaut and Sana'a City presented the lowest percentage of people deprived in different combinations of deprivations (Table 7).

Analysing how deprivations are presented in the country's regions allows a better understanding of how multidimensional poverty and deprivation are presented in Yemen. The fact that deprivations in indicators such as years of schooling, cooking fuel, and sanitation are some of the most prevalent in most governorates reflects the country's lack of basic service provision. In addition, the lack of differences in the combination of deprivations between 2013 and 2023 reflects the lack of improvement in providing services and opportunities over time.

3.2.1 Changes in rural and urban areas

In both rural and urban areas, there was a reduction in the incidence of multidimensional poverty. However, this was only significant for urban areas, from 40% of the population living in multidimensional poverty in 2013 to 34% in 2023. In the case of rural areas, there was a 3 pp reduction, but it was not significant. The reduction in the MPI was only significant for urban areas, moving from 0.182 to 0.154 (Table 8).

Table 6. The most common combination of deprivations in 2013 by governorate

	Abyan	Aden	Al Bayda	Al Hudaydah	Al Jawf	Al Maharah	Al Mahwit	Al Dhale'e	Amran	Dhamar	Hasramaut	Hejjah	Ibb	Lahj	Marib	Raymah	Sa'ada	Sana'a City	Shabwah	Taizz
Years of schooling, Vaccination and Overcrowding	23.8%	18.1%	30.4%	19.5%	21.0%	14.9%	19.7%	18.5%	24.0%	17.2%	21.4%	28.6%	22.7%	16.2%	22.0%	15.3%	17.1%	22.5%	34.5%	18.1%
Years of schooling, school attendance and overcrowding	24.3%	16.6%	38.1%	37.9%	24.6%	17.2%	31.2%	25.5%	37.2%	39.1%	27.5%	49.4%	28.8%	14.0%	19.9%	21.8%	21.8%	30.1%	41.3%	18.5%
Vaccination, antenatal care and overcrowding	22.5%	15.9%	24.2%	16.5%	18.7%	12.9%	19.9%	17.2%	20.0%	16.1%	16.6%	24.6%	20.4%	15.2%	19.2%	15.3%	14.4%	20.1%	27.2%	17.8%
Years of schooling, antenatal care and overcrowding	20.6%	14.2%	27.6%	20.0%	19.2%	13.9%	21.6%	20.3%	22.8%	23.5%	20.4%	27.9%	23.3%	14.7%	20.4%	17.5%	15.9%	24.9%	30.9%	20.7%
Years of schooling, antenatal care and vaccination	23.2%	13.1%	31.0%	15.2%	24.0%	15.6%	23.5%	20.7%	26.3%	20.5%	19.1%	26.2%	25.2%	14.8%	22.5%	16.3%	23.8%	31.5%	31.1%	19.7%
Years of schooling, sanitation and overcrowding	24.8%	2.0%	29.6%	55.6%	27.4%	4.7%	57.1%	30.4%	43.2%	43.6%	12.5%	63.5%	32.1%	33.9%	23.5%	48.0%	24.6%	48.8%	37.6%	41.7%
Years of education, water and overcrowding	34.7%	0.3%	45.7%	16.0%	33.2%	15.8%	41.3%	40.1%	44.1%	30.4%	20.1%	61.1%	34.6%	19.5%	34.3%	43.3%	14.0%	31.7%	40.0%	29.4%
Year of education, water and sanitation	22.8%	0.0%	29.2%	13.1%	25.6%	3.5%	50.4%	25.1%	45.8%	31.8%	7.2%	56.9%	24.9%	21.5%	24.5%	54.4%	20.1%	41.7%	27.3%	26.4%
Water sanitation and overcrowding	17.1%	0.0%	22.0%	12.3%	19.0%	2.6%	42.3%	21.1%	33.4%	23.3%	6.2%	51.8%	20.0%	17.5%	20.4%	40.2%	9.8%	29.6%	22.9%	23.4%
Years of schooling, school attendance, overcrowding	16.7%	0.2%	36.1%	9.7%	20.8%	10.0%	23.1%	19.7%	34.5%	24.6%	14.3%	40.0%	19.2%	10.4%	14.7%	22.5%	14.9%	25.0%	25.8%	11.9%
Years of schooling, vaccination and water	15.9%	0.2%	27.9%	4.5%	20.2%	6.2%	14.2%	15.7%	25.5%	11.4%	7.1%	25.6%	12.5%	7.2%	17.4%	14.5%	9.5%	16.3%	21.4%	8.8%
School attendance, water, overcrowding	15.1%	0.2%	29.5%	9.1%	16.1%	8.0%	20.6%	18.2%	27.1%	18.5%	11.6%	38.7%	15.6%	9.7%	12.7%	18.5%	8.2%	19.3%	22.0%	10.8%
Vaccination, water, overcrowding	14.6%	0.4%	22.5%	4.4%	16.5%	5.3%	13.4%	14.3%	18.6%	8.8%	6.5%	23.8%	10.0%	6.5%	15.8%	13.2%	5.8%	12.6%	18.4%	8.3%
Years of schooling, sanitation and cooking fuel	14.5%	0.2%	17.0%	31.2%	22.5%	3.4%	39.7%	23.5%	45.6%	29.8%	6.0%	59.4%	29.7%	17.0%	20.3%	47.5%	18.7%	46.6%	11.9%	27.2%

Table 7. The most common combination of deprivations in 2023 by governorate

	Abyan	Aden	Al Bayda	Al Hudaydah	Al Jawf	Al Maharah	Al Mahwit	Al Dhalée	Amran	Dhamar	Hassa-maut	Hajjah	Ibb	Lahj	Marib	Ravmah	Saada	Sanata	Sanata City	Shabwah	Taizz
Years of schooling, water, cooking fuel	10.2%	1.3%	24.0%	19.6%	62.2%	4.4%	45.7%	38.7%	44.7%	50.6%	1.3%	62.2%	25.6%	24.0%	36.2%	78.9%	48.8%	37.6%	1.1%	25.3%	23.2%
Years of schooling, sanitation, cooking fuel	12.2%	0.0%	31.4%	14.7%	62.0%	6.8%	53.2%	31.6%	46.8%	45.5%	3.8%	62.6%	28.4%	26.8%	34.2%	70.3%	36.3%	56.3%	0.3%	24.2%	24.9%
Water, sanitation, cooking fuel	6.1%	0.0%	20.2%	7.4%	63.0%	4.4%	38.7%	32.5%	35.2%	34.6%	0.8%	60.6%	15.3%	20.9%	32.1%	64.2%	32.3%	31.7%	0.1%	16.8%	18.8%
Years of schooling, cooking fuel, overcrowding	16.0%	2.0%	16.1%	52.4%	13.9%	4.8%	48.8%	27.8%	36.0%	47.9%	4.4%	56.1%	31.0%	29.7%	19.5%	62.8%	15.9%	30.5%	1.7%	24.1%	21.1%
Years of schooling, water, sanitation	10.6%	0.0%	29.3%	7.7%	64.2%	12.0%	38.2%	36.1%	40.0%	34.3%	1.6%	56.5%	17.2%	23.8%	27.0%	61.1%	34.3%	30.2%	1.0%	31.5%	19.6%
Water, cooking fuel, overcrowding	7.8%	1.3%	10.4%	17.6%	14.4%	3.4%	33.0%	26.1%	28.6%	33.8%	0.9%	52.8%	16.9%	21.3%	15.6%	56.1%	11.7%	15.9%	0.6%	17.5%	14.1%
Years of education, water, overcrowding	19.2%	5.9%	20.7%	20.1%	13.3%	16.7%	32.7%	30.7%	31.2%	35.1%	4.7%	49.3%	19.1%	26.9%	13.9%	54.0%	12.8%	16.5%	6.4%	35.7%	16.1%
Sanitation, cooking fuel, overcrowding	10.1%	0.0%	14.3%	13.7%	14.5%	4.9%	39.9%	23.3%	31.6%	29.7%	2.1%	51.6%	18.0%	23.9%	16.4%	53.0%	9.5%	24.7%	0.3%	16.3%	15.9%
Years of education, sanitation, overcrowding	19.3%	1.5%	19.5%	14.2%	14.4%	10.6%	40.0%	25.4%	35.9%	29.7%	5.2%	47.1%	21.8%	30.9%	15.2%	51.2%	10.0%	24.2%	1.2%	32.6%	18.5%
Years of education, sanitation, water	16.1%	2.9%	26.5%	12.4%	31.0%	15.1%	23.2%	28.1%	32.5%	28.6%	4.3%	31.5%	14.9%	15.8%	13.4%	46.2%	19.7%	22.6%	10.2%	35.2%	13.0%
Years of schooling, sanitation, antenatal care	20.6%	8.4%	15.0%	25.9%	19.6%	6.9%	29.2%	21.2%	35.4%	24.0%	9.0%	29.3%	17.4%	13.1%	17.3%	45.9%	22.2%	27.1%	9.5%	22.5%	17.4%

Table 8. Incidence, intensity and MPI 2013, 2023

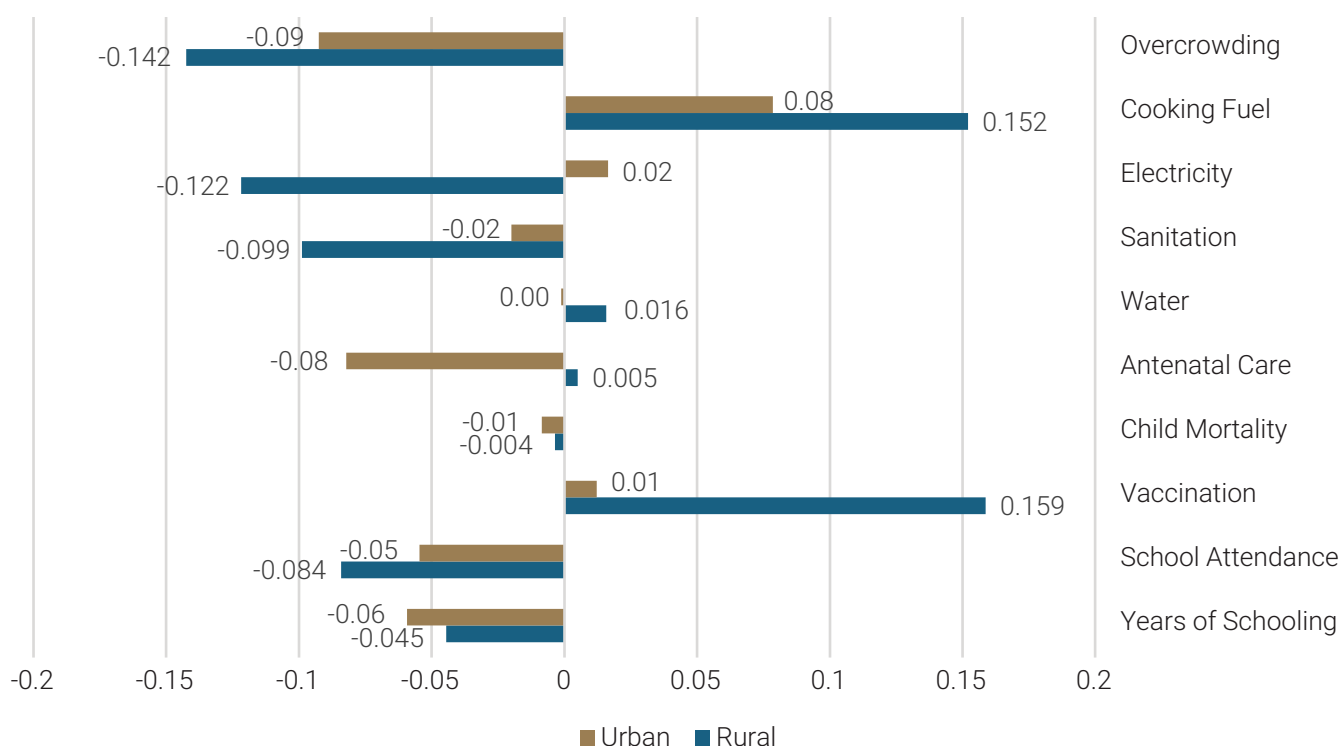
	2013	2023	Absolute difference	P-value
Rural				
H	78%	75%	-0.03	0.06
A	55%	55%	0.00	0.62
MPI	0.427	0.410	-0.02	0.11
Urban				
H	40%	34%	-0.06	0.01
A	46%	46%	0.00	0.60
MPI	0.183	0.154	-0.03	0.01

In the case of the censored headcount ratios for rural and urban areas, the absolute change between 2013 and 2023 shows that in both areas, there was an increase in the percentage of people who were deprived in cooking fuel and the vaccination and at the same time were multidimensionally poor, with a larger increase in rural compared to urban areas. Indicators such as electricity, access to sanitation, and school attendance presented a larger reduction in rural areas than in urban areas. In the case of antenatal care, urban areas had an absolute reduction of 8 pp between 2013 and 2023 (Figure 10).



Urban areas showed a notable 8 percentage point drop in antenatal care deprivation

Figure 10. Absolute reduction in censored headcount ratios in rural and urban areas between 2012 and 2023.



The analysis of the uncensored headcount ratios in rural and urban areas revealed that in urban areas, there was a larger reduction in the percentage of people who were deprived of years of schooling, antenatal care and overcrowding. Meanwhile, in rural areas, the reduction in sanitation and electricity was larger, with a slight increase in the percentage of people who were deprived of electricity in urban areas.

A reduction in the censored headcount ratios is caused by a decrease in the deprivation or the percentage of people deprived in that indicator or if the person who was deprived changed their poverty status. Given that we are using two cross-sectional surveys, it is challenging to identify if individuals or households changed their deprivation or poverty status between 2013 and 2023 (Figure 11).



3.2.2 Changes over time by governorates

Table 9 presents the incidence, intensity and MPI in the 21 governorates in Yemen. The analysis results revealed that in seven of the 21 governorates, there was an increase in the incidence of multidimensional poverty. However, this increase was not statistically significant in any of the cases. On the other hand, there was a significant reduction in the incidence of multidimensional poverty in three of the 21 governorates (Haramaut, Marib and Ibb). Although no statistically significant difference, 11 governorates also presented a reduction in the incidence of poverty (Table 9).

Hasramaut was the governorate with the most considerable absolute and relative reduction between 2013 and 2023. In contrast, Raymah was the governorate with the largest increase in absolute and relative terms. Only Raymah presented a significant increase in the intensity of multidimensional poverty, with a relative increase of 14.3%. Hasramaut also presented the most considerable reduction in the intensity of multidimensional poverty (10.3% for the relative change). Finally, Rayman was the governorate with a statistically significant increase in the MPI. Hasramaut, Marib and Ibb presented an absolute significant reduction in the MPI between 2013 and 2023 (Table 9).

Figure 11. Uncensored headcount ratios in rural and urban areas, 2013 and 2023

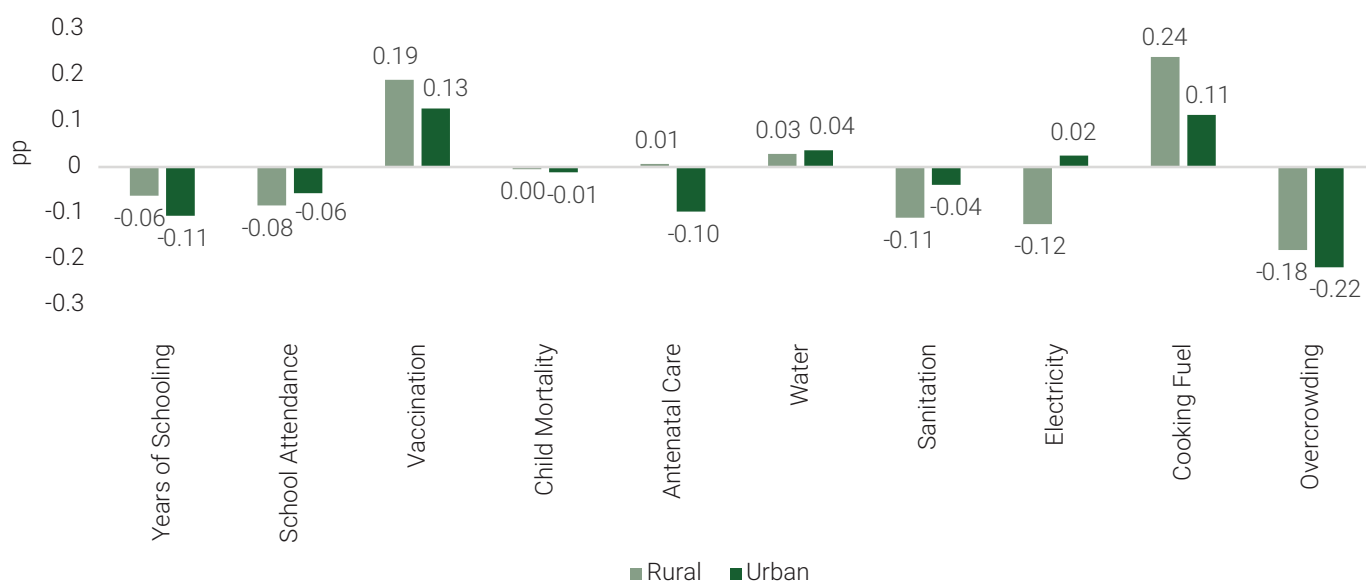


Table 9. Incidence, intensity and MPI by Governorates in Yemen 2013 and 2023

		2013	2023	Absolute difference	p-value	Relative difference	p-value
Abyan	H	58.4%	59.8%	0.01	0.794	2.4%	0.80
	A	49.9%	50.0%	0.00	0.955	0.2%	0.96
	MPI	0.292	0.299	0.01	0.817	2.6%	0.819
Aden	H	34.8%	29.9%	-0.05	0.374	-14.1%	0.34
	A	45.2%	43.5%	-0.02	0.100	-3.9%	0.09
	MPI	0.158	0.130	-0.03	0.281	-17.5%	0.240
Al Bayda	H	74.7%	67.2%	-0.07	0.129	-10.0%	0.10
	A	53.8%	51.6%	-0.02	0.273	-4.2%	0.26
	MPI	0.402	0.347	-0.06	0.133	-13.8%	0.095
Al Dhale'e	H	73.0%	72.8%	0.00	0.959	-0.3%	0.96
	A	50.6%	53.0%	0.02	0.108	4.7%	0.11
	MPI	0.369	0.385	0.02	0.572	4.4%	0.579
Al Hudaydah	H	70.0%	68.6%	-0.01	0.734	-2.0%	0.73
	A	52.8%	54.8%	0.02	0.166	3.8%	0.17
	MPI	0.369	0.376	0.01	0.819	1.7%	0.820
Al Jawf	H	81.8%	81.2%	-0.01	0.877	-0.8%	0.88
	A	52.7%	54.2%	0.02	0.252	3.0%	0.26
	MPI	0.431	0.440	0.01	0.739	2.2%	0.741
Al Maharah	H	46.7%	38.1%	-0.09	0.123	-18.6%	0.07
	A	46.4%	44.8%	-0.02	0.342	-3.5%	0.33
	MPI	0.217	0.170	-0.05	0.126	-21.5%	0.068
Al Mahwit	H	80.6%	78.1%	-0.02	0.589	-3.1%	0.59
	A	55.1%	58.0%	0.03	0.105	5.3%	0.11
	MPI	0.444	0.453	0.01	0.800	2.1%	0.801
Amran	H	81.7%	80.1%	-0.02	0.643	-1.9%	0.64
	A	57.2%	55.3%	-0.02	0.402	-3.2%	0.39
	MPI	0.467	0.444	-0.02	0.464	-5.1%	0.452
Dhamar	H	78.1%	77.9%	0.00	0.960	-0.3%	0.96
	A	54.5%	55.0%	0.00	0.756	0.8%	0.76
	MPI	0.426	0.428	0.00	0.938	0.6%	0.938
Hajjah	H	86.7%	88.3%	0.02	0.635	1.9%	0.64
	A	61.4%	59.7%	-0.02	0.387	-2.8%	0.38
	MPI	0.533	0.527	-0.01	0.868	-1.0%	0.868
Hasramaut	H	54.2%	35.0%	-0.19	0.000	-35.4%	0.00
	A	49.0%	44.0%	-0.05	0.063	-10.3%	0.05
	MPI	0.266	0.154	-0.11	0.000	-42.0%	0.000
Ibb	H	68.4%	61.2%	-0.07	0.051	-10.5%	0.04
	A	51.8%	50.5%	-0.01	0.419	-2.5%	0.41
	MPI	0.354	0.309	-0.05	0.074	-12.8%	0.058

Table 9. Incidence, intensity and MPI by Governorates in Yemen 2013 and 2023

		2013	2023	Absolute difference	p-value	Relative difference	p-value
Lahj	H	60.4%	60.3%	0.00	0.993	-0.1%	0,99
	A	53.5%	50.1%	-0.03	0.075	-6.3%	0.07
	MPI	0.323	0.302	-0.02	0.594	-6.4%	0.579
Marib	H	74.6%	59.9%	-0.15	0.010	-19.7%	0.01
	A	53.0%	52.6%	0.00	0.855	-0.8%	0.85
	MPI	0.396	0.315	-0.08	0.042	-20.3%	0.033
Raymah	H	87.6%	92.2%	0.05	0.146	5.2%	0.16
	A	55.6%	63.5%	0.08	0.000	14.3%	0.00
	MPI	0.487	0.585	0.10	0.001	20.2%	0.003
Sa'ada	H	76.4%	73.2%	-0.03	0.478	-4.1%	0.47
	A	53.9%	53.7%	0.00	0.946	-0.3%	0.95
	MPI	0.411	0.393	-0.02	0.613	-4.4%	0.605
Sana'a	H	79.2%	74.1%	-0.05	0.247	-6.5%	0.23
	A	55.6%	53.0%	-0.03	0.210	-4.7%	0.20
	MPI	0.441	0.393	-0.05	0.174	-10.9%	0.155
Sana'a City	H	29.4%	28.8%	-0.01	0.895	-1.8%	0.89
	A	44.5%	43.2%	-0.01	0.334	-2.9%	0.32
	MPI	0.131	0.125	-0.01	0.752	-4.6%	0.745
Shabwah	H	72.4%	76.2%	0.04	0.330	5.2%	0.34
	A	53.3%	53.8%	0.00	0.790	0.9%	0.79
	MPI	0.386	0.410	0.02	0.426	6.2%	0.440

Figure 12. Incidence of multidimensional poverty by governorate 2013

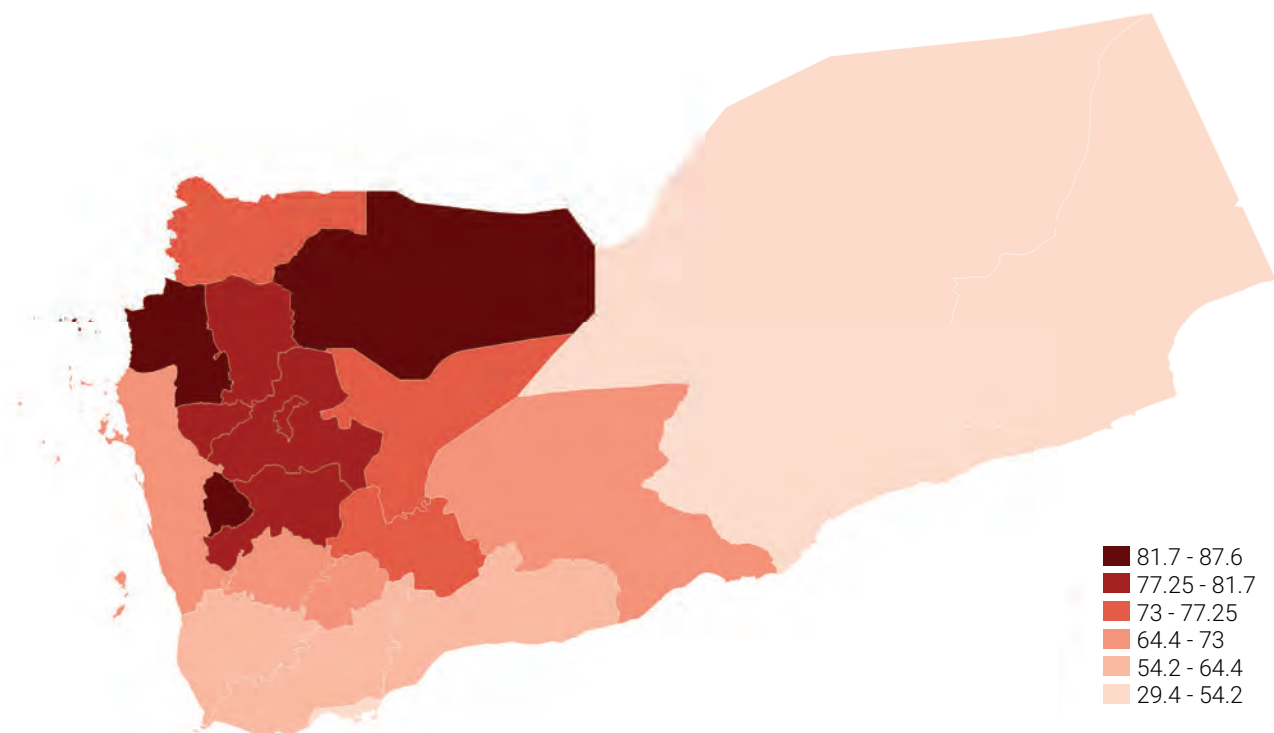


Figure 13. Incidence of multidimensional poverty by governorate 2023

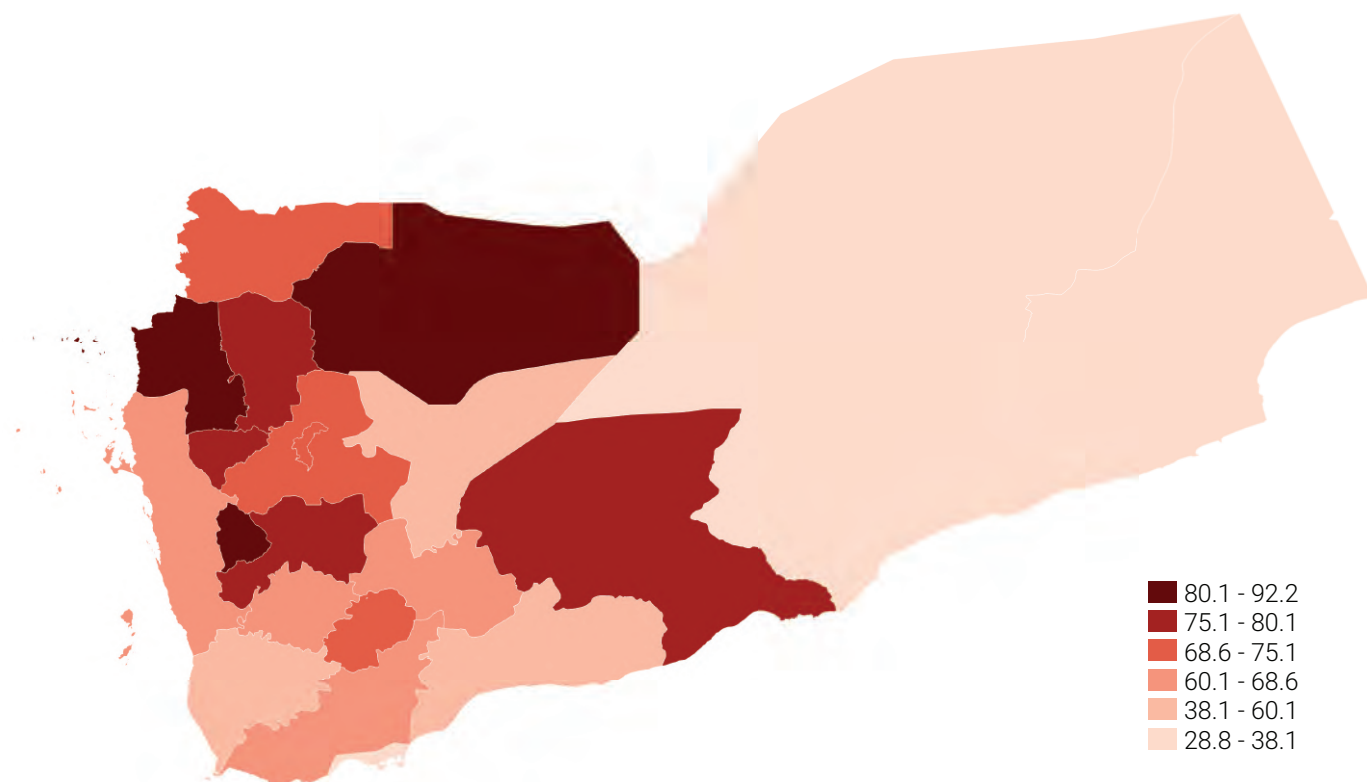
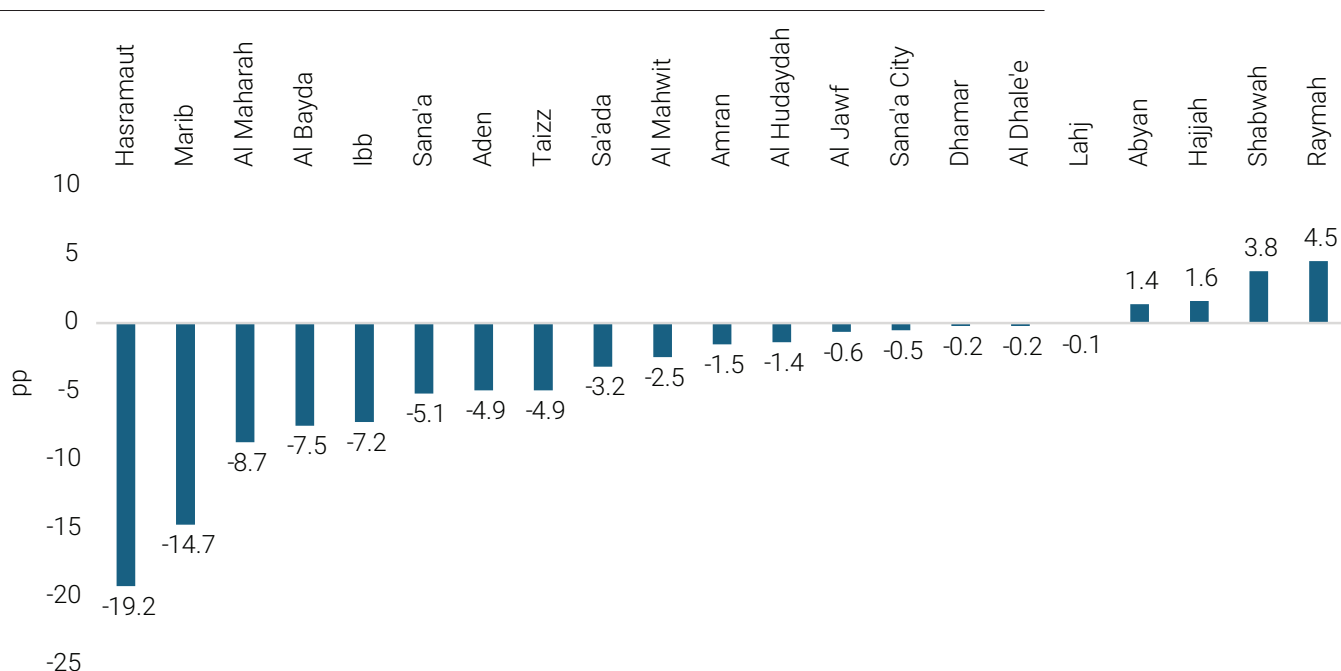


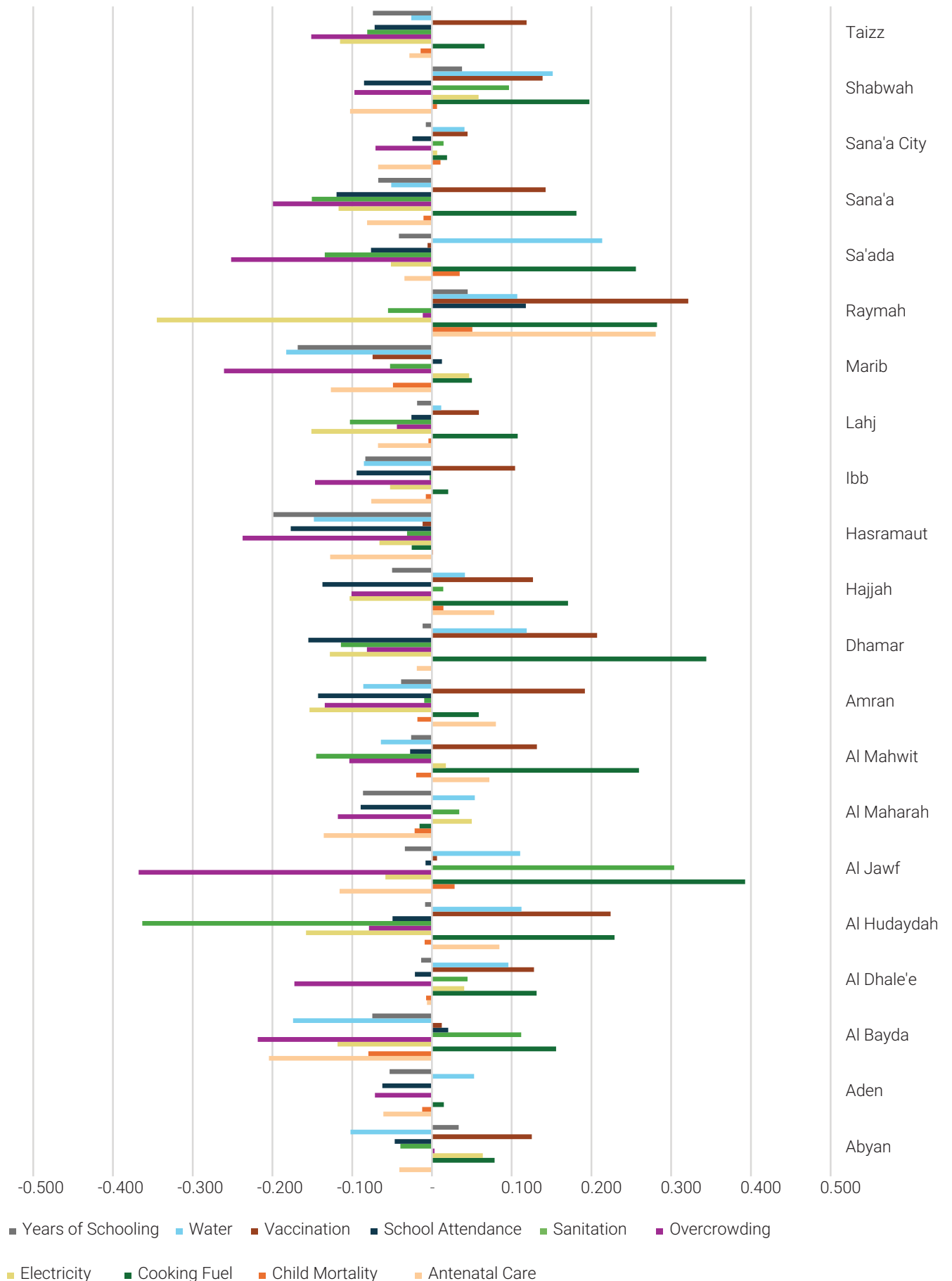
Figure 14. Absolute changes in the incidence of multidimensional poverty by governorates



The changes in the censored headcount ratios per governorate show an increase in the percentage of people deprived of vaccination, water, and cooking fuel and are multidimensionally poor in most of the governorates. On the other hand, there was a reduction in the percentage of people multidimensionally poor

and deprived of overcrowding, school attendance, sanitation and years of schooling. The largest absolute reduction was observed in Al Jawf, with a decrease of 0.37 pp in the percentage of people who were multidimensionally poor and deprived in this indicator (Figure 15).

Figure 15. Absolute changes on the censored headcount ratios by governorate 2013 and 2023.



3.3 Case Studies

Raymah: Poorest governorate

According to the MICS 2023, Raymah is the poorest governorate in Yemen, with an incidence of multidimensional poverty of 92.2% and an intensity of 63.5%. Thus, more than nine of 10 individuals in Raymah present deprivations in 33% or more of the weighted indicators of the MPI, and they face, on average, deprivation in two of the three dimensions. The MPI for 2023 was 0.585; therefore, multidimensionally poor people in Raymah face 58.5% of the potential deprivations if everyone is poor and deprived in all indicators.

A significant increase in five of the ten censored headcount ratios was identified in Raymah (child mortality, school attendance, antenatal care, cooking fuel, and vaccination). Only the censored headcount ratio of electricity had a significant reduction over time (Figures 16 and 17). In the case of electricity, the change was generated because more than half of the population in 2023 used solar panels as the primary source of electricity, compared to 1% in 2013. When we compare the censored headcount ratios between 2013 and 2023, we found that the highest increase was given in the percentage of people who were multidimensionally poor and deprived of cooking fuel and vaccination, with an absolute increase of 28.2 and 32.2 pp, respectively.



92.2% of Raymah population experiencing multidimensional poverty in 2023

Figure 16. Censored headcount ratios in Raymah 2013 and 2023

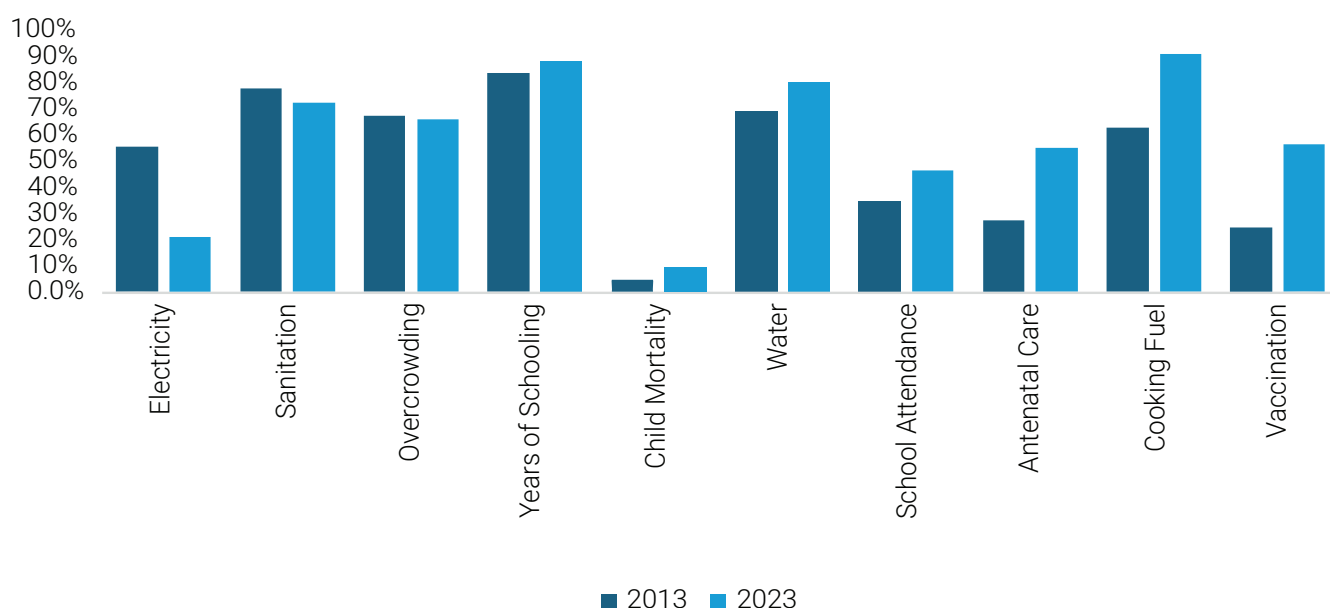


Figure 17. Absolute change in the censored headcount ratios in Raymah

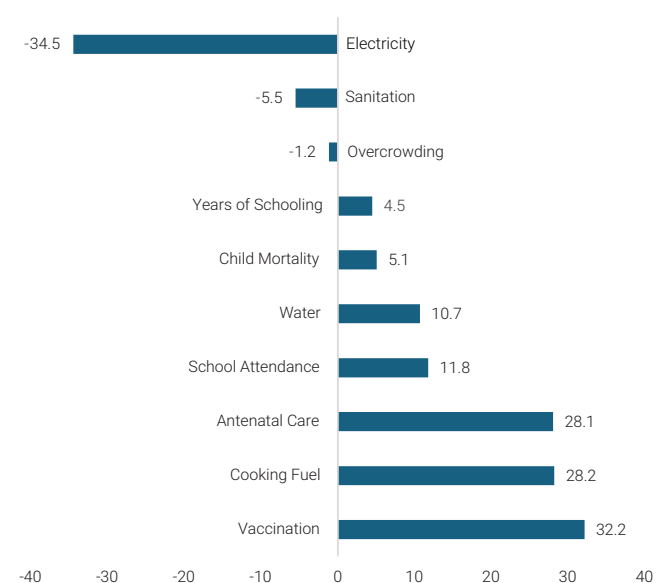
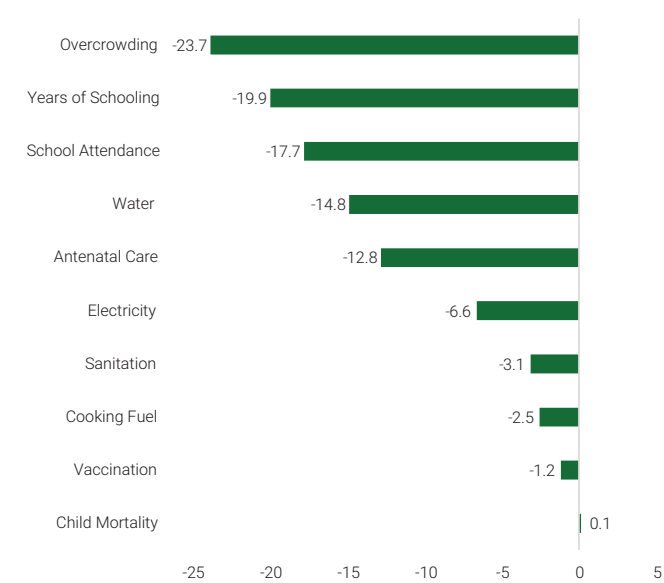


Figure 18. Absolute change in the censored headcount ratios in Hasramaut



Hasramaut: Governorate with the largest reduction in multidimensional poverty

Hasramaut was identified as the governorate with the largest reduction in the incidence of multidimensional poverty between 2013 and 2023. Indeed, there was a significant reduction in the incidence of poverty of 19 pp, with a relative reduction of 35.4% between 2013 and 2023. Also, this governorate reduced the intensity of multidimensional poverty with an absolute decrease of 5 pp and a relative reduction of 10.3%. In 2023, the incidence and intensity of poverty were 35.0 and 44%, respectively. Hasramaut had the third lowest incidence of multidimensional poverty in 2023 (only behind Sane City and Aden). The analysis revealed a reduction in five of the ten indicators (overcrowding, years of schooling, school attendance, water and antenatal care), and only the indicator of child mortality has a slight increase, but not significant (Figure 18).

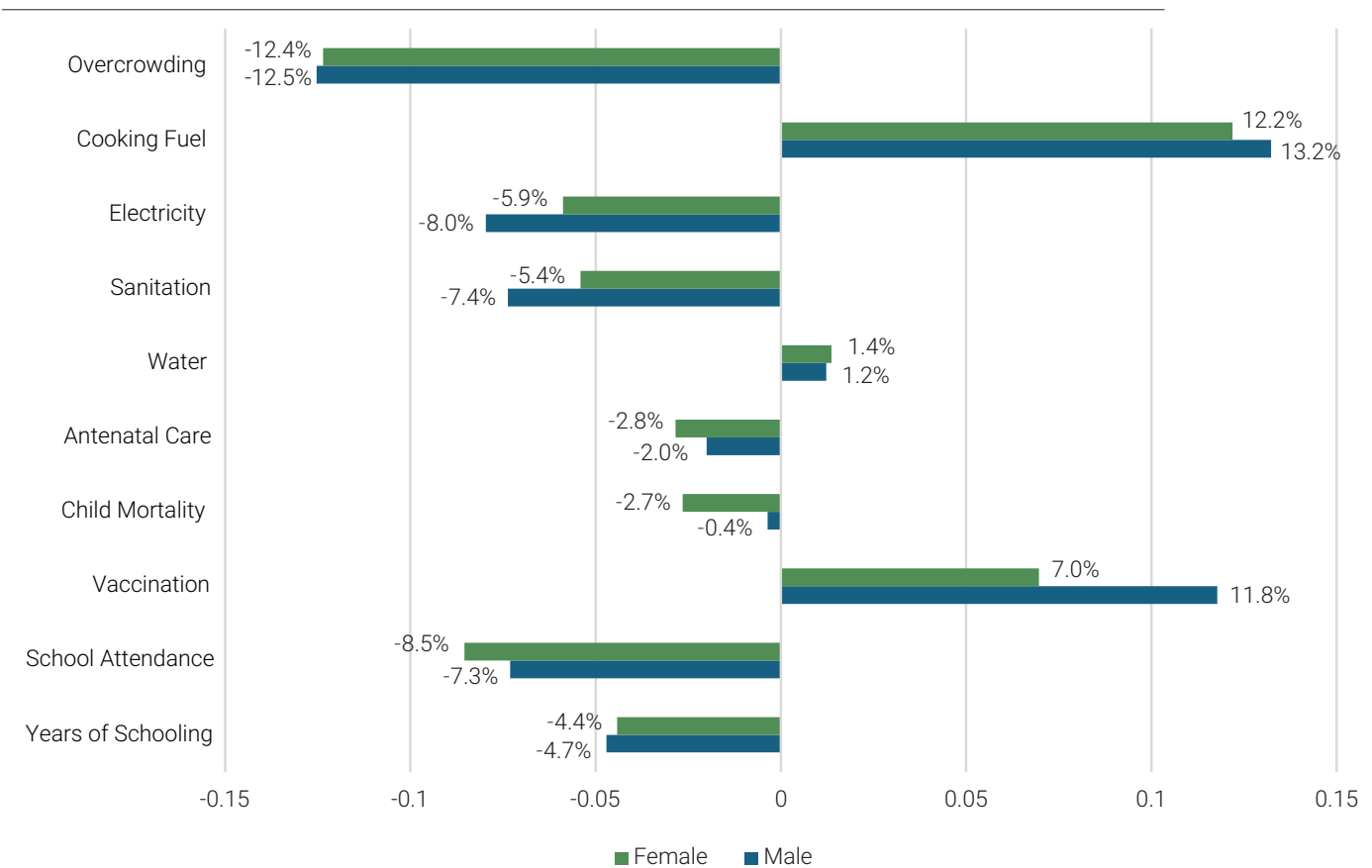
Changes in multidimensional poverty are influenced by the headship of the household.

Between 2013 and 2023, households with female heads reduced their multidimensional poverty levels by 3 pp, but this reduction was not statistically significant. The incidence of multidimensional poverty for male-headed households followed a similar tendency, with a reduction from 66.8% to 63.3% (Table 10). In female-headed households, the indicators with the largest reduction in the censored headcount ratios were overcrowding (12.4 pp) and school attendance (8.5 pp). The one with the largest increase in the censored headcount ratios was cooking fuel, with a 12 pp increase. In male-headed households, cooking fuel and vaccination presented increases in the percentage of households deprived and multidimensionally poor higher than 10 pp (Figure 19).

Table 10. Incidence, intensity and MPI in 2013 and 2023 for male and female-headed households

	Male-Headed Households						Female-Headed Households					
	2013	Confidence Interval		2023	Confidence Interval		2013	Confidence Interval		2023	Confidence Interval	
H	66.8%	64.9%	68.8%	63.3%	61.5%	65.2%	52.8%	48.3%	57.2%	49.5%	45.1%	53.9%
A	53.4%	52.7%	54.0%	53.4%	52.6%	54.1%	50.2%	48.7%	51.7%	48.1%	46.8%	49.5%
MPI	0.357	0.344	0.369	0.338	0.325	0.351	0.265	0.240	0.290	0.238	0.216	0.261

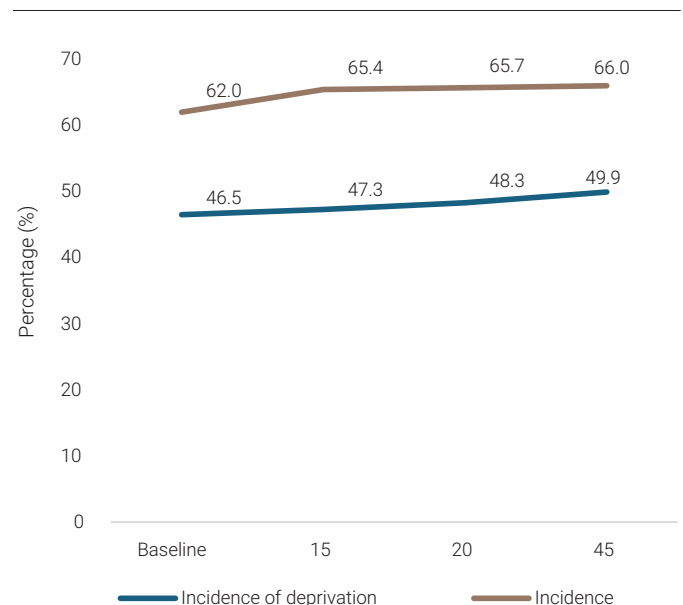
Figure 19. Absolute change in censored headcount ratio between 2013 and 2023 for male and female-headed households



3.4 What would happen if deprivation continued to increase in Yemen?

We analysed how much poverty will increase in Yemen if the deprivation of vaccination and cooking fuel continues to increase.¹ In the case of vaccination, we found that an increase in the percentage of children under 3 years deprived in this indicator by 15.25 or 40.0% creates an increase in the deprivation at the household level from 46.5 to 50.0%. This increases multidimensional poverty from 62.0% to 66.0% if 40% of children under three who are non-deprived in vaccination become deprived (Figure 20). The increase in deprivation and multidimensional poverty means that almost 1.4 million people in Yemen will become multidimensionally poor.

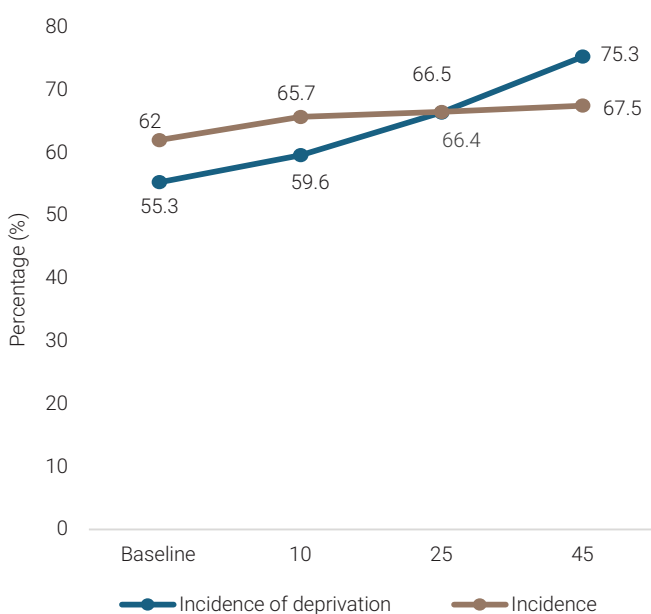
Figure 20. Changes in the deprivation of vaccination and the incidence of multidimensional poverty



¹ We used a Montecarlo simulation model with 1000 iterations and estimated different scenarios where the deprivation increases. The increase in the deprivation only used the reference population of the indicator, and with this new information the percentage of people deprived, and the incidence of multidimensional poverty was estimated following the same structure of the MPI.

In the case of cooking fuel, we analysed how the incidence, intensity, and MPI will change if 10.2% or 45.0% of the non-deprived people in 2023 became deprived in this indicator. The results suggest that these increases in this deprivation affected poverty, moving from 62.0 to 67.5%, representing an increase of 1.9 million people living in poverty in Yemen (Figure 21).

Figure 21. Changes in the deprivation of cooking fuel and the incidence of multidimensional poverty



Deprivation in cooking fuel could raise poverty in Yemen by 5.5 percentage points, affecting 1.9 million more people

4. National MPI for Yemen: Gender Analysis

This section uses the structure of the national MPI for Yemen (2021) based on the Yemen Human Development Survey (YHDS) 2021. The main purpose is to analyse potential intrahousehold inequalities on the levels of deprivation between men and women in Yemen. We disaggregated seven indicators of the national MPI by sex of the household member who was facing the deprivation. We found that women present higher levels of deprivation in access to schooling and years of schooling. Indeed, 26.5% of girls are not attending school compared to 17.2% of boys. Regarding years of schooling, 43.2% of women aged 15 to 64 have less than six years of education compared to 28.6% of men in the same age group. In terms of health indicators, no statistically significant differences were found in the percentage of men and women who reported barriers to access to health services (6.9% and 6.4%). Also, no differences were found in the percentage of women and men who live with a chronic disease and do not have access to health services (5.1% and 5.4%). Finally, in the case of children younger than 5, a lower percentage of girls under five have not received DPT vaccination compared to boys (18.2 versus 24.0%). Finally, in the case of employment indicators, a lower percentage of women older than 14 were unemployed in comparison with men (3.6 vs. 17.9%), and only 3% of women were underemployed or were working and willing to work more hours in comparison with 13.0% of men in the same age group. However, these findings are related to the lower labour participation that women in Yemen have, rather than an achievement in the inclusion of women in the labour market (Table 11).

When the results were disaggregated by governorate, we found that in the case of school attendance, the largest difference was in Mahrah, where 40.9% of school-age girls were not attending school compared to 14.7% of boys. On the other hand, Mareb was the governorate with the lowest difference between girls and boys, where 14.7% of girls did not attend school compared to 12.2% of boys. In all governorates, school-age girls had higher deprivations in school attendance (Figure 22).

For years of schooling, the largest difference was observed in Taiz, where 47% of women aged between 15 and 64 years do not have at least 6 years of education compared to 21.2% of men. By contrast, in Aden, there are no differences in the deprivation of years of schooling between men and women, with 41% of men and women deprived in this indicator (Figure 23).

In the case of unemployment indicators, women 15 years or older showed lower levels of deprivation in all governorates compared to men in the same group, and a smaller difference was observed in Mahrah, with a difference of 9 pp (Figure 24). This indicator does not include men and women outside the labour market in the reference population; therefore, they are not working or looking for a job. In the case of Yemen, a high percentage of women in working age are outside the labour market, indeed, 67% of women 15 years or older in Yemen do not work and are not looking for a job, compared to 15% of men in the same age group. In addition, only 9.7% of women are employed compared to 46.4% of men.

Table 11. Individual deprivations in education, health, and employment

Indicator	Women	Men	p-value
School attendance	26.5	17.2	0.002
Years of schooling	43.2	28.6	0.000
Access to healthcare	6.9	6.4	0.672
Medical care for chronic diseases	5.1	5.4	0.716
Vaccination	19.2	24.0	0.217
Unemployment	3.6	17.9	0.000
Underemployment	3.0	13.0	0.000

Figure 22. Percentage of boys and girls of school-age deprived of school attendance by governorate

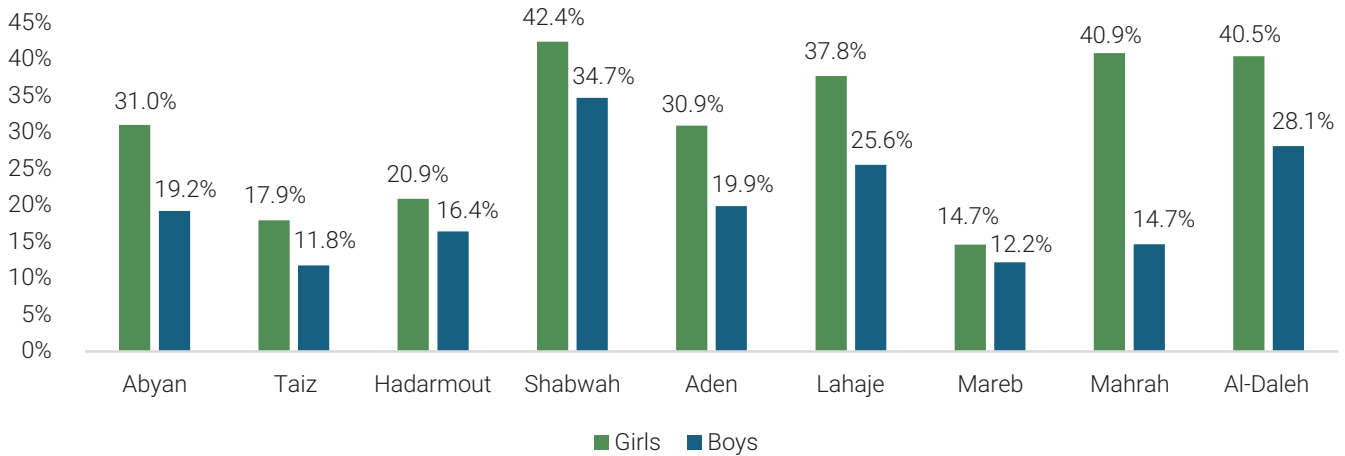


Figure 23. Percentage of men and women aged 15 to 64 years deprived of years of schooling by governorate

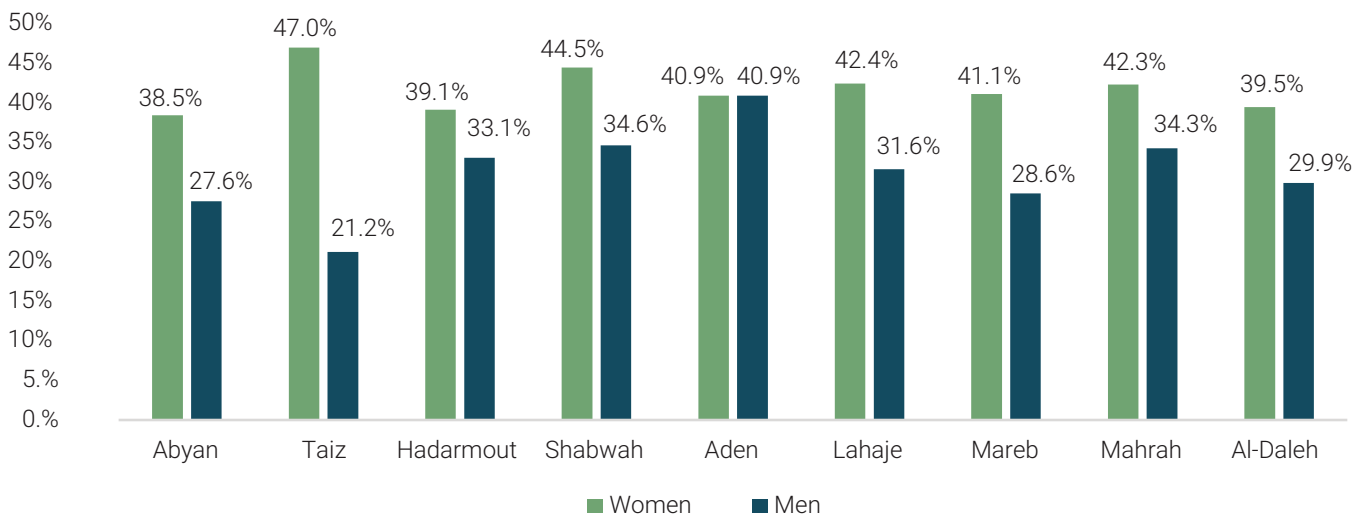
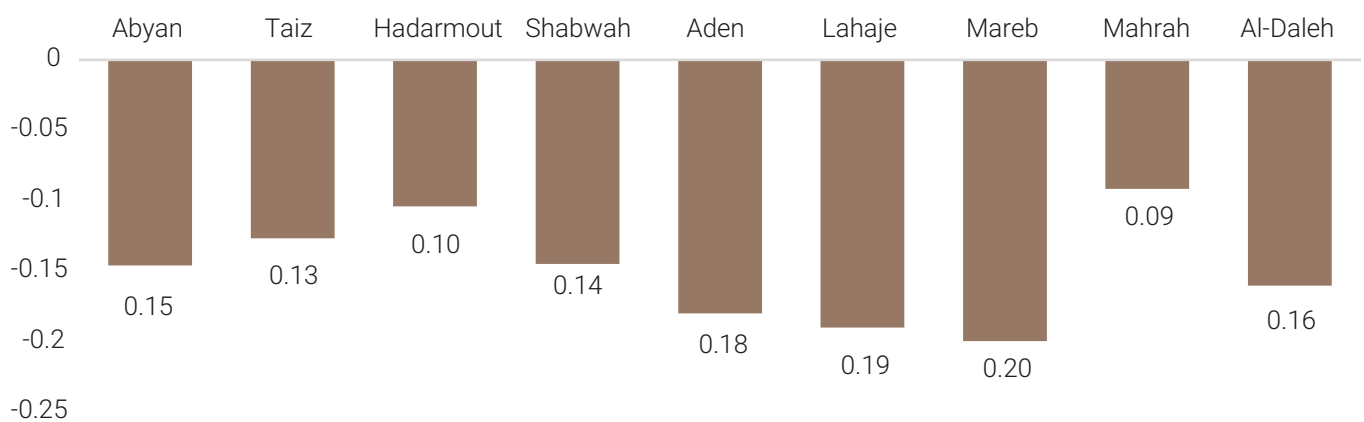
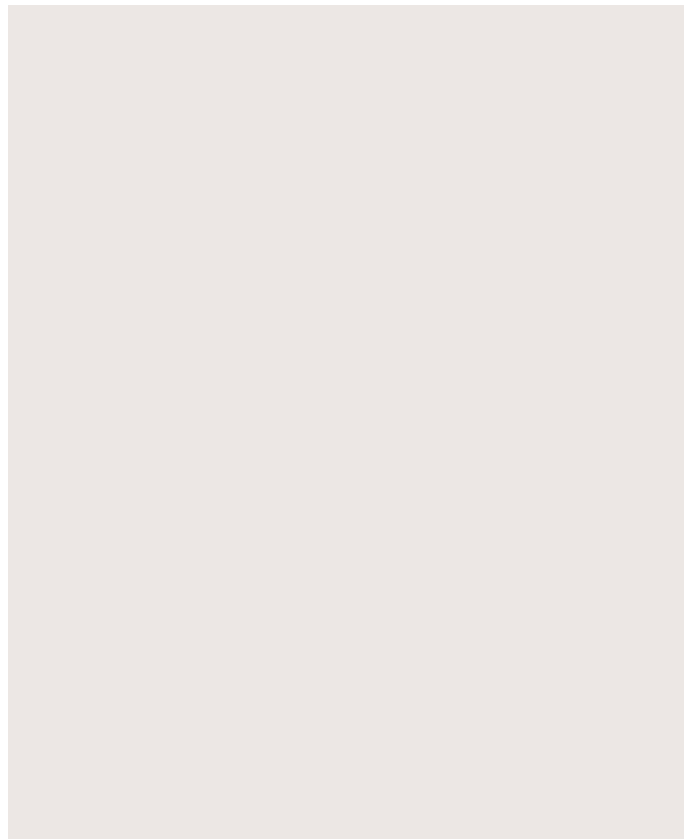


Figure 24. Absolute difference in the percentage of women and men 15 years or older deprived of unemployment by governorate



Regarding the education indicators included in the MPI, which are aggregated at the household level, it is possible to know that women and girls are the ones creating these deprivations at the household level. For employment, men are the ones who generate deprivation at the household level. However, as was mentioned before, lower deprivations for women do not mean that they face lower levels of unemployment or underemployment but instead that they are outside the labour market.

In conclusion, girls and women in Yemen present higher levels of deprivation in education and employment indicators. Indeed, a larger percentage of school-age girls is not attending to school, and an important percentage of women older than school-age do not have at least 6 years of education. In addition, they present lower levels of deprivation on employment indicators. However, those results are not associated a higher level of fulfilment of employment rights for women in Yemen, but instead to the fact that a small proportion of the women population in Yemen participate in the labour market.



5. Policy Implications and Recommendations

The results of the analysis revealed that poverty has not statistically significantly changed between 2013 and 2023. This result is associated with the internal conflict that Yemen has faced since 2013. Contrary to the expectations, multidimensional poverty did not increase in this period, but the lack of improvement reveals the potential negative effect of conflict on poverty. This is a common finding in the analysis of multidimensional poverty and conflict (Nogales and Oldiges 2024). For example, as discussed in the Global MPI report 2024, poverty reduction tends to be slowest in countries affected by conflict, which are usually among the poorest countries in the world. Thus, conflict affects how fast poverty can be reduced, and in Yemen, the results reveal that conflict limited the country's human, social and economic development prospects.

In addition, the poorest regions of the country are the ones facing significant increases in their levels of poverty and deprivation. By contrast, the richest or most developed governorates were the ones that presented improvements in their levels of poverty, facing reductions in health, education and living standard deprivations. This finding reveals that conflict has increased intra-country inequalities and parts of the country have been left behind, and should be prioritised.

The results revealed that some indicators improved since the conflict started. However, most of those improvements were not related to a higher percentage of the population having proper access to public services such as electricity, water or sanitation. Instead, those changes were associated with adaptations that families made to compensate for the lack of public provision of services, which reflect the resilience of individuals living in conflict areas.

Demographic and migration changes are also associated with the results. Changes in household composition might be related to indicators such as overcrowding and those that capture specific child deprivations (i.e. vaccination and school attendance). Given the lack of longitudinal data, it is not possible to know how the conflict has changed the composition of families in the country or if household members have migrated because of the conflict.

Policy recommendations to reduce multidimensional poverty in Yemen need to be determined depending on the poverty profile of the governorate and how affected by the conflict the specific region is. However, **some general recommendations are:**

- It is fundamental to increase the coverage and access that individuals in all regions of the country have to basic services. For example, children in all governorates should receive all the vaccinations required for their age group.
- Guarantee that individuals in the poorest regions in the country have access to human and social development services. This includes providing education, health, employment services and opportunities of participation to men and women in all governorates.
- Social protection policies have essential effects on the reduction of non-monetary deprivations. Thus, social protection programmes, including cash and in-kind transfers, should increase coverage and prioritise those living in the poorest and most conflict-affected regions.
- Promote women's inclusion in education, employment and social participation. This is fundamental to guarantee the country's reduction of poverty and deprivation.
- Improve data collection, including qualitative data, to understand adaptation mechanisms implemented by households to mitigate the adverse effects of conflict on poverty.

6. References

Burchi, F., D. Malerba, C. E. Montenegro and N. Rippin (2022). "Assessing Trends in Multidimensional Poverty During the MDGs." Review of Income and Wealth 68(S2): S317-S346.

Hanna, T., D. K. Bohl and J. D. Moyer (2021). Assessing the impact of war in Yemen: Pathways for recovery Yemen, UNDP.

Nogales, R. and C. Oldiges (2024). "Multidimensional poverty and conflict events in Nigeria over time." International Political Science Review 45(1): 53-80.

United Nations Development Programme (UNDP) (2024). Human Development Report 2023-24: Breaking the gridlock: Reimagining cooperation in a polarised world. New York, UNDP.

United Nations Development Programme (UNDP) (2024). Yemen Multidimensional Poverty Index. Yemen, UNDP.

World Bank (2024). Yemen Poverty and Equity Assessment: Living in Dire Conditions. . Washington D.C., World Bank.

World Bank. (2025, 2022). "World Development Indicators." Retrieved 11/05/2025, 2022.

7. Appendix

Table A 1. Comparison DHS 2013 and MICS 2023

	DHS 2013	MICS 2023
Sampling Frame	The 2004 General Population Housing and Establishment Census was used as the sampling frame	The sampling frame was based on the 2014 update of the census data in Yemen and its projection. The sampling frae of DHS 2013 was consulted in the design of the sampling strategy.
Representative	National 21 Governorate	National 22 Governorates
Objective	To provide population and health indicator estimates at the national and governorate levels	To provide high quality data for assessing the situation of children, adolescents, women and households in Yemen To supply data needed for monitoring progress toward national goals, as a basis for future action To provide disaggregated data for the identification of disparities, to inform policies aimed at promoting the social inclusion of the most vulnerable. To validate data from other sources and the results of focused interventions To generate data on national and global SDG indicators
Questionnaires	Four questionnaires were used in the 2013 DHS: a household questionnaire, two individual questionnaires (one for ever-married women and an abbreviated version for never-married women), and a maternal mortality questionnaire.	Four questionnaires were used in the survey: (1) a household questionnaire to collect basic demographic information on all household members (usual residents), the household, and the dwelling which includes food insecurity module; (2) a questionnaire for individual women administered in each household to all women age 15-49 years; (3) an under-5 questionnaire, administered to mothers (or caretakers) of all children under 5 living in the household; and (4) a questionnaire for children age 5-17 years, administered to the mother (or caretaker) of one randomly selected child age 5-17 years living in the household.
Response Rates	96%	98%

About IsDB

The Islamic Development Bank is a multilateral development bank (MDB), working to improve the lives of those we serve by promoting social and economic development in member countries and Muslim communities worldwide, delivering impact at scale.

About OPHI

The Oxford Poverty and Human Development Initiative (OPHI) is an economic research and policy centre within the Oxford Department of International Development at the University of Oxford. Established in 2007, the centre is led by Sabina Alkire.

OPHI aims to build and advance a more systematic methodological and economic framework for reducing multidimensional poverty, grounded in people's experiences and values.



The Islamic Development Bank

8111 King Khaled Street, Al Nuzlah Yamania, Unit 1,
Jeddah, 22332-2444, Kingdom of Saudi Arabia

☎ (+966-12) 636 1400

☎ (+966-12) 636 6871

✉ idbarchives@isdb.org

🌐 www.isdb.org