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RESEARCH PAPER

An Overview on Multidimensional Child Poverty targeting Sustainable Development Goals in Punjab, Pakistan

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ABSTRACT

This paper embodies a theoretical and empirical overview of multidimensional child poverty and child deprivation approaches based on measuring child poverty outcomes in Punjab, Pakistan. Current study provides different dimensions or indicators of multidimensional child poverty like housing, children's survive and thrive, children's condition, standard of living and learning(use as a proxy for education) that has clear vision to generate socio-economic development and children's development towards attaining sustainable development goals across the province, Punjab. In this regard, this profile of dimension or indicators of multidimensional child poverty and child deprivation analysis will serve as an important and guiding tools for provincial departments (Punjab) to strategies or policies their resource and budget allocation to achieve the sustainable development agenda, 2030.

| **KEYWORDS** | Multidimensional Child Poverty, Dimensions And Indicators, SDGS, Punjab's Child Deprivation Analysis |

Introduction

A number of publications on deprivation indicators to measure child and adult poverty based on single index with monetary indicators which measures of monetary poverty with deprivation indices (de Neubourg et al, 2012). In 2000, The United Nation Children's Fund(UNICEF), created first estimates of child poverty in developing countries that fill the gap using considerable information on the extent and nature of child poverty by campaigning with slogan "poverty begins with children" around the world. Based on international conventions and inter-governmental agreements, one of them is the UN resolution (2007) on Child Poverty and another was World Summit for Social Development (UN,1995) which agreed and listed the constituting poverty's elements by more than 180 participating governments(Gordon et al. 2003). This paper considers the different concepts of multidimensional child poverty and child deprivation and different child poverty's measures have been used but a little attention has been paid to their development outcomes and their implications.

Child poverty is one of the greatest concerns of governments and international organizations. Poverty is a major hindrance for children's survival and development that's why Poverty is not able to present the basic rights of children and its effects that often causes permanent damage (Gordon et al.2006). There was no agreed definition of child poverty. The United Nation Convention on the Rights of the Child (CRC), 2005 categorize all individuals under 18 as 'children' has become standard definition in the policy arena. In a multitude ways, Children are regarded by their parents, peers and societies at large in number that do not always follow the criterion of age. Women and children bear a disproportionate burden of poverty that are often permanently disadvantaged and older people, people with disabilities, indigenous people, refugees and internally colonial persons are also vulnerable to poverty. So, poverty in its various forms represents "a barrier to

communication and access to services, as well as a major health risk, and people living in poverty are particularly vulnerable to the consequences of disasters and conflicts."

For measuring the poverty, the choice of a poverty line is important that can be identified either with respect to a list of basic needs (absolute poverty) or choose of some characteristics of the distribution of the welfare indicators (relative poverty) (Sameti et al.2012). The definition of Absolute poverty is "a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to social services." While relative deprivation[1] means persons are deprived if they live below the socially accepted standard of living (Townsend, 1979). Individuals and families can be considered to be in poverty if they lack an adequate standard of living and the unable to fulfill social obligations (Leu et al., 2016).

In spite of conceptual and measurement issues, child poverty and deprivation are different from adult poverty (UNICEF, 2017) because of children's needs are different from nutrition to schooling to health care and difference to their hopes, their worries, their dreams, and their expectations. That's why, children depend on adults for support, care and satisfaction for their needs. UNICEF defined child poverty as, "the child who lacks public and/or private material resources to realize the rights constitutive of poverty is considered poor. Constitutive rights of poverty are those rights that require, directly and fundamentally, material resources (publicly or privately provided) for their continued realization". Child poverty is a fundamental problem in developing countries where children grown up in poverty who are supposed to be poor in their adulthood as poverty itself is considered a vicious cycle (Roelen, Gassmann, & de Neubourg, 2011; Minujin, 2016). This study explores the socio-economic phenomenon of children well-being through the application of multidimensional approach among children which play a crucial role in this study irrespective of the distinctions among child's definitions found in the literature.

 In addition, this paper links different viewpoint and approaches of child poverty with Sustainable Development Goals (SDGs), The Sustainable Development Goal 1 is "to end poverty and hunger for all and promote health and well-being for all". The main objective of adopting sustainable development goals (SDGs) is to identify the most deprived community of the population and to make them non-deprived through suitable policy for the betterment of any economy.

Literature Review

The review of the theoretical literature consists of two perceptions: the conceptual and empirical measures of multidimensional child poverty, and then link it with sustainable development goals using the child poverty's dimensions and indicators based on the UN convention on the rights of the child.

Multidimensional Child Deprivation Approach

Based on the child-centered perspective, the concept and measures of the uni-dimensional poverty approach is problematic. That's why, multidimensional deprivation approach seek to more access than income (Bessell et al. 2020). Some arguments lead to the conclusion that the assumed conceptual clarity of money-metric poverty has clarity in concepts and it has been measured at large level with wishful thinking, while using multidimensional poverty estimates seems to be more complicated(Notten and de Neubourg, 2011, Roelen et al.,2010).

Fonta et al. (2020) this study measured multidimensional child poverty and its drivers among children under aged 5-18 years in the region of Burkina Faso. Primary data were used from cross sectional study of 722 households in the Mouhoun region of Burkina

Faso using Alkire-Foster methodology to estimating child poverty among children aged 5 to 18 years which guided by child poverty literature and sustainable development goals of that country were used. The findings demonstrated that most children lived in very poor and indebted households and the multidimensional approach considered the best approach to determine the child poverty that involved their causal relationship with indicators and dimensions.

Alkire et al. (2019) this study analyzed global household multidimensional poverty index (MPI) on individual-level analysis to the same dataset for seven countries in South Asia. The results of the study showed that what number of children lived in households with different age experienced different deprivation simultaneously. The gender analysis of child deprivations measured inequalities within households and illuminated how the composition of poor children's MPI varies between children (who are, and are not, deprived in a given indicator) and across child deprivation (what proportion of people live in households where children of different ages experience two different child deprivations). The study suggested that this empirical analysis could be extend to cover all countries in the global MPI, and could also be applied to child variables in national or regional MPI.

Children are not considered as full economic agents working out consumer sovereignty that's why they are particularly vulnerable to deprivation of their specific needs (de Neubourg et al.2012). The reason is that they are not able to protect their own income or resources until a certain age and they are not sovereign in making consumption decisions. Moreover, children relies on adults for the fulfilment of their basic needs, the production of goods and services by public authorities especially in education and health, but also in public provisions and services (Gordon et al, 2005; Minujin et al, 2006; Notten and de Neubourg, 2010). In developing countries, adds a specific gender dimension or indicators to child deprivation not only at the household level but also at the macro level. The gender-specific children analyze of poverty and deprivation based on alternative approaches especially on multiple deprivation analyses play a crucial role in reduction of poverty.

Multidimensional Child Poverty and Human Rights

Amartya Sen (1999) define the terms capabilities. "If our attention is shifted from an exclusive concentration on income poverty to the more inclusive idea of capability deprivation, we can better understand the poverty of human lives and freedoms in terms of a different informational base (involving the statistics of a kind that the income perspective tends to crowd out as a reference point for policy analysis). The role of income and wealth – important as it is along with other influences has to be integrated into a broader and fuller picture of success and deprivation." UNICEF, (2008) described the adult-specific dimensions of capabilities, such as "parental unemployment affects the whole family as a result of scarce material means, but also has non-material consequences, as income poverty has been shown to impact the way parents educate their children and the parent–child relationship as a whole".

Sen (2009) mediated the individual advantage that based on a person's capability to do things he or she has reasons to value, but not by income, resources, utility or other achievements. The capability approach examine what an individual can do and be by related of person's well-being to the person's well-beings and doing which is called functioning (an individual can achieve or person's freedom to choose from possible living).

Qi and Wu (2014) this study used human-rights based deprivation approach to measure child poverty in China based on longitudinal and cross-sectional survey data analysis. The study utilized the data from China Health and Nutrition Survey (CHNS) from 1989 to 2009 through applying several statistical tests (Classical Test Theory (CTT)) for validity, reliability and additivity of the child deprivation to check whether income had

significant relationship with deprivation indicators. The findings of the study indicated that the children's standard of living in china had improved over a time but the regional inequalities remain.

The capability approach advanced multidimensionality of well-being and poverty of children not only depending on financial resources but also gave the same importance to the personal and social conversion factors which determined child well-being. The study analyzed by focusing on multidimensional poverty in the capability perspective of 5 to 6 years old children using the indicators of Education/Leisure, Health, Social Participation and income child poverty was measured (Kirsten & Volkert, 2011).

Social Exclusion and Children

Social exclusion is a situation "whereby an individual is denied the opportunity to participate in the normal activities of citizens whether he desires to participate or not" (Silver & Miller, 2002). Unlike the monetary and capability approaches it focus on process and outcomes of deprivation's elements and the dynamic dimensions of social exclusion (some exclusion can lead to other form of exclusion, which in turn can lead to more exclusion and permanent multiple disadvantages). Levitas et al. (2007) definition: "Social exclusion is a complex and multi-dimensional process. It involves the lack of denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole".

Children themselves can exclude as an agency with n a review of children and poverty. It is noted that children and their parents often have few ambitions to engage more in life in the present, or to improve their future because they do not want to pressure their parents to give them money that they cannot afford (Redmond G, 2014). Unlike, children whose parents have more income and recently found work that find themselves going out more, and engaging in more activities in present and future as well. The Indicators such as low income, deprivation, school attendance, educational attainment, unemployment, homelessness, physical and mental health, child protection that may be the product of exclusionary processes (Lareau's, 2003).

International Standards for Measuring Child Welfare-------Sustainable Development Goals

On 25th September, 2015, the United Nations General Assembly approved the documents titled as "Transforming our World: the 2030 Agenda for Sustainable Development". This agenda contains of 17 sustainable development goals and 169 related targets like to end poverty, protect the world and ensure that everyone enjoy peace and prosperity by 2030. Few countries have documented much progress towards achieving these goals. Lancet commission placed children, aged 0-18 at the center of SDGs, at the core of concepts of sustainable development and shared human work on child's rights. SDGs provides opportunity of social development for children and adults (UNICEF and Global Coalition to End Child Poverty 2017). Goal: 1 (target 1.2) aims at "reducing at least by half the proportion of children of all ages living in poverty in all its dimensions" (United Nations, 2015). Goal: 1 (target 1.2) aims at "reducing at least by half the proportion of children of all ages living in poverty in all its dimensions" according to national definitions by 2030 (United Nations, 2015). Target 1.2 considered crucial because for the first time, children are included in global poverty goals clearly and the multidimensional nature of poverty is recognized in the Convention on the rights of the child (CRC) which was signed by all countries and sanctioned by almost all

Kanwal Afra, (2021) this study provided an overview of different dimensions of child poverty such as education, healthcare, child marriage, child abusing and child labor in Pakistan. The study analyzed that Pakistan was trying their level best to achieve SDGs but COVID-19 had effected all sectors; education sector was effected most, although government tried to provide alternative to E-learning. But E-learning was not inclusion because the children in rural could not attained such facilities. The study recommended that Government of Pakistan should measure child poverty as policies regarding to children's rights that could had effective outcomes.

Minujin and Ferre, (2020) this study addressed the child-focused sustainable development goals and target by implementing children's equality and rights that consent by World Summit for Children (WSC) in 1990 and the Conventions on the Rights of the Child (CRC). In this regard, this study reviewed the worldwide agreed debate on post agenda, (2015) about equality and multidimensional child poverty. On the basis of sustainable development goals (SDG), the study provided methodology for policies and implementation social actions in order to encourage the child and youth participation at local level.

Chzhen et al. (2018) evaluated a child-specific multidimensional poverty measure using data from the European Union Statistics on Income and Living Conditions (EU-SILC). The study used proposed measure for both national and EU-wide to monitoring sustainable development goals without substituting indices of monetary deprivation at national and EU-wide.

Kim and Nandy (2018) constructed the multidimensional child poverty index based on the concept of multidimensional poverty using Sustainable Development Goals (SDGs) in Korea. The study used the data from Korean National Child Survey, 2013 by applying Poverty and Social Exclusion methodology to estimate the child deprivation index. The results of the study showed that 10% children of the population were measured as material deprivation and income combined which was higher as compare to official Korean child poverty rate. The estimated results showed that more children were deprived in working poor and single parent's households. The study concluded that policy makers should be support for working poor households.

Multidimensional child poverty in Punjab

A lot of the severity and magnitude of the challenges or crises are faced such as dominated by COVID-19, climate change, and conflicts which have spin-off impacts on food and nutrition, health, education, environment, and disturbing all the Sustainable Development Goals (SDGs). According to Every Child in the SDG Era report (2019), SDGs consists of 6 dimensions of economic, social and environmental development, focusing on 44 indicators that evaluate the world's performance that directly concern most vulnerable community (children) by 2030 agenda. Child-related 44 indicators are incorporated across the 17 Sustainable Development Goals (SDGs).

UN agencies and development partners have taken participate in Pakistan's journey towards implementation of SDGs. In 2015-16, around 50 million (24.3%) population of Pakistan lived below the national poverty line as compared to the other countries population like Colombia, and the combined populations of Australia and Cameroon. Pakistan secured better scores like 55.6 score of 55.6, but its lower as compared to regional peers Bangladesh (56.2) and India (58.1) (SDG's Global index). Pakistan's overall economic indicators like education, health, water, nutrition and electricity by comparing to the social indicators were escaping behind emerging economies like Nepal and Bhutan. The good news about Pakistan is that it becomes top of world country for delivering SDGs targets, 2030 in the sense of not repeating its down performance of the Millennium Development Goals (MDGs). Under UN commitment, Pakistan's presentation would be evaluated about 230 indicators on 17 goals.

Federal SDGs has developed "National SDGs Framework" through involving the analysis and measures the SDG's indicators with the federal and provincial government. Using the concept of national SDGs framework, Punjab has developed the "Punjab SDGs Framework" which guide to accelerate the progress towards achieving the agenda, 2030 by aligning the provincial budget and policies.

On the basis of SDG's agenda, 2030, this study is selected SDG's dimensions and indicators for achieving the Sustainable Development Goals (SDGs) in Punjab, especially SDG Target 1.2.2, calls for reducing poverty and child's rights presented by the Convention on the Rights of the Child (CRC) is mentioned in the table 1.

Table 1
Dimensions and Indicators of Children's Rights

Dimensions	SDG's Goals and Indicators
survives and thrives	SDG 2: Stunting, wasting, overweight. SDG 3: Births attended by skilled personnel, under-five mortality, neonatal mortality, new HIV infections (children under 5, adolescent girls and boys 10-19 years), essential health services, MCV1, DTP3, maternal mortality ratio, malaria incidence, adolescent birth rate.
Every child learns	SDG 4: Minimum proficiency in reading and mathematics in lower secondary, children under 5 developmentally on track, participation in organized learning one year before primary, proportion of schools with access to wash.
Protection from violence, exploitation and harmful practices	SDG 5: Violence against girls by intimate partner, violence against girls by someone other than intimate partner, child marriage, female genital mutilation/cutting. SDG 8: Child labor SDG 16: Intentional homicide, conflict-related deaths, violence from caregiver, sexual violence on girls and boys under 18, birth registration.
lives in a safe and clean environment	SDG 1: Basic drinking water, sanitation and hygiene services. SDG 3: Mortality rate from household/ambient air pollution. SDG 6: Safely managed drinking water, safely managed sanitation services, handwashing facilities, open defecation. SDG 7: Used clean fuels. SDG 13: Deaths from natural disasters
fair chance in life	SDG1: Extreme poverty, below national poverty line, multidimensional poverty, social protection floors/system

Material and Methods

Alkire-Foster Methodology

In Punjab, this study applies Alkire-Foster method that provide poverty profile for each child using child's indicators measures according to national definitions. Child deprivation analysis provides aggregate child deprivations for each child which reflect normative judgements according to equal importance to each of the six dimensions like housing, education, child's survive and thrive, protection from violence and exploitation, live in a safe and clean environment and equitable chance in life. In child deprivation analysis, each child will be identified as poor or non-poor depending on their deprivation score is less than a poverty cutoff (non-poor) or meets or exceeds the poverty cutoff (poor).

The Child MPI is estimated the information on the poor that is aggregated into the adjusted headcount ratio or MPI. The MPI consists of two aspects as:

$$MPI = H \times A$$

Incidence (H) = incidence is the percentage of children who are poor, or the poverty rate or headcount ratio. The AF headcount formula is given:

$$H= \frac{qj.r}{nr} \text{................................. (1)}$$

$$qj.r= \sum_{i=1}^{nr} yj \text{......................... (2)}$$

Where

H= headcount ratio of deprived children in j indicator

q= number of deprived children in indicator j

nr= total number of children in population r

yj= status of deprived children according to threshold like y=1 deprived otherwise yj= 2

Intensity (A) = intensity is the average percentage of indicators in which poor children are deprived or average deprivation score of poor children.

$$\mathbf{A=}\sum_{1}^{qk} ck/qk*d \text{.................................... (3)}$$

Where

A=average intensity of multidimensional child poverty

qk= a number of deprived children effected by k

d=total number of dimensions

ck= number of multidimensional deprived children

So, the adjusted headcount ratio is M0 = H x A.

The MPI can be consistently calculated as the weighted sum of censored headcount ratios which show the percentage of children who are poor and deprived in each indicator.

Unit of Identification

This study use the children of age 0-4 and 5-17 years as unit of identification in Punjab.

Dimensions and Indicators Targeting SDGs

This study takes into account five dimensions and 16 indicators such as living-arrangement, child's survive and thrive (morality rate, nutritional status and child health), protection from violence and exploitation(birth registration, child discipline and child labor), live in a safe and clean environment (drinking water, hand washing and sanitation), food security), equitable chance in life (child functioning and social transfer) and learning (early childhood development, parental involvement, foundational learning skills and attendance) are presented in table 2.

Table 2
Benchmarks of Measuring Child Deprivation

Dimensions	Indicators	SDGS	Threshold
Housing	1-Children'sliving arrangements		Children age 0-17 years living with neither biological parent with one or both biological parents dead
Children's survive and thrive	1-Earlychildhood mortality rates by socioeconomic characteristics	3.2.1	Child ever been breastfeeding 0-6 months Ever had vaccination card and Pre-mature birth before 37 weeks
	2-Malnutrition (Nutritional status of children)	2.2.1	Children under age 5 who fall below minus two standard deviations (moderate and severe), minus three standard deviations (severe) of the median weight and height of the WHO standard

Child's conditions	1-Childe discipline	16.2.1	Children of age 1-14 years who experienced any physical punishment or psychological aggression by caregivers in the past one month
	2-Child labor	8.7.1	Children (5-17 years)who are involved in child labor
	3-Child Functioning	1.3.1	Children (2-17 years) reported with functional difficulty in at least one domain
	4-Social Transfers		Children of age 0-17 years covered by health insurance
Standard of Living	1-Drinking Water	1.4.1	Household members using improved sources of drinking water either in their dwelling/yard/plot
	2-Hand washing	1.4.1 & 6.2.1	Household members with a handwashing facility where water and soap or detergent are present
	3-Sanitation	6.2.1	Household members with an improved sanitation facility that does not flush to a sewer and with waste disposed in-situ or removed
	4-Electricity	7.1.1	Household members with access to electricity
Learning (education)	1-Parental involvement		Children (7-14 years) attending school for whom an adult household member participated in school governing body meetings and received student's card.
	2-Foundational Learning Skills		Children aged 2-5 years and 7-14 years who successfully completed three foundational reading tasks and four foundational number tasks
	3-Attendance	4.1.1	Children (6-16 years)who are attending an early childhood education programme and Participation Rate (primary, secondary)

Source: MICS Survey, 2017-18

Results and Discussion

Child Deprivation Analysis in Punjab

This section presents findings from the qualitative and quantities data collected from the MICS Survey, 2017-18 based on two age groups of children separately, 0-5 years old children is discussed in first age group and second age group based on children of age 5-17 years. That's why deprivation analysis are done separately for both age group.

This study collect the data on the basis of the following seven dimension: living arrangement, child health, child discipline, child conditions, child development, parent's involvement and sanitation for the children of age under five (infancy and early childhood). While data is collected for the children of age 5-17 years (primary childhood and adolescence) based on the following dimensions such living-arrangement, child labor, child marriage, child conditions, drinking water, sanitation and attendance.

Deprivation Analysis for children aged under five years

The child deprivation in the dimension or overall multidimensionally deprived up to cut off point three is selected in this paper.

Single deprivation analysis by dimensions (0-5 years)

For analysis of deprived children in each dimensions single deprivation analysis is applied. AF method is applied because it allows the disaggregation of child poverty measures by age groups. Headcount ratio tells the aggregate of child deprivation in each dimensions mentioned in the table 3.

Table 3
Single deprivation analysis by dimensions (0-5 years)

Dimensions	Deprived (%)	Non-deprived (%)	Headcount (%)
Living arrangement	37.9	62.1	37.9
Child health	31.7	68.3	31.7
Child discipline	75.8	24.2	75.8

Sanitation	54.1	45.9	54.1
Child-development	90.8	9.2	90.8
Parents involvement	20.6	79.4	20.6
Child conditions	42.3	57.7	42.3

The table 3 represents the single child deprivation under aged five shows that in Child development 90.8% children are deprived. It is most critical variable recognizing the poor from the non-poor in achieving the sustainable development goals (SDG 4.2.1). Children of age 36-59 months who are developmentally on track in at least following four domains such as literacy, numeracy, physical, social-emotional behavior, and learning. It is acknowledgeable that first five years of child's life is more important for a rapid brain development, providing a quality of home environment and their interactions with caregivers to the children is a major determinant of their development during this period. Child deprivation in child discipline is 75.8%. Among social measurement, teaching children self-control and acceptable behavior is a dynamic part of child discipline in all cultures of getting SDG 16.2.1 against violent discipline.

Multiple Deprivation Analysis for the Children (under 5 years) using A-F Method

To measure the child poverty, the Alkire-Foster (AF) method is used. Cut off point four is selected to identify the multidimensional child deprivation. Adjusted headcount ratio (M0) has two components : headcount ratio(H) is used to find the percentage of children who are deprived in more than four dimensions while average intensity (A) identify the breath of deprived dimensions by using formula suggested by Alkire Foster that gives as censored the children who are deprived in more than four dimension(cut off point). Adjusted headcount is applied in this analysis in order to avoid the problem of dimensional monotonicity and then this method adjust those children who are not deprived previously but now multidimensional deprived.

Table 4
Multidimensional Child Deprivation Analysis (0-5 years)

Deprivation level at Cut off point	Headcount ratio (%)(H)	Average intensity among deprived(%)(A)	Adjusted Headcount ratio (M0=H.A) (%)
1-7 deprivation	84.55	20.95	17.7
2-7 deprivation	68.85	32.45	22.3
3-7 deprivation	39.79	41.28	16.4
4-7 deprivation	20.58	61.40	12.6
5-7 deprivation	19.89	80.91	16.0
6-7 deprivation	10.34	100	1.03

The table 4 measures the multidimensional child deprivation in each dimension out of seven dimensions simultaneously. The results of cutoff point helps to calculate the average intensity of average deprivation to avoid the problem of deprivation censoring which isolation can experience from other deprivation. The headcount ratio is most preferable method to identify the deprivation. At cut off point 4 the value of headcount ratio is 20.58% while highest deprivation in children under age of five at cutoff point one in Punjab which is 84.55% and the lowest at cut off point 6 is 10.34%. According to the adjusted headcount method, the highest value at cutoff point one is 22.3% and lowest at cutoff point 5 is 1.03% in Punjab. At cutoff point four the value of adjusted headcount is 16.0%. So, the overall results of the findings show that most of children under age of five are deprived in first four dimensions and at cutoff point four, the ratio of deprived children are 19.89%.

Single Deprivation Analysis for the Children (5-17 years)

This study reveal the breath or percentage deprivation of each child by using single deprivation. Single deprivation measures discovers that in which dimension most of the children are deprived. For this purpose, headcount ratio is used that shows the aggregate level of children deprivation in each dimensions mentioned in the table 5.

Table 5
Single Deprivation Analysis (5-17 years)

Dimensions	Deprived (%)	Non-deprived (%)	Headcount ratio (%)
Living-arrangement	72.19	27.19	72.19
Child labor	68.35	31.65	68.35
Child marriage	68.43	31.57	68.43
Attendance	45.04	54.96	45.40
Drinking water	40.00	60.00	40.00
Child conditions	6.97	93.03	6.97
Sanitation	39.37	60.63	39.37

The table 5 indicates that the percentage of child deprivation in all dimensions is high which reveal that it is most vulnerable sector among other sector. Living arrangement has highest child deprivation which is 72.19%. In Child labor, the children who are routinely engaged in paid and unpaid forms of work that are not harmful to them. The deprivation level in child labor is 68.35%. Attendance is important for the readiness of children to school which shows the proportion of children in the first grade of primary school who attended any early childhood education the previous year. The dimension of attendance is used to ensure that all girls and boys complete primary and secondary education which is a target of the 2030 Agenda for Sustainable Development. The fraction of deprived children in attendance is 45.04% which shows that the lack of education of household is considered the main factor of children poverty (Khalid et al. 2022).

On the other hand, the indicator of safe and clean environment, the drinking water and sanitation are the main indicators to contribute the child poverty. However, the children are deprived in drinking water and sanitation are 40% and 39.37% respectively. The child discipline and child functioning are main indicators of child condition in which 6.97% children are deprived. In child marriage, child deprived which is 68.43%. Child marriage conciliations the development of girls that is often results in early pregnancy and social isolation with little education highlighting the gendered nature of poverty.

Multiple Deprivation Analysis Using Alkire-Foster Method (5-17 years)

To identify multidimensional deprived children, cutoff point three is selected for the children of aged 5 to 17 years by using Alkire-Foster (A-F) method. According to proposed method by Alkire and Foster (2007, 2011), the headcount ratio or incidence of poverty (H) which identify the percentage of children who are multidimensional poor in more than three dimensions. The intensity of poverty which shows the average percentage of three dimensions which are faced by child poor.

Adjusted headcount ratio is the product of headcount ratio or incidence of poverty (H) and intensity of poverty (A) which does not follow the properties of monotonicity and transfer and this problem is being addressed by Alkire and Foster (2007). It means that for any poor children, if the child become deprived in additional dimension in which children were not deprived previously does not affect headcount ratio (H).

Table 6
Multiple Deprivation Analysis (5 to 17 years)

Cut off point	Headcount ratio(%)(H)	Average no of deprivation among deprived	Average intensity (%) (A)	Adjusted headcount ratio(M0)
1-7	79.16	8.31	60.56	47.93
2-7	67.35	8.26	68.82	46.35
3-7	54.97	7.85	76.67	42.14
4-7	42.51	7.60	84.27	35.82
5-7	29.11	7.19	91.46	26.62
6-7	15.00	6.73	98.19	14.72

The Alikre-Foster method is most preferable deprived method to measure multidimensional child deprivation. The headcount ratio (H) shows that 54.97% children are deprived (k=3) in Punjab. The highest headcount ratio in children is 79.16% at cutoff point of one and lowest headcount ratio is 15% at the cutoff point seven. The intensity of poverty means that 76.67% children are deprived dimension on average in Punjab.

According to the adjusted headcount ratio result, 42.14 percent children are multidimensionally deprived at cutoff point of three while the rest of children is considered non-deprived which is 57.86% in Punjab. So, the overall result shows that most of the children of aged 5 to 17 are deprived in three dimensions. The headcount ratio is used for the purpose of policy making to reduce child poverty because it is not flexible enough for the decomposition of dimensions.

Conclusion

This study put an effort to provide an overview for all dimensions and indicators of multidimensional child poverty targeting sustainable development goals in Punjab, Pakistan. In the national assembly, 2016, Pakistan has declared UN's SDG as the national goals of Pakistan. Ministry planning and development and special initiative has lunched national initiative for SDGs with the support of UNDP. The main objective of this initiative is to mainstream and localize the SDGs goals which fulfill the data gaps with respect to sustainable development goals according to the planning and budget policies for enhancing the awareness and ownership of SDGs at all level(at district level, at provincial and reginal level). This study analyzed the child deprivation for both age groups using C-MPI methodology based on Alkire-Foster method. For this purpose, headcount ratio is used for single deprivation analysis while Alkire and Foster methodology is applied for multiple deprivation analysis.

Recommendations

In spite of many challenges, the Punjab SDGs unit has made remarkable progress in term of aligning provincial policies and strategies with SDGs that enhance the statistical capacities for monitoring and reporting 2030 targets for SDGs. There is some policy recommendations of adopting multidimensional poverty approach in this study is to analyze child poverty targeting sustainable development goals (SDGs) are discussed below:

1- Recognizing the importance of sustainable development goals and in struggle to achieve them, the Government of Punjab should be created poverty alleviation programmes at provincial level.
2- The future research could be develop multidimensional child well-being framework that use it considerable literature to grow around its relationship to child's rights and SDGs.

3- How can child sustainability's measures be included as a measurement of child deprivation, a broader understanding of dimensions of deprivation with respect to sustainable development goals (SDGs)?

4- Both theories child's right approach and multidimensional approach covers the dimensions of child development such as health, education, and standard of living that could be played a crucial role to allocate scarce resources to achieve sustainable development goals.

5- Punjab SGDs framework should be provide comprehensive guiding tools for provincial departments to allocate their resources and budget to achieve the agenda 2030, according to their local community needs.

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