Assessing Urban Vulnerabilities in Maharashtra

Government of Maharashtra

unicef

for every child

Contributors

IIPS

Sanjay K. Mohanty
R. B. Bhagat
L. K. Dwivedi
Santosh Sharma

UNICEF

Joemet Jose
Anuradha Nair
Rajeshwari Chandrasekar

Preface

The study on Multidimensional Poverty in Urban Maharashtra is the first-ever study that systematically conceptualises to measure multiple deprivations of the urban population in Maharashtra. It is the result of the Government of Maharashtra's and UNICEF's evidence generation efforts to support building policies and programmes for urban Maharashtra. The need to understand multiple deprivations in urban areas was felt by the Planning Department, Government of Maharashtra. International Institute for Population Science (IIPS) has taken the lead role in undertaking the study with financial support from UNICEF. A careful and systematic approach was adopted in designing the study. The study rests on the premise that poverty is multidimensional and the current estimates do not adequately capture the multidimensionality of poverty in the urban population. Present studies on multidimensional poverty not only underestimate multidimensional poverty but also miss key domains of urban poverty. To fill this gap, the study was proposed. Initial work towards this was carried out from April 2019 to March 2020. During this period, a structured instrument was developed and pilot tested in over 50 households in Mumbai, secondary analysis was carried out and the sampling frame was developed and sampling units were identified.

In the second stage, a household survey of 22,400 households is proposed the commencement of which is currently halted due to the Covid-19 situation in the state. The present report covers sample design, the structured instrument for the survey and a report based on the secondary analysis.

A series of meetings and discussions were held in 2018 with UNICEF, IIPS, Government of Maharashtra and Oxford Poverty and Human Development Initiative (OPHI) for deciding the way forward for estimating the Urban MPI. A reference group was formed which included members from the Directorate of Statistics and Economics (DES), International Institute for Population Science (IIPS) and the Mumbai School of Economics and Public Policy (MSEPP) – Mumbai University. In June 2019, the Technical Advisory Committee (TAC), covering academia, researchers, government officials and UNICEF officers met to discuss the issues around multidimensional poverty in urban Maharashtra. The TAC recommended using six dimensions; education, health, standard of living, housing, access to services and environment to capture multiple deprivations of the urban population. Following the TAC recommendations, the survey schedule was developed, discussed and presented before the sub-

committee. Details of dimensions, indicators and the benefits of the study were shared with the Planning Department, Government of Maharashtra.

The fieldwork was affected by the spread of the COVID-19 pandemic in the state. The state of Maharashtra is one of the worst affected states and Mumbai is one of the worst affected cities globally. With over more than a lakh people losing their lives, extended lockdowns, many losing their jobs and an exodus of poor migrants, the COVID-19 might have increased the multidimensional poverty several times in Urban Maharashtra. It has affected everybody; the poor and the rich alike. However, the urban poor and marginalized have been hit the most. The COVID-19 pandemic warrants understanding urban poverty and vulnerability comprehensively.

This report is the outcome of a collective effort by IIPS, UNICEF, the Government of Maharashtra and TAC experts associated with the study. At the outset, we thank each one associated with the study. Prof. K.S. James, Director and Sr. Professor, IIPS has been instrumental in undertaking this study. Despite his busy schedule, he has provided valuable suggestions and chaired several meetings related to the project. We are thankful to Mr. Debashish Chakrabarty, Additional Chief Secretary, Planning Department, Government of Maharashtra who was always supportive in executing the study. We are thankful to Mr. Rajneet Singhe, for Director DES for his suggestion and support throughout the study. We are thankful to Mr. K. D. Maiti, UNICEF, New Delhi for giving constructive suggestions on the study design, instrument development and sampling design. We are thankful to Prof. Amitabh Kundu, Prof. Abhay Pete, Prof. Suryanarayana, Prof. Sabina Alkire, Dr. Christian Oldiges, Prof. T.K. Roy, Prof. Sumati Kulkarni and Prof. U.S. Mishra helped for continuous support at every stage of the project.

MPUM Study Team

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CHAPTER 1

URBANISATION IN MAHARASHTRA

Introduction

Today, close to half of Maharashtra's population lives in urban areas. This number has been growing for the last few decades and it is projected to continue, and could even accelerate in the coming decades. The poverty and other vulnerabilities in urban areas have remained largely unnoticed. Until now, the development experts have mainly focused on rural areas as the main locus of poverty, but with rapid urbanisation many of the rural poor now live in urban areas. The vulnerabilities that urban population, especially women and children experience warrants serious consideration.

Urbanisation

Globally, more than half of the population resides in urban areas. It is estimated that by 2050 every seven in ten persons will be living in urban areas. Of the world's total urban population eleven percent lives in India. Projections show that India could add another 416 million people to urban areas by 2050 owing to fast urbanization, migration from rural to urban areas, combined with the overall growth of population (United Nations, 2018). In India, the overall growth of population has declined, however the growth of urban population has increased. From 62 million in 1951 it has reached 377 million in 2011 and its further expected to reach to 876 million by 2050 (United Nations, 2018).

Urbanisation in Maharashtra

Maharashtra is the third most urbanized state in India, with 51 million urban population in 2011. Around half of Maharashtra's population resides in urban localities[1]. Maharashtra is one of the in-migrating states and has received large inter-state migration. Based on 2011 census of India, the inter-state migration rate in Maharashtra was 2.7 (per 1000 population) which is the second highest in the country. The urban population in the state increased by 24 percent compared to 10 percent in rural areas between 2001 and 2011. About half of the urban growth in the state was contributed by natural increase (51 percent), followed by net migration to urban areas (31 percent) and reclassification of rural localities into urban areas (18 percent) (Bhagat, 2019). By way of number, Maharashtra has the highest number of people living in urban areas. This accounts for 13.5 percent of the total urban population in the country. An estimated 11.8 million population lives in slums which is nearly, one-fourth (23.3 percent) of the total urban population in the state (Office of the Registrar General and Census Commissioner, 2011). It is alarming to note that nearly half of the population (42 percent) in Greater Mumbai lives in the

[1] According to Census of India 2011, urban area is defined as follows;

(a) All administrative units that have been defined by statute

(b) Administrative units satisfying the following three criteria:

(i) A minimum population of 5,000 persons;

(ii) 75 percent and above of the male main working population being engaged in non–agricultural pursuits; and

(iii) A density of population of at least 400 persons per sq. km. (1,000 per sq. mile)

Trends in Urbanisation in Maharashtra

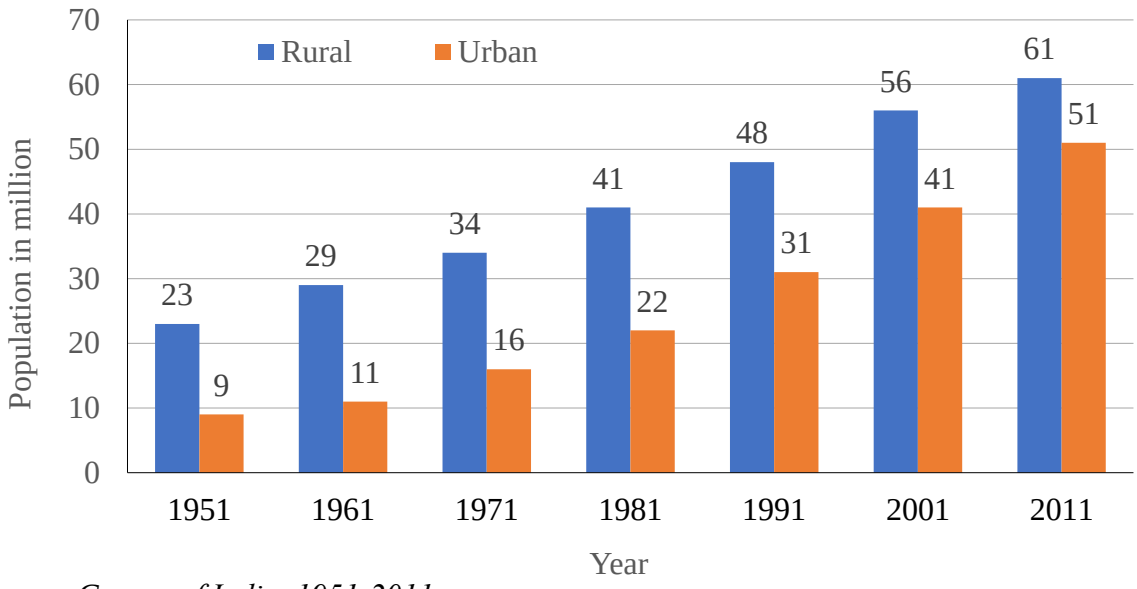
In 1951, only 9 million people lived in urban areas of Maharashtra. Today the figure is over 51 million, and it is estimated to cross 71 million by 2036 as indicated by the population projection done by the 'national commission on population' (National Commission on Population, 2019). The share of urban population to total population has increased from 29 percent in 1951 to 45 percent in 2011. This is expected to cross 52 percent by 2036 (National Commission on Population, 2019).

The spatial pattern of urbanisation in Maharashtra is largely uneven. According to Census of India 2011, there are 24 Municipal Corporations (now 27), 221 are Municipal Councils, 278 Census Towns, 5 Nagar Panchayats and 7 Cantonment Boards. More than two-third of the urban population in Maharashtra lives in these 24 Municipal Corporations, one-fifth in Municipal Councils, 8 percent in Census Towns and the rest in the Cantonment Boards and Nagar Panchayats.

Distribution of Urban Population

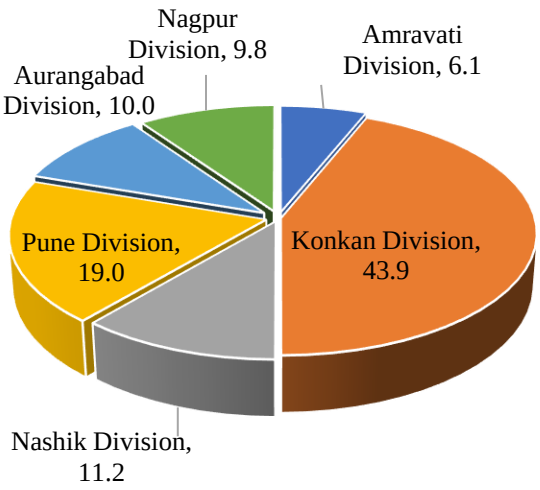
There were 6 divisions in the state namely Konkan, Pune, Nashik, Aurangabad, Amravati and Nagpur. Most of the urban population (44 percent) resides in Konkan division of Maharashtra. This is because Konkan division has the highest number of Municipal Corporations and Census Towns. Among the remaining 5 divisions Pune division has the highest percent of urban Population (19 percent). Urban population is the lowest in Amaravati division of Maharashtra. Distribution of urban population by divisions is given at Figure 1.2.

Figure 1.1: Trend of Urban Population (in Million) in Maharashtra, 1951-2011



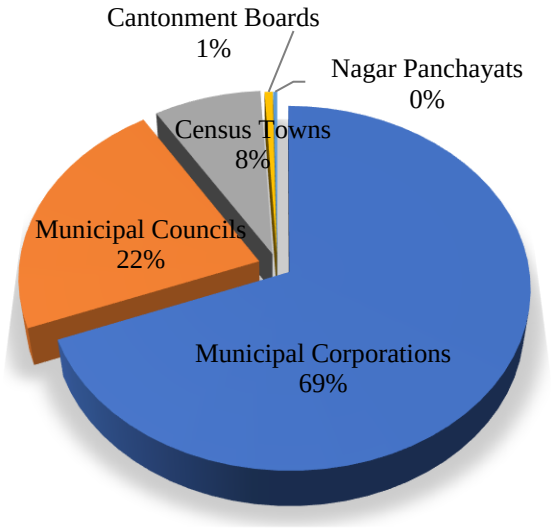
Source: Census of India, 1951-2011

Figure 1.2: Distribution of Urban Population by Administrative Divisions, 2011



Source: Census of India, 2011

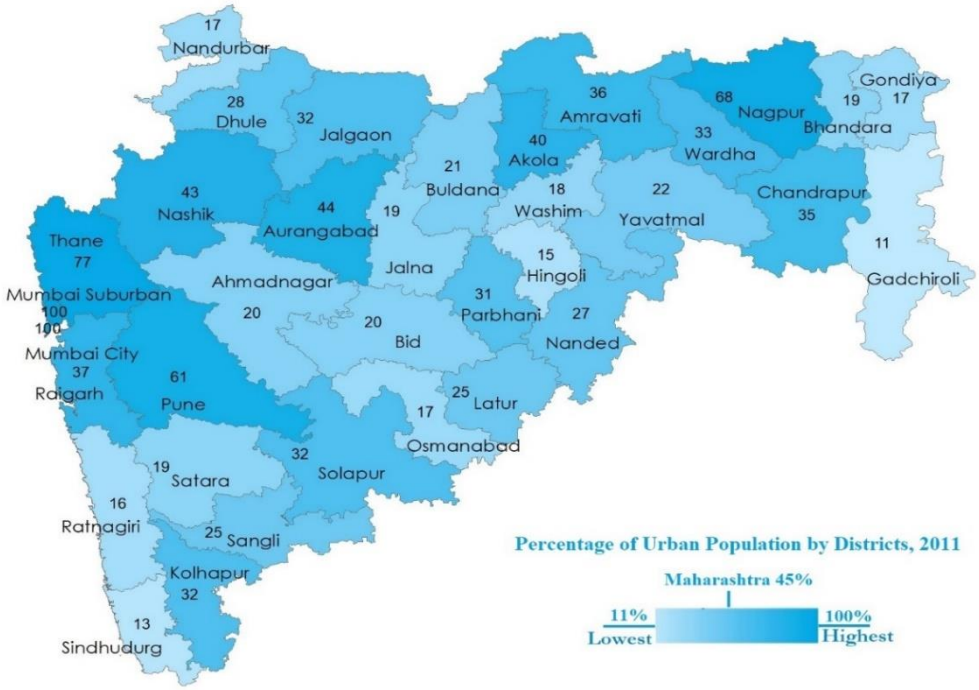
Figure 1.3: Distribution of Population by Urban Localities, 2011



Source: Census of India, 2011

Distribution of population by urban localities shows that majority of the (69%) of the urban population lives in Municipal Corporations. Around one-fifth (22%) of the urban population lived in Municipal Councils. It was found that the level of urbanisation varies considerably across the districts of Maharashtra. While districts like Mumbai and Mumbai suburban are fully urbanized, urban population in 12 districts of Maharashtra are below 20 percent.

Figure 1.3: Percentage of Urban Population by Districts, 2011



Source: Census of India, 2011

Issues and Challenges of Urbanisation

Though urbanisation is seen as a positive change, unprecedented and unplanned urbanization can result in rapidly increasing slum areas and rising economic inequalities. Rapid urbanisation in the absence of corresponding growth of employment opportunities is regarded as the root cause of growing urban poverty and unemployment. The growth of economic opportunities in urban areas fails to keep pace with the quantum of rural to urban migration. Consistent massive migration from rural areas to urban areas can put greater pressure on the urban services too.

Though unplanned urbanization affects everybody, it affects the urban poor and the vulnerable more. People are forced to settle in informal settlements and overcrowded slums. People living in urban slums are particularly affected due to lack of good housing, proper sanitation, proper education and quality health care. Lack of these basic services can escalate poverty and unemployment, crime against women and children, safety problems and poor health. Rapid urbanisation puts tremendous pressure on infrastructural facilities like housing, electricity, water, transport, and employment. With good governance, cities can do pretty well in providing basic services, energy, housing, transportation and more.

Urbanisation and SDGs

The increasing role played by urbanization in sustainable development has been recognized by the 2030 Agenda for Sustainable Development (UN General Assembly, 2015) and the New Urban Agenda (UN Conference on Housing and Sustainable Urban Development, 2017). While numerous Sustainable Development Goals (SDGs) relate to urbanization, Goal 11 addresses this topic directly, as it aims to "make cities and human settlements inclusive, safe, resilient and sustainable." While SDG 11 and its targets are a crucial aspect of achieving sustainable development, the reaches of the role of urbanization in sustainable development are far greater.

Through SDG 11, urbanization is recognized as an important factor in sustainable development. Even though there are positive effects linked to urbanization, it also poses threats and challenges to certain aspects of sustainable development, as the quality of life can decrease through poorly managed urban migration. Sustainable development of urban areas requires tackling issues of food security, employment creation, transportation infrastructure development, sanitation, biodiversity conservation, water conservation, renewable energy sourcing, waste and recycling management, and the provision of quality education, health care and housing. Rapid urbanisation can be detrimental to SDG 11 and other sustainable development goals. Urbanisation has already resulted in a gap between demand for and supply of basic services such as water, sanitation, transportation, educational and health services, and safety and security of urban vulnerable population. Not able to address these challenges could negatively affect in achieving SDG 11 and other related SDGs.

To harness the positive effects of urbanization in achieving sustainable development, it is imperative to recognize the benefits and drawbacks of urbanization and consequent economic development.

Covid-19 and the Urban Connection

The coronavirus disease (COVID-19) is attacking societies at their core. People from all walks of life have been affected by the sudden outbreak of the pandemic and resultant lock down measures imposed by the central and state governments. Maharashtra is one of the worst hit states. Though the pandemic affects everybody, as seen from various reports and research studies the impact of COVID-19 will be most devastating in poor and densely populated urban areas, especially for the 12 million people living in slums of Maharashtra, where overcrowding also makes it difficult to follow recommended measures such as social distancing and self-isolation. As on 31st September, 2021 Maharashtra has reported 65,53,961 confirmed cases and 1,39,117 deaths from COVID-19. The spread of the disease in Maharashtra is mainly concentrated in the urban clusters. Mumbai has emerged as the epicentre of the pandemic and majority of the cases

The COVID-19 pandemic has added unprecedented challenges for cities, including pressure on their health care, education and safety systems, and disproportionally affected vulnerable groups. It has hit hard the urban areas of Maharashtra and particularly Mumbai and Pune. It has paralysed the health care system, economic activities and created psychological fear among urban inhabitants. Billions of people are experiencing untold misery and suffering as the virus overwhelms our bodies and economies. The vulnerability of urban population can be gauged from loss of human life, collapse of economic activities and exodus of migrant population.

One of the challenges to addressing the Covid-19 pandemic is the use of accurate and updated information. However, there is also an overload of information of different types. Therefore, it is necessary to consolidate the different types of data in a fast and simple way, in order to create public policies. All the information required to address these challenges are available but not at a single point or are not linked. For example, information on pre-existing morbidities, older population, migrant population, various social protection programmes especially the public distribution system (PDS), informal employment, overcrowding, handwashing facilities, health care facilities, and mobile phone ownership for emergency response can be included can be helpful in fighting the pandemic. Having an integrated database makes it possible to generate relevant and up to date information for public policies in emergencies like COVID

19. Having a system in place could have helped the government in identifying those most vulnerable to contracting COVID-19 and, therefore, protect and focus the emergency response on them. This emergency response can be complemented by cash transfers along with other vital services. Furthermore, by monitoring this data regularly, a pro-poor recovery plan can be programmed taking into account the satisfaction of food needs, the return of the unemployed to work, the strengthening of social services and the introduction of equity.

Key Facts

- SDG 11 aims to make cities and human settlements inclusive, safe and resilient and sustainable.
- More than half of the population resides in urban areas.
- 13.5 percent of the total urban population in India lives in Maharashtra.
- Close to half (45%) of Maharashtra's population (51 million) lives in urban areas.
- Majority of the (69%) of the urban population lives in 24 Municipal Corporations.
- Nearly one-fourth of the total urban population in Maharashtra (11.8 million) lives in the slums.
- Nearly half of the population (42 percent) in Greater Mumbai lives in the slums.
- SDG 11 aims to make cities and human settlements inclusive, safe, resilient and sustainable.
- Majority of COVID 19 cases in Maharashtra are reported from urban Areas.
- There is an urgent need to consolidate different types of data in a fast and simple way, in order to generate relevant and up to date information for public policies in emergencies like COVID 19.

CHAPTER 2

URBAN VULNERABILITY PROFILE

Urban Vulnerability Profile

The urban population is vulnerable in varying degrees to a large number of threats starting from their basic needs for provision for water, sanitation, drainage, solid waste collection, transportation, recreation space, public health and housing. Addressing these threats fully and effectively requires an improved understanding of the vulnerabilities of urban population - who among urban population is vulnerable and to what extent and why. A better understanding of urban specific vulnerabilities can lead to better policy decisions with regard to resource allocation, infrastructural design, and systems for provisioning of services. This chapter briefly looks at the vulnerabilities related to basic services, health and nutrition, education, economic conditions and housing using National Family Health Survey 4th and 5th rounds, data from National Sample Survey (NSS) 75th and 76th rounds and Census of India 2011.

Deprivations in basic services

The rapid increase in the urban population has led to deterioration in urban living conditions and put pressure on the basic services. While substantial progress has been made in improving availability and increasing access to basic services, poor people living in urban areas, still face challenges in accessing basic services. Non-provision of basic services such as water, sanitation, electricity, education, transportation and health have serious consequences to the health of the community, especially the women and children. The COVID-19 pandemic has demonstrated the importance of the availability and access to water, sanitation and health services in preventing and containing the disease (WHO, 2020). The impacts of COVID-19 could be considerably higher on the urban poor living in slums, who don't have access to clean water and improved sanitation and public health facilities. The provision of basic services suffers from a multitude of sustainability challenges in urban areas especially in slums. Only by ensuring basic services to urban poor, the quality of life of the urban poor, particularly the women and children can be improved. Availability and accessibility of basic services could also help in achieving targets under many of the SDGs.

Water

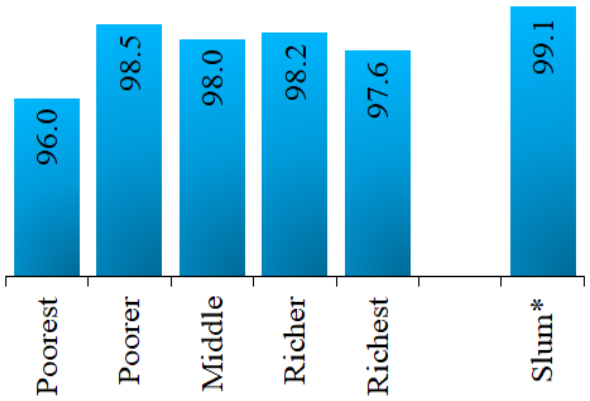
The findings from NFHS-5, 2019-20 shows that access to improved drinking water is higher in urban areas (99.3%) as compared to rural areas (88.5%). Results from the survey conducted by the Nationals Sample Survey Organisation (NSSO, 2018) also shows similar figure (99.7%). However, results from NFHS 4, 2015-16 had shown

99.3%

Overall, 99.3 % of the urban population has access to improved drinking water.

Source: NFHS 5, 2019-20

Figure 2.1: Percentage of Urban Population with Access to Improved Drinking Water by Wealth Quintiles, 2015-16



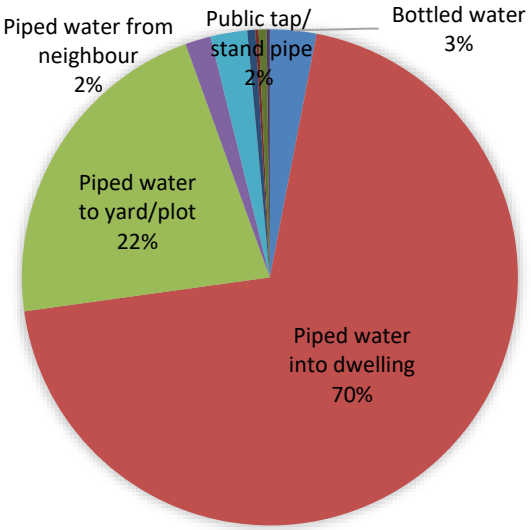
Source: NFHS 4, 2015-16

that in urban areas only 96 percent of the population from the poorest households had access to improved drinking water. The percentage of population from the richest households with access to improved drinking water is slightly less, this could be due to use of bottled water which is not considered as an improved source of drinking water in NFHS. This indicates that strategies should be focused at improving coverage in peri-urban areas.

Results from the NSS 76th round shows that (figure 2.2) shows percentage of urban households by principal source of drinking water. Seventy percent of the urban population had piped water into the dwelling; while 22 percent had piped water to their yard/plot. Bottled water was the principal source of drinking water for three percent of the urban population. Two percent depended on public tap as the principal source of drinking water.

Figure 2.3 shows that 78 percent of the urban households had access to principal source of drinking water for their exclusive use. Fourteen percent of the households

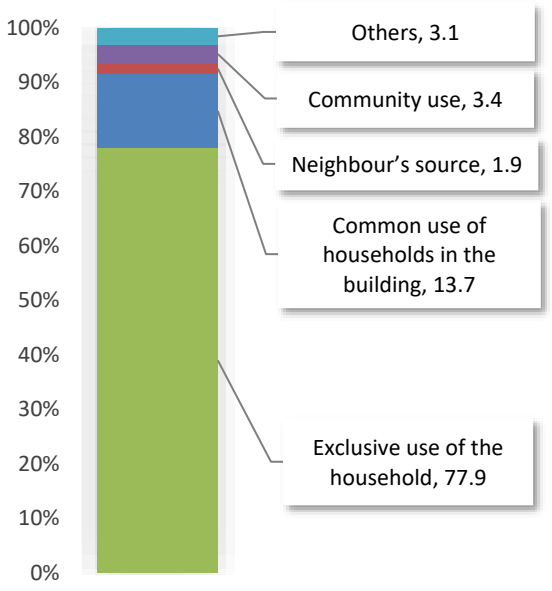
Figure 2.2: Percentage of Urban Households by Principal Source of Drinking Water, 2018



Source: NSS 76th Round, 2018

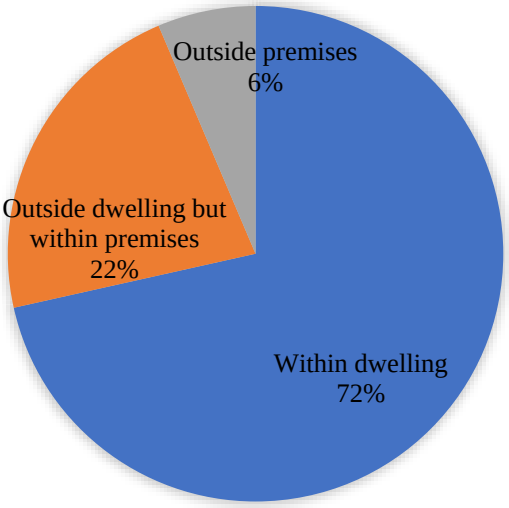
had access to drinking water source that was available for common use of households in

Figure 2.3: Percentage Distribution of Urban Households by Access to the Principal Source of Drinking Water, 2018



Source: NSS 76th Round, 2018

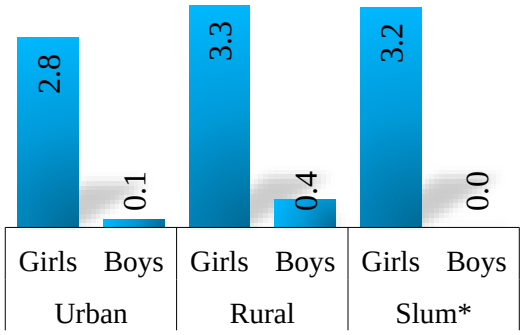
Figure 2.4: Percentage of Urban Households by Distance to Principal Source Drinking Water, 2018



Source: NSS 76th Round, 2018

the building. Two percent depended on neighbours for drinking water. 3.4 percent of the households had access to drinking water source that was available for community use.

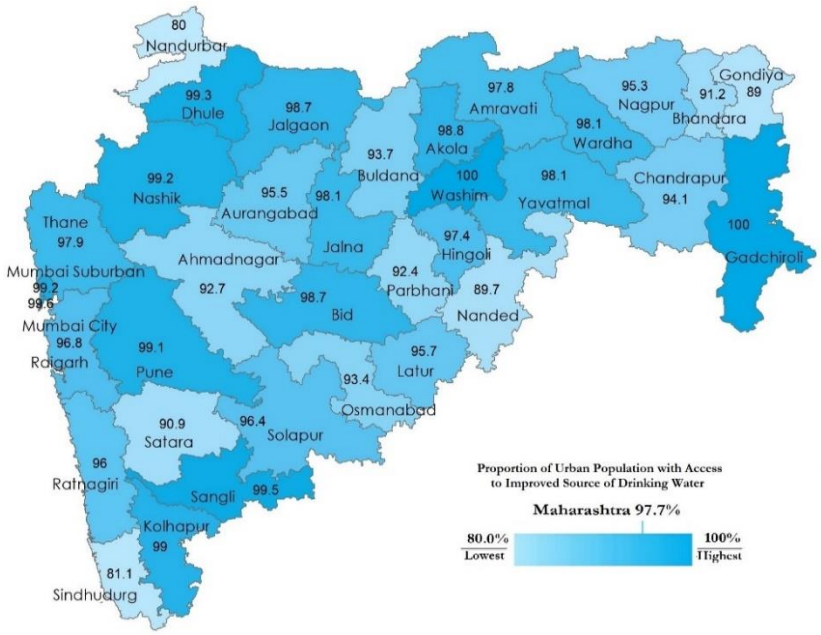
Figure 2.5: Children Fetching Water from Outside Sources in Urban Maharashtra, 2015-16



Source: NFHS 4 , 2015-16

Distance to principal source of drinking water shows that 72 percent had drinking water within dwelling and 22 percent had outside dwelling but within premises. For six percent households it was outside the premises. 1.3 percent o the households had to depend on a source that was more than 1 km away from the households.

Figure 2.6: Percentage of Urban Population with Access to Improved Drinking Water Source by Districts, 2015-16



Source: NFHS 4, 2015-16

NFHS 4 shows that there is a huge gender difference in who is fetching water for households' use. 77 percent of the households in urban areas reported that water was collected by a female household member. 2.8 percent urban households reported that water was fetched by a girl child below the age of 15 years. 3.2 percent household from slums reported that female child under 15 years of age fetched water for their household needs.

A district level analysis exhibited that the urban population with access to improved drinking water was the least in Nandurbar, while it was hundred percent in Gadchiroli and Washim. Only four districts viz; Nandurbar (80%), Sindhudurg (81%) Gondiya (89%) and Nanded (90%) in Maharashtra had less than 90 percent of urban population with access to improved drinking water source.

Sanitation

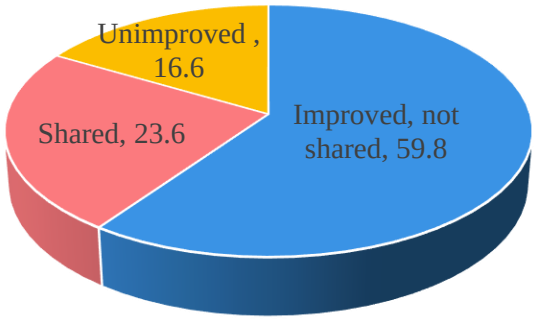
Access to improved sanitation facility is a major concern in urban areas, especially among the poor households and slum areas. NFHS 5 shows that access to improved sanitation facility improved from 60 percent in 2015-16 to 75 percent in 2019-20 in the urban population in Maharashtra.

75%

Access to improved sanitation facility among the urban population increased from 60% to 75% between 2015-16 and 2019-20

Source: NFHS 4, 2015-16 & NFHS 5. 2019-20

Figure 2.7: Percentage of Urban Population by Category of Sanitation Facilities, 2015-16



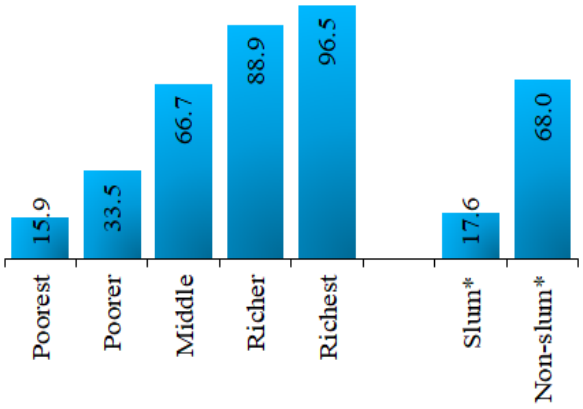
Source: NFHS 4 , 2015-16

Only 60 percent of the urban population had improved but not shared sanitation facility. Around one-fourth (24%) of households had access to improved sanitation facility but shared with two or more households while the sanitation facility of 17 percent of households living in urban areas were unimproved.

Access to improved but not shared sanitation facility was found to be only 16 percent among households from the poorest category and 34 percent among households from the poorer category. From the richest category 97 percent of the households had access to improved but not shared sanitation facility. Only 18 percent of households from slums had access to improved but not shared sanitation facility.

More than 40 percent of the households from the poorest wealth quintile and around one-fourth of households from the poorer wealth quintiles from urban Maharashtra had access to only unimproved sanitation facility. Around

Figure 2.8: Percentage of Urban Population with Access to Improved Sanitation Facilities by Wealth Quintiles, 2015-16

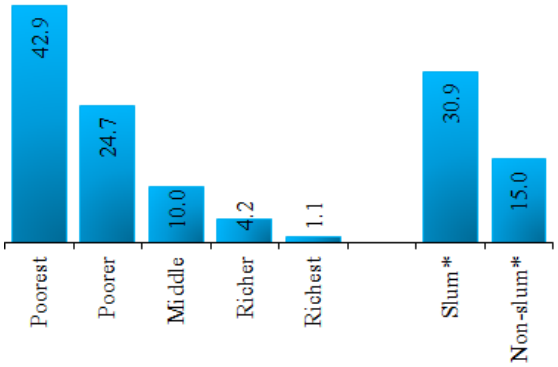


Source: NFHS 4 , 2015-16

one-third (30%) of the households in the slums also had access to only unimproved sanitation facility.

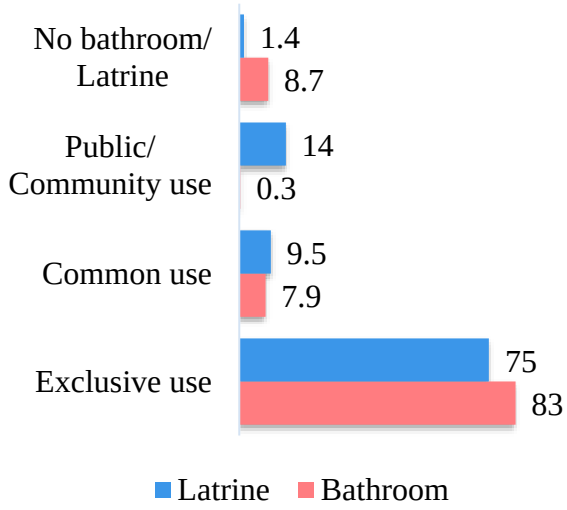
The national sample survey conducted in 2018 shows that three out of every four households (75%) in urban Maharashtra had latrine for their exclusive use. Fourteen percent of the households used latrine that is available for public or community use. 8 percent of the households used latrines that

Figure 2.9: Percentage of Urban Population Who Used Unimproved Sanitation Facilities by Wealth Quintiles, 2015-16



Source: NFHS 4 , 2015-16

Figure 2.10: Percentage of Urban Households with Access to Bathroom and Latrine Facilities, 2018

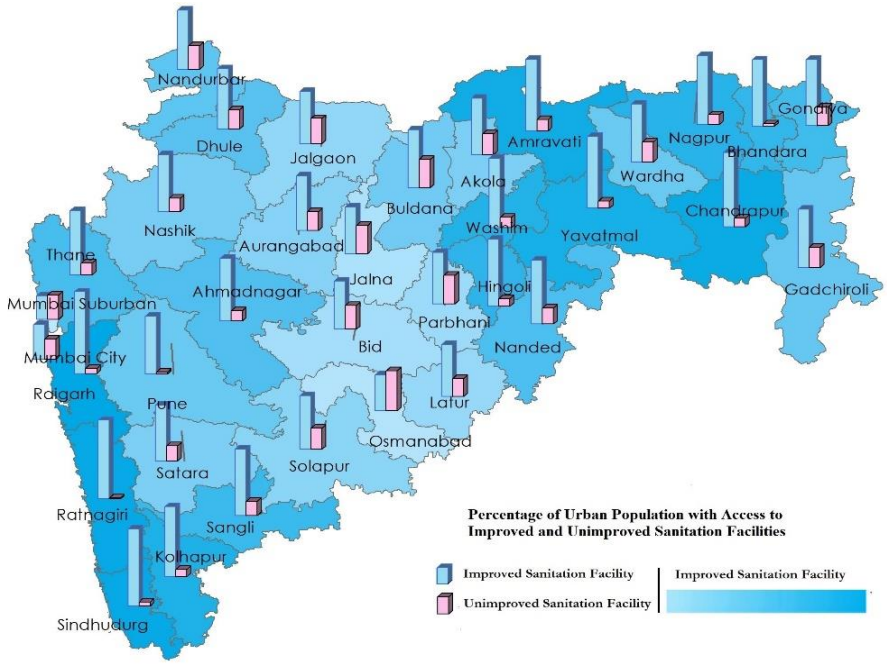


Source: NSS 76th Round, 2018

are available for common use. 1.4 percent households didn't have access to latrines. A similar pattern can be seen in the case of bathroom use as well. Eighty-three percent of the households had access to bathroom for their exclusive use. Around one in every ten households had no bathroom.

District level analysis show that Raigarh district had the highest percent of population living in households with access to improved sanitation facility, while Mumbai suburban had the lowest percent (27%) of population with access to improved sanitation facility. Population living in households using unimproved sanitation facility was the highest in Osmanabad district, while it was the lowest in Ratnagiri (1%.). Aurangabad division had the highest percentage of population living in households with unimproved sanitation facility.

Figure 2.11: Percentage of Urban Population with Access to Improved and Unimproved Sanitation facilities by Districts, 2015-16

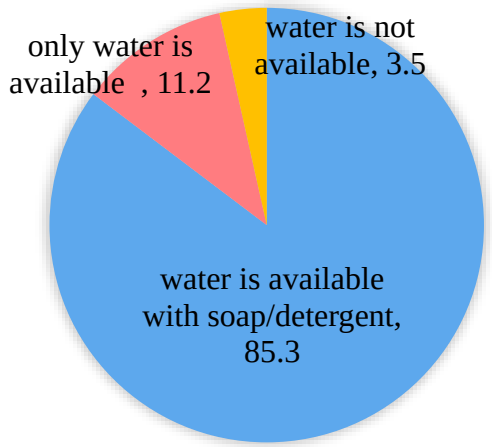


Source: NFHS 4 , 2015-16

Availability of water in and around the latrine shows that water was available with soap or detergent with only 85 percent of the households in urban Maharashtra. While only water was available for 11 percent of the households, another 4 percent of the households even had no water in and around the latrine.

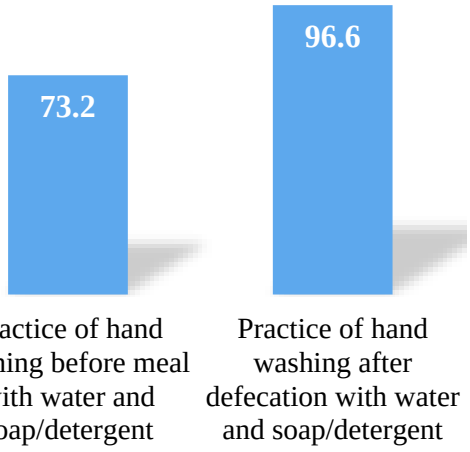
Figure 2.13 shows that only 73 percent of

Figure 2.12: Percentage distribution of households by availability of water in or around the latrine



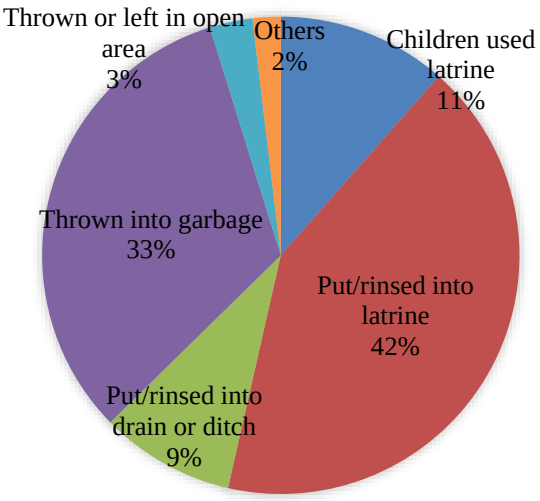
Source: NSS 76th Round, 2018

Figure 2.13: Percentage Distribution of Households by Hand Washing Practices in Urban Maharashtra



Source: NSS 76th Round, 2018

Figure 2.14: Percentage Distribution of Households by Method of Disposal of Faeces of Children Below 3 Years



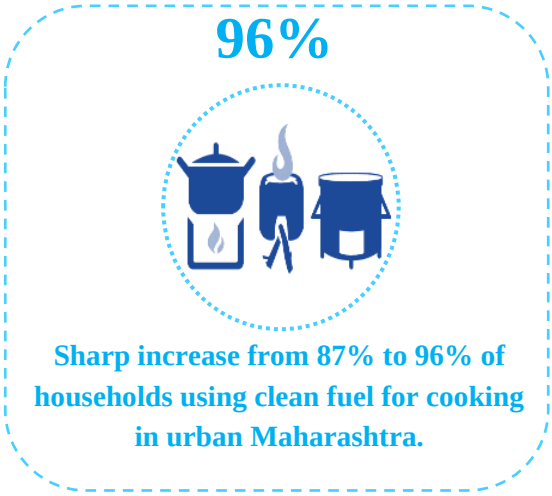
Source: NSS 76th Round, 2018

the households in urban areas had the practice of handwashing before meal with soap or detergent. Hand washing practices after defecation shows that 97 percent of the households practiced hand washing after defecation.

One in every three households with children of age 3 years and below threw faeces of children into the garbage. Three percent of the households threw or left it in the open area. Only around half of the households used latrine to dispose the faeces of children below 3 years of age.

Energy

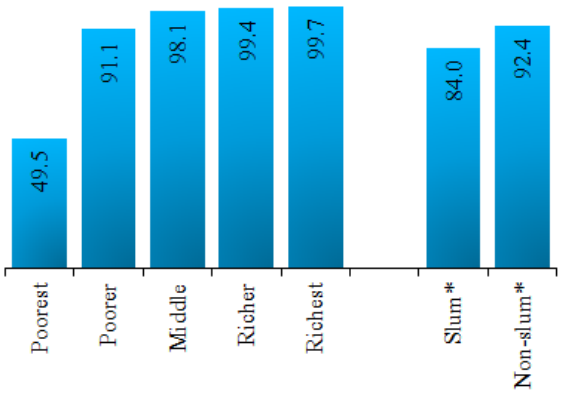
Many poor households in India use unimproved source of cooking fuel. Though this is seen mostly in the rural areas, this is very common in poor households in urban areas too. Using unimproved cooking fuel can have a bad impact on the health of the household members.



Source: NFHS 4, 2015-16 & NFHS 5, 2019-20

It was found that those households in urban Maharashtra using clean fuel for cooking increased from 87 percent in 2015-16 to 96 percent in 2019-20. However, NSS 76th round shows that only 88 percent of the households used clean fuel for cooking. Figure 2.15 shows that less than half of the households from the poorest wealth quintile used clean fuel for cooking.

Figure 2.15: Percentage of Households with Clean Fuel for Cooking in Urban Maharashtra by Wealth Quintiles, 2015-16



Source: NFHS 4, 2015-16

99%

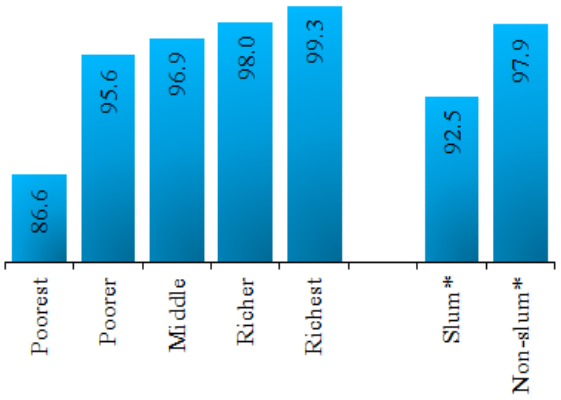
Households having electricity in urban Maharashtra increased from 95% to 99% between NFHS 4 and NFHS 5.

Source: NFHS 4, 2015-16 & NFHS 5, 2019-20

99 percent of the households in urban Maharashtra had electricity. Only 87 percent of the households from the poorest wealth quintile had electricity. Recent round of NSS (76th) shows that nearly all the households (99.4%) in urban areas had electricity for domestic use.

District level analysis shows that all the urban households in Gondiya district had

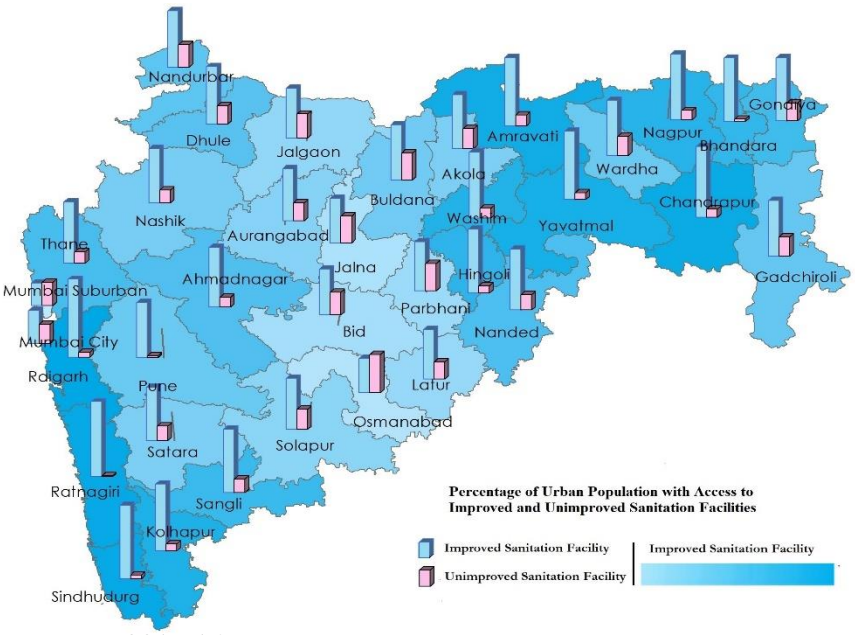
Figure 2.16: Percentage of Households with Electricity by Wealth Quintiles, 2015-16



Source: NFHS 4 , 2015-16

electricity, while in Nandurbar district only 88 percent of the urban households had electricity. Analysis with regard to clean cooking fuel shows that in seven districts (Dhule, Kolhapur, Pune, Raigargh, Sangli, Ratnagiri and Sindhudurg) more than 90 percent of the urban households had clean fuel for cooking.

Figure 2.17: Percentage of Households with Electricity and Clean Fuel for Cooking in Urban Maharashtra by Districts, 2015-16



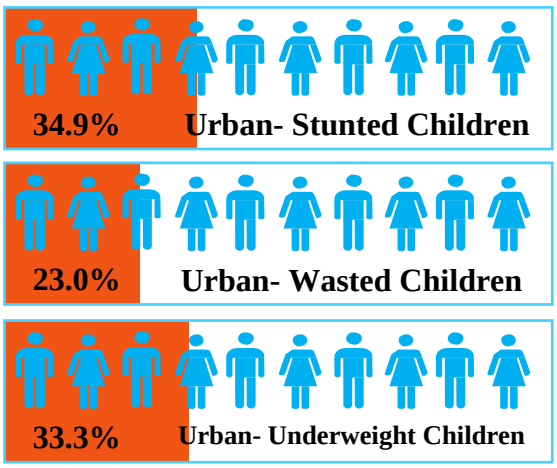
Source: NFHS 4, 2015-16

Deprivations in Health and nutrition

SDG 1 & 3 aspire to end hunger and ensure healthy lives and promote well-being at all ages. It is not only fundamental to survival but also ensures opportunity for everyone and strengthens economic growth and prosperity. Therefore, these two SDGs lie at the heart of sustainable development and meeting the targets under these SDGs can contribute achieving targets under the remaining SDGs. Maharashtra has been in right track in achieving the SDG targets on health such as reducing child and maternal mortality and combating malnutrition. Though Maharashtra has made considerable progress, the current COVID-19 pandemic poses a risk and will have an impact on how progress on these targets in the coming decades, especially in urban areas as the effect on COVID-19 will be on urban centers. Urban policies that focus on strengthening the public health systems, improving delivery under the public distribution system, and increased access to basic services, can make significant progress towards ensuring health lives and promoting wellbeing for all especially the vulnerable urban populations.

Nutrition

Results from NFHS 5 show that nutritional status worsened in urban areas for all the indicators except for wasting. It was found that stunting levels in children below 5 years of age increased from 29.3 percent in 2015-16 to 34.9 percent in 2019-20. Similarly, the proportion of underweight children also increased by three percentage points from 30.7 percent in 2015-16 to 33.3 percent in 2019-20. There was a slight decline in the

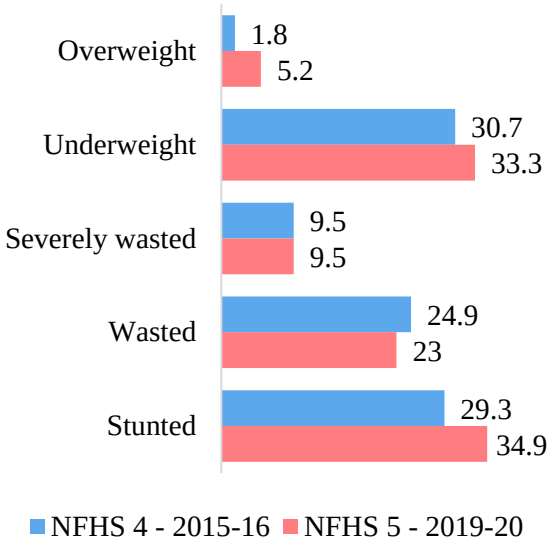


Source: NFHS 4, 2015-16 & NFHS 5, 2019-20

proportion of wasted children in the state. The proportion of children who are obese increased from around 1.8 percent to 5.2 percent between the two survey periods. One in every ten children is severely wasted. It can be seen that on an average one in every three children in urban Maharashtra is malnourished.

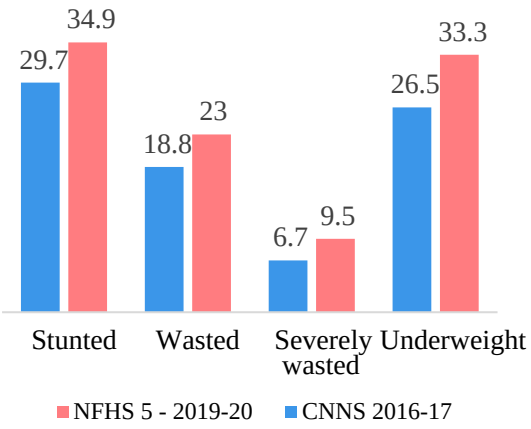
A comparison between Comprehensive National Nutrition Survey (CNNS 2016-17) and NFHS 5 shows that malnutritional

Figure 2.18: Nutritional Status of children in Urban Maharashtra



Source: NFHS 4, 2015-16 & NFHS 5, 2019-20

Figure 2:19 Percentage of Children Who are Undernourished, 2016-17 & 2019-20

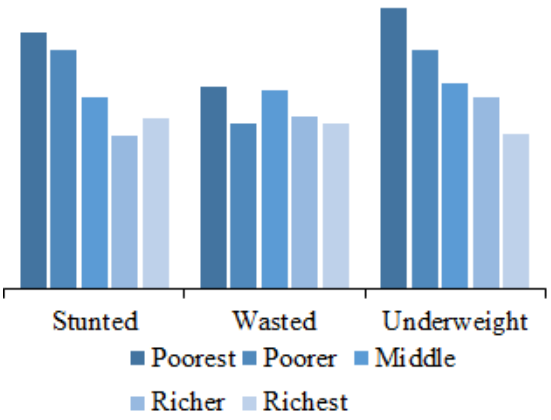


Source: NFHS 5, 2019-20 & CNNS 2016-17

level with regard to stunting, wasting and underweight has increased in the state. One in every ten children (11%) were severely stunted. Nine percent children were severely underweight. The stark difference between surveys in the proportion of children undernourished is a cause for concern.

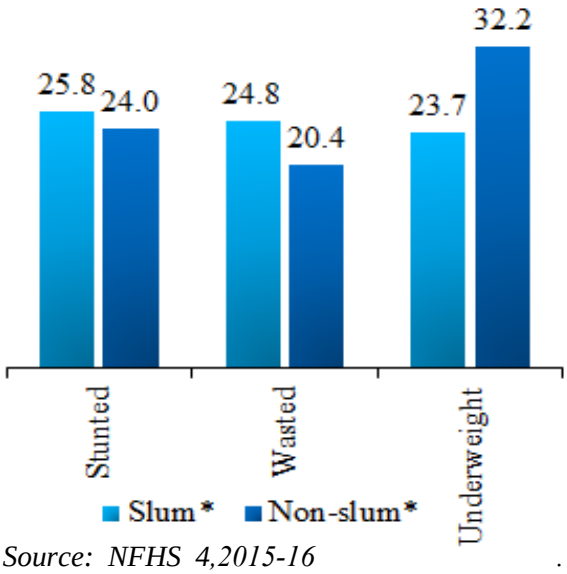
Economic status wise analysis of malnutrition shows that stunting in children

Figure 2.20: Percentage of Children Who Are Stunted, Wasted and Underweight in Urban Maharashtra by Wealth Quintiles, 2015-16



Source: NFHS 4, 2015-16

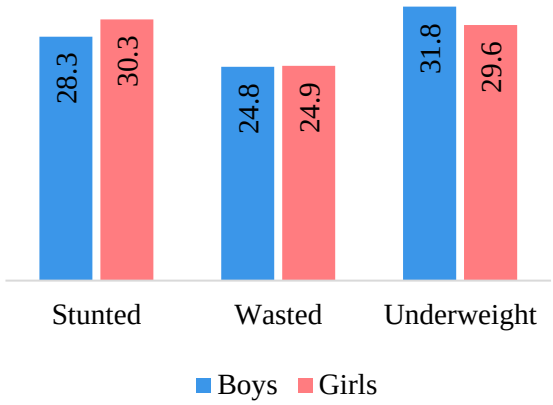
Figure 2.21: Percentage of Malnourished Children in Maharashtra, 2015-16



Source: NFHS 4,2015-16

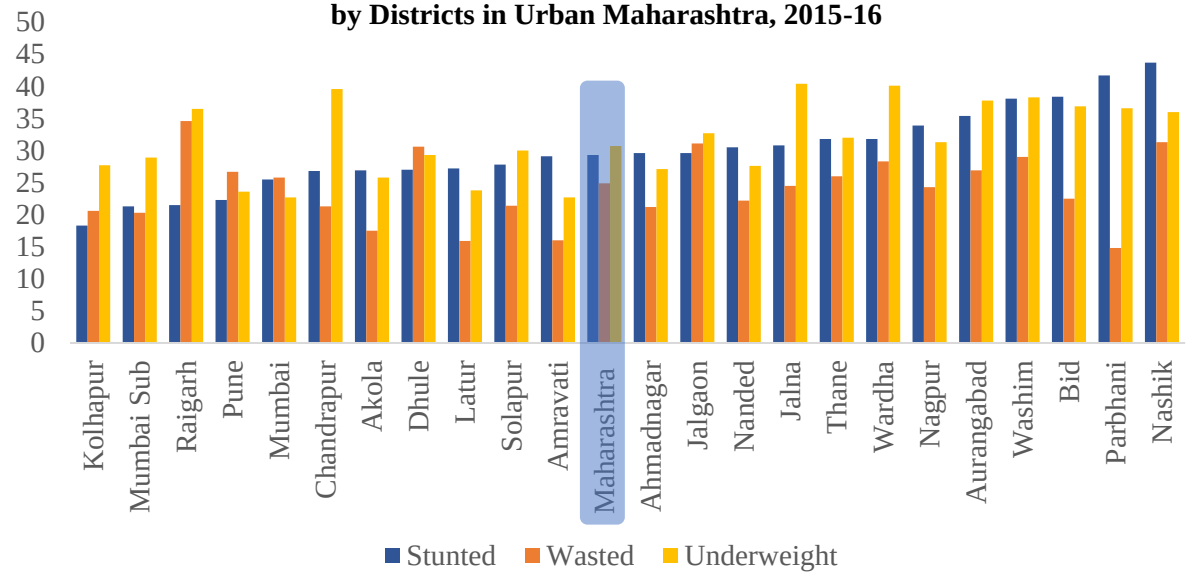
was highest in poorest wealth quintile. One in every four children was wasted in Urban Maharashtra. Nine percent children were severely wasted. Wasting was the highest in the poorest and the middle quintiles. 31 percent of the children in urban Maharashtra were underweight and it was found that underweight children were the highest in poorer wealth quintile.

Figure 2.22: Percentage of Children Underweight by Sex in Urban Maharashtra, 2015-16



Source: NFHS 4 , 2015-16

Figure 2.23: Percentage of Children Who are Stunted, Wasted, Underweight by Districts in Urban Maharashtra, 2015-16



Note: Districts where sample size was less than 50 has been excluded from the analysis

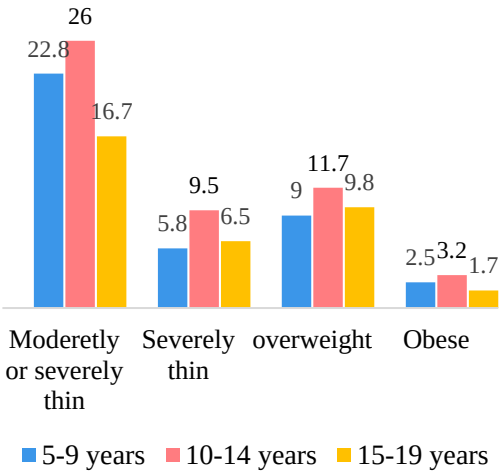
Source: NFHS 4, 2015-16

Sex wise disaggregation shows that there is stark difference in child malnourishment between boys and girls in Urban Maharashtra.

District level analysis shows that Nashik district has the highest percentage of stunted children, while it was the lowest in Kolhapur district. Raigarh district had the highest number of wasted children and Jalna had the highest number of underweight children in Urban Maharashtra.

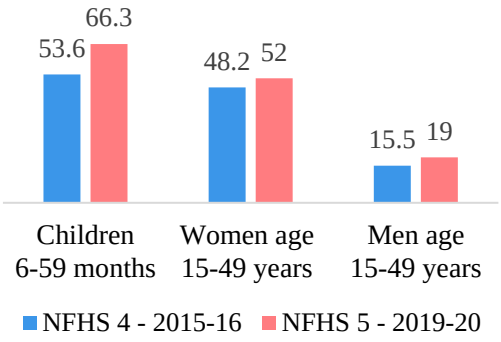
Based on the Body Mass Index (BMI) for corresponding age, it can be seen that 10-14 years age group has high proportion of thin children compared to 5-9 years or 15-19 years age group. While one in every ten children is overweight in all the

Figure 2:24 Percentage of Malnourished Children by Different Age Groups, CNNS



Source: CNNS 2016-17

Figure 2:25 Percentage of Anaemic Children, Women and Men



Source: NFHS 4, 2015-16 & NFHS 5 , 2019-20

age groups two in every 10 children are moderately or severely thin in all the age groups.

Prevalence of anaemia in the state shows that two in three children aged 6 to 59 months are anaemic. The anaemia level in children increased from 54 percent in 2015-16 to 66 percent in 2019-20. Half of the women were also found to be anaemic as per NFHS 5. There is a sharp difference in anaemic level between men and women. While one in every two women were anaemic, only one in every five men were anaemic.

Insurance

Despite the emergence of a number of health insurance programmes and health schemes, only 20 percent of households in urban Maharashtra have any kind of health insurance/ health scheme that covers at least one member of the household. Out of the total coverage in urban Maharashtra, the major contributor

20%

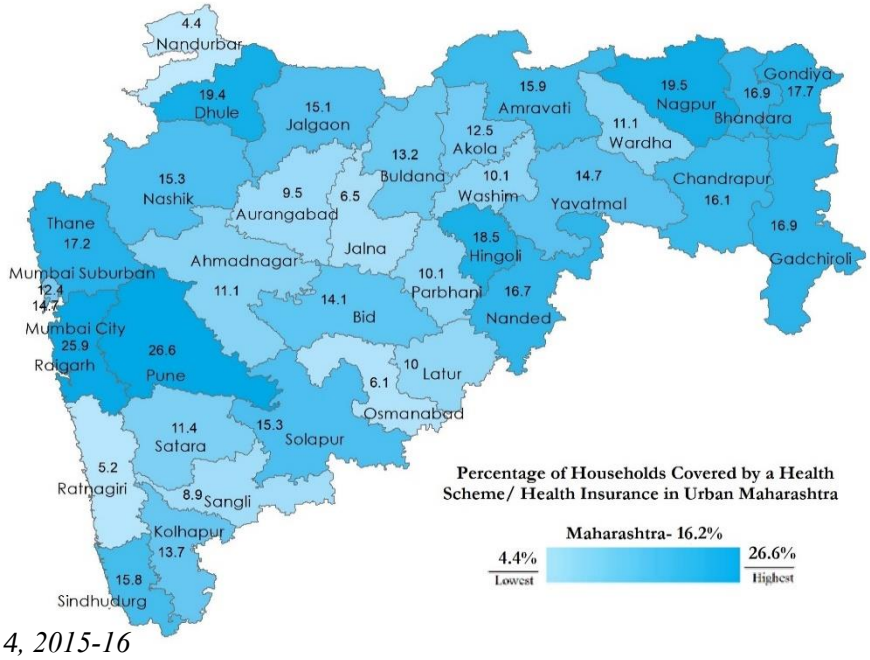
At least one household member covered by a health insurance increased from 16 % in 2015-16 to 20% in 2019-20

Source: NFHS 4, 2015-16 & NFHS 5, 2019-20

privately purchased commercial health insurance schemes (20%).

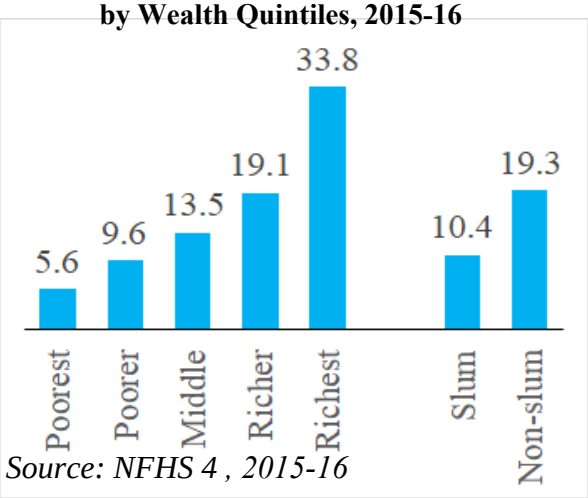
In terms of the household covered with health insurance policies, Pune district had the highest coverage (26.6%) while Nandurbar district had the lowest coverage (4.4%). Health insurance coverage was the lowest in the Aurangabad division. Any

Figure 2.26: Percentage of Households Covered by a Health Insurance/ Health policy in Urban Maharashtra by Districts, 2015-16



Source: NFHS 4, 2015-16

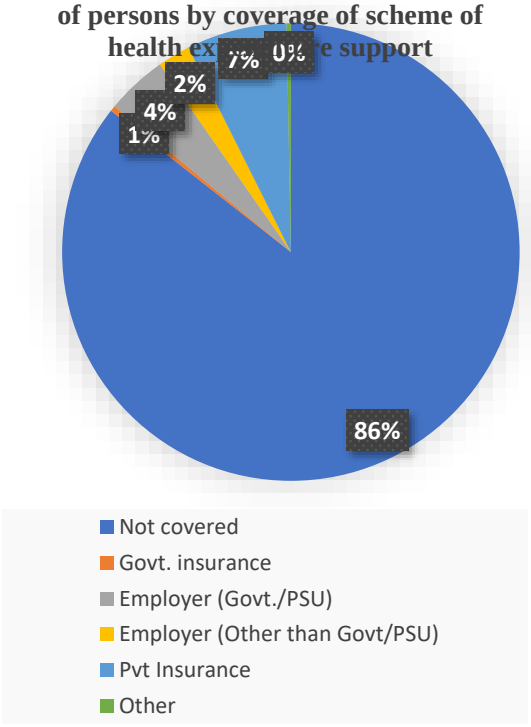
Figure 2.27: Percentage of Households Covered by a Health Scheme/ Health Policy by Wealth Quintiles, 2015-16



Source: NFHS 4 , 2015-16

member of the household covered by any health insurance was as low as 6 percent in poorest households and 10 percent in poorer households. One in three households from the richest quintile had at least one member covered by any health insurance. While the coverage was 10 percent in slums. It was 19 percent in non-slums.

Figure 2:28 Percentage distribution of persons by coverage of scheme of health expenditure support



Source: NSSO 75th Round

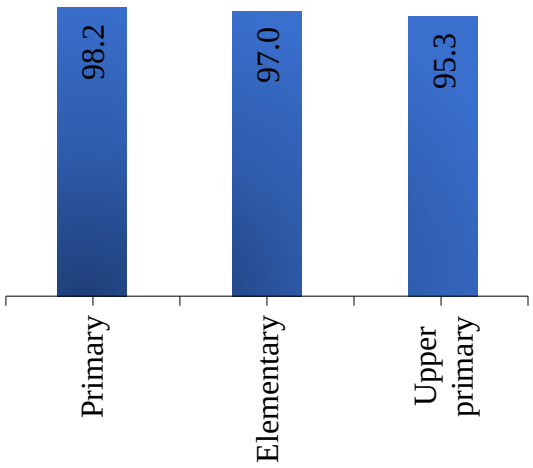
Percentage distribution of persons by coverage of scheme of health expenditure support shows that the expenditure of 86 percent of urban residents were not covered. Less than one percent availed government sponsored insurance schemes. While 7 percent was covered by employer insurance schemes another 7 percent was covered by private insurance schemes.

Deprivations in Education

There has been enormous progress in achieving the target of universal primary education. SDG 4 aims to ensure quality education for all. Achieving inclusive and quality education for all reaffirms the belief that education is one of the most powerful and proven vehicles for sustainable development. Addressing barriers to education can be detrimental in addressing many other connected issues ranging from malnutrition to reproductive sexual health.

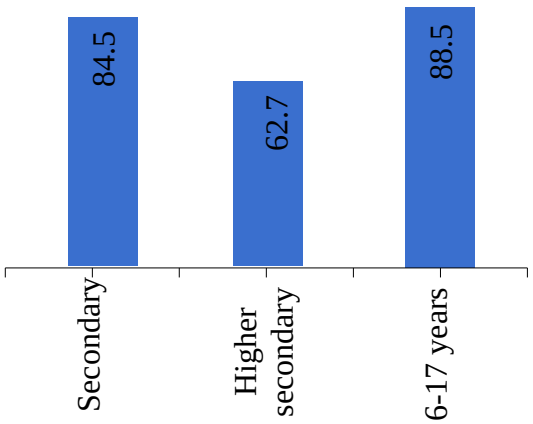
Percentage of children aged 6-17 years attending school in 2014-15 was 89 percent.

Figure 2.29: Percentage of Children Attending School in 2015-16 by Level of School Education



Source: NFHS 4 , 2015-16

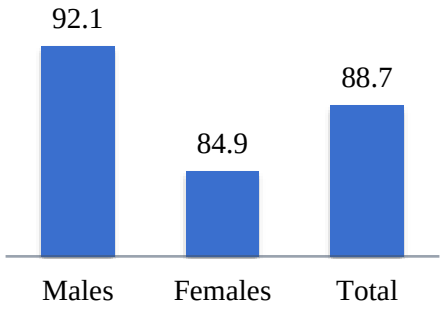
Figure 2.30: Percentage of Children attending Secondary and Higher Secondary and Children Aged 6-17 Years Attending School in 2015-16



Source: NFHS 4 , 2015-16

While attendance remained above 95 percent for primary, elementary and upper primary, the attendance was 85 percent for secondary and only 63 percent for higher secondary.

Figure 2.31: Literacy Rate in Urban Maharashtra

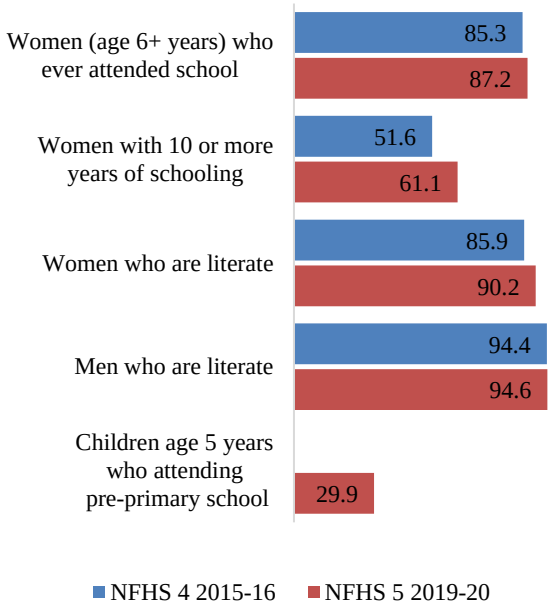


Source: Census of India, 2011

There is high difference in the literacy rate of males and females in Urban Maharashtra. Census shows that while the literacy rate among men was 92, it was 85 among females. The female literacy has improved over the period, it has increased from 86 percent in 2015-16 to 90 percent in 2019-20 whereas male literacy stood at 95 percent. Women who ever attended school also improved slightly. Children aged 5 years who attended pre-primary school in 2019-20 was 30 percent.

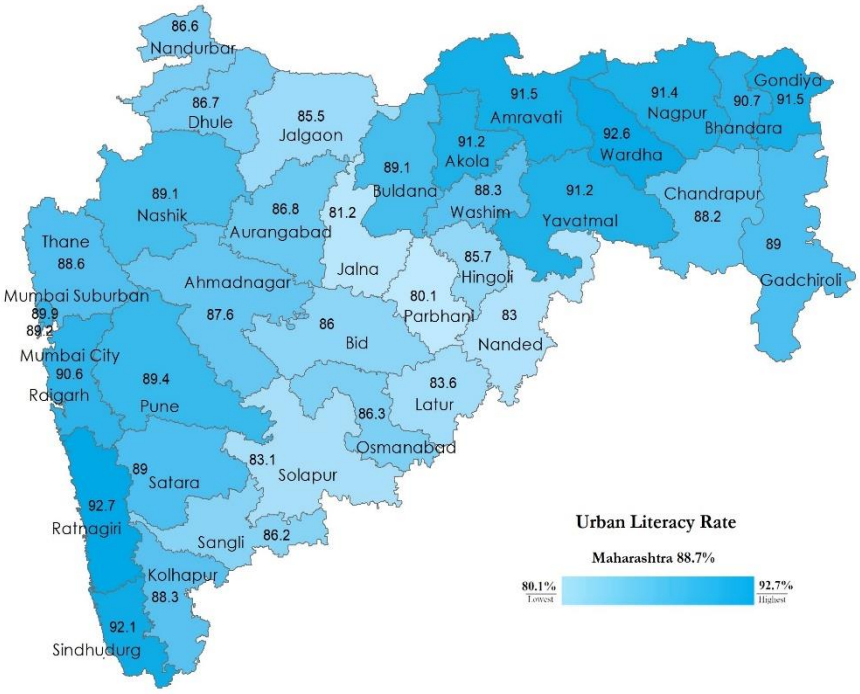
District wise analysis showed that the highest difference (14 percent points) in literacy was Solapur district (90% vs 76%). Parbhani district had the highest literacy rate (93%) and Ratnagiri district had the lowest literacy rate (80%) in urban Maharashtra.

Figure 2:32 Educational Characteristics, NFHS 4 & NFHS 5



Source: NFHS 4, 2015-16 & NFHS 5 , 2019-20

Figure 2.33: Literacy Rate in Urban Maharashtra by Districts, 2011



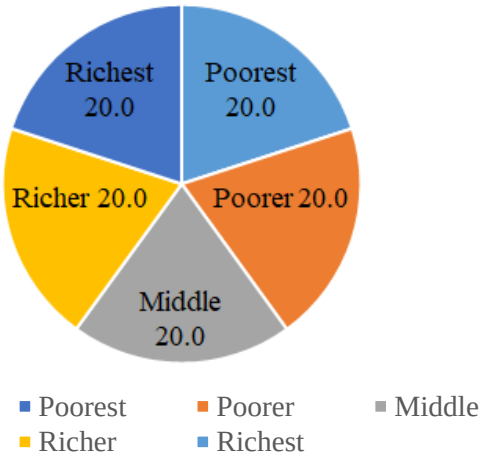
Source: Census of India, 2011

Economic deprivations

Economic deprivation is one of the most pressing forms of urban deprivations. It can accelerate other forms of deprivations in the urban population. Now, the urban poor are vulnerable to shocks and stresses associated with COVID-19 such as loss jobs, disruptions to basic services, and rising insecurity. The COVID-19 pandemic has created an unprecedented human crisis that is hitting the poorest the hardest.

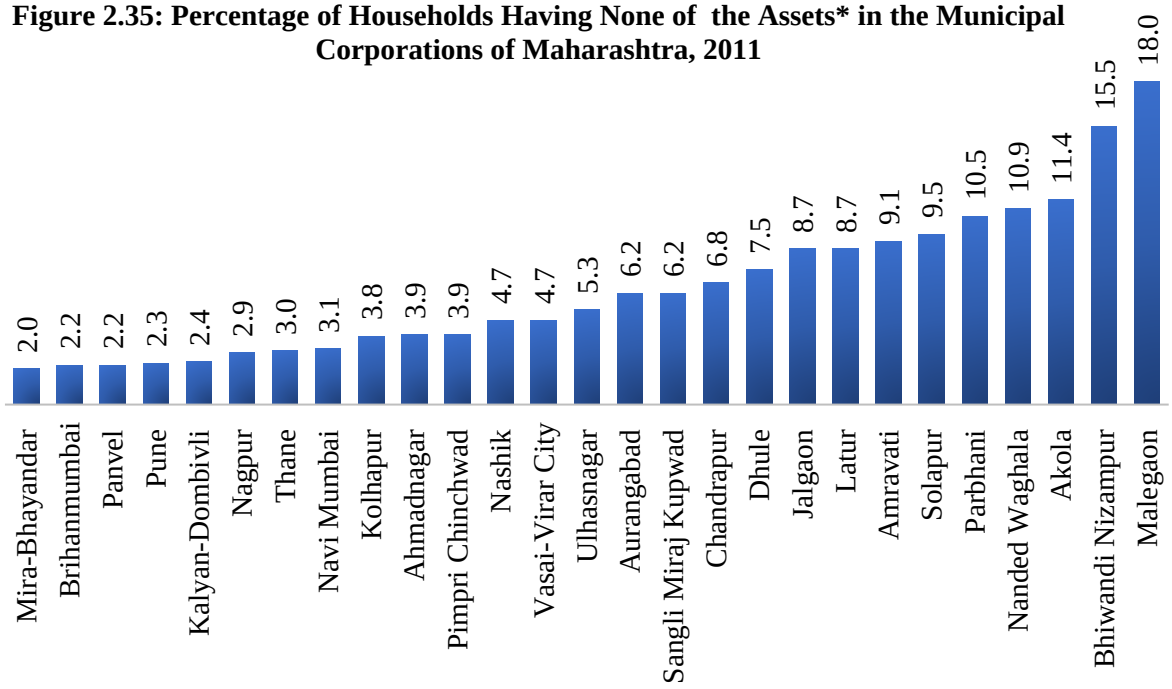
Figure 2.35 shows the percentage of households not having any of the following assets; computer or laptop, car/jeep, bicycle, motor cycle, telephone, mobile, television, in the Municipal Corporations of Maharashtra. This helps to understand the

Figure 2.34: Percent Distribution of Population by Wealth Quintiles



Source: NFHS 4, 2015-16

Figure 2.35: Percentage of Households Having None of the Assets* in the Municipal Corporations of Maharashtra, 2011

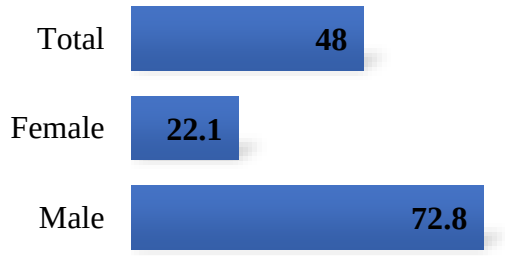


** - Assets susch as computer or laptop, car/jeep, bicycle, motor cycle, telephone, mobile, television*

Source: Census of India, 2011

economically vulnerable population as households without these assets are more likely to be part of the economically vulnerable population. Among the 27 Municipal Corporations, the percentage of households having none of these assets was the maximum in Malegaon (18%). Mira-Bhayandar Corporation had the lowest percentage of households with none of these assets (2%).

Figure 2.36: Labour Force Participation Rate (15 years and above), 2018-19



Source: PLFS, 2019

Figure 2.37: Unemployment Rate (15 years and above), 2018-19

Source: PLFS, 2019

The Periodic Labour Force Survey (PLFS) conducted by the NSSO shows that labour force participation rate for persons aged 15 years and above in urban areas is 48 percent. The female labour force participation rate is as low as 22 percent against 73 percent for males. The unemployment rate in urban areas for persons aged 15 years and above is 6.3 percent. The female unemployment rate (10

Figure 2.38: Percentage distribution of workers by broad status in employment, 2018-19

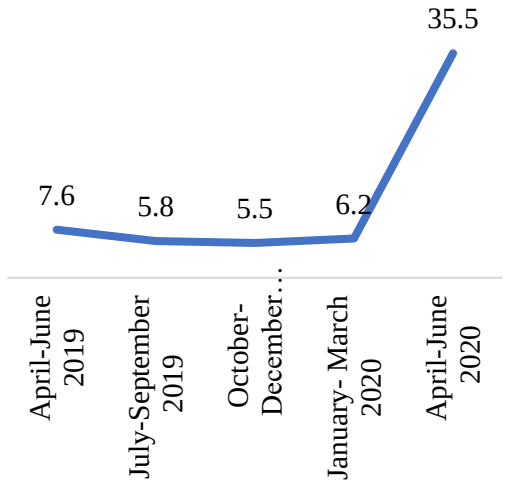
Source: PLFS, 2019

percent) is double than their counterparts (5 percent).

Percentage distribution of workers by broad group of engagement shows that 11 percent of urban workers are casual labourers and 32 percent are self-employed. More than half of the workers (57%) are regular wage earners or salaried.

The sudden outbreak of the pandemic and resultant lock down has resulted in many losing their income. The current weekly (based on last seven days preceding the survey) unemployment rate has increased from 7.6 percent in April-June 2019 to 35.5 percent April-June 2020.

Figure 2.39: Unemployment Rate (15 years and above) April 2019 to June 2020.



Source: PLFS, Quarterly Bulletin 2020

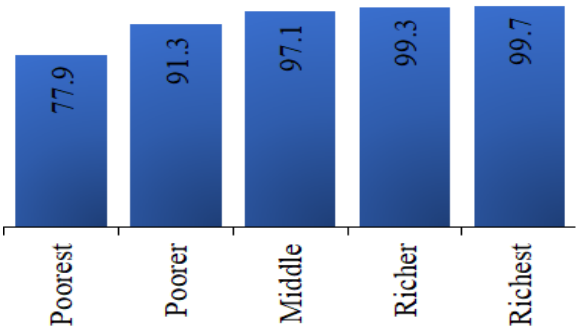
Housing related deprivations

The quality of housing has major implications for people's health. This is true especially in cities where demand for housing is high due to increasing urban sprawl. Poor people living urban centers can experience housing problems such as overcrowding, sub-standard dwelling quality and other housing-related risks. Studies have shown that poor housing has implications for a wide range of health conditions, including respiratory, cardiovascular and infectious diseases such as asthma, tuberculosis, influenza and diarrhoea, as well as mental health. Improved housing conditions can save lives, reduce disease, increase quality of life, reduce poverty, and help mitigate climate change (WHO, 2018). Affordable housing is a key for development and social equality. These can contribute towards the attainment of SDGs related to health and sustainable cities. Addressing the housing needs of the poorest and most vulnerable, especially women, youth must be a priority in the development agendas and should be recognized at the heart of the housing policy.

Housing Quality

93 percent of the household in urban Maharashtra has roof, floor and walls that that are not made of low-quality material or in other words live in pucca houses (Houses made from mud, thatch, or other low-quality materials are called kachha houses, houses that

Figure 2.40: Percentage of Households Living in Pucca houses in Urban Maharashtra by Wealth Quintiles, 2015-16

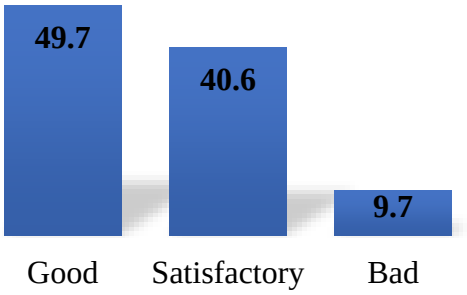


Source: NFHS 4, 2015-16

use partly low-quality and partly high-quality materials are called semi-pucca houses, and houses made with high quality materials throughout, including the floor, roof, and exterior walls, are called pucca houses) However, one-fourth of the population from the poorest households does not live in pucca houses.

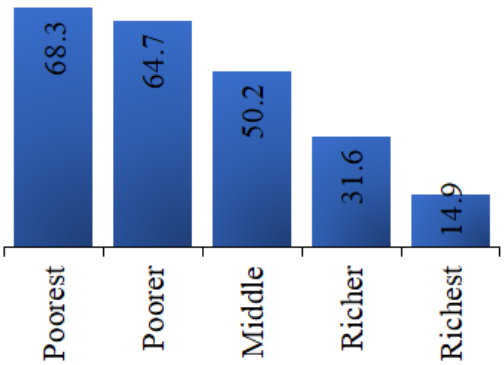
District level analysis show that urban centers like Mumbai and Pune had more households living in pucca houses. Ratnagiri district had the highest number of households living in pucca houses, while the lowest was in Parbhani district.

Figure 2.41: Percentage Households by the Condition of the Structure



Source: NSS 76th Round

Figure 2.42: Percentage of Overcrowded Households in Urban Maharashtra by Wealth Quintiles, 2015-16



Source: NFHS 4, 2015-16

One in every ten households were living in a house with a bad structure while only half of the households in urban areas had good structure. The survey also found that 1.7 percent of households were living in that katcha houses. Twelve percent of the households has bad ventilation. Only 43 percent household had good ventilation.

13 percent of the households faced problem of stagnant water in or around the household premises. 2.4 percent of the households faced flood during the last 5 years preceding the survey.

Figure 2.43: Percentage of households by type of Ventilation

Source: NSS 76th Round

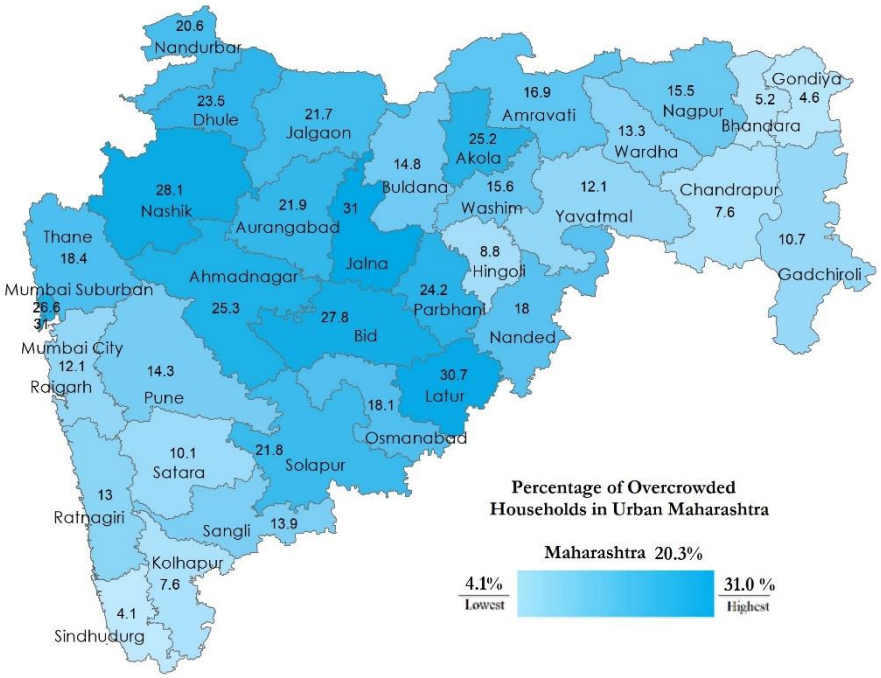
Over Crowding

People migrating from rural to urban areas most often live in overcrowded rooms which can have an impact health and quality of life. Here overcrowding is defined as more than four persons-per-sleeping room. Twenty percent of the households in urban Maharashtra is overcrowded. It is surprising to note that overcrowding is problem in all the wealth quintile except the richest wealth quintile. In the richest wealth quintile only 15 percent of the households were overcrowded.

Only 65 percent of the households living in a house where all married couple got separate room for each. Only 70 percent of the households living in a house had separate kitchen

District wise analysis shows that Latur district has the highest percentage of households with one sleeping room for more than four persons. Sindhudurg district had only 4 percent of the households that were overcrowded.

Figure 2.44: Percentage of Overcrowded Households in Urban Maharashtra by Districts, 2011



Source: Census 2011

Key Facts

- Access to improved drinking water source (99%) was not a major concern in urban Maharashtra, but access to improved sanitation facility was (75%).
- Women and girl children bear the brunt of fetching water for the households in urban Maharashtra as compared to their male counterparts.
- The poorest of the poor households in urban areas are deprived of basic services such as electricity, clean fuel for cooking, improved sanitation and improved drinking water facilities.
- Around one-fourth of the urban children are malnourished and one in every ten children are severely malnourished. Malnourishment in children has worsened in the recent past.
- Health insurance coverage is only 20% in urban areas and it is practically nil among the poorest households. Health expenditure of 86 percent of the urban population was not covered by any insurance.
- Literacy rate for females (85 vs 92) is much lower than male counterparts in urban Maharashtra, but has improved slightly over the last few years.
- COVID-19 and the resultant lock down has had an adverse effect on the employment. The unemployment rate increased multifold during lock down.
- Half of the households (50%) in urban Maharashtra lives in houses built with low quality housing materials and without proper ventilation.
- The issue of overcrowding is not just limited to the poorest or poor households but can be seem in middle and richer households as well.

CHAPTER 3

ESTIMATING MPI AND DECOMPOSING VULNERABILITIES

Introduction

The 2030 Agenda acknowledges that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. The first Sustainable Development Goal (SDG) aims to end poverty in all its forms everywhere. It explicitly includes a target on reducing multidimensional poverty. In particular target 1.2 refers to reducing by half the proportion of women, men and children living in poverty in all its dimensions, according to national definitions, by 2030. Many of the other SDGs are directly or indirectly associated with reduction of multidimensional poverty.

Why Multi-dimensional poverty?

Deprivations in a population can be in different dimensions such as economic, education, health and standard of living. In monetary terms, 17.4 percent of population in Maharashtra were living below poverty line (Planning Commission, 2014) in 2011-2012. While the consumption poverty estimates by Rangarajan Committee captures the economic deprivations, it is incapable of capturing the other dimensions of poverty. Any attempt to measure poverty or vulnerability should consider various dimensions of deprivations and not merely the monetary aspect of poverty. The percentage of population suffering from other dimensions of poverty will be much higher than the population suffering from economic deprivations alone.

The United Nations Sustainable Development Goals (SDGs) also advocates to go beyond the traditional money metric measures and calls for locally developed measures of multidimensional poverty. Multidimensional poverty measurement provides a holistic view of the poverty. It takes into account multiple deprivations that constitute poor people's experience of deprivation; poor health, lack of education, lack of access to basic services and inadequate living standards. The estimation of Multi-dimensional Poverty Index (MPI) can help in identifying the most vulnerable people - the poorest among the poor, revealing poverty patterns within geographies, and hence, enabling policymakers to target resources and design policies more effectively for the benefit of the people who are most deprived. A comprehensive understanding of the deprivations and its distribution can help the government to develop mid as well as long-term policy solutions to address the challenges and for better planning. Periodic measurements of MPI can help in monitoring the effectiveness of policies over time by mapping the trends.

What is Multidimensional Poverty Index?

With the increasing understanding that poverty is multidimensional and dynamic in nature, many have developed new measures and tools that comprehensively measure poverty to the strong demands of governments and international communities. The Oxford Poverty & Human Development Initiative (OPHI) and the United Nations Development Programme in 2010 came up with Multi-dimensional Poverty Index (MPI) which looks at poverty beyond income level and takes into account multiple deprivations of population. Typically, MPI identifies

multiple deprivations at the household and individual level in health, education and standard of living. But, unlike in the inequality-adjusted Human Development Index (HDI), all the indicators needed to construct the measure must come from the same survey. Each person in a given household is classified as poor or non-poor depending on the weighted number of deprivations his or her household, and thus, he or she experiences. These data are then aggregated into the national or state measure of poverty. The MPI reflects both the incidence of multidimensional deprivation (a headcount of those in multidimensional poverty) and its intensity (the average deprivation score experienced by poor people). It can be used to create a comprehensive picture of people living in poverty. The MPI offers a valuable complement to income-based poverty measures. Here, we use the Alkire and Foster (AF) methodology for calculating MPI which is discussed in detail at *appendix A*.

Dimensions and Indicators

Four dimensions were selected to estimate multidimensional poverty index in urban Maharashtra. The dimensions covered were education, health, standard of living and housing condition. To contextualise for urban Maharashtra thirteen indicators were used for this measure, instead of the usual ten indicators employed for the global measure. Within these 13 indicators, two indicators were under the dimension of education (years of schooling and child school attendance), three under health (nutrition, premature mortality and insurance) and five under standard of living (electricity, drinking water, sanitation, cooking fuel and assets) and three under housing condition (rented house, residential crowding and inadequate housing). Equal weights (0.25) were given to each dimension and equal weights given to each indicator within the dimension as given in Figure 3.1. A detailed description of the indicators and their mean and standard deviations are given at appendix B. A person was defined as multidimensional poor if he/she is poor in 26 percent of the weighted deprivation score. Similarly, a person was defined severely multidimensional poor if he/she were deprived in 40 percent of the indicators.

Figure 3.1: Dimensions, Indicators and Weights (in parenthesis) Used in Computing Urban MPI

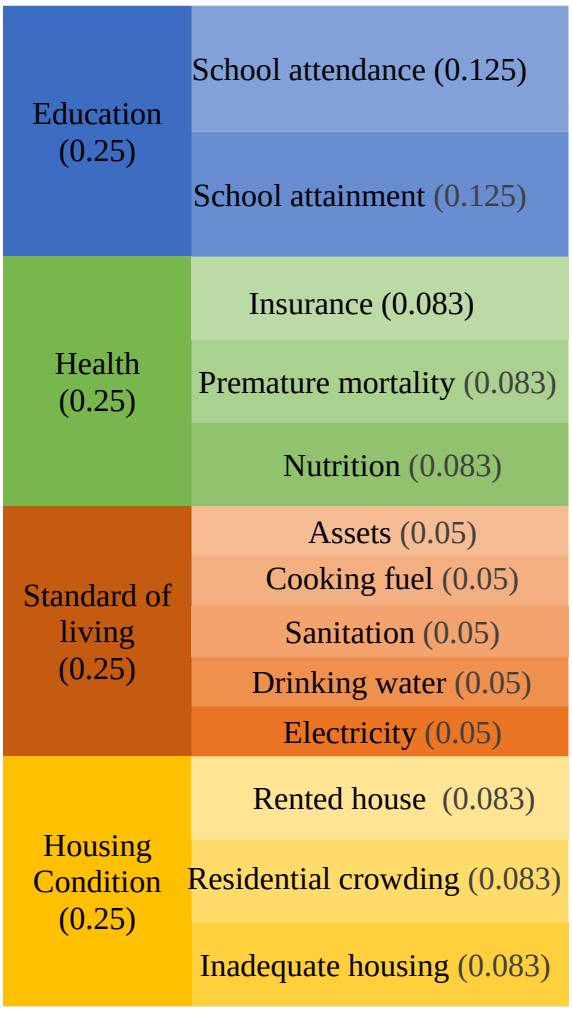
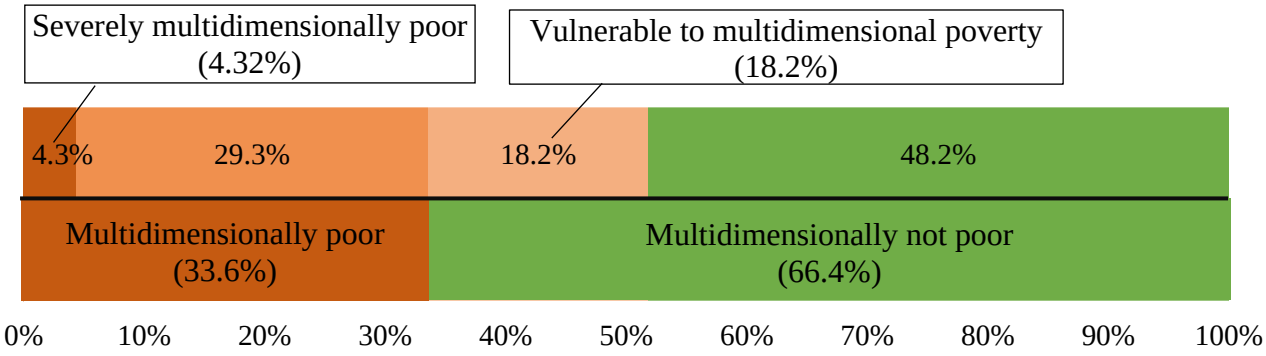


Figure 3.2: Distribution of Urban Population by Mutidimensional Poverty in Maharashtra, 2015-16

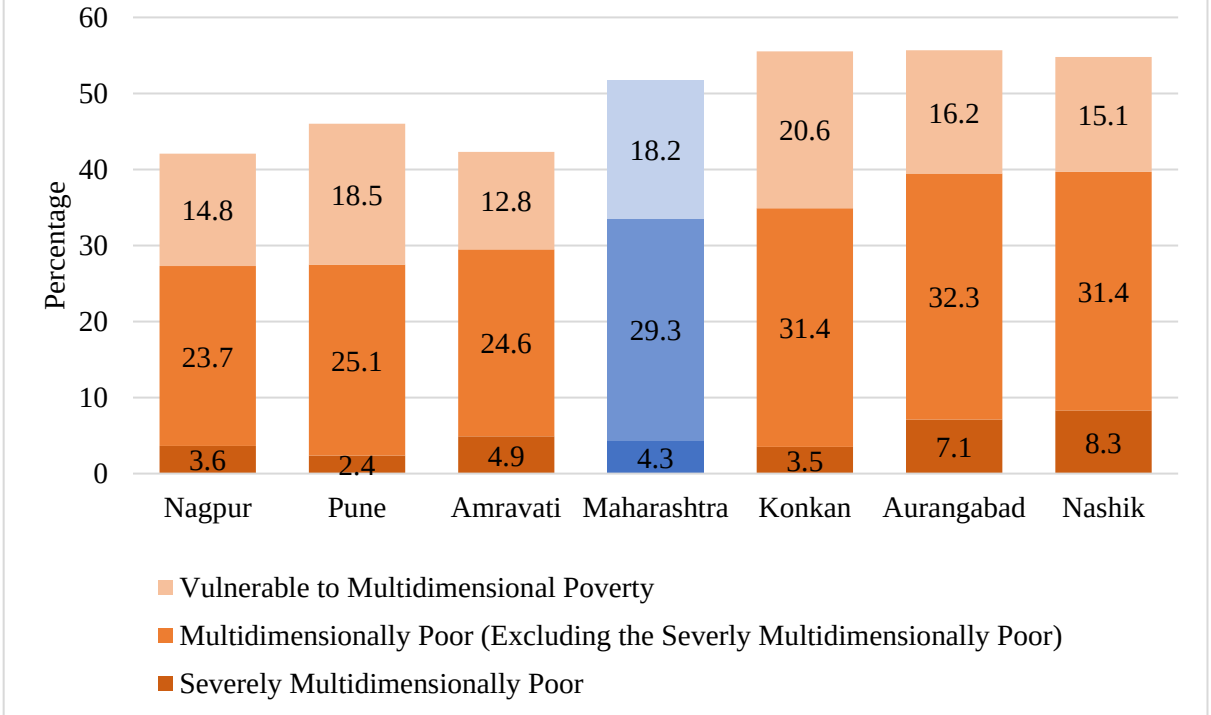


Results

Figure 3.2 shows the distribution of population by multidimensionally poverty in urban Maharashtra in 2015-16. The multidimensional poverty (H) in urban Maharashtra was estimated at 33.6 percent with an average intensity of poverty (A) of 38.7 percent. The MPI was estimated at 0.130 for urban Maharashtra. While 33.6 percent of the urban population were multidimensionally poor, 4.3 percent were severely multidimensionally poor. Though 66.4 percent were multidimensionally not poor, 18.2 percent of the urban population were vulnerable to multidimensional poverty.

Distribution of urban multidimensional poverty by regions shows that Nashik, Aurangabad and Konkan regions had higher multidimensional poverty than the state

Figure 3.3: Distribution of Multidimensionally Poor in Urban Maharashtra by Divisions, 2015-16



severely multidimensional poor were very high in Nashik (8.3%) and Aurangabad (7.1%) regions as compared to other regions.

Table 3.1 shows that not only multidimensional poverty was higher in Aurangabad and Nashik regions but also the intensity of multidimensional poverty was higher. Consequently, Nashik and Aurangabad divisions have the highest MPI values in the state. Though the MPI values are higher than the state average in Konkan region the intensity of poverty is relatively lower as compared to other regions of the state.

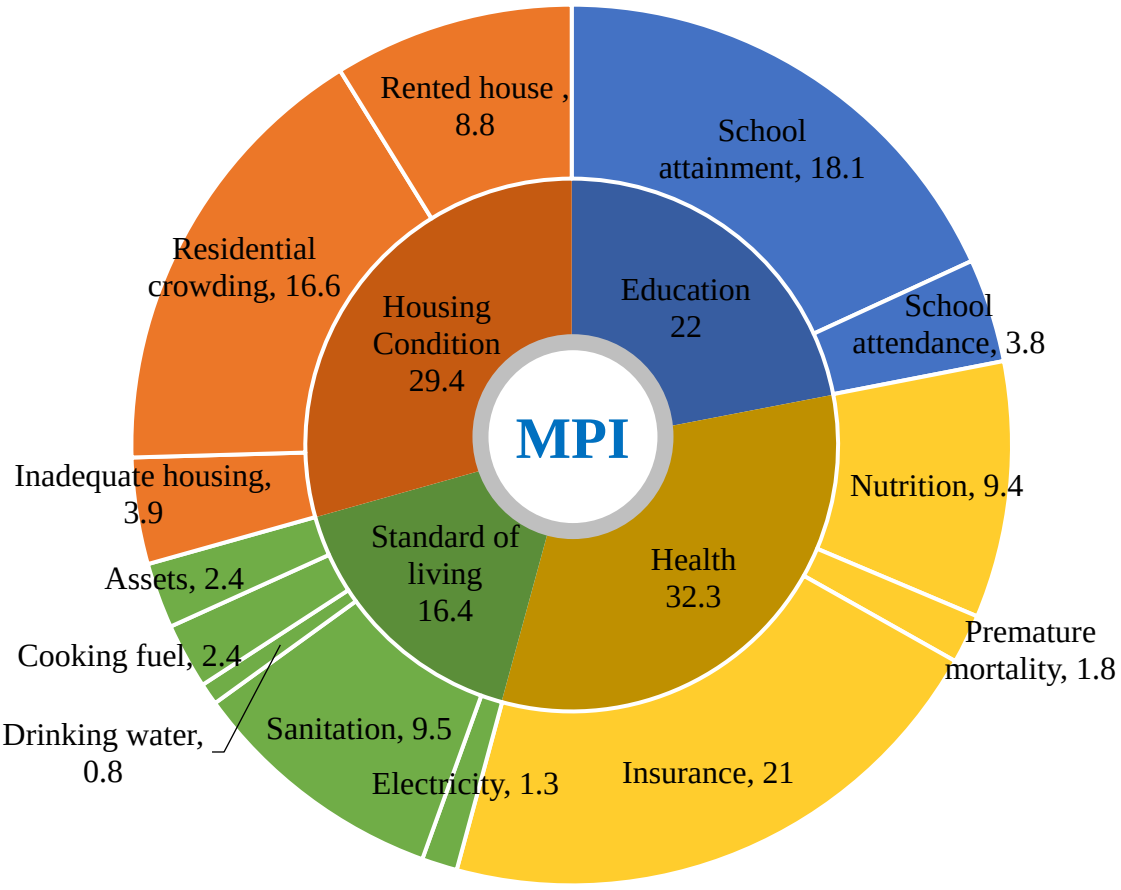
Figure 3.5 explains the contribution of dimensions and indicators to urban MPI in Maharashtra. Overall, health dimension

Table 3.1: Intensity of Poverty and MPI in the Divisions of Urban Maharashtra

Divisions	Intensity of Poverty (A)	MPI (M_0= H*A)
Nashik	0.424	0.168
Aurangabad	0.404	0.160
Amravati	0.401	0.118
Nagpur	0.382	0.104
Konkan	0.376	0.131
Pune	0.369	0.101
Maharashtra	**0.387**	**0.130**

(32.3%) accounted for around one third of the multidimensional poverty in urban Maharashtra, followed by housing conditions (29.4%), education (22.0%), and standard of living (16.4%). Among the thirteen indicators considered, the largest contributor to multidimensional poverty

Figure 3.5: Percentage Contribution of Dimensions and Indicators to Multidimenional Poverty in Urban Maharashtra, 2015-16



was health Insurance (21.0%) followed by years of schooling (18.1%), and residential crowding (16.6%). Other major contributors were indicators related rented house, sanitation and nutrition.

Percentage contribution by different dimensions to MPI by divisions also shows that health dimension was the biggest contributor to multidimensional poverty in urban Maharashtra. Figure 3.6 shows the contribution of different dimensions to urban MPI by divisions. Though health dimension was the major contributor to urban MPI across all the divisions, in Nagpur division the contribution by health dimension is more than one-third. Contribution of education dimension in Nashik division was higher than all other divisions. Contribution of housing condition dimension was high in Konkan, Nashik and Pune, this could be attributed to the high slum population living in poor housing conditions in these divisions.

Figure 3.7 shows the headcount ratio of the population living in multidimensional poverty. The (censored) headcount ratio is the percentage of population who are deprived in that particular indicator and are also multidimensionally poor. Around one-third of the multidimensionally poor population were not covered by any health insurance. It was found that 26 percent of the population had no room or only one room for four or more persons. In urban areas, access to improved source of drinking water was not a major issue among the multidimensionally poor but access to improved sanitation was a major issue. It was also observed that 24.5 percent of the multidimensional poor population did not have access to improved sanitation.

Figure 3.6: Percentage Contribution of Dimensions to Urban MPI by Divisions in Maharashtra, 2015-16

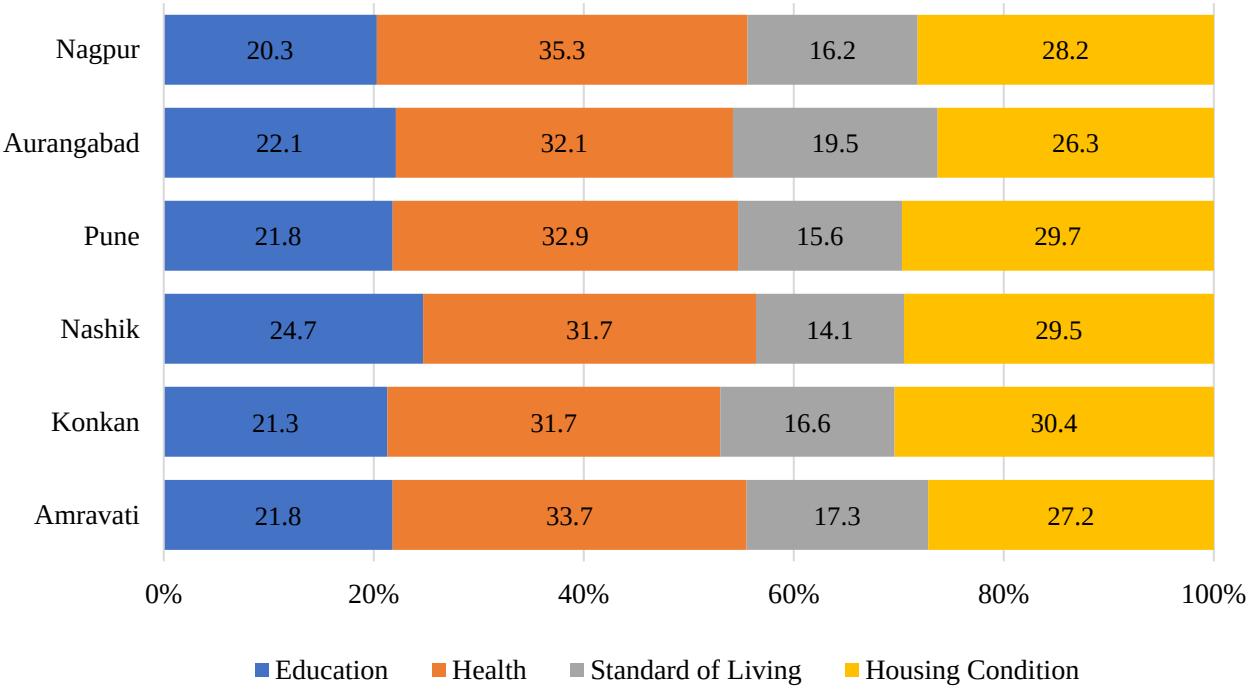
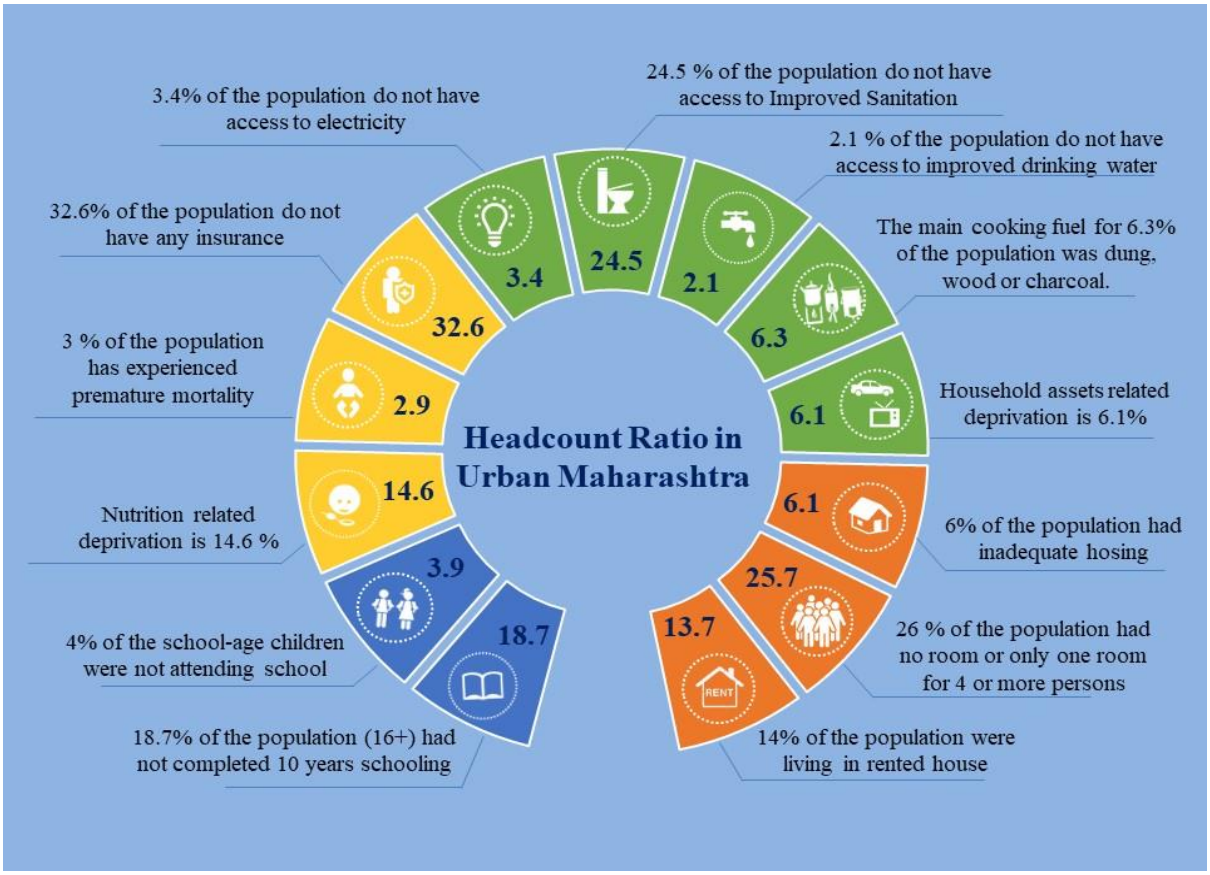


Figure 3.7: Percentage of Population by Headcount Ratio in Urban Maharashtra



Key Facts

- SDGs target 1.2 refers to reducing by half the proportion of population women, men and children living in multidimensional poverty.
- MPI can help in identifying the most vulnerable people and target resources and design policies for the benefit of them.
- One-third of the urban population in Maharashtra lives in multidimensional poverty.
- 4.3 percent of the urban population were severely multidimensionally poor and 18.2 percent were vulnerable to multidimensional poverty.
- Nashik and Aurangabad divisions have the highest multidimensional poverty in the state.
- Health dimension (32.3%) was the biggest contributor to multidimensional poverty in urban Maharashtra.
- The largest contributor to MPI was health Insurance (21.0%) followed by years of schooling (18.1%), and residential crowding (16.6%).
- Around one-third of the urban population had no health insurance and one-fourth had no room or only one room for four or more persons.
- Access to improved sanitation was a major issue in urban Maharashtra.

CHAPTER 4

CONCLUSIONS AND WAY FORWARD

Conclusions

The share of urban population to total population has increased from 29 percent in 1951 to 45 percent in 2011. If current trends continue, urban population in Maharashtra will cross 71 million by 2036 (National Commission on Population, 2019). The rapid urbanisation along with COVID-19 pandemic has added unprecedented challenges for urban areas, including pressure on health care, education and social protection, and it has disproportionally affected the vulnerable groups especially the migrant population in the cities. Millions of people living in informal settlements or slums had to stay at home as a preventive measure. These people lacked adequate housing, access to adequate and clean water and sanitation facilities and had no option for social distancing or self-isolation. Most of them work outside the formal sector with unstable incomes, minimal savings and no social protection, and have lost their livelihoods as cities have shut down. There have been many instances of internal migrants being stranded in cities. The COVID-19 pandemic has highlighted the important role of local governments as the provider of services closest to people. Urban policy decisions have extraordinarily far-reaching impacts in poverty alleviation and reduction of inequalities, and in ensuring access to energy, transportation, waste management, food supply, water and sanitation, education, health care and others, not just for urban populations but also for the surrounding peri-urban areas. The recovery phase from the pandemic will represent an opportunity for all levels of government to build back more inclusive, equal, resilient and sustainable societies, as laid out in the 2030 Agenda.

Way forward

While mitigation of COVID-19 pandemic has become an urgent focus in many cities and regions, response plans should consider how actions can have a positive multiplier effect for all dimensions of urban resilience, including improving health, providing quality education, increasing accessibility for basic services and reducing vulnerabilities especially in informal settlements and slums. Economic aid packages should be aimed at increasing productivity and economic growth, reduce urban inequalities, diversify economies and incentivize sustainable solutions. Investments in health care should leave no one behind and reduce all types of inequalities.

Appropriate indicators and disaggregated data are essential to improve evidence-based decision-making at all levels. While there is a growing recognition that data from all levels should be integrated to build a database that could serve all departments and sectors to make evidence-based decision, this is a challenging task before the government. State should involve urban local governments in the policy-making process while addressing these challenges.

REFERENCES

Bhagat R.B., (2019). Nature of urbanisation in Maharashtra: challenges and policy issues. In: Paper presented in the TAC workshop on multi-dimensional poverty in urban Maharashtra, 11 June, 2019. International Institute for Population Sciences, Mumbai. https://doi.org/10.13140/RG.2.2.27040.12802. Available at https://www.researchgate.net/publication/339512719_Nature_of_Urbanisation_in_Maharashtra_Challenges_and_Policy_Issues.

International Institute for Population Sciences and ICF, (2017). National Family Health Survey 4: India Report. Ministry of Health and Family Welfare, Government of India, New Delhi, India

National Commission on Population. (2019). Population Projections for India and States 2011 - 2036. New Delhi: Ministry of Health and Family Welfare.

NSSO. Periodic Labour Survey (PLFS). Annual Report 2018-19. New Delhi: Ministry of Statistics and Programme Implementation, Government of India: 2020.

NSSO. Periodic Labour Survey (PLFS), Quarterly Bulletin Jan - Mar 2020. New Delhi: Ministry of Statistics and Programme Implementation, Government of India: 2020.

NSSO. "Drinking Water, Sanitation, Hygiene and Housing Condition in India". Report No 584 (76/1.2/1). New Delhi: Ministry of Statistics and Programme Implementation, Government of India: 2019.

Office of the Registrar General and Census Commissioner. (2011). Census of India - 2011. New Delhi: Ministry of Home Affairs, Government of India.

Planning Commission. (2014). Press Note on Poverty Estimates. New Delhi: Government of India.

Sethi V, Lahiri A, Bhanot A, Kumar A, Chopra M, Mishra R, Alambusha R, Agrawal P, Johnston R and de Wagt A. Adolescents, Diets and Nutrition: Growing well in a Changing World, The Comprehensive National Nutrition Survey, Thematic Reports, Issue 1, 2019.

UN Conference on Housing and Sustainable Urban Development. (2017). New Urban Agenda.

UN General Assembly. (2015). Transforming our world: the 2030 Agenda for Sustainable Development.

United Nations. (2018). Revision of World Urbanization Prospects: United Nations Department of Economic and Social Affairs.

WHO. (2018). WHO Housing and Health Guidlines. Switzerland.

WHO. (2020). Hand Hygiene Day “Nurses and midwives, clean care is in your hands!”. Retrieved 14th July, 2020, from https://www.who.int/news-room/events/detail/2020/05/05/default-calendar/hand-hygiene-day

APPENDIX A

Data and Methods for MPI

Data

The MPI in this report has been calculated using unit level data from the fourth round of National Family Health Survey (NFHS-4). NFHS-4 is a nation-wide cross-sectional demographic health survey conducted periodically under the stewardship of Ministry of Health and Family Welfare, Government of India. Information from 10,983 women in the reproductive age group (15-49), and 1,769 men in the age group (15-54) has been analysed. NFHS-4 survey provides comprehensive information on housing characteristics (floor, roof wall material, sanitation, cocking fuel, assets, etc.), education of household member, births history of women, deaths, family planning, health and nutrition information of women, child and men etc. In estimation of multidimensional poverty, we have used household information, child information and selected indicators of biomarkers.

Methods

Multidimensional poverty for urban Maharashtra has been estimated by using Alkire and Foster (AF) methodology. The AF methodology uses dual cut off points in which it first identifies poor in each weighted indicator and then aggregated poor in different dimensions. Global multidimensional poverty indices are computed based on three dimensions (education, health and standard of living). The AF method is used that assign equal weights to each dimension and within the dimension, equal weights given to each indicator. Three type of estimates such as poverty head count ratio, intensity of poverty and the multidimensional poverty index are estimated. These are defined as below;

1. *Head count Ratio (H):* It is the proportion of multidimensional poor to the total population and defined as

$$H = \frac{q}{n}$$

Where q is the number of people who are multidimensional poor and n is the total population.

2. *Intensity of poverty (A):* It is average weighted count of deprivation experienced by the multidimensional poor and calculated as

$$A = \frac{\sum_1^q c}{q}$$

Where c is the deprivation score that poor experienced.

3. *Multidimensional poverty Index (MPI):* MPI is the product of both head count ratio and intensity of poverty. MPI computed as

$$MPI = H * A$$

Where H is the head count ratio an A is the Intensity of poverty.

The contribution of particular indicator to overall poverty will be computed as:

$$Contribution\ of\ indicator\ i\ to\ MPI = \frac{w_i CH_i}{MPI_{state}} * 100$$

Where, w_i is the weight of i^{th} indicator and CH_i is the censored head count ratio of i^{th} indicator.

Four dimensions and thirteen indicators are used to estimate multidimensional poverty index in urban Maharashtra. The dimensions covered are education, health, standard of living and housing condition. Education dimension used two indicators, health dimension covered three indicators, standard of living covered five indicators and housing condition covered three indicators. Equal weights (0.25) were given to each four dimension and equal weights given to each indicator within the dimension (a detail description of dimension, indicators and weights assigned are given in Table 5.1). A person was defined as multidimensional poor if he/she is poor in 26% of the weighted deprivation score. Similarly, a person was defined severely multidimensional poor if he/she were deprived in 40 % of the indicators.

****

APPENDIX B

Dimensions and Indicators for Urban MPI

Dimension	Indicators and deprivation cut off	Weight	Mean	SD
Education	1. **School attainment:** No household member (aged 16+) has completed at least ten years of schooling.	0.125	0.23	0.42
	2. School attendance: a school-age child (up to grade 10) is not attending school (6-16).	0.125	0.05	0.22
Health	**3. Nutrition**: a household member (for whom there is nutrition information) is malnourished, as measured by the body mass index for adults and by the height-for-age z-score calculated based on World Health Organization standards for children under age 5	0.083	0.26	0.44
	4. Premature mortality: A household member less than 70 years of age has died in the household within the two years prior to the survey.	0.083	0.05	0.21
	5. Any household member is covered by any household scheme or insurance	0.083	0.84	0.37
Standard of living	**6. Electricity:** not having access to electricity.	0.05	0.04	0.20
	7. Drinking water: not having access to clean drinking water or having access to clean drinking water through a source that is located 30 minutes away or more by walking.	0.05	0.03	0.18
	8. Sanitation: not having access to improved sanitation facilities or having access only to shared improved sanitation facilities.	0.05	0.40	0.49
	9. Cooking fuel: using "dirty" cooking fuel (dung, wood or charcoal).	0.05	0.07	0.26
	10. Assets: The household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike, or refrigerator, and does not own a car or truck.	0.05	0.07	0.25
Housing Condition	**11.** The household has inadequate housing: the floor is made of natural materials or the roof or walls are made of rudimentary materials.	0.083	0.07	0.26
	12. Living in a house without any room or 4 or more person living in the room	0.083	0.46	0.50
	13. living in a rented house without air-conditioner or car	0.083	0.20	0.40

APPENDIX C

Publications

1. Mohanty, S. K., Nair, A., Deshmukh, D., Bhagat, R. B., Dwivedi, L. K., Jose, J., Chandrasekhar, R. (2020). Community and household Well-being in the Municipal Corporations of Maharashtra. *Research Brief. Number 1*, March. International Institute for Population Sciences, Mumbai.

2. Mohanty, S. K., Kundan, I. A., Nair, A., Deshmukh, D., Bhagat, R. B., Dwivedi, L. K., Mishra, R., Jose, J., Sen, S., Chandrasekhar, R. (2020). Community and Household Well-being in the Municipal Corporations of Maharashtra. *Urban India*. 20(1). January- June 2020. ISSN-0970-9045.

3. Mohanty, S. K., Bhagat, R. B., Sharma, S. K., Nair, A., Mishra, R. (2021). Development disparities across urban localities of Maharashtra: a multilevel analysis. *SN Social Sciences*. DOI :10.1007/s43545-021-00182-x.

4. Vasishtha, G., Mohanty, S. K. (2021). Spatial Pattern of Multidimensional and Consumption Poverty in Districts of India. *Spatial Demography*. DOI: 10.1007/s40980-021-00089-4

5. Mohanty, S. K., & Vasishtha, G. Contextualizing multidimensional poverty in urban India. *Poverty & Public Policy.* https://doi.org/10.1002/pop4.314

APPENDIX D

List of Staff

1. **Raman Mishra**
2. **Soumendu Sen**
3. **Santosh Sharma**
4. **Amol V. Dadas**
5. **Anshul Kastor**
6. **Sumita Bohra**