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## MULTIDIMENSIONAL POVERTY INDEX OF THE DENOTIFIED PARDHI COMMUNITY IN SOLAPUR DISTRICT OF MAHARASHTRA

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**Abstract:** The tribal community has a very long history in all over the world. The Pardhi community in India is also one of the tribal community having its unique cultural aspects, social belief system and lifestyle. After the repealed of Criminal Tribes Act 1971 (CTA) into the series of Habitual Offenders Acts<sup>1</sup> 1952 and 1959, Pardhi community was tagged as the denotified tribal community. This is one of the socio-economically deprived segments of the society in Maharashtra in general and Solapur district in particular. The high incidence of poverty is one of the features of this community. No, doubt that government has taken keen efforts to uplift the conditions of the tribal community through several welfare schemes and policies after independence, but still the condition of this community is dismal. This community has very low access to livelihood sources. They are often migrating from one place to another in the search of work and settlement. Under this backdrop, the new approach towards the measuring poverty i.e. multidimensional poverty index has constructed based on 340 sample respondents interviewed from the eleven tehsils of Solapur district. Three main techniques are used to assess the extent of poverty in the Pardhi community of Solapur district. These techniques are adjusted head count ratio, adjusted poverty gap and adjusted squared poverty gap. These three measures jointly provide the value of multidimensional poverty index. Three major indices were taken into account i.e health, education and standard of living. The Alkire and Foster (AF) method has used to measure the multidimensional poverty index. The data collected from the questionnaire schedule was processed in excel and R software. It has found that the comparatively incidence of poverty among the Pardhi community is more in case of urban area than that of rural area. The economic condition of the community is very dismal and they have rare access to livelihood sources. It has suggested to the government to provide special attention and priority, to Pardhi community in the welfare schemes, for improvement in standard of living and breaking vicious circle of poverty.

**Index Terms** - Health, education, standard of living, adjusted head count ratio, adjusted poverty gap, adjusted squared poverty gap and multidimensional poverty index.

## I. INTRODUCTION

The Multidimensional Poverty Indices applies various indicators to compute the precise poverty extent in a given set of population, in which a large value indicates the higher incidence of poverty. By following Alkire and Foster poverty counting method, figure takes into account both the percentage of populace that is “deemed poor” and the “breadth” knowledge by these poor households. It has highly measures the deprivation of the people from the non monetary factors which contributes in improving standard of living. However, Alkire and Foster poverty counting method has neglected the monetary and consumption based poverty measure which is one of the major defects of this method. Although, there is a standard group of indices, dimensions and cutoffs also thresholds is being used for the Global Multidimensional Poverty Index (GMPI). It was first time developed by Oxford Poverty and Human Development Initiatives (OPHI) and United Nations Development Programme in 2010. It has mainly but not exclusively used for the developing nations. It has been used to measure the acute poverty across over 100 developing nations. It has replaced the human poverty index and it published annually by UNDP and OPHI on their official website. The main indices i.e health, education and standard of living are considered to determine the incidence and intensity of poverty. The three dimensions of the index cover 10 indicators and each dimension receives weight equal to 33 per cent. The health dimension covers 1. Child Mortality 2. Nutrition. The education dimension takes into account the indicator such as 3. Years of Schooling and 4. School Attendance. The remaining six indicators are related to the standard of living dimension i.e 5. Cooking Fuel 6. Sanitation 7. Drinking Water 8. Electricity 9. Housing and 10. Assets. Thus taken into account these three dimensions and ten indicators, the Multidimensional Poverty Index has computed for the denotified Pardhi community in the Solhapur district.

The Pardhi community of the Solapur district is being characterized as a poor segment of the society but it has not revealed to what extent this community is deprived from the mainstream of the economic development. It has attempted to find out the nature and extent of poverty in Pardhi community by applying MPI. The data related to these 10 indicators and three dimensions is collected from the 340 households across the 11 tehsils of Solhapur district. The study is mainly based on primary data and it has also attempted assess the disparities in the MPI in rural and urban area of Solapur district.

## II. REVIEW OF LITERATURE

Alkire, S. and Foster, J. (2009)<sup>2</sup> have significantly contributed in the construction of multidimensional poverty index. They ignored and criticized the poverty measurement mechanism which was based on per capita income. According to them per capita income does not provide true and precise picture of poverty. They developed their own method of measuring poverty famously known as Alkire and Foster (AF) poverty counting method. They provided the base for GMPI to the UNDP and OPHI. However, they neglected the monetary aspects of the poverty. Chakravarty, S.R. and Silber, J. (2008)<sup>3</sup> attempted to measure the extent of the poverty through the multidimensional poverty index. They try to focus on the various dimensions of the poverty targeting. They also assessed the efforts of the LDCs in the context of poverty eradication. Anand, S., and Sen, A.K. (1997)<sup>4</sup> in their research work on “Concepts of Human Development and Poverty: A Multidimensional Perspective” comprehensively presented the scenario of poverty across the LDCs and the presented new multidimensional perspective for the poverty measurement. Cheli, B. and, Lemmi, A. (1995)<sup>5</sup> provided alternative approach to measure the poverty. According to them aggregate poverty index can be computed based on relative cardinality of the fuzzy set of the poor. They also presented their indicators in the form of cause and effect.

### III. STATEMENT OF THE PROBLEM

The major research problem of the present investigation is to recognize the extent and incidence of poverty among the Pardhi community of the Solapur district. The level standard of living, disparities in the incidence of poverty, health conditions and education status of the tribal denotified Pardhi community is also unrevealed that has attempted to explore through the present research work.

### IV.OBJECTIVES OF THE STUDY

The major objectives of the present investigation are as below.

1. To calculate adjusted headcount ratio (M0) of pardhi community in study region.
2. To measure adjusted poverty gap (M1) of pardhi community in study region.
3. To measure adjusted squared poverty gap (M2) of the denotified pardhi community in Solapur district.
4. To compute the multidimensional poverty index of the denotified pardhi community in Solapur district.

### V.METHODOLOGY

The following methodology has used for the precise study.

#### 1. Data Collection and Processing

The work is mainly based on primary data which is gathered through well designed questionnaire schedule. The interview and observation were the main instruments of the primary data. The collected data has processed in excel and R software.

#### 2. Research Method and Sample Design

Present research is an empirical type of research as well as an analytical type in nature. It has collected data from the grassroot level and attempted to answer the research problem. The stratified sampling technique has used to assess the level of multidimensional poverty index in study region. The whole 11 tehsils are covered and samples were collected from both rural as well as urban area of the each tehsil. The detail sample size, tehsil wise population of Pardhi community, population and area of the concern tehsil has shown in table 1.

Table 1.Area, Population, and Sample Size

Sr. No	Tehsil (CD Block)	Area (km <sup>2</sup> )	Population (2011)	Population of Pardhi Community	Sample Respondents /Households
1	Akkalkot	1414	314570	10244 (16.10)	55 (16.18)
2	Barshi	1542	372711	4759 (7.57)	26 (7.64)
3	Karmala	1593	254489	4326 (6.89)	23 (6.76)
4	Madha	1524	324027	1884 (3.0)	10 (2.94)
5	Malshiras	1608	485645	4135 (6.58)	22 (6.47)
6	Mangalvedhe	1145	205932	1476 (2.35)	8 (2.35)
7	Mohol	1325	276920	622 (0.99)	4 (1.17)
8	Pandharpur	1293	442368	1236 (1.97)	7 (2.05)
9	Sangola	1567	322845	2015 (3.21)	11(3.23)
10	Solapur North	695	1057352	20347 (32.38)	110 (32.35)
11	Solapur South	1190	260897	11787 (18.76)	64 (18.82)
	Total	14896	4317756	62831(100)	340 (100)

Source: 1.Solapur District Census Handbook 2011<sup>6</sup>

2.Pardhi Community District Union Official Records<sup>7</sup>.

As per census 2011, the population of Solapur district was 4317756 and the area was 14896 sq. Km. Total population of the denotified Pardhi community observed to 62831 out of which 340 sample respondents (households) are taken into account for rigorous study. The proportional sampling techniques is applied while selecting the sample respondents from each tehsil. It means that on an average number of respondents from each tehsil are selected with their proportion in total population. The proportion in total population and sample population kept constant.

### 3. Statistical Tools and Techniques.

The indicators and cutoffs of the Multidimensional Poverty Index are as below.

Table 2 Dimensions, Indicators, Weight, and Deprivation Cutoff of Multidimensional Poverty Index

Dimension	Indicators	Weight	Deprivation Cutoffs
Health	Child Mortality	1/6	Deprived if a child under the age of 18 years has died in the family In the 5 years preceding the survey
	Nutrition	1/6	Deprived if any adult or child, for whom there is nutritional information, is undernourished
Education	Years of schooling	1/6	Deprived if no household member has completed six years of schooling
	School attendance	1/6	No household member aged 'school entrance age + six' years or older has completed six years of schooling
Standard of living	Cooking fuel	1/18	Deprived if the household cooks with dung, wood or charcoal.
	Sanitation	1/18	Deprived if the household's sanitation facility is not improved (according to MDG guidelines), or it is improved but shared with other households.
	Drinking Water	1/18	Deprived if the household does not have access to improved drinking water (according to MDG guidelines) or improved drinking water is more than a 30-minute walk from home round trip.
	Electricity	1/18	Deprived if the household has no electricity.
	Housing	1/18	Deprived if at least one of the three housing materials for roof, walls and floor are inadequate: the floor is of natural materials and/or the roof and/or walls are of natural or rudimentary materials
	Assets	1/18	Deprived if 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
	MPI $\geq 33\%$ = Poor MPI $< 33\%$ = Not Poor		
	❖ 0 % Indicates No Deprivation and 100% Indicates Deprivation		

Source: UNDP and OPHI<sup>8</sup>

Based on the above indicators and their concern weight, the MPI of the Pardhi community in Solapur district computed tehsil wise and rural urban area wise.

•**Adjusted Headcount Ratio (M0):** it measures the intensity and incidence of poverty. The term incidence of poverty refers the percentage of the populace who are poor. Likewise, the term intensity of poverty refers the percentage of deprivation suffered by each person or household. It is calculated as below.

**M0=Incidence (H)\*Intensity (A)**

•**Adjusted Poverty Gap (M1):** It is joint measurement of the adjusted headcount ratio (M0) and average Gap (G). It indicates the depth of poverty. It has calculated as below.

**M1= Incidence (H)\*Intensity (A)\* Average Gap G**

•**Adjusted Squared Poverty Gap (M2):** It measures incidence, intensity, depth and inequality among the poor which is captured by the square gap (S).It is calculated as **below. M2 = Incidence (H)\*Intensity (A)\* Square Gap S.**

## VI. RESULT AND DISCUSSION

### 1. Adjusted Headcount Ratio (M0)

The M0 is nothing but the actual value of the multidimensional poverty index. It indicates the level of deprivation of the Pardhi community with respect to health, education and standard of living dimensions. The value 0 per cent indicates no deprivation at all and value 100 per cent indicates full deprivation at all. It means that larger percentage of adjusted headcount ratio shows high intensity and incidence of poverty and vice versa.

Table 3. Adjusted Headcount Ratio of Pardhi Community in Solapur District

Sr. No	Tehsil (CD Block)	Rural (M0)	Urban (M0)	Total (M0)
1	Akkalkot	56	82	69
2	Barshi	67	77	72
3	Karmala	62	70	66
4	Madha	34	72	53
5	Malshiras	65	69	67
6	Mangalvedhe	66	74	70
7	Mohol	30	46	38
8	Pandharpur	72	80	76
9	Sangola	58	70	64
10	Solapur North	70	78	74
11	Solapur South	74	80	77
	<b>Total</b>	<b>64</b>	<b>68</b>	<b>66</b>

Source: Field Work 2020 multiple

Chart1. Tehsil wise Multiple Scatter Plots of MPI

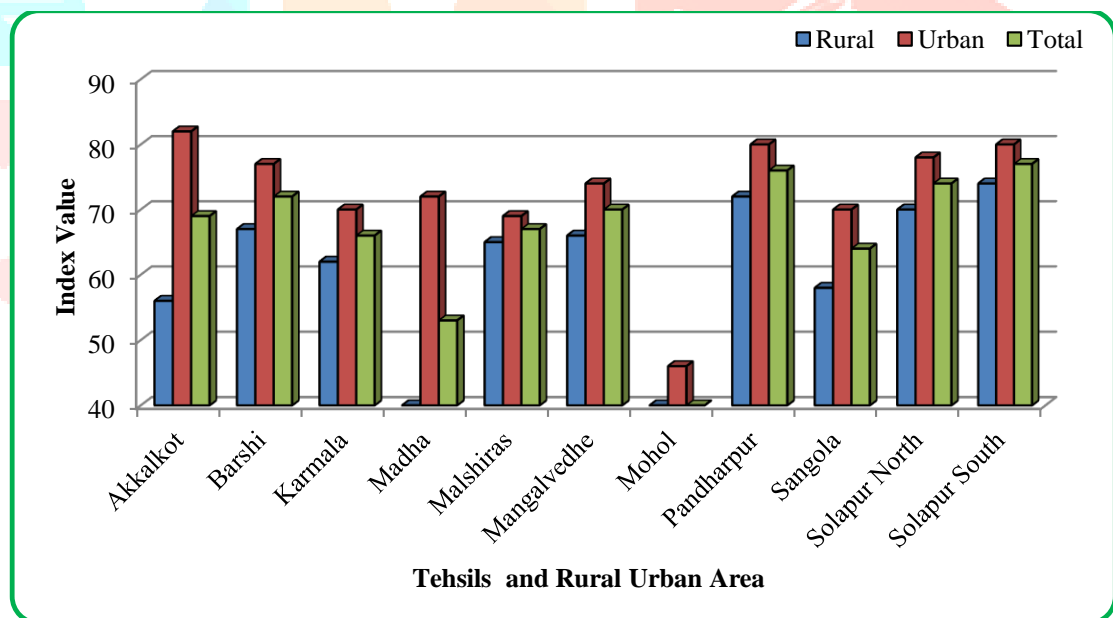


Figure 1 Tehsil wise MPI of Pardhi Community in Solhapur District

The data presented in the table 3, chart 1 and figure 1 indicates the M0 which is the actual value of multidimensional poverty index of pardhi community in the Solapur district of Maharashtra. It has seen from the data that the M0 is lowest observed in Mohol tehsil i.e 38 percent indicating low incidence of the multidimensional poverty and it is highest observed in Solapur South i.e 77 percent indicating high incidence of the multidimensional poverty. The rural and urban area adjusted head count ratio M0 of the Solapur district found to 64 and 68 percent respectively which indicates very high degree of poverty in both rural as well as urban area among the denotified pardhi community. Based on the table 3, by applying ANOVA test we have tested following hypothesis.

**H0: There is no significant variance among the tehsils in the adjusted headcount ratio of the Pardhi.**

**H1: There is significant variance among the tehsils in the adjusted headcount ratio of the Pardhi.**

#### ANOVA Results

<i>SUMMARY</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Akkalkot	55	138	69	338
Barshi	26	144	72	50
Karmala	23	132	66	32
Madha	10	106	53	722
Malshiras	22	134	67	8
Mangalvedhe	8	140	70	32
Mohol	4	76	38	128
Pandharpur	7	152	76	32
Sangola	11	128	64	72
Solapur North	110	148	74	32
Solapur South	64	154	77	18
Rural	11	654	59.45455	214.6727
Urban	11	798	72.54545	98.27273

#### ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Within Tehsils	2608	10	260.8	5.001395	0.008941	2.978237
Rural Urban Area	942.5455	1	942.5455	18.07531	0.001685	4.964603
Error	521.4545	10	52.14545			
Total	4072	21				

**Source:** Compiled by author based on table 3

The significance level is  $\alpha=0.05$  or the confidence level to test the above hypothesis is kept to 95 per cent. Since the calculated P value within tehsil and rural urban area is less than the 0.05 i.e  $0.05 > 0.008941$  and  $0.001685$ ; and the calculated F value is greater than the F critical value in within the tehsils and rural urban area; there is no strong evidence to accept the H0. Hence we reject H0 and accept H1. Thus “**There is significant variance among the tehsils in the adjusted headcount ratio of the Pardhi.**” is accepted. It implies that poverty condition and incidence on the Pardhi community is uneven and it differs significantly across the selected tehsils.

## 2. Adjusted Poverty Gap (M1)

The adjusted poverty gap (M1) is presented tehsil wise as well as rural urban area wise in table 4. It has seen from the data that the maximum adjusted poverty gap (M1) found in Solapur South i.e 75 per cent; it means that comparatively the adjusted poverty gap is more in Solapur South. Likewise, maximum adjusted poverty gap i.e 76 per cent found in rural area of the Solapur South. Similarly, maximum adjusted poverty gap i.e 76 per cent observed in Akkalkot tehsil. It means that depth of poverty of the Solapur South tehsil Pardhi community is significantly more in general and rural area of Solapur South tehsil in particular. The depth urban poverty is seen more in case of Akkalkot tehsil.

Table 4 Adjusted Poverty Gap of Pardhi Community

Sr. No	Tehsil (CD Block)	Rural (M1)	Urban (M1)	Total (M1)
1	Akkalkot	58	76	67
2	Barshi	67	71	69
3	Karmala	60	64	62
4	Madha	38	66	52
5	Malshiras	67	63	65
6	Mangalvedhe	66	68	67
7	Mohol	34	40	37
8	Pandharpur	70	74	72
9	Sangola	62	64	63
10	Solapur North	74	72	73
11	Solapur South	76	74	75
	Total	<b>66</b>	<b>62</b>	<b>64</b>

Source: Field Work 2020

On the contrast the lowest adjusted poverty gap found in Madha tehsil i.e 52 per cent which indicates comparatively low depth of poverty among the Pardhi community of Madha tehsil. The lowest rural and urban adjusted poverty gap i.e 34 per cent and 40 per cent respectively recorded in Mohol tehsil. It means that depth of poverty is significantly less in both rural as well as urban area of Mohol tehsil of Solapur district.

### 3. Adjusted Squared Poverty Gap (M2)

The adjusted squared poverty gap (M2) indicates the incidence, intensity, depth and level of inequality among the Pardhi community in study region. Table 5 shows tehsil wise adjusted squared poverty gap among the pardhi community of Solapur district. It has revealed from the data that maximum total adjusted squared poverty gap (M2) found in Pandharpur Tehsil i.e 80 percent. It means that there is a very high degree of inequality, incidence and depth of poverty among the Pardhi community of Pandharpur tehsil. On the contrast, comparatively the low incidence, low gap and low inequality in the poverty among the Pardhi community are observed in Mohol tehsil i.e 39 percent. It indicates that adjusted squared poverty gap is comparatively more in Pandharpur tehsil and it is less in Mohol tehsil.

Table 5 Adjusted Squared Poverty Gap (M2) Pardhi Community

Sr. No	Tehsil (CD Block)	Rural (M2)	Urban (M2)	Total (M2)
1	Akkalkot	67	75	71
2	Barshi	72	78	75
3	Karmala	70	70	70
4	Madha	48	60	54
5	Malshiras	66	72	69
6	Mangalvedhe	75	71	73
7	Mohol	34	44	39
8	Pandharpur	76	84	80
9	Sangola	60	70	65
10	Solapur North	66	84	75
11	Solapur South	76	82	79
	Total	<b>62</b>	<b>74</b>	<b>68</b>

Source: Field Work 2020

The rural -urban area wise adjusted square poverty gap (M2) reveals the fact that the maximum rural area adjusted square poverty gap is found in Pandharpur and Solapur South i.e 76 per cent. It means that there is high degree of inequality, incidence and depth of poverty in rural area of Pandharpur and Solapur South tehsils. On the contrast lowest rural area adjusted square poverty gap (M2) i.e 34 per cent recorded in Mohol tehsil. Likewise, maximum urban adjusted squared poverty gap is found in Pandharpur and Solapur North i.e 84 percent. It implies that there is high level of inequality, incidence and depth of poverty in urban area of Pandharpur and Solapur North tehsils. On an average adjusted squared poverty gap found to 68 per cent in Solapur district as whole and it is found to 62 per cent in rural area and 74 per cent in urban area. It means that incidence of poverty, poverty gap and depth of poverty is significantly more in urban area of Solapur district among the Pardhi community.

## VII. CONCLUSIONS

The multidimensional poverty index of the denotified pardhi community of the Solapur district reveals the following major conclusions.

1. The adjusted headcount ratio of Pardhi community in Solapur district shows very dismal socio-economic conditions. The proportion of the deprived segment of the Pardhi community is ranging from 38 percent to 77 per cent indicating significantly high incidence of poverty.
2. The deprivation of the Pardhi community in rural area is seen slightly less than the urban area. It means that comparatively incidence of poverty among the Pardhi community of urban area is more than that of rural area. The tehsil wise M0 reveals the fact that comparatively Mohol tehsil is having less deprivation and Solapur South tehsil is having more deprivation in education, health and standard of living dimensions.
3. Study found that there is significant variance among the tehsils in the adjusted headcount ratio of the Pardhi.
4. The adjusted Poverty Gap (M1) is found to maximum 75 per cent in Solapur South. Comparatively the adjusted poverty gap is more in Solapur South. Depth of poverty of the Solapur South tehsil Pardhi community is significantly more in general and rural area of Solapur South tehsil in particular. The depth urban poverty is seen more in case of Akkalkot tehsil. Likewise study also found that the depth of poverty is significantly less in both rural as well as urban area of Mohol tehsil of Solapur district.
5. There is a very high degree of inequality, incidence and depth of poverty among the Pardhi community of Pandharpur tehsil. On the contrast, comparatively the low incidence, low gap and low inequality in the poverty among the Pardhi community are observed in Mohol tehsil. It indicates that adjusted squared poverty gap is comparatively more in Pandharpur tehsil and it is less in Mohol tehsil. The incidence of poverty, poverty gap and depth of poverty is significantly more in urban area of Solapur district among the Pardhi community.

## VIII. SUGGESTIONS

1. Denotified Pardhi community of the Solapur district is one of the deprived segments of the society from the main stream of economic growth. Hence socio-economic special inclusive policy is needed to uplift their standard of living.
2. The vicious circle of poverty can be break through the effective use of existing tribal development programmes and schemes. All the welfare schemes should be implemented properly so as to Pardhi community can access these schemes and policies easily.
3. Education level is seen very low among the Pardhi community which is one of the essential element in the overall poverty eradication process. Hence it has suggested to the Government to promote the awareness programme about the education in Pardhi community through NGOs.
4. The Pardhi community is poor because they have very low access to resources. Hence government should try to provide long term livelihood sources to them and also try to stabilize their life.
5. Health conditions especially child's and women is found alarming throughout the primary investigation. Hence, special healthcare provision is needed to the tribal population. The vaccination should be provided to all child's at free of cost. Because some of the vaccine are being offered at the only private hospitals which is not affordable to the Pardhi community due to the low income trap.
6. The standard of living and income level of the Pardhi community can be improve by offering unsecured finance (loan without security) through the public sector bank for the productive purpose. Because, majority of the Pardhi community is deprived not only from the economic development mainstream but also from the banking financial inclusion stream which leads into keep them in poverty trap.

## References

- [1]. Government of India (1959). Habitual Offenders Acts, Parliament Passes Laws
- [2] Alkire, S. and Foster, J. (2009). Counting and Multidimensional Poverty Measurement (revised and updated). OPHI Working Paper 32, University of Oxford. Retrieved from <https://www.ophi.org.uk/wp-content/uploads/OPHI-wp32.pdf>
- [3] Chakravarty, S.R. and Silber, J. (2008). Measuring Multidimensional Poverty: The Axiomatic Approach. in: Kakwani, N., Silber, J. (Eds.), Quantitative Approaches to Multidimensional Poverty Measurement. Palgrave Macmillan, New York, pp. 192-209.
- [4] Anand, S., and Sen, A.K. (1997). Concepts of Human Development and Poverty: A Multidimensional Perspective. New York, UNDP. pp.1-20.
- [5] Cheli, B. and Lemmi, A., (1995). A Totally Fuzzy and Relative Approach to the Multidimensional Analysis of Poverty. Economic Notes. 24, pp.115-133.
- [6] Directorate of Census Operation Maharashtra (2011). District Census Handbook Solapur 2011. Part XI B
- [7] Pardhi Community District Union Official Records.
- [8] UNDP (2020). Charting pathways out of multidimensional poverty: Achieving the SDGs, The 2020 Global Multidimensional Poverty Index (MPI) Human Development Reports. Retrieved from. <http://hdr.undp.org/en/2020-MPI>.