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*Draft Research Report*

**Updating Geographical Indices of Multiple Deprivations:  
Pakistan, 2020**

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*March, 2022*

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# Updating Geographical Indices of Multiple Deprivations: Pakistan, 2020

## ABSTRACT

Policy makers, NGOs, researchers as well as students of economics and public administration require up-to-date information or database that can facilitate in making development policy decisions, in providing criteria for allocation of financial resources and in selecting specific areas for safety-net programs and geographical targeted intervention.

This study quantifies household multiple deprivations with the help of 18 socioeconomic indicators, arranged into five dimensions: education, health, housing quality, housing services and asset poverty. At the first stage of aggregation, composite indices for these dimensions or sectors are developed, while overall indices of multiple deprivations for provinces, region and districts of Pakistan are assembled at the second stage.

Besides furnishing the estimates of current level of deprivation based on the latest available data, the report also highlights inter-temporal changes during the period 2011 and 2020. District representative nationwide Pakistan Social and Living Standards Measurement Survey data for both years are used for this research.

The findings reveal declining trends in the level of deprivation; however, the rates of decay across provinces, region and districts are significantly diverse.

JEL Classification: I31, I32

Keywords: Pakistan, Multiple Deprivations, District Indices

## 1. Preamble

Composite deprivation indices, which are based on non-monetary poverty correlates in various dimensions or sectors, provide an opportunity to map or rank geographical areas according to the level of multiple deprivations. These Indices of Multiple Deprivations (IMDs) are designed to quantify the proportion of poorest or socially excluded segment of the society in a particular territory in terms of household well-being indicators. IMD clearly acts as an important tool which pin-points areas or pockets of socio-economic distress and to guide flows of financial resources accordingly.

Area-based indices of socioeconomic deprivation have been widely used in different countries for over thirty years. The first such index Reinken et al.'s (1985) Health and Equity index published in 1985 was developed for the use in New Zealand. Since then, New Zealand deprivation indices have been widely used in resource allocation formulas, in research and for community advocacy (Salmond and Crampton 2012a, 2012b). Similar indices have also been used in the United Kingdom to develop regional policy, especially for resource transfers and regeneration. The development of the Indices of Deprivation 2000 (IMD, 2000) for England and comparable indices for Northern Ireland, Wales, and Scotland, involved a fundamental reappraisal and reconceptualization of small-area level multiple deprivation and its measurement<sup>1</sup>. The IMD 2000 for UK showed relative levels of social and economic deprivation across all the counties of England. These indices which assessed 8414 wards were measures of deprivation for every ward and local authority area in England. It combined a number of indicators which cover a range of domains (Income, Employment, Health Deprivation and Disability, Education, Skills and Training, Housing and Geographical Access to Services) into a single deprivation composite score for each area/ward.

Another summary measure of deprivation which follows multidimensional criteria for assessing household or individual welfare or wellbeing is the multidimensional poverty. The Oxford Poverty and Human Development Initiative (OPHI) has developed an international measure of poverty – the Multidimensional Poverty Index or MPI<sup>2</sup> – for the 20th Anniversary edition of the United Nations Development Programme's flagship Human Development Report<sup>3</sup>. They constructed MPI for more than 100 countries and choose 10 variables in three sectors—health, education and living standards similar to the dimension of UNDP's *Human Development Index* (HDI)<sup>4</sup>.

The methodology and deprivation indicators however are quite different in studies using IMD and MPI approaches. In case of MPI, there are serious concerns regarding the subjectivity in

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<https://webarchive.nationalarchives.gov.uk/ukgwa/20100407204456/http://www.communities.gov.uk/archive/d/general-content/communities/indicesofdeprivation/indicesofdeprivation/>

2 <https://www.ophi.org.uk/wp-content/uploads/OPHI-MPI-Brief.pdf>

3 <https://hdr.undp.org/en/content/human-development-report-2010>

4 UNDP-Pakistan in its publication "Pakistan National Human Development Report, 2017" provides multidimensional poverty estimates for districts of Pakistan using various waves of PSLM survey during the period 2005 and 2015 (UNDP, 2018). Besides UNDP, other authors also estimated Multidimensional Poverty for Pakistan. For instance, see Jamal H (2009, 2011 and 2012b).

selecting deprivation cut-off values for individual indicators as well as for overall index of multidimensional poverty. But more important point to note is the method of assessment of deprivations. MPI first designate a person or household ‘deprived’ according to the cut-off value of indicator and then develops poverty aggregates (headcount, poverty gap etc.) for the population. In contrast, IMDs are classified the relative deprivation in geographical areas (for instance, percentage of illiterate population in district A or percentage of households with inadequate roof structure in district B etc.). Thus, in IMD approach the chosen indicators identify areas with characteristics associated with deprivation – not deprived people.

The first national database of multiple deprivations indices in the context of Pakistan was compiled by Jamal et al (2003). These indices were based on the data from the Population and Housing Census 1998. Later, Jamal and Khan (2007) updated district indices of multiple deprivations for 2005 using district representative nationwide Pakistan Social and Living Standards Measurement Survey (PSLM) 2004-05. In another attempt by this author, comparative deprivation indices were estimated using three consecutive PSLM surveys for the year 2005, 2009 and 2011 (Jamal, 2012a).

The purpose of this research is to provide not only an updated national database of district indices of multiple deprivations using latest available household survey (PSLM, 2019-20) but also to explore changing scenario in the level of multiple deprivations during the period 2011 and 2020 using consistent methodology in terms of deprivation indicators as well as method of developing composite indices. The unit record household level data of PSLM surveys are used to estimate provincial, regional and district Indices.

The paper is structured as following. Section 2 defines sectoral deprivation and furnishes a brief description of variables or indicators used in the construction of sectoral IMDs. Section 3 presents methodology for combining the selected indicators. The major findings are highlighted in the next section, while concluding remarks are given in section 5.

## **2. Defining Deprivations**

The notion of multiple deprivation whereby individuals experience deprivation of more than one kind was introduced by Townsend in 1987 who argues, “people can be said to be deprived if they lack the types of diet, health, clothing, housing, household facilities, fuel and environmental, educational, working and social conditions, activities and facilities which are customary, or at least widely encouraged and approved, in the societies to which they belong”. Thus, the indices of deprivation are generally made up of several dimensions or sectors. Each sector (domain) is made up of a number of indicators, which cover aspects of this deprivation as comprehensively as possible. Nonetheless, the options for choosing deprivation indicators are entirely based on the availability of reliable, consistent and representative data.

This study develops indices of multiple deprivations using 18 indicators which cover a range of social, housing and economic deprivations. The selected sectors and indicators are described below, while a schematic view of indicators used to represent sectoral deprivation is furnished in the Exhibit–1.

### **2.1 Deprivation in Education**

Deprivation in the education sector is represented by current and future levels of deprivation. Two measures, adult illiteracy and children out of school, are included in this sector. Literacy

for this study is taken<sup>5</sup> as the ability to solve simple mathematics questions instead of considering reading and writing ability in any language.

Illiteracy is measured in terms of ratio and computed as a percentage of illiterate persons among the population aged 15 years and above. Children between the ages of 5 to 16, who are not attending school, are taken to compute out-of-school children<sup>6</sup>. The gender disparity is incorporated taking these measures separately for male/female and boys/girls.

Exhibit – 1  
Indicators used to represent Sectoral Deprivations

Education:	Adult Female Illiteracy (15 years and above)
	Adult Male Illiteracy (15 years and above)
	Out of School Girls (5-16 Years)
	Out of School Boys (5-16 Years)
Health:	Lack of Immunization
	No Prenatal Health Care
	No Postnatal Health Care
	Did not Receive Tetanus Toxoid Injection
Housing Quality:	Child Delivery at Home
	Household with Inadequate Roof Structure
	Household with Inadequate Wall Structure
	Congested Household (Households with only one room)
Housing Services:	Households without In-House Latrine Facility
	Households with no electricity
	Households using unsafe (not covered) water
	Households using inadequate fuel for cooking (wood, coal)
Asset Deprivation:	Households with no telephone connection (landline or mobile)
	Do not possess any household large assets (Refrigerator, Air Conditioner, Motorcycle, Car, or Computer)

## 2.2 Health Deprivation

The most widely used indicators of health deprivation are life expectancy or deprivation in longevity, which is measured as the percentage of people not expected to survive till age 40 and the Infant Mortality Rate (IMR). Relevant information to compute these two output indicators at sub-national levels are not available in the context of Pakistan. Therefore, some proxies (input indicators) are used to cover deprivation in term of health care and health care facilities.

Quality prenatal and post-natal care can contribute to the prevention of maternal mortality by detecting and managing potential complications and risk factors. Pre-natal care also provides opportunities for women to learn the danger signs of pregnancy and delivery, to be immunized against tetanus, to learn about infant care, and be treated for existing conditions, such as malaria and anemia. Therefore, three indicators related to maternal health are included: percentage of pregnant women with no prenatal care, no postnatal care and no tetanus Toxoid injection during last pregnancy.

<sup>5</sup> Two questions related to literacy were asked in PSLM surveys: “Can this person write and read in any language with understanding?” and “Can solve simple Mathematics Questions?” Literacy in this paper is measured with respect to the second definition.

<sup>6</sup> According to the article 25(a) in the constitution of Pakistan, free and compulsory education of all the children aged 5-16 (up to matric) is considered a fundamental right and the state responsibility.

Two deprivation indicators are considered to assess child health status; child immunization and place of child delivery. One of the primary objectives of the Government in health sector is to expand the coverage of immunization. Therefore, the lack of child (under 5 years) immunization (never immunized) is included to represent the household deprivation in health care facilities. Proper medical attention and hygienic conditions during delivery reduce the risk of complications and infections that may cause death or serious illness for the mother, the baby, or both. Hence, an important component in efforts to reduce the health risks of mothers and children is to increase the proportion of babies delivered in a safe and clean environment under the supervision of skilled health professionals. Thus, household which reported child delivery at home is considered deprived in terms of child health.

### **2.3 Deprivation in Housing Quality**

The sector related to housing quality identifies people living in unsatisfactory and inadequate housing structures. It is represented by a series of indicators. The house structure is treated as inadequate if un-baked bricks, earth bound materials, wood or bamboo are used in the construction of a wall or the roof. To represent housing congestion, percentage of households with one room is included. Percentage of households which are lacking toilet facilities in house is also included in the deprivation index for this sector.

### **2.4 Deprivation in Housing Services**

Access to basic utilities is an important aspect of everyday lives of people. Deprivation for this sector represented by: households with no electricity, households using wood or coal as cooking fuel, households with no safe (covered) water availability and households with no landline or mobile telephone connection.

### **2.5 Asset Poverty**

A composite Household Wealth Index which is developed with the help of ownership of house and household assets has been used in earlier research on multiple deprivations by this author. The deprived households were defined as those which have composite asset score less than 50 percent of the median score. This is however analogous to relative poverty measure. As all other deprivation indicators are measured in absolute terms, an indicator reflecting absolute deprivation in terms of household assets is preferred.

UNDP (2018) in its Multidimensional Poverty Index defines asset poverty as household is deprived “if the household does not have more than two small assets (radio, TV, iron, fan, sewing machine, video cassette player, chair, watch, air cooler, bicycle) *OR* no large asset (refrigerator, air conditioner, tractor, computer, motorcycle) *AND* has no car”. Following UNDP, this research considers deprived in terms of household assets which do not possess any household large asset.

## **3. Method for Composite Indexing**

Composite indices represent aggregate measure of a combination of complex development phenomena and summarize multidimensional issues to support policy decisions. One of the issues in the context of composite indexing is the substitutability among component indicators. High deprivation, for instance, in one sector may be fully compensated or counterweighted with the low deprivation in the other sector. This situation is not suitable in most cases where a minimum of all components is required for a combined index. The issue of substitutability may be resolved to some extent by taking geometric mean of deprivation indicators instead of

combining indicators using simple average<sup>7</sup>. Although use of the geometric mean has been relatively rare in computing social statistics, starting from 2010 the UNDP Human Development Index did switch to this mode of calculation for combining component indicators of HDI. UNDP argues that it better reflects the non-substitutable nature of the statistics being compiled and compared.

Following UNDP methodology for developing composite HDI, variables in each sector/domain at step 1 are combined by taking arithmetic mean to create sectoral composite deprivation indices. Using the arithmetic mean at step 1 allows perfect substitutability between individual deprivation indicators in each sector/domain. All variables are simple rates (percentage of the population affected by the type of deprivation) and may easily be combined.

At the second stage, the overall index of multiple deprivations is developed by combining sectoral indices. For the sake of keeping uniformity with the UNDP-HDI methodology<sup>8</sup>, geometric mean is preferred to combine sectors. Thus, overall IMD in this study is the geometric mean of five sectoral indices described in Section 2.

#### 4. Major Findings

Districts' position in terms of level of deprivation which is measured through the indices of multiple deprivations are assembled in the Appendix-A (Exhibit-A1 through Exhibit-A4) for the year 2011 and 2020. These exhibits also furnish information regarding the changes in the magnitude of IMD and relative positions of districts according to the national rank order. Moreover, the provincial rank orders with the value of IMD for the year 2020 are furnished in the Appendix-B (Exhibit-B1 through Exhibit-B4). This section summarizes the major findings.

Exhibit-2 portrays trends in national and regional (urban-rural) indices of multiple deprivations. The exhibit clearly shows a declining trend in the level of deprivations in terms of selected indicators used to develop IMDs. However, the rates of decline across regions are significantly different. The exhibit reveals few important findings. During the period of analysis (2010-11 and 2019-20), the highest (4.7%) yearly declining rate<sup>9</sup> in values of overall Indices of Multiple Deprivation is found in the Punjab, while the lowest (1.7%) is estimated for Sindh province. In case of rural areas of Punjab and Sindh, exactly the same phenomenon is observed (highest 4.3% and lowest 1% respectively for Punjab and Sindh). The urban picture is somewhat different where the significant decline of 5 percent in KPK is evident.

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<sup>7</sup> Another method of developing composite index is to assign weights of different strength to multiple components of deprivation. It is worth to note that IMDs which are widely used within the UK to classify the relative deprivation in small areas since 2000 use this criterion for compiling a single score of deprivation. Nonetheless to avoid the subjectivity in choosing weights, it is preferred in this research to use geometric mean for developing composite index of multiple deprivation.

<sup>8</sup> [http://hdr.undp.org/sites/default/files/hdr2020\\_technical\\_notes.pdf](http://hdr.undp.org/sites/default/files/hdr2020_technical_notes.pdf)

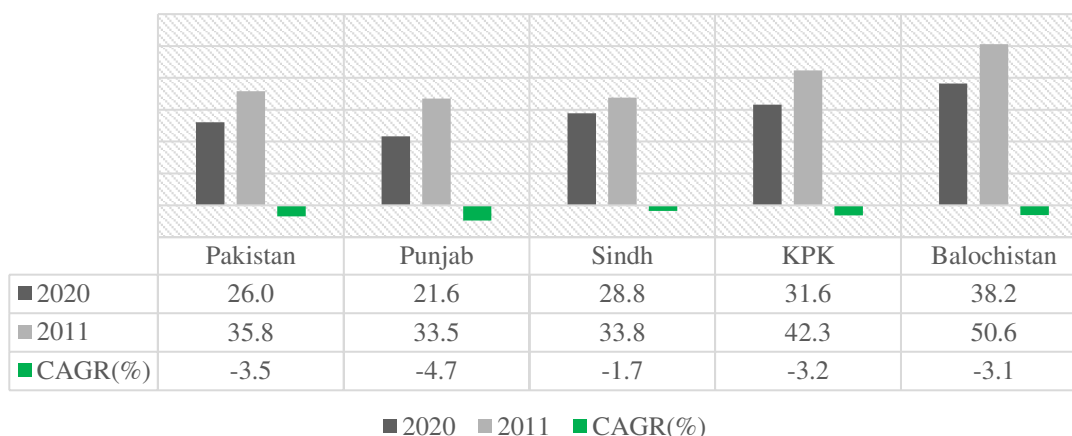
<sup>9</sup> The declining rate is estimated using the following formulae for computing Compound Annual Growth Rate.

$$CAGR (t_{initial\ year} , t_{end\ year} ) = \left[ \left( \frac{Final\ Value}{Beginning\ Value} \right)^{\frac{1}{(t_{end\ year} - t_{initial\ year})}} \right] - 1$$

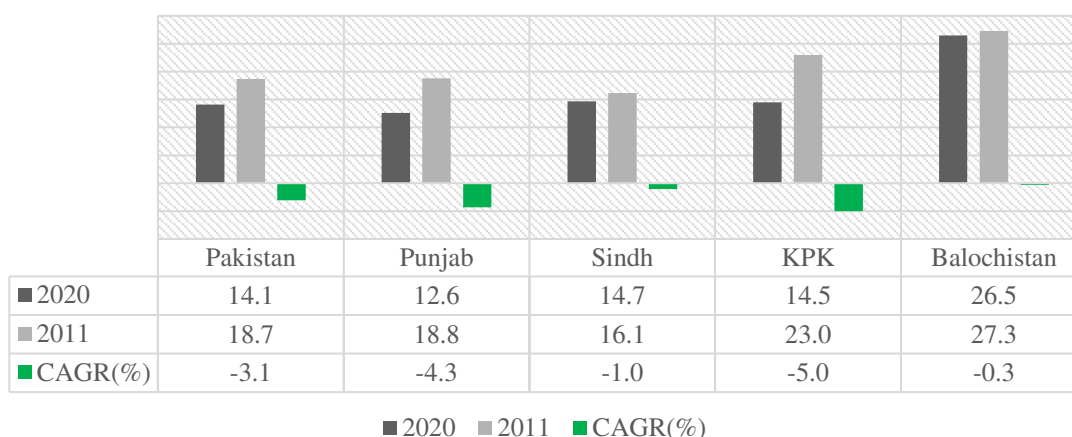


Exhibit – 2  
 Geographical Indices of Multiple Deprivations – IMDs 2020 versus IMDs 2011  
 [Percentage of Deprived Population, according to the Selected Deprivation Indicators]

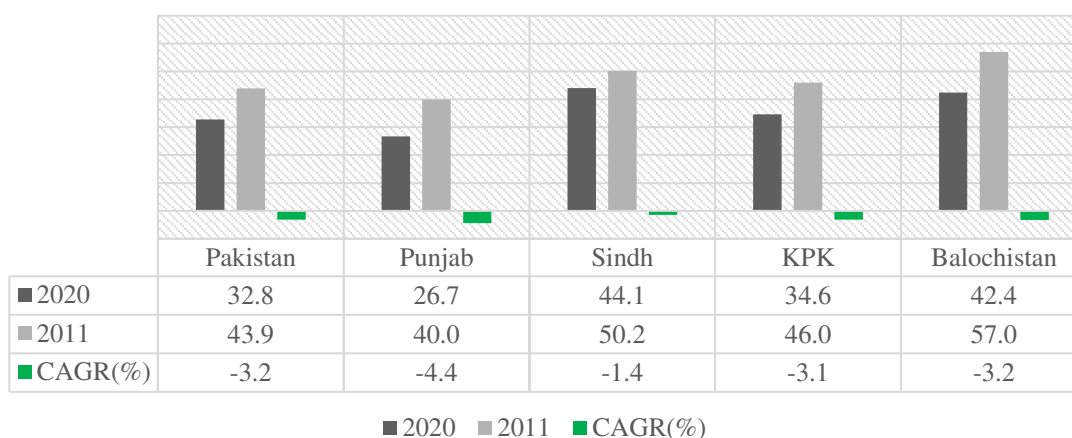
**Overall:**



**Urban:**



**Rural:**



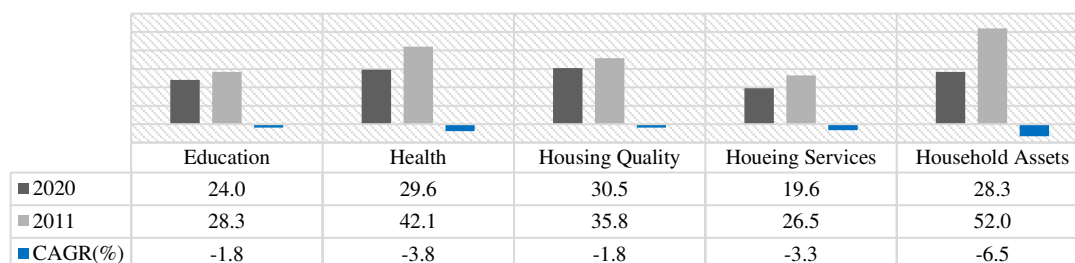
Source: Estimated from PSLM data, 2010-11 and 2019-20

Trends in components of IMDs are plotted in Exhibit-3 which furnishes both national and provincial information on trend in sectoral IMDs. Close to 4 percent decline in health sector is observed, perhaps due to the immunization campaign with larger coverage during the period (2011-2020) of analysis. About 3 percent decline in the IMD for housing services which

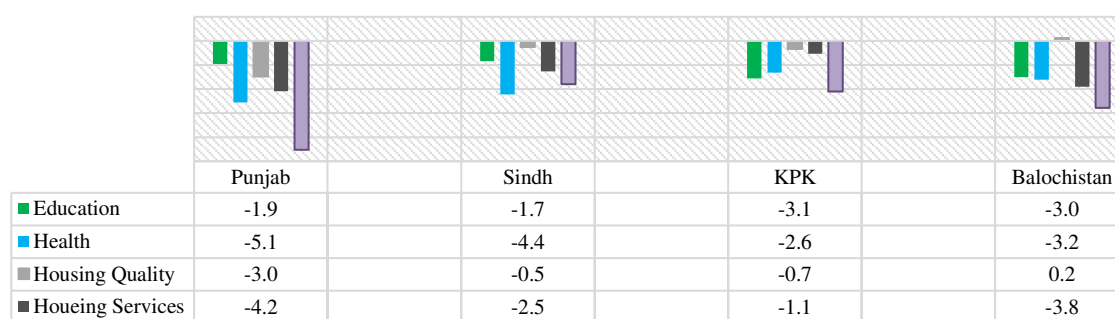
includes telephone connections (mobile or landline) is also evident. The growth of communication sector during the period of analysis is entrenched. The exhibit also reveals a large decline of close to 7 percent in the dimension of asset deprivation, whereas the highest (9%) decline is observed in the province of Punjab.

Exhibit – 3  
Inter-temporal Changes in Dimensions of IMDs  
*[Percentage of Deprived Population, according to the Selected Deprivation Indicators]*

**National Scenario:**



**Provincial Rate of Change (CAGR%) during 2011 and 2020:**



Source: Estimated from PSLM data, 2010-11 and 2019-20

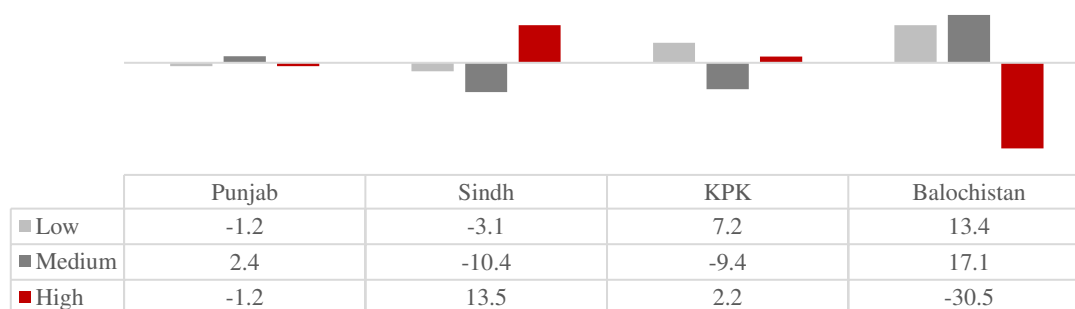
An important contribution of this study is to analyze the dynamics of population distribution across the levels of deprivation during the period 2011 and 2020. For this exercise, districts were classified into low, medium and high deprivation categories with respect to the magnitude of provincial index of multiple deprivations. Instead of subjective or arbitrary cut offs, districts are distributed into three percentile groups after ranking from low to high values of IMD for both periods individually. Provincial population proportions residing in these deprivation categories across time and across provinces are summarized in Exhibit-4.

Significant change in the population proportions from high to medium and low deprivation categories between 2011 and 2020 is noted in Balochistan province; close to 30 percent decline in the proportion of population residing in high deprived districts is observed against an increase of 13 and 17 percent in low and medium deprived categories respectively. A significant change in population proportion from medium to low deprived areas is also observed in case of KPK province. Close to 7 percent increase is observed in the proportion of low-deprived population of KPK province as against 9 percent decline in the medium-deprived category. In contrast, a different scenario is observed in case of Sindh province; 13 percent increase in the proportion of population residing in high deprived districts is observed as against

10 and 3 percent decline in the medium and low deprived areas respectively. Thus, the phenomenon is completely different as compared with the provinces of KPK and Balochistan. Interestingly, in Punjab province an increase of 2.4 percent in the population portion is evident in the medium level of deprivation as against 1.2 percent decrease each in the categories of low and high deprivation.

Exhibit – 4  
Population Distribution According to the Level of Provincial Deprivation  
[Percentage of Population Residing in]

	2011	2020	Change
<u>Low Deprived Areas</u>			
Punjab	64.8	63.6	-1.2
Sindh	47.2	44.1	-3.1
KPK	35.0	42.2	7.2
Balochistan	17.2	30.7	13.5
<u>Medium Deprived Areas</u>			
Punjab	29.5	31.9	2.4
Sindh	35.3	24.9	-10.4
KPK	44.9	35.5	-9.4
Balochistan	11.0	28.1	17.1
<u>High Deprived Areas</u>			
Punjab	5.7	4.5	-1.2
Sindh	17.6	31.0	13.4
KPK	20.1	22.3	2.2
Balochistan	71.8	41.2	-30.5

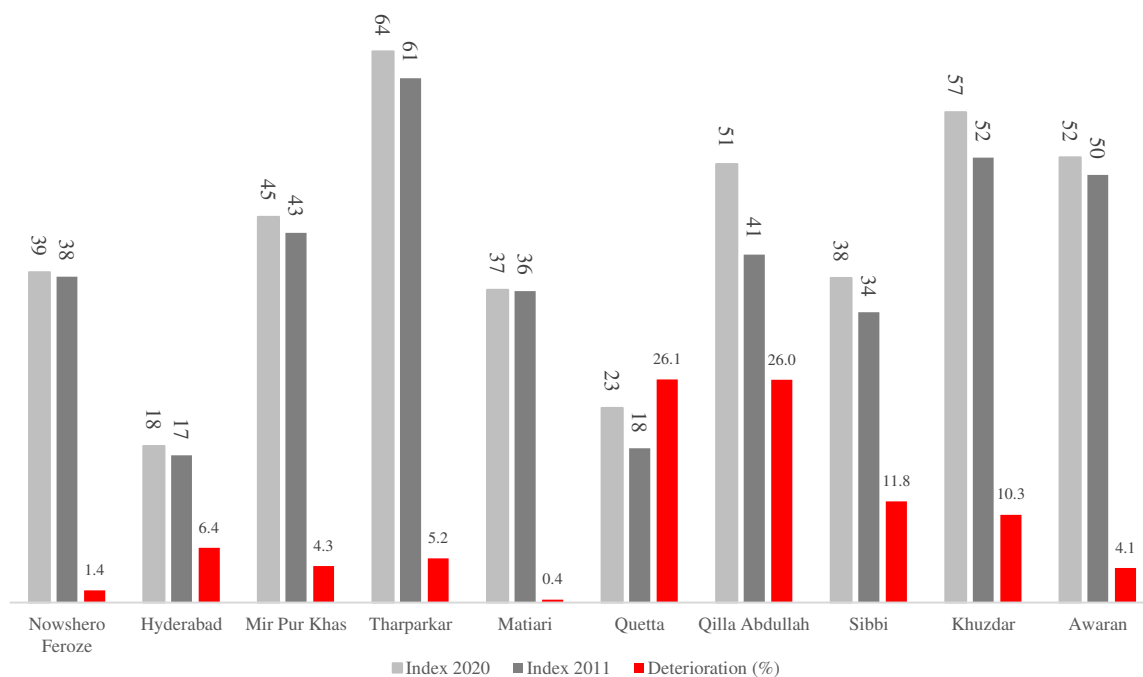


Source: Estimated from PSLM data, 2010-11 and 2019-20

As narrated above, detail district-wise analyses are furnished in Appendix-A and Appendix-B). Two features however are worthy to note and highlighted below. Exhibit-5 furnishes list of those districts where level of deprivation further worsened in 2020 as compared with the level of IMD in 2011. As evident in the Exhibit, half of these districts belong to Sindh (Nowshero Feroze, Hyderabad, Mirpur Khas, Tharparkar and Matiari), while the remaining half belong to Balochistan provinces (Quetta, Qila Abdullah, Sibbi, Khuzdar and Awaran).

In contrast, Exhibit-6 provides name of those districts which exhibited more than 5 percent annual decrease in the magnitude of IMD during 2011-2020. However, high declining rates in deprivation, especially in districts of Balochistan are surprising and cast doubt about the data authenticity.

**Exhibit – 5**  
**Districts Showing Increase in Deprivation Level during 2011-2020**



Source: Estimated from PSLM data, 2010-11 and 2019-20

**Exhibit – 6**  
**Districts Exhibited More than 5 Percent Annual Decrease in the IMDs**  
**(During 2011-2020)**

<b>Punjab</b>		<b>Sindh</b>		<b>KPK</b>		<b>Balochistan</b>	
Districts	CAGR (%)	Districts	CAGR (%)	Districts	CAGR (%)	Districts	CAGR (%)
Islamabad	7.0	Larkana	25.2	Malakand	23.5	Kohlu	24.6
Attock	14.8			Nowshera	21.1	Dera Bugti	42.2
Rawalpindi	11.2			Abbottabad	17.9	Kharan	32.3
Chakwal	15.2			Mardan	23.2	Loralai	35.5
Sargodha	19.2			Swabi	23.4	Barkhan	39.7
Jhang	27.1					Nushki	24.2
Gujranwala	11.4						
Gujrat	11.3						
Sialkot	9.8						
Hafizabad	18.0						
Mandi Bahauddin	17.3						
Narowal	15.5						
Lahore	9.1						
Okara	22.4						
Sahiwal	23.4						
Pakpattan	26.9						
Layyah	26.3						
Bahawalpur	25.7						
Nankana Sahib	19.4						

Source: Estimated from PSLM data, 2010-11 and 2019-20

## 5. CONCLUDING REMARKS

Mapping of spatial heterogeneity of poverty and deprivation is a prerequisite for better resource allocation. Furthermore, the assessment of the level of spatial deprivation, especially in small geographical areas is critical as the aggregated national level poverty data mask the sub-national variation and disparities in terms of socio-economic development.

This study provides an opportunity to understand the current scenario and trends in national and regional disparities by providing inter-temporal Indices of Multiple Deprivations. These indices were developed using same source of data, employing identical methodology with the similar indicators for the years 2011 and 2020. Household information in terms of deprivation in education, health, housing quality, housing services and asset poverty are aggregated for constructing sectoral and overall deprivation indices for districts, provinces, regions and for Pakistan. These indices may be used to make inter-district, intra-province and inter-province comparisons of populations that are deprived, with respect to the indicators chosen for this analysis.

The estimated IMD for the year 2020 indicates that 26 percent of the population was deprived in 2020. The comparative value for the year 2011 however was 36 percent. As anticipated, Punjab possesses the lowest, while Balochistan has the highest magnitude of IMD in both periods. Although, the level of deprivations as estimated by IMDs is showing declining trend during the 2011-20, the rates of decay across province, regions and dimensions are significantly dissimilar.

The study also provides dynamics of population distribution during the analysis period. It is revealed that population proportion residing in high deprived districts of Balochistan has been significantly declined during the period 2011-20. In contrast, an increase in the proportion of population residing in high deprived districts is noted in case of Sindh provinces.

Possible applications of this exercise include identifying areas of need; making decisions on regional and sectoral priorities and facilitating targeted public interventions through special poverty alleviation programs. This exercise is also helpful for federal and provincial governments in designing financial awards for province and districts with the objective of geographical targeted intervention by giving due shares for backwardness or deprivation.

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## **Appendix – A**

### **Inter-Temporal Comparison of Geographical Indices of Multiple Deprivations Districts' Indices and National Rank Order**

**Exhibit – A1**  
**Geographical Indices of Multiple Deprivations – 2020 versus 2011**  
**[Punjab Province]**

Geographical Area Districts	2020		2011		Changes in	
	Index	National Rank Order	Index	National Rank Order	Rank Order	Index [CAGR - %]
Islamabad	7.0	2	11.3	1	1	-5.1
Attock	14.8	12	31.1	20	-8	-7.9
Rawalpindi	11.2	8	19.7	6	2	-6.1
Jhelum	14.3	11	22.4	10	1	-4.9
Chakwal	15.2	13	24.3	11	2	-5.1
Sargodha	19.2	24	37.2	35	-11	-7.1
Bhakhar	29.8	55	44.8	64	-9	-4.4
Khushab	23.2	33	35.5	28	5	-4.6
Mianwali	27.3	48	39.0	42	6	-3.9
Faisalabad	18.9	23	27.7	14	9	-4.1
Jhang	27.1	47	44.8	65	-18	-5.4
T.T. Singh	21.8	28	30.5	18	10	-3.7
Gujranwala	11.4	10	20.9	7	3	-6.5
Gujrat	11.3	9	22.0	9	0	-7.1
Sialkot	9.8	7	21.2	8	-1	-8.3
Hafizabad	18.0	19	31.1	19	0	-5.9
Mandi Bahauddin	17.3	17	31.4	22	-5	-6.4
Narowal	15.5	14	30.3	17	-3	-7.2
Lahore	9.1	6	15.3	3	3	-5.6
Kasur	22.9	32	33.9	25	7	-4.3
Okara	22.4	29	40.6	49	-20	-6.4
Sheikhupura	18.6	22	28.4	15	7	-4.6
Vehari	27.7	49	41.7	54	-5	-4.4
Sahiwal	23.4	35	37.9	37	-2	-5.2
Multan	22.4	30	33.5	24	6	-4.4
Khanewal	28.0	50	35.4	27	23	-2.6
Pakpattan	26.9	46	48.0	75	-29	-6.3
Lodhran	29.1	52	41.7	55	-3	-3.9
D. G. Khan	38.8	87	54.3	93	-6	-3.7
Rajanpur	43.1	104	56.1	96	8	-2.9
Layyah	26.3	44	48.6	79	-35	-6.6
Muzaffargarh	35.5	73	47.5	72	1	-3.2
Bahawalnagar	33.2	66	38.9	41	25	-1.8
Bahawalpur	25.7	43	43.6	60	-17	-5.7
Rahim Yar Khan	33.1	65	41.5	53	12	-2.5
Chiniot	26.5	45	36.3	29	16	-3.4
Nankana Sahib	19.4	25	31.2	21	4	-5.2

Note: National Rank order reveals lowest to highest level of Deprivation

Source: Estimated from PSLM data, 2010-11 and 2019-20



**Exhibit – A2**  
**Geographical Indices of Multiple Deprivations – 2020 versus 2011**  
**[Sindh Province]**

Geographical Area Districts	2020		2011		Changes in	
	Index	National Rank Order	Index	National Rank Order	Rank Order	Index [CAGR - %]
Khairpur	37.6	79	43.6	59	20	-1.6
Sukkur	30.5	57	37.4	36	21	-2.2
<b>Shaheed Banazir</b>						
Abad	38.8	86	40.7	50	36	-0.5
Nowshero Feroze	38.6	85	38.1	38	47	0.2
Ghotki	35.1	71	48.5	78	-7	-3.5
Jacobabad	41.2	98	49.8	81	17	-2.1
Shikarpur	38.6	84	45.2	67	17	-1.7
Larkana	25.2	41	43.7	61	-20	-6.0
Dadu	36.2	76	36.7	32	44	-0.1
Hyderabad	18.3	20	17.2	4	16	0.7
Badin	47.3	114	48.0	74	40	-0.2
Thatta	44.1	107	54.2	92	15	-2.3
Sanghar	40.2	95	40.5	48	47	-0.1
Mir Pur Khas	45.1	110	43.2	57	53	0.5
Tharparkar	64.4	126	61.3	106	20	0.6
Kashmore	39.3	89	46.8	70	19	-1.9
Shahdadkot	30.6	61	47.9	73	-12	-4.9
Jamshoro	34.3	67	43.3	58	9	-2.6
Matiari	36.6	77	36.4	30	47	0.0
Tando Allah Yar	35.0	70	40.3	46	24	-1.6
<b>Tando Muhammad</b>						
Khan	45.9	112	48.3	77	35	-0.6
Sujawal	48.4	116	.	.	.	.
Umer Kot	48.4	115	52.3	87	28	-0.9
Karachi (Combined)	10.91	.-	12.6	2	.	-1.6
Karachi Central	7.0	1	.	.	.	.
Karachi East	7.7	3	.	.	.	.
Karachi Malir	16.2	16	.	.	.	.
Karachi South	7.9	4	.	.	.	.
Karachi West	15.7	15	.	.	.	.
Korangi	8.5	5	.	.	.	.

Notes: National Rank order reveals lowest to highest level of Deprivation

Shaded Cells indicate changes in district boundaries (formation of new districts after 2011)

Combined Data of 6 new districts of Sindh for the year 2019-20 is used only for the simple comparison. Estimates are not strictly comparable with the year 2010-11 due to change in size and design of the 2020 sample. It is worth however, to highlight that Karachi with the combined data holds forth position in national ranking while the ranking of Karachi (with all combined data) was second in 2010-11.

Source: Estimated from PSLM data, 2010-11 and 2019-20

**Exhibit – A3**  
**Geographical Indices of Multiple Deprivations – 2020 versus 2011**  
**[Khyber Pakhtunkhwa Province – KPK]**

Geographical Area Districts	2020		2011		Changes in	
	Index	National Rank Order	Index	National Rank Order	Rank Order	Index [CAGR - %]
Swat	30.6	59	45.4	69	-10	-4.3
Upper Dir	43.0	103	53.9	91	12	-2.5
Lower Dir	31.5	62	41.9	56	6	-3.1
Chitral	39.3	88	50.7	83	5	-2.8
Shangla	42.3	102	58.0	102	0	-3.4
Malakand	23.5	38	40.0	44	-6	-5.8
Bunair	36.6	78	53.8	90	-12	-4.2
Peshawar	18.4	21	25.9	13	8	-3.7
Charsada	25.6	42	37.0	33	9	-4.0
Nowshera	21.1	27	37.1	34	-7	-6.1
Kohat	30.2	56	39.8	43	13	-3.0
Karak	28.9	51	44.9	66	-15	-4.8
Hangu	36.2	75	40.4	47	28	-1.2
D. I. Khan	33.1	64	52.2	85	-21	-5.0
Tank	37.8	81	53.5	89	-8	-3.8
Mansehra	29.8	54	45.3	68	-14	-4.6
Abbottabad	17.9	18	32.5	23	-5	-6.4
Batagram	41.1	97	46.8	71	26	-1.5
Kohistan	60.7	125	78.9	114	11	-2.9
Haripur	19.6	26	28.6	16	10	-4.1
Bannu	30.6	58	36.5	31	27	-2.0
Lakki Marwat	35.6	74	48.1	76	-2	-3.3
Mardan	23.2	34	40.1	45	-11	-5.9
Swabi	23.4	36	38.9	40	-4	-5.5
Tor Garh	56.8	122	.	.	.	.
Bajur	58.7	124	.	.	.	.
Khyber	39.6	91	.	.	.	.
Kurram	45.1	111	.	.	.	.
Mohmand	54.3	121	.	.	.	.
North Waziristan	39.6	90	.	.	.	.
Orakzai	40.5	96	.	.	.	.
South Waziristan	46.3	113	.	.	.	.

Notes: National Rank order reveals lowest to highest level of Deprivation

Shaded Cells indicate changes in district boundaries (formation of new districts after 2011)

Source: Estimated from PSLM data, 2010-11 and 2019-20

**Exhibit – A4**  
**Geographical Indices of Multiple Deprivations – 2020 versus 2011**  
**[Balochistan Province]**

Geographical Area Districts	2020		2011		Changes in	
	Index	National Rank Order	Index	National Rank Order	Rank Order	Index [CAGR - %]
Quetta	22.8	31	18.1	5	26	2.6
Pishin	23.5	37	25.86	12	25	-1.1
Qilla Abdullah	51.3	119	40.68	51	68	2.6
Chaghi	.	.	63.49	107	.	.
Sibbi	37.9	82	33.93	26	56	1.3
Ziarat	39.6	92	40.88	52	40	-0.4
Kohlu	24.6	40	68.89	112	-72	-10.8
Dera Bugti	42.2	101	71.14	113	-12	-5.6
Kalat	40.0	94	49.33	80	14	-2.3
Mastung	34.3	68	44.42	62	6	-2.8
Khuzdar	57.3	123	52	84	39	1.1
Awaran	52.0	120	50	82	38	0.5
Kharan	32.3	63	56.38	98	-35	-6.0
Lasbela	38.5	83	56.1	95	-12	-4.1
Kech/Turbat	34.5	69	52.24	86	-17	-4.5
Gwadar	29.5	53	44.47	63	-10	-4.5
Panjgur	.	.	56.69	99	.	.
Zhob	.	.	61.1	105	.	.
Loralai	35.5	72	66.76	109	-37	-6.8
Barkhan	39.7	93	66.98	110	-17	-5.7
Musa Khel	.	.	68.07	111	.	.
Qilla Saifullah	43.5	105	64.42	108	-3	-4.3
Nasirabad/ Tamboo	49.5	118	58.11	103	15	-1.8
Jaffarabad	45.0	109	53.43	88	21	-1.9
Jhal Magsi	.	.	57.07	100	.	.
Kachhi/ Bolan	43.6	106	54.87	94	12	-2.5
Nushki	24.2	39	59.09	104	-65	-9.4
Harnai	37.6	80	38.79	39	41	-0.3
Shaheed Sikandar Abad	48.5	117	.	.	.	.
Washuk	44.5	108	57.78	101	7	-2.9
Sherani	42.1	100	56.2	97	3	-3.2
Duki	30.6	60	.	.	.	.
Sohbatpur	41.9	99	.	.	.	.

Notes: National Rank order reveals lowest to highest level of Deprivation

Shaded Cells indicate PSLM 2019-20 survey was not conducted due to law-and-order situation, while districts Shaheed Sikandar Abad, Duki and Sohbatpur are newly formed after 2011.

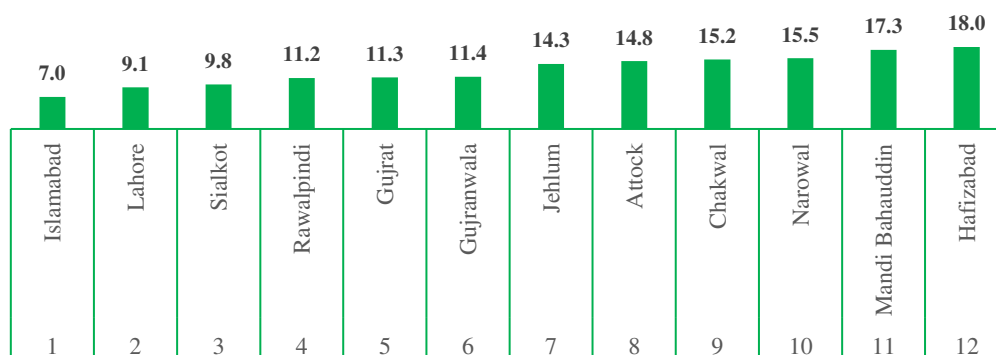
Source: Estimated from PSLM data, 2010-11 and 2019-20

## **Appendix – B**

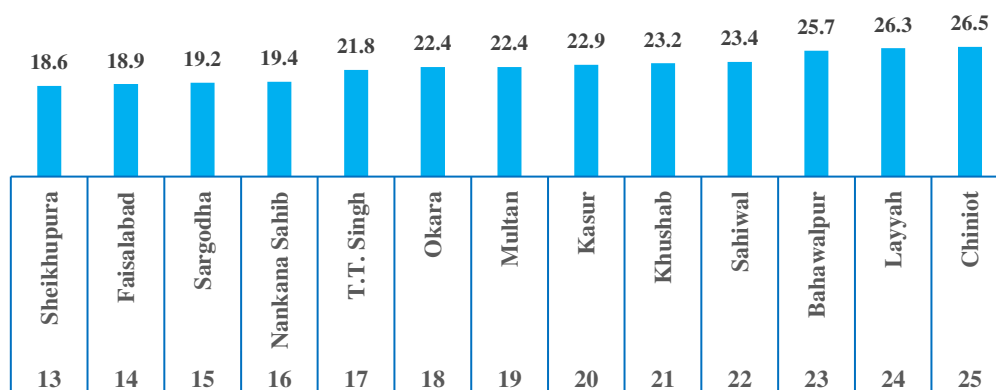
### **Geographical Indices of Multiple Deprivations Value of Districts' Indices for the Year 2020 with Provincial Rank Order**

**Exhibit-B1**  
**Indices of Multiple Deprivation with Provincial Rank Order – Districts of Punjab, 2020**  
*[Percentage of Population Deprived in terms of Selected Indicators]*

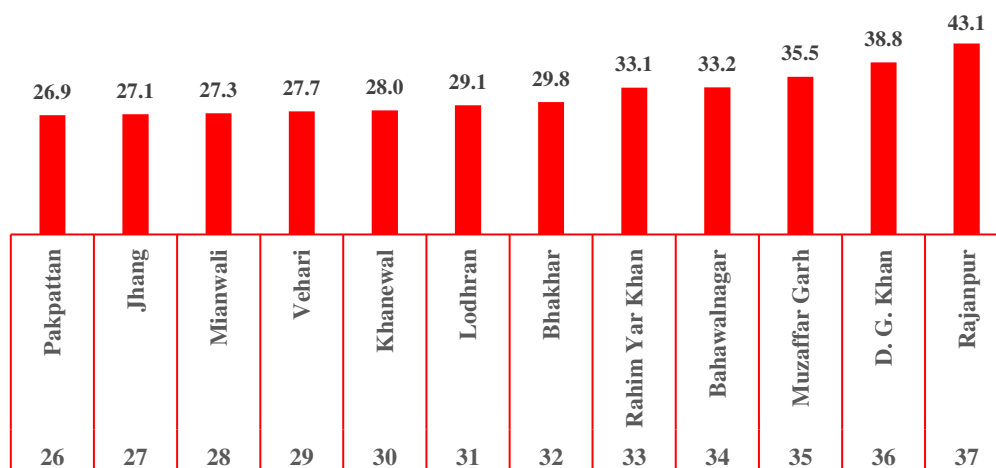
**Deprivation Level – Low**



**Deprivation Level – Medium**

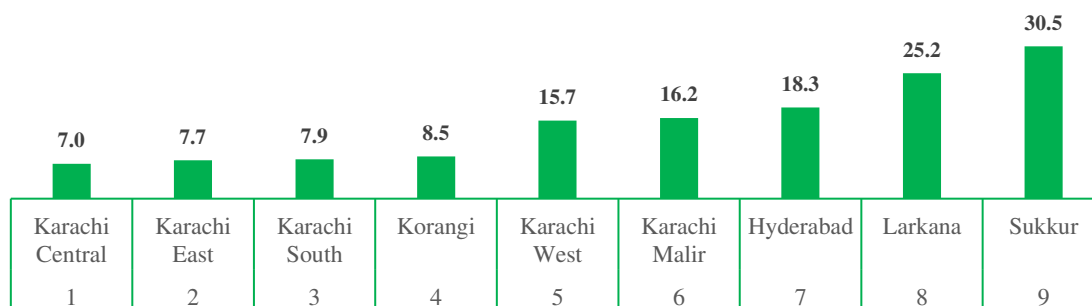


**Deprivation Level – High**

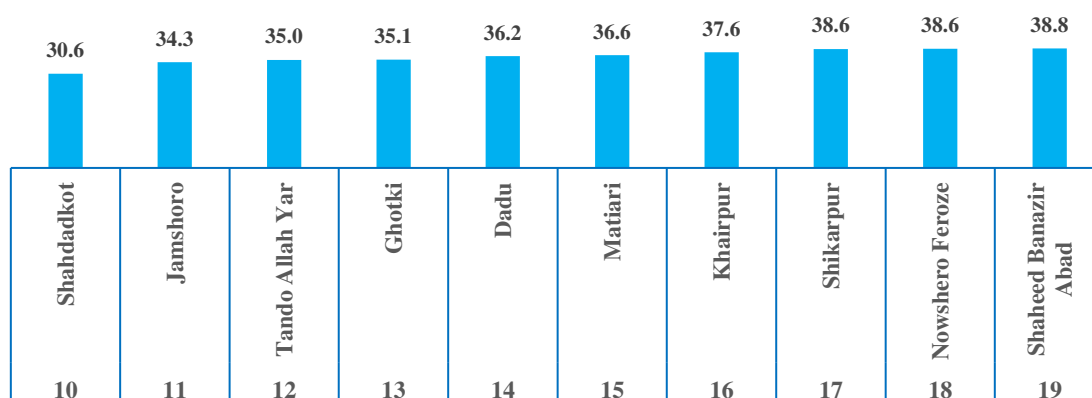


**Exhibit-B2**  
**Indices of Multiple Deprivation with Provincial Rank Order – Districts of Sindh, 2020**  
*[Percentage of Population Deprived in terms of Selected Indicators]*

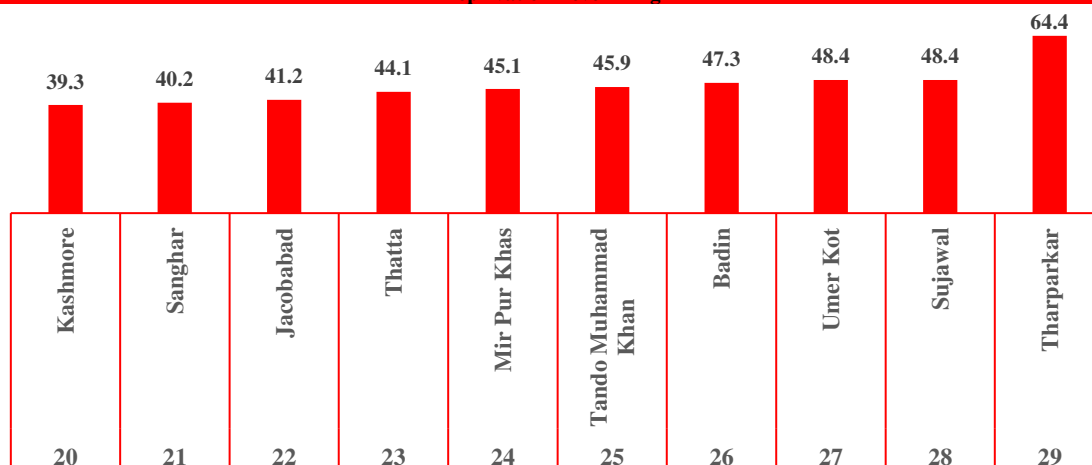
**Deprivation Level – Low**



**Deprivation Level – Medium**

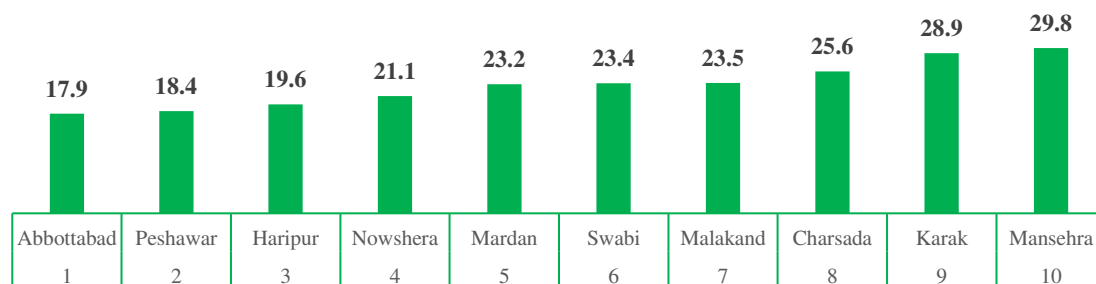


**Deprivation Level – High**

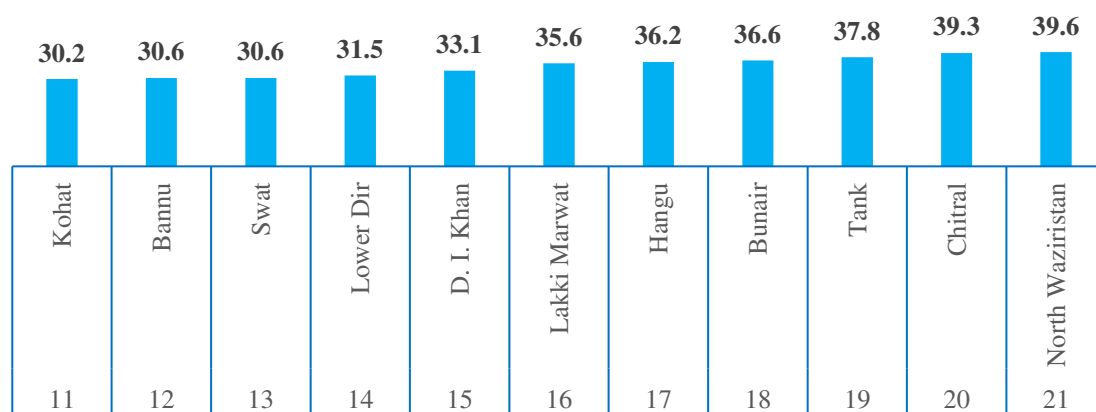


**Exhibit-B3**  
**Indices of Multiple Deprivation with Provincial Rank Order – Districts of KPK, 2020**  
*[Percentage of Population Deprived in terms of Selected Indicators]*

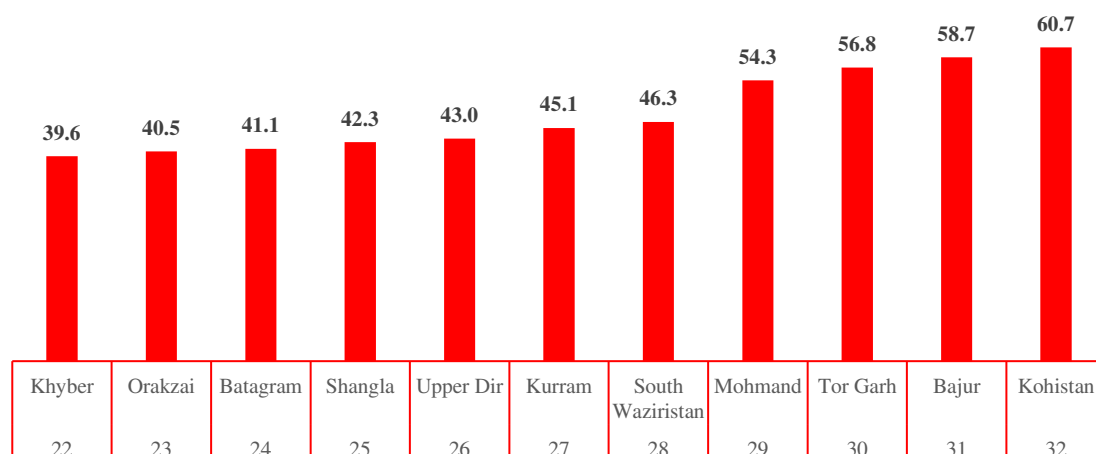
**Deprivation Level – Low**



**Deprivation Level – Medium**

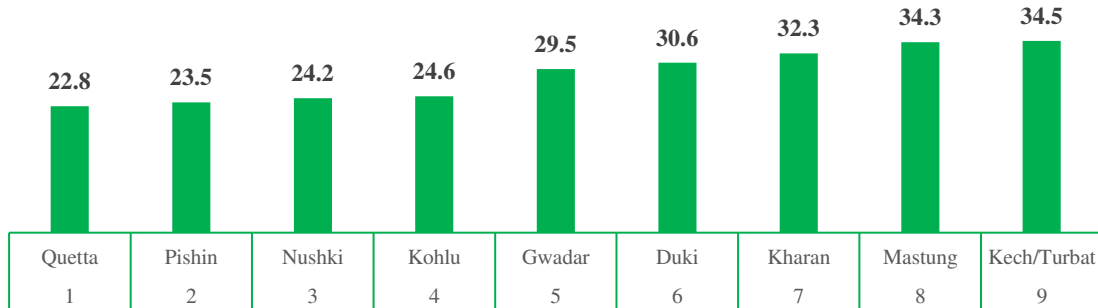


**Deprivation Level – High**

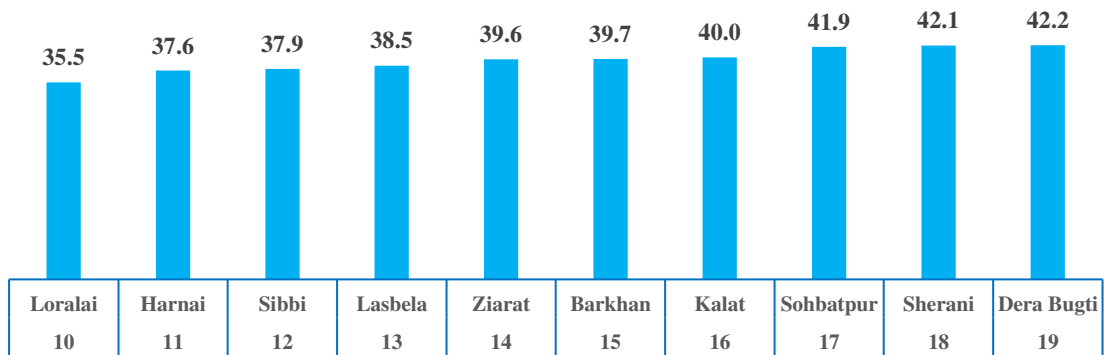


**Exhibit-B4**  
**Indices of Multiple Deprivation with Provincial Rank Order – Districts of Balochistan, 2020**  
*[Percentage of Population Deprived in terms of Selected Indicators]*

**Deprivation Level – Low**



**Deprivation Level – Medium**



**Deprivation Level – High**

