

# Multidimensional Poverty Analysis in Coastal Region of Sindh Province, Pakistan; a Case Study of Thatta and Badin District

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## Research Article

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# Abstract

Multidimensional measures provide an alternative lens through which poverty may be viewed and understood deeply. It is argued that monetary variables (such as income or expenditure) are unable to truly evaluate human well-being (Idrees and Baig, 2017). It is an emerging phenomenon in the South Asian countries where 49% of people are multidimensional poor. The dimension wise breakdown shows the cooking fuel, flooring, nutrition, electricity, child mortality and schooling have major contributors among overall multidimensional poverty (Dhruba *et al.*, 2015). Across 107 developing countries, 1.3 billion people are suffering from acute income poverty with a certain disparity in magnitude. While the dilemma of poverty has become a leading challenge in the history of the developing world, due to its extensive impact on the developmental process (UNDP, 2020). Analysis of Multidimensional poverty in the coastal region of Sindh; Thatta and Badin. To identify the impact of multidimensional poverty on socioeconomics conditions in the coastal region. To analyze the Multidimensional poverty in districts Thatta and Badin and examine the key factor influencing the multidimensional poverty in the study area. Primary data was collected to achieve targets and meet the objectives of the study. A random sampling technique used for the data collection procedure, total sample size of the respondents was 100. Data entered and arranged in a coding system, analyzed through SPSS software and MS Office. The Alkire and Foster method was used for the poverty analysis. We observed that Badin is more derivate as compare to the district Thatta in almost all indicator set by OPHI. Basic facilities needed for improvement through public private partnerships, daily earning source should be increase, and water availability should be improved specially in tail area of Badin district.

# Introduction

Poverty is a complex phenomenon that is characterized by uni-dimensional and multidimensional poverty. Therefore, the Uni-dimensional measurement of poverty is not possible and there is a need of multidimensional poverty approach in order to measure the deprivation among individuals in real sense (Unjum *et al.*, 2021). Multidimensional measures provide an alternative lens through which poverty may be viewed and understood deeply. It is argued that monetary variables (such as income or expenditure) are unable to truly evaluate human well-being (Idrees and Baig, 2017). It is an emerging phenomenon in the South Asian countries where 49% of people are multidimensional poor. The dimension wise breakdown shows the cooking fuel, flooring, nutrition, electricity, child mortality and schooling have major contributors among overall multidimensional poverty (Dhruba *et al.*, 2015). Across 107 developing countries, 1.3 billion people are suffering from acute income poverty with a certain disparity in magnitude. While the dilemma of poverty has become a leading challenge in the history of the developing world, due to its extensive impact on the developmental process (UNDP, 2020). According to most economists poverty is a multidimensional phenomenon, yet in practice for poverty assessment, the majority of the researchers use the uni-dimensional index to analyze an individual's wellbeing by per capita income or usually expenditures (Duclos *et al.*, 2006). But poverty has a variety of signs, like shortage of income and lack of productive resources which should be sufficient for ill health, livelihoods,

hunger, malnutrition, and lack of access to educational facilities (Ahmed and Khan, 2020), and mortality from illnesses, social judgment, insufficient shelters, and insecure environment. According to World Bank Report 2021, the global extreme poverty rose in 2020 for the first time in over 20 years as the disruption of the COVID-19 pandemic compounded the forces of conflict and climate change, which were already slowing poverty reduction progress. About 100 million additional people are living in poverty as a result of the pandemic. In Pakistan, rural areas there is relatively high poverty concentration among non-farming rural households, more reduction in poverty among farming households and the largest contribution to overall rural poverty can be distinguished by major cropping zones using the Poverty Equivalent Growth Index (PEGR). The Multidimensional Poverty Index (MPI) evaluates poverty based on a household's deprivation in three basic dimensions—education, health, and living standards. These dimensions have ten indicators: two for health, two for education, and six for living standards. A person is identified as poor according to the MPI if the person is deprived in one-third or more of the ten weighted indicators. The first characteristic is that person is identified as poor depending upon the achievements of the entire household. The second is that MPI considers only the deprivations of the multidimensional poor. This process is called censoring since it ignores deprivations of people that do not reach the poverty cut-off, people who experience some deprivation but are not deprived in 1/3 of the weighted indicators (Ali et al., 2015).

Table 1  
The dimensions, indicators, deprivation cutoffs and weights of the MPI

Dimensions	Indicators	Descriptions: (all indicators equally weighted)	Weight
Health	Child Mortality	A child died in the family	1/6
	Nutrition	Any family members are malnourished	1/6
Education	Year of schooling	Anyone from the family who has not been completed the primary education	1/6
	Child Enrolment	Between the 1 to 8 years child out of school	1/6
Living Standard	Electricity	No electricity is short	1/18
	Drinking-Water	Does not anyone household access to clean drinking water according to the MDG	1/18
	Sanitation/ Toilet Facility	The sanitation facility has been improved according to the MDG	1/18
	Flooring	Dirt or Katcha / sand or dung is poor	1/18
	Roofing	No roof/ palm /leaf/ Bamboo/ Kane are poor	1/18
	Cooking Fuel	Straw / shrubs/ grass/ animal dung/ agricultural crop	1/18
	Assets	If don't own more than one radio, television, telephone, bicycle, motorbike, and animal-drawn cart	1/18
Source: Alkire, Conconi and Seth MPI 2014 Methodological			

### Statement of Purpose

Multidimensional poverty has captured the attention of researchers and policymakers. The key direction for research has been the development of a coherent framework for measuring poverty in the multidimensional environment that is analogous to the set of techniques developed in uni-dimensional space. Recent efforts have identified several classes of multidimensional poverty measures discussed their properties and raised important issues for future work. However, has two significant challenges that discourage the empirical use of these conceptually attractive measures, first, the measurement methods are largely dependent on the assumption that variables are cardinal, when, in fact, many dimensions of interest are ordinal or categorical. The second method for identifying the poor remains understudied: most presentations either leave identification unspecified or select criteria that seem reasonable over two dimensions, these challenges are especially pertinent given that many countries are actively seeking multidimensional poverty measures to supplement or replace official income poverty measures.

### Research objectives:

- i. Analysis of Multidimensional poverty in the coastal region of Sindh; Thatta and Badin

### **Sub-objective:**

- i. To identify the impact of multidimensional poverty on socioeconomics conditions in the coastal region.
- ii. To analyze the Multidimensional poverty in districts Thatta and Badin.
- iii. To examine the key factor influencing the multidimensional poverty in the study area.

### **Theoretical framework:**

The multidimensional poverty analyses the impact of various dimensions over socioeconomic conditions of the people of coastal region of Sindh province. This paper addresses some exceptional understandings of poverty within key theoretical paradigms in order to contextualize the research findings. The paper, as a whole, is framed and structured by three key focus areas, which highlights the significance of multidimensional poverty. Concerning the theoretical framework, the research focuses on health, education and living standard of coastal region of Sindh province; Thatta and Badin. These three dimensions have ten indicators: two for health, two for education, and six for living standards. The conceptual framework presented in Figure 1.1 shows that how the multidimensional poverty influence over the socioeconomic conditions. For instance, it starts from multidimensional poverty. The next step involves the key factor influencing the multidimensional poverty. Based on the factor influencing, this paper analysis the impact of multidimensional poverty over coastal region in Sindh province. A person is identified as poor according to the MPI if the person is deprived in one-third or more of the ten weighted indicators. The first characteristic is that person is identified as poor depending upon the achievements of the entire household. The second is that MPI considers only the deprivations of the multidimensional poor. This process is called censoring since it ignores deprivations of people that do not reach the poverty cut-off, people who experience some deprivation but are not deprived in 1/3 of the weighted indicators (Ali et al., 2015). Increase in income has little impact on the increase in the standard of living of the people due to the presence of multidimensional deprivations. Therefore from this view point Uni-dimensional measurement of poverty is not possible and there arises a need for multidimensional poverty approach in order to measure the deprivation among individuals in real sense.

## **Methodology**

This study is aimed to explore Multidimensional poverty analysis in the coastal region of Sindh Province, with a focus on coastal districts Thatta and Badin. Primary data was collected to achieve targets and meet the objectives of the study. A random sampling technique used for the data collection procedure and through the random sampling technique we will find maximum aspects and real issues related to poverty. The total sample size of the respondents will be 100 and data collected from distending districts of Sindh provinces. The selected respondent interviewed through a well-designed questionnaire. Data entered and arranged in a coding system, analyzed through SPSS software and MS Office. The Alkire and Foster method was used for the poverty analysis.

## Results And Discussion

Table 2  
Age and education of the respondents

Badin			Thatta	
Age	No: of respondent	%	No: of respondent	%
<b>Age in years</b>				
1 to 20	1.0	2.0	4.0	8.0
21 to 40	30.0	60.0	30.0	60.0
41 and above	19.0	38.0	16.0	32.0
<b>Overall</b>	<b>50.0</b>	<b>100.0</b>	<b>50.0</b>	<b>100.0</b>
<b>Education in years</b>				
Illiterate	31.0	62.0	18.0	36.0
Primary	1.0	2.0	15.0	30.0
Middle	1.0	2.0	1.0	2.0
Matric	5.0	10.0	5.0	10.0
College	4.0	8.0	4.0	8.0
Bachelors	6.0	12.0	3.0	6.0
Masters	2.0	4.0	4.0	8.0
<b>Overall</b>	<b>50.0</b>	<b>100.0</b>	<b>50.0</b>	<b>100.0</b>

The data presented that the young generation in district Badin is 2 percent while in district Thatta is 8% and the middle aged respondent are equal in both district that is 60 percent. The old aged respondent are greater in Badin that is 38 percent while 32 percent in district Thatta.

According to Chen and Leu (2020) the data depicted that most people may suffers from multidimensional poverty in old age. Social security and social participation plays a crucial role in contributing to overall poverty. The data presented illiteracy ratio in Badin is at peak about 62 percent, which is greater than Thatta (36 percent) district. The data of Badin district shows that the 62 percent of the head of households was illiterate and 2 percent who got primary education, the middle education 2 percent of the respondents and metric education were 10 percent in our study area, the 8 percent of respondents have got twelve year education or college, only 12 percent respondent are graduate and 4 percent was post graduate. The Thatta district shows that the 36 percent of the head of households was illiterate and 30 percent who got primary education, the middle education 2 percent of the respondents

and metric education were 10 percent in our study area, the 8 percent of respondents have got twelve year education or college, only 6 percent respondent are graduate and 8 percent was post graduate, we have observed that primary school was out of reach and student was facing so many difficulties to reach there.

Table 2  
Family system of respondent

Badin			Thatta	
Family system	No: of respondent	%	No: of respondent	%
Joint	33.0	66.0	27.0	54.0
Self	17.0	34.0	23.0	46.0

(Table. 2) The data of Badin district shows the family system of respondent was spread in two categories, one was joint and another was self-family system, hence the joint family system were 66 percent and self-family system was 34 percent in our study area in Badin. Thatta district shows one was joint and another was self-family system, hence the joint family system were 54 percent and self-family system was 46 percent in our study area in Thatta.

Table 3  
Diseases of respondent

Badin			Thatta	
Diseases	No: of respondent	%	No: of respondent	%
Polio	2.0	4.0	3.0	6.0
Tuberculosis (T, B)	1.0	2.0	2.0	4.0
hepatitis B	1.0	2.0	4.0	8.0
hepatitis C	1.0	2.0	2.0	4.0
Sugar	2.0	4.0	1.0	2.0
Other	30.0	6.0	3.0	50.0
None	10.0	80.0	35.0	20.0

(Table. 3) The Badin district shows the respondents was suffering from such types of diseases, in our study area the Polio were 4 percent, tuberculosis (T, B) were 2 percent, hepatitis B were 2 percent, the hepatitis C was also 2 percent and the most dangerous full disease sugar were 4 percent, other diseases were 30 percent and 10 percent respondents was disease less. The Thatta district shows the respondents were suffering from such types of diseases, in our study area the Polio were 6 percent, tuberculosis (T, B)

were 4 percent, hepatitis B were 8 percent, the hepatitis C was also 4 percent and the most dangerous full disease sugar were 2 percent, other diseases were 50 percent and 20 percent respondents was disease less.

Table 4  
Health and education facility in study area

Particulars	Badin		Thatta	
	No: of respondent	%	No: of respondent	%
<b>Health</b>				
Yes	22.0	44.0	34.0	68.0
No	28.0	56.0	16.0	32.0
<b>Education</b>				
Yes	33.0	66.0	42.0	84.0
No	17.0	34.0	8.0	16.0

(Table. 4) Badin district shows that 44 percent respondents had health facility, 56 percent respondents have no availability of health facility in their area and 66 percent respondents had school facility in their villages but Alas! 34 percent respondents have no school facility. Thatta district shows that 68 percent respondents had health facility, 32 percent respondents have no availability of health facility in their area and 84 percent respondents had school facility in their villages but Alas! 16 percent respondents have no school facility.

Table 5  
Living standard of study area

Particulars	Badin		Thatta	
	No: of respondent	%	No: of respondent	%
<b>House roofs</b>				
RCC	1.0	2.0	6.0	12.0
Bamboo	14.0	28.0	18.0	36.0
grader/ T iron	11.0	22.0	24.0	48.0
wood roof	24.0	48.0	2.0	4.0
<b>Lighting</b>				
Candle	4.0	8.0	2.0	4.0
Electricity	21.0	42.0	46.0	92.0
Firewood	2.0	4.0	0.0	0.0
None	23.0	46.0	2.0	4.0
<b>Sanitation</b>				
flush latrine	5.0	10.0	11.0	22.0
pit latrine with slab	7.0	14.0	2.0	4.0
squat toilet or sitting toilet	8.0	16.0	27.0	54.0
no facilities or bush or field	30.0	60.0	10.0	20.0
<b>Cooking fuel</b>				
agriculture crop/animal dung	46.0	92.0	31.0	62.0
Sui gas	2.0	4.0	18.0	36.0
wood	2.0	4.0	1.0	2.0
<b>Drinking water</b>				
filtration plant	1.0	2.0	4.0	8.0
hand pump	40.0	80.0	30.0	60.0
Stream	2.0	4.0	3.0	6.0
Pond	1.0	2.0	4.0	8.0
supply water	6.0	12.0	9.0	18.0

(Table. 5) The Badin district data the living standard of respondent, 48 percent respondents had wooden type of roof in their house, 22 percent had guarder T iron roof, 28 percent was living in (KACHA) house, and 2 percent was living under the RCC roof. Now I am defining lighting facility in my study area, 42 percent respondent had electricity, 8 percent had candle source of light, 4 percent respondent had fire wood source of light, and 46 percent of the respondents are bereft from electricity facility in this modern era, now I am defining about sanitation facility, 10 percent had flush latrine, 14 percent had pit latrine, 16 percent had squat toilet or sitting toilet and 60 percent had no sanitation facility in their houses, only 4 percent respondent had sui gas facility, 92 percent had no facility of sui gas they are using agriculture crops and animal dung for cooking fuel. Now I am telling you about drinking water sources 2 percent people was taking pond water, 2 percent people had filter plant facility, 2 percent of the peoples was using stream water as source of drinking, 80 percent was using hand pump. The Thatta district data the living standard of respondent, 36 percent respondents had wooden type of roof in their house, 22 percent had guarder T iron roof, 48 percent was living in (KACHA) house, and 12 percent was living under the RCC roof. Now I am defining lighting facility in my study area, 48 percent respondent had electricity, 0 percent had candle source of light, 4 percent respondent had fire wood source of light, and 92 percent of the respondents are bereft from electricity facility, now I am defining about sanitation facility, 22 percent had flush latrine, 4 percent had pit latrine, 54 percent had squat toilet or sitting toilet and 16 percent had no sanitation facility in their houses, only 36 percent respondent had sui gas facility, 62 percent had no facility of sui gas they are using agriculture crops and animal dung for cooking fuel. Now I am telling you about drinking water sources 6 percent people was taking pond water, 8 percent people had filter plant facility, 8 percent of the peoples was using stream water as source of drinking, 60 percent was using hand pump.

Table 6  
Household farm assets

Particulars	Badin		Thatta	
	No: of respondent	%	No: of respondent	%
<b>Household</b>				
Bicycle	4.0	8.0	16.0	32.0
Motorcycle	13.0	26.0	19.0	38.0
car/ vehicle	3.0	6.0	5.0	10.0
mobiles (total in the family)	27.0	54.0	29.0	58.0
Television	14.0	28.0	26.0	52.0
washing machine	4.0	8.0	19.0	38.0
AC	2.0	4.0	4.0	8.0
air cooler	5.0	10.0	8.0	16.0
refrigerator/ freezer	9.0	18.0	17.0	34.0
<b>Farm assets</b>				
Tractor	2.0	4.0	5.0	10.0
Livestock	3.0	6.0	3.0	6.0
poultry farm	2.0	4.0	4.0	8.0
tube well	3.0	6.0	3.0	6.0
agriculture land	9.0	18.0	18.0	36.0

(Table. 6) The Badin district data shows the household and farm assets of the respondents, 8 percent had bicycle, 26 percent had motorcycle, only 6 percent had car vehicle, 54 percent respondents was using cell phone, 28 percent had television, 8 percent had washing machine, 4 percent had AC, 10 percent had air cooler and 18 percent respondent had refrigerator. The farm assets that 4 percent respondents had tractor, 6 percent respondents had livestock farm, 4 percent had poultry farm, 6 percent had tube well machine and 18 percent respondent had own agriculture land. The Thatta district data shows the household and farm assets of the respondents, 32 percent had bicycle, 26 percent had motorcycle, only 10 percent had car vehicle, 58 percent respondents was using cell phone, 52 percent had television, 38 percent had washing machine, 8 percent had AC, 16 percent had air cooler and 34 percent respondent had refrigerator. The farm assets that 10 percent respondents had tractor, 6 percent respondents had livestock farm, 8 percent had poultry farm, 6 percent had tube well machine and 36 percent respondent had own agriculture land.

Table 7  
Dimension & indicators of both districts

Indicators	Badin			Thatta		
	H	A	MPI	H	A	MPI
<b>Education</b>						
Year of schooling	0.38	0.35	0.098	0.64	0.62	0.3968
Child enrolment	0.42	0.54	0.2268	0.56	0.56	0.248
<b>Health</b>						
Child mortality	0.24	0.19	0.0456	0.19	0.16	0.0323
Nutrition	0.23	0.17	0.0391	0.17	0.15	0.0255
<b>Living standard</b>						
Drinking water	0.58	0.42	0.2436	0.52	0.42	0.27
Sanitation	0.26	0.43	0.1118	0.54	0.51	0.2754
Cooking fuel	0.18	0.33	0.0594	0.36	0.33	0.1188
Household structure	0.24	0.47	0.1128	0.52	0.47	0.1976
Electricity	0.38	0.31	0.1178	0.92	0.81	0.7452
Assets	0.18	0.21	0.0378	0.48	0.41	0.1968

## Conclusion

This study applies Alkire-Foster model (2007) approach for the measurement of multidimensional poverty analysis of costal area of Sindh province. Through this approach uses headcount measure which is adjusted by average deprivation suffered by poor, we observed that Badin is more derivate as compare to the Thatta district in almost all indicator set by OPHI. Living standard of both district is not sufficient need to improve their living standard.

### Policy recommendations

- Basic facilities needed be improvement through public private partnerships, daily earning source should be increase, and water availability should be improved specially in tail area of Badin district.

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## Figures

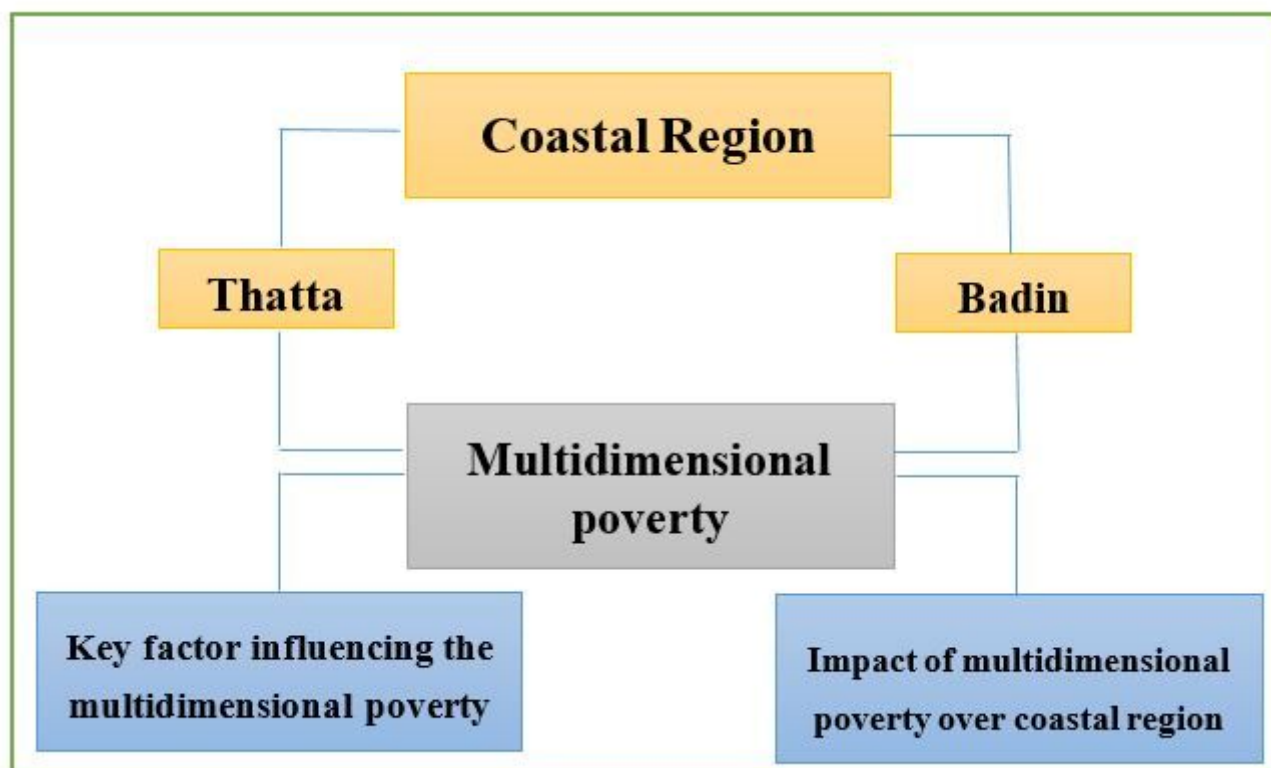
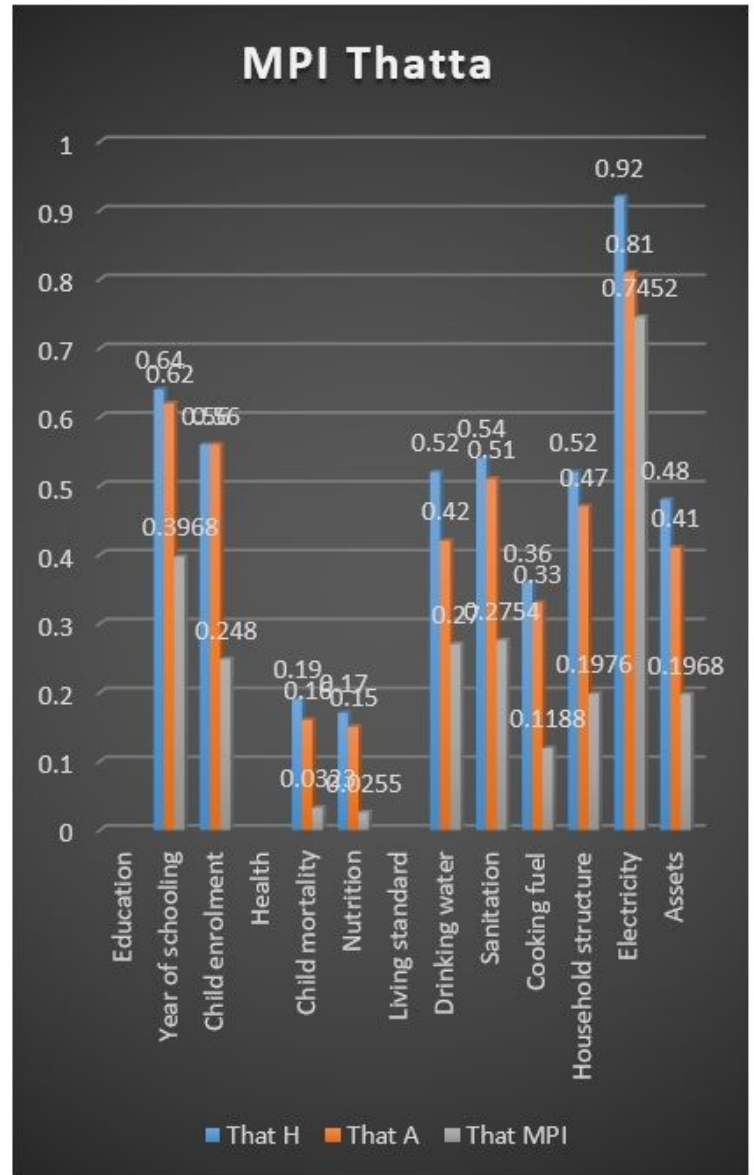
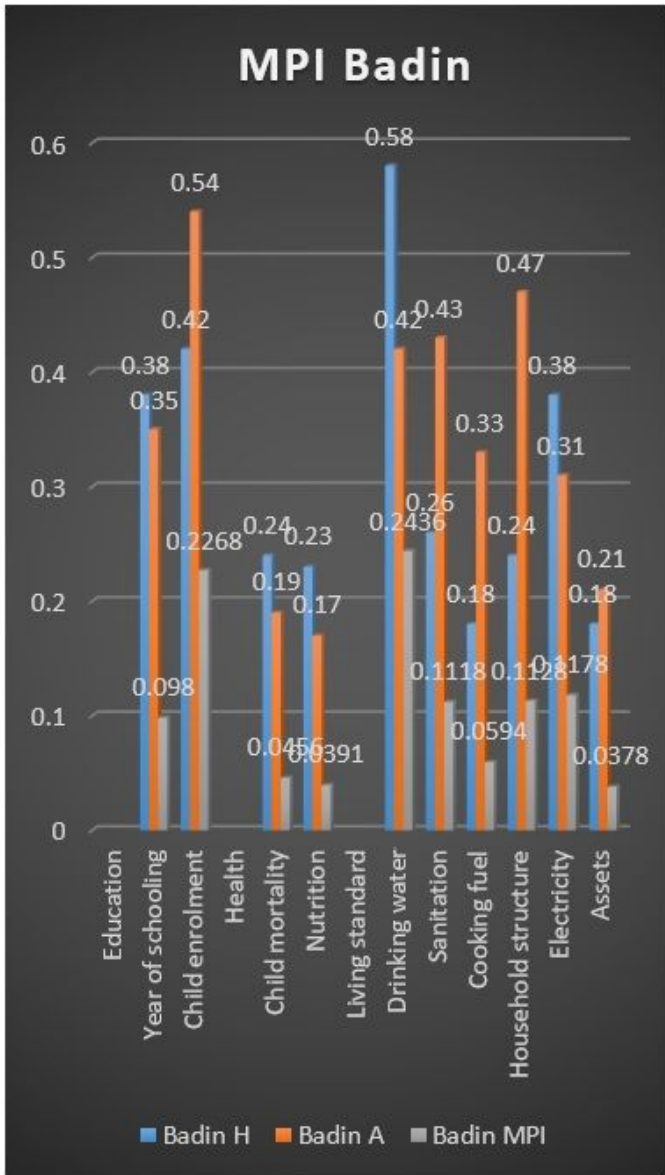


Figure 1

Legend not included with this version.



Source: primary data analyzed

Figure 2

Legend not included with this version.