Research Article

Representative Farming and Non-Farming Communities as a Dynamic Mirror of Unidimensional Poverty in Pakistan

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Abstract

This research examines rural and urban poverty in Pakistan on a national and provincial scale, examining its many facets. Using the HIES/PSLM data of Pakistan, which is recognized internationally, from 2013–14 to 2018–19, and two well-respected indexing approaches (FGTI for single-dimensional poverty and Alkire & Foster for multidimensional poverty), we can examine the evolution of poverty in Pakistan over the past five years. According to the findings of the time series analysis, poverty shows a mixed (rising and falling) pattern over a shorter time frame (1-2 years) and a declining trend over a longer time frame (national and provincial levels, farming, and non-farming communities) overall (at least 05 years). In Pakistan, empirical data shows that poverty has decreased by 45.1% (32.1%) among farming and non-farming communities over the past five years. The results reveal a downward trend across Pakistan's provinces, except for Baluchistan. Specific poverty declined by 46.29 percent (36.15 percent) in Punjab, 71.1 percent (75.0 percent) in KPK, and 37.0 eight percent (2.0 percent) in Sindh. Baluchistan's farming (non-farming) communities have been getting poorer, from 20.64 percent to 61.28 percent. Punjab and Sindh provinces are Sutor's contributors to overall poverty, as seen by the decomposition of the population by the group for uni-dimensional poverty. Reduce poverty in both regions using a single-pronged approach by boosting economic growth and expanding employment options.

Keywords: Measurement of Unidimensional Poverty in Pakistan; among farming and Non-Farming Communities

Introduction

Over time, rising poverty had a destructive effect on nearly every economy in the world, but one social scourge has a disproportionately negative impact on agricultural economies. Traditional discussions of poverty focused on a single dimension: a lack of income (less than $1.25 per day) that prevented an individual or family from meeting basic material needs (World Bank, 20). Today, poverty is a multidimensional issue, lacking access to essential social ingredients like health, education, and housing services (GoP, 2015). Further, two These areas include education, health care, and stable housing. Second, it consists of those who live in poverty or low-income households and cannot achieve the most negligible value numerous times at once (Mustafa et al., 2016).

As UNDP notes, all economies worldwide are far from reaching their MGDs targets in 2014, except for a small number of African economies [1]. There's no denying that things were dire in Africa; poverty rates were exceptionally high, and several other severe crises also hit the continent. Nevertheless, the situation has steadily improved since 1990, and poverty rates have dropped by more than half between then and now. Additionally, it has been estimated that 1.73 billion people around the world are living in chronic poverty. Sixty percent of this info decides lack access to educational essentials.

Approximately 10% of the global population is in extreme poverty, without access to adequate food, clothing, shelter, or medical care. Poverty has decreased with time, yet in 2010, there were still about 1200,000,000 people living in extreme poverty (World Bank, 2011). While in 2012, there were still 900 million people living below the poverty line, by 2015, that number had dropped to 736 million (Cruz et al., 2015). Of these, 578 million people live in

rural areas of Sub-Saharan Africa and South Asia [2, 3] . It follows that the regions of Southern Asia and sub-Saharan Africa are home to the majority of the world's poor. Specifically, rates are highest in countries already weak and experiencing conflict. Pakistan is one of the most impoverished countries in Southern Asia. Almost 29.5% of Pakistanis, or 55 million people, live below the country's official poverty level. Rural areas continue to be where poverty is most pervasive [4]. In Pakistan, it has been determined that 58% of all homes are in rural areas. The many facets of poverty in Pakistan have been the subject of numerous scholarly investigations at national and provincial levels. The efficiency of MDP in the Punjab districts was examined by Awan and Aslam [5]. Khan et al. looked at poverty in MDPs from 1998 to 2008 in Sindh at the divisional level, while Khan et al. (2016) researched poverty in MDPs during the same period in urban areas of Pakistan and its province [6]. Saboor et al. investigated MDP in urban and rural areas across Pakistan's several administrative divisions in a similar decade [7]. The current state of MDP was investigated by Khan and Shah in agro-climatic zones of Punjab between 1998–1999 and 2018–2019 [8].

Theoretical Framework of Poverty
Conventional wisdom held that poverty was a unidimensional problem, with resources like income and possessions like cars as critical markers for study. In advanced stages, income is mainly used as a rudimentary indicator to measure poverty with divergent minimal thresholds like $1, $1.25, $1.90, and $2 per adult per day (World Bank, 2014; UNDP, 2015,) while on the contrary, in the third world or least developed states consumption expenditure along with caloric intake measure as a minimum benchmark, i.e., 2350, 2550 and 2500 calories per adult per day or basic need approach in the monetary farm are used to explore current dilemma in uni-dimensional context [9]. The Father of economics, Adam Smith 1776, initially articulated the idea of poverty and argued that a man is financially deprived if he has not had adequate cash to purchase elementary necessities that are primarily required to meet materialistic wants for the existence of life. After Adam Smith's initial definition, Karl Marks brought attention to the problem of poverty under more all-encompassing views by separating it into what is now generally understood as relative and absolute forms of deprivation. Adam Smith's perspective on what constitutes an "absolute" measure is reflected in his reluctance to provide a comprehensive explanation of the concept. On the other hand, he gave considerable thought to defining the relative term, writing that "our needs and enjoyments spring from society; we quantify them, thus by state and not by the substances of their fulfilments" [10].

Given that monetary action is necessary but insufficient to lift a person out of poverty, it is difficult for social thinkers and the intellectual community to counter the critique of uni-dimensional poverty measures in light of the aforementioned divergent perspectives. Alkire and Foster and Alkire and Santos have offered the basic idea of characterizing poverty in multiple indicators [11, 12]. Utilizing the three elementary dimensions of health, education, and housing facility might be used to overpower the current argument completely. It has also been used to measure highly vital axioms associated with the poverty issue, and this indexing approach is known as the modified form of FGT (1984). Mariara et al. explored multidimensional poverty for women and children in Kenya using methodology dimensions and sub-dimensions of an introductory study by Alkire and Foster [13]. These researchers and others followed a variant of the indexing method to arrive at their multidimensional poverty estimates (2007). Saboor et al. examined multifaceted poverty in Pakistan at the regional level, adjusting their methods to account for three fundamental characteristics [7]. Khan et al. (2011) used a similar modified approach to explain poverty in numerous indicators at the national and provincial levels in Pakistan. This method includes three basic dimensions and ten sub-dimensions, all in line with the requirements of the MDGs and SDGs. In addition to the form above and dimensions, Khan et al. also examined spatial and temporal aspects of poverty in rural Pakistan [6].

Theoretical Framework
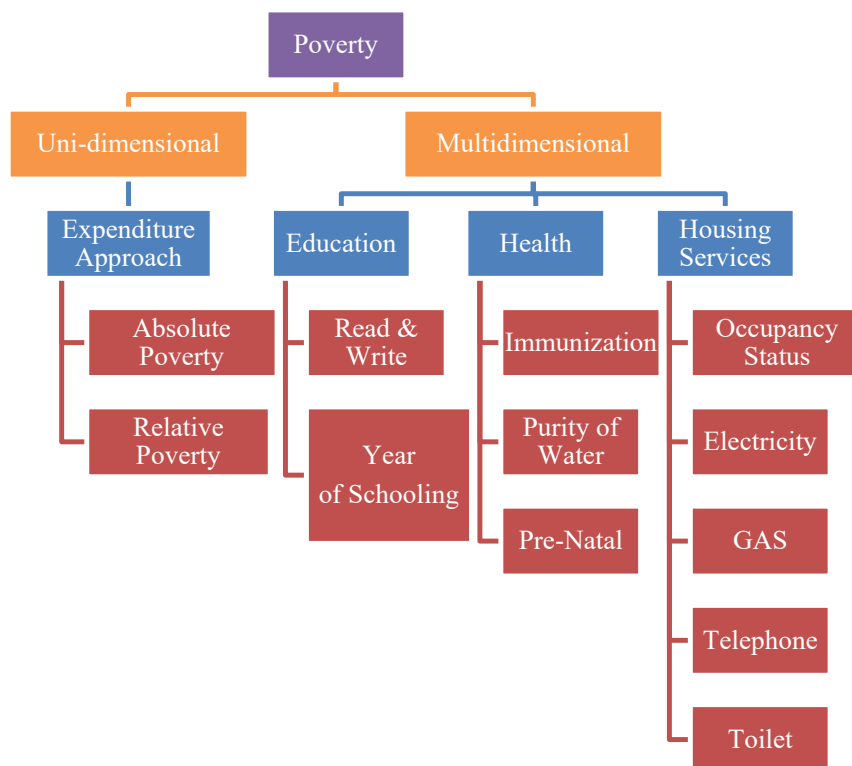
Literature Review

One of the most pressing problems on a global scale is eliminating poverty. Therefore, social scientists and economists need to get along. Using the FGT (1984) indexing method, policymakers could compare regional and national trends in HIES data from 2001–02 and 2004–05. According to the study's results, the poverty rate in Pakistan has been steadily falling since 2000. From 2004–05 to 2007–08, Akhtar et al. examined the progression of poverty in rural Punjab throughout a unidimensional spectrum [7]. Bathe solute poverty in Pakistan was studied by Nazli et al., who found that it had been on the rise from 2002–03 to 2010–11 [14]. With the help of the HIES data set for 2015-16 and the conventional indexing method, Jamal determined that poverty in Pakistan is relatively high and has profound effects in rural areas [15]. They studied poverty in Pakistan, and it was concluded that it was a strictly rural phenomenon. Single-dimensional poverty was reviewed by Abrar -ul- Haq et al. in the Vehari district of Pakistan using data from 350 Ima people. They found that a significant percentage of the population consumed less than the recommended minimum of 2,350 calories per adult per day. Using data collected from 2004–05 to 2014–15, Saleem, Shab,ir, and Khan found that multidimensional poverty in Pakistan has declined [16]. Using a multidimensional poverty index, Khan and Shah calculated the extent of poverty in Punjab's agricultural regions [17]. Between 8–99 and 2013–14, they discovered a statistically significant inverse relationship between poverty and agricultural productivity.

Due to a lack of access to necessities, Mustafa et al. (2016) found that the MDP in rural Punjab is significantly higher than in urban areas. According to the research of Zahra and Zafar, who used the Alkire and Foster approach to determine the most critical factors in MDP in Lahore's Christian community, a lack of access to educational opportunities is a primary source of inequality in this group [18]. Khan et al. examined multidimensional poverty in the Rawalpindi region from 1998-99 to 2007-08, and they found that poverty shows a diminishing trend over time in the province of Sindh. They also discussed the magnitude of multidimensional poverty at regional lathe vel in the region of Sindh and concluded that poverty had decreased significantly over time. Still, it's been seen that MDP hits rural areas worse than cities. From 1998 to 2006, researchers Salahuddin and Zaman examined the trend of multidimensional poverty in Pakistan and found a slight decrease in MDP [19]. However, the population was heavily concentrated in health and education institutions, as seen by several cutoff implementations.

Using the PSLM last decade data from 2004-05 to 2014-15 and the well-respected indexing method developed by Alkire and Foster, Khan and Akram calculated the sensitivity of MDP in Pakistan and its provinces [20]. The survey found that while poverty had decreased by 34% across the country, it had been reduced by 39% within the areas of Punjab, KPK, Sindh, and Baluchistan. Using the strategy mentioned above and the HIES 2011-12 data set, Mustafa et al. (2016) tried to assess poverty on uni- and multi-dimensional levels in economically depressed regions of Punjab. The study found that rural Punjab had meager low rates of single-dimensional poverty except for the D.G. Khan and Multan divisions. In contrast, multidimensional poverty was prevalent throughout the province due to a lack of essential services and infrastructure. Using the HIES data set from 2005-06 and 2010-11, four critical

dimensions of poverty (education, health, expenditure, and housing services), and Alkire and Foster's internationally recognized indexing methodology, Sial et al. investigated the complex nature of poverty in Pakistan [21]. According to the study's projected results, deprivation and multidimensional poverty fell significantly between 2005-06 and 2010-11. On the other hand, it was found that both deprivation and multidimensional poverty decreased with values of dual cut-off ranging from 1.0 to 1.0, that a sizable fraction of Pakistanis lacked basic amenities like clean water and electricity.

Materials and Methods
This study utilized reputable cross-sectional data from the last five years of HIES (Households Integrated Economic Survey)/PSLM (Pakistan Social and Living Standard Measurement) from 2013 to 2018-19, gathered from the Pakistan Bureau of Statistics (PBS). The study is predicated on a comprehensive explanation of unidimensional poverty measured by a welfare indicator. For 2010-11, the per capita consumption expenditure and a minimum threshold of 2350 calories per adult per day expressed in rupees, i.e. (Rs=1745) (GoP, 2014). For rematch inning years, the CPI (Consumer Price Index) is used yearly to increase the price [22]. Ca The per capita consumption expenditure was calculated by dividing the total excostver adult equivalent household by one.

$$Y_i = \frac{TCE_t}{AEHS_t}$$

Here, 'Yi' represents per-person consumption expenditure, whereas 'TCEt' represents per-household consumption expenditure on durable and non-durable products, excluding taxes, tariffs, penalties, and fees. In addition, "AEHSt" is the adult equivalent household size that is based on the nutrient needs of individuals and assigns

a weight based on age; if a household member is 18 years or over, they have been allocated a weight of 1 (0.8). (CPRSPD, 2008).

Indexing Approach of Uni-dimensional Poverty
In developed nations, the per capita consumer expenditure indicator measures a single dimension of poverty. Individuals are less concerned with accurately reporting their costs than their income. Hence the expenditure indicator is more dependable than the income indicator (Rao, 2006). For the calculation, the universally recognized index of FGT (Foster, Greer, and Thornback, 1984) was utilized to determine the size of single-dimensional poverty's extensive array of fundamental axioms, notably focus and monotonicity (Ravalli and Chen, 2003). The general category of FGT is represented as

$$FGT = \frac{1}{\varphi} \sum_{j=1}^{q} \left[\left(\lambda_t - \eta_i \middle/ \lambda_t \right) \right]^{\alpha=0,1,2}$$

Here, 'p' " is a stand-in for the whole population, 'φ' stands for the number of people in need, 't' denotes the bare minimum. I am a welfare indicator or consumer expenditure. In the end, " can be any of the three numbers 0 through 2 to reflect the three standard metrics known as the headcount ratio, the poverty gap ratio, and the squared poverty gap ratio [14].

Multidimensional Poverty Measurements
Sen explains that to calculate multidimensional poverty, we must look beyond monetary indices of income and consider three social dimensions: access to healthcare, education, and stable housing [23]. Under the MDGs norm, the ten previously mentioned aspects are further subdivided into five categories. Below, in table 1, are the specifics of all these dimensions and sub-dimensions.

Table 1: Overviews of Dimensions and Sub-dimensions for MDP along with Suggested Cut-off Points

Dimensions	Sub-dimensions	Cut-off
Y^d=Expenditure	Single Dimensional Poverty	If per capita Expenditure<=Minimum threshold, then 1, otherwise 0.
D_1=Education	D_1h_1: Years of Education	If education <= six than 1, otherwise, 0.
	D_1h_2: Read and Write in any Language	If you can't read and write in any language, then 1, otherwise 0.
D_2=Health	D_2h_1: Immunization	If the Child is not immunities, then 1, otherwise 0.
	D_2h_2: Purity of Water	If there is no access to pure drinking water, then 1, otherwise 0.
	D_2h_3: Pre-natal & Post-natal Consultation	If the female is not taking pre- and post-natal consultation, then 1, otherwise 0.
D_3=Housing & Services	D_3h_1: Occupancy Status	If not, the owner occupies than 1; otherwise, 0.

	D_3h_2: Access to Electricity	Absence of Electricity connection than 1, otherwise 0.
	D_3h_3: Access to Gas Connection	Absence of Gas connection than 1; otherwise, 0.
	D_3h_4: Access to Telephone Connection	Absence of Telephone connection than 1, otherwise 0.
	D_3h_5: Access to Safe Sanitation System	If the toilet is not connected to public sewerage, then 1; otherwise, 0.

An Indexing Approach to Multidimensional Poverty

Alkire and Foster (2007) provided a widely recognized modified variant of the FGT (1984) poverty index, which is essentially based on Amartya Sen's capacity approach and satisfies a wide variety of axioms proposed by Sen to quantify poverty from a multidimensional perspective (1976). Creating the MDP index requires two practical steps: identification and aggregation. Because it is used to pinpoint those living below the poverty and deprivation lines, the identification process is an example of a simple dual cut-off method. To determine whether a person is multi-dimensionally poor, we first use a deprivation or cut-off to decide whether or not they are deprived along a particular set of dimensions. Then we use poverty or second cut-off to determine whether they are poor overall. If a person's deprivation score (ci) is more than or equal to a predetermined poverty threshold, we classify him as multidimensionally inferior (k). Adjusted headcount ratio (Mo) or multidimensional poverty index is the result of combining two indices, the incidence (Ho) and intensity (Ao) of poverty. Also, (Ho) is initially defined as the percentage of impoverished people in many dimensions. In practice, it equals the number of less fortunate people than the average (q), which varies depending on the population size (n).

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

While the second indicator of poverty severity (Ao) represents the typical deprivation score among the poor, it does so in terms of several other characteristics. Specific actions typically take the following form.

$$A = \sum i (c_i * / d) / q$$

Last, we have the multidimensional poverty index, which is the average deprivation gap across several headcount ratios (Mo). As an index that satisfies three axioms—weak monotonicity, dimensional monotonicity, and ordinality—it is beneficial for gauging poverty across multiple dimensions [24]. This is the empirical definition of Mo:

$$M_o = H_o \times A_o$$

On the other hand, Mo can provide decomposability of the study's subgroups and all aspects. And she is understanding the relative contributions of various population subgroups to overall poverty requires decomposability (Mo). Similarly, dimensional decompos-

ability shows how much each form of deprivation adds to the total amount of poverty (Mo) [25].

The adjusted poverty gap ratio is the considerable sum of Mo and G, where 'G' is an average normalized gap across the dimensions under discussion; these measures are similar to the poverty gap ratio and the squared poverty gap ratio used to classify the results of studies on uni-dimensional poverty. According to empirical evidence, it might be written as

$$M_1 = M_o \times G$$

$$G = \sum \frac{(\lambda_i - \eta_i)^{\alpha=1}}{\lambda_i}$$

Finally, the adjusted squared poverty Gap is estimated by multiplying Mo with S. While 'S' is calculated by taking the square of each estimated value of G.

$$M_2 = M_o \times S$$

$$S = \sum \frac{(\lambda_i - \eta_i)^{\alpha=2}}{\lambda_i}$$

In the previously discussed equation, λi is the minimum benchmark that distinguishes between deprived and non-deprived in different dimensions, I am the total deprivation in selected sizes, and α= 1, 2 are the assigned measures for calculating the poverty gap and poverty gap squared in a multidimensional context.

Results and Discussions

Traditional discourse on poverty was mainly predicated on a unidimensional idea, and FGT's (1984) indexing method has been utilized globally to investigate empirical findings. The 1984 FGT measurement consisted of three components: headcount ratio, poverty gap ratio, and poverty gap squared. The headcount ratio defines the proportion of poor who live below the minimum threshold or poverty line. In contrast, the poverty gap ratio explains how much poorer is insufficient or the extent to which an individual on average falls below the minimum threshold, and the squared poverty gap ratio reveals the degree of inequality between the extremely poor and those who were just below the minimum threshold or poverty line (Haughton and Khandker, 2009). Using these methodologies, this study calculated the unidimensional

poverty of Pakistan's farming and non-farming communities at the national and provincial levels from 2013-14 to 2018-19.

Table 2 displays the projected effects of unidimensional poverty based on two distinct minimal thresholds, the food energy intake technique (FEI) and the cost of immediate needs method (CBN), using consumption expenditure as the key indicator. An initial measure of minimal threshold daily calories required by an adult (2350 calories) in monetary terms has been used to differentiate the poor from the non-poor. In the second measure, the average total cost of basic items (discussed in the essential basket of goods to sustain life) has been used to differentiate the poor from the non-poor (GoP, 2015).

In Pakistan as a whole, according to the FEI standard of 2259.32 rupees per adult per month, 9.50% of individuals are unidimensional poor, with a population contribution of 100% and a depth (severity) of poverty of 1.34 percent (0.304 percent) accordingly. Similarly, according to the CBN's minimal poverty criterion, 30.01 % of individuals live below the poverty line of 3 rupees per month, with severity of 5.90% (1.70 %). Similar to national measurements, farming community outcomes indicate that 8.76% (28.29%) of persons are unidimensional poor, with a population contribution of 100%, a depth of poverty of 1.24 % (5.50%), and a severity of poverty of 0.24 % (1.60%). The results of the non-farming community indicate that 10.80% of the population is unidimensional poor, with a population contribution of 100%, a depth of poverty of 1.50% (6.65%), and severity of poverty of

0.336% (1.92%) accordingly. Individuals in non-farming communities suffer from poverty to a much greater extent than their counterparts in farming communities, according to statistics comparing the two groups based on different poverty criteria.

In Punjab, Sindh, KPK, and Baluchistan, under the FEI (CBN) minimum criterion, 8.36% (24.30%), 13.70% (40.50%), 3.81% (19.90%), and 13.94% (44.75%) of the population, respectively, are financially poor, with population contribution to the overall agricultural number. 39.22%, 27.83%, 21.233%, and 11.72%, respectively; poverty severity 0.333% (1.53%), 0.405% (2.37%), 0.113% (0.779%), and 0.343% (2.37%). Nevertheless, in each province's farming community, according to the preceding discussion of yardsticks, 7.06 % (21.47 %), 13.80 % (39.55 %), 3.84 % (20.27 %), and 13.96 % (44.40 %) of the population are financially insecure, with each subgroup contributing to the overall percentage. 38.76%, 25.25%, 23.70%, and 12.30%; depth of poverty 1.08% (4.30%), 1.96% (8.13%), 0.52% (3.18%), and 1.7% (8.53%); and severity of poverty 0.27% (1.30%), 0.44% (2.40%), 0.11&percn. Finally, among non-farming community in each province as per minimal threshold 10.80% (29.53%), 13.60% (41.90%), 3.74% (18.90%) and 13.91% (45.53%) individuals are uni-dimensional or financial poor with population contribution to overall non-farming figure 40.08%, 32.70%, 16.62% and 10.63%, depth of poverty 1.70% (6.32%), 1.71% (8.32%), 0.48% (2.97%) and 1.70% (8.80%) and severity of poverty 0.42% (1.96%), 0.347% (2.33%), 0.105% (0.742%) and 0.320% (2.40%) respectively.

Table 2: Calculates Uni-dimensional Poverty in Pakistan, its Provinces, and Representative Farming and Non-Farming Communities 2013-14

Regions	Pop.	Cont.	FEI Approach			CBN Approach		
			P_0	P_1	P_2	P_0	P_1	P_2
Punjab	46681	39.22	8.36	1.30	0.33	24.30	5.01	1.53
Farming	30084	38.76	7.06	1.08	0.27	21.47	4.30	1.30
Non- Farming	16597	40.08	10.80	1.70	0.42	29.53	6.32	1.96
Sindh	33120	27.83	13.70	1.86	0.405	40.50	8.21	2.37
Farming	19593	25.25	13.80	1.96	0.445	39.55	8.13	2.40
Non- Farming	13527	32.70	13.60	1.71	0.347	41.90	8.32	2.33
KPK	25263	21.23	3.81	0.51	0.113	19.90	3.12	0.779
Farming	18383	23.70	3.84	0.52	0.116	20.27	3.18	0.793
Non- Farming	6880	16.62	3.74	0.48	0.105	18.90	2.97	0.742
Baluchistan	13954	11.72	13.94	1.75	0.343	44.75	8.62	2.38
Farming	9551	12.30	13.96	1.78	0.353	44.40	8.53	2.37
Non- Farming	4403	10.63	13.91	1.70	0.320	45.53	8.80	2.40

Pakistan	119018	100.00	9.50	1.34	0.304	30.01	5.90	1.70
Farming	77611	100.00	8.76	1.24	0.288	28.29	5.50	1.60
Non- Farming	41407	100.00	10.80	1.50	0.336	33.28	6.65	1.92

Source: Author's Citation Using HIES 2013-14 data and STATA-12 Statistical Package

P_o= Headcount Ratio; P_1=Poverty Gap Ratio; P_2= Squared Poverty Gap Ratio

Figure 1 depicts the average expenditures of Pakistan's farming and non-farming communities on food and non-food goods during the 2013-2014 fiscal year. Individuals with a higher income are categorized into the 4th and 5th quintiles, whereas those with a lower income are classified into the 1st to 3rd quintiles. Households with a more down payment, particularly those in the 1st to 3rd quintiles, spend less on essential foods and non-food items, so their consumption expenditures are low. In these quintiles, most persons are high-income earners, such as landlord farmers, high-level government employees, and large business owners. In 2013-14, the 1st, 2nd, 3rd, 4th, and 5th quintiles in Pakistan spent an average of 2224.81 rupees, 3036.30 rupees, 3791.30 rupees, 4865.60 rupees, and 9240.70 rupees per adult per month on food and non-food goods, respectively, according to the results of an initial survey. However, the numbers of the farming and non-farming populations indicate that the farming community has a higher expenditure on food and non-food items across all quintiles than the non-farming community. Individuals in the first three quintiles of both groups spend a smaller proportion of their income on food and non-food items. In contrast, those in the fourth and fifth quintiles spend a substantial proportion of their income on a basic basket of food and non-food items. In 2013-14, empirical measurements of the farming (non-farming) community indicate that the average monthly expenditures of the first, second, third, fourth, and fifth quintiles on essential food and non-food items were 2260.40 (2166.70), 3100 (2925.80), 3877.40 (3633.70), 4990.60 (4631.93), and 9467.70 (8780.65) rupee per adult.
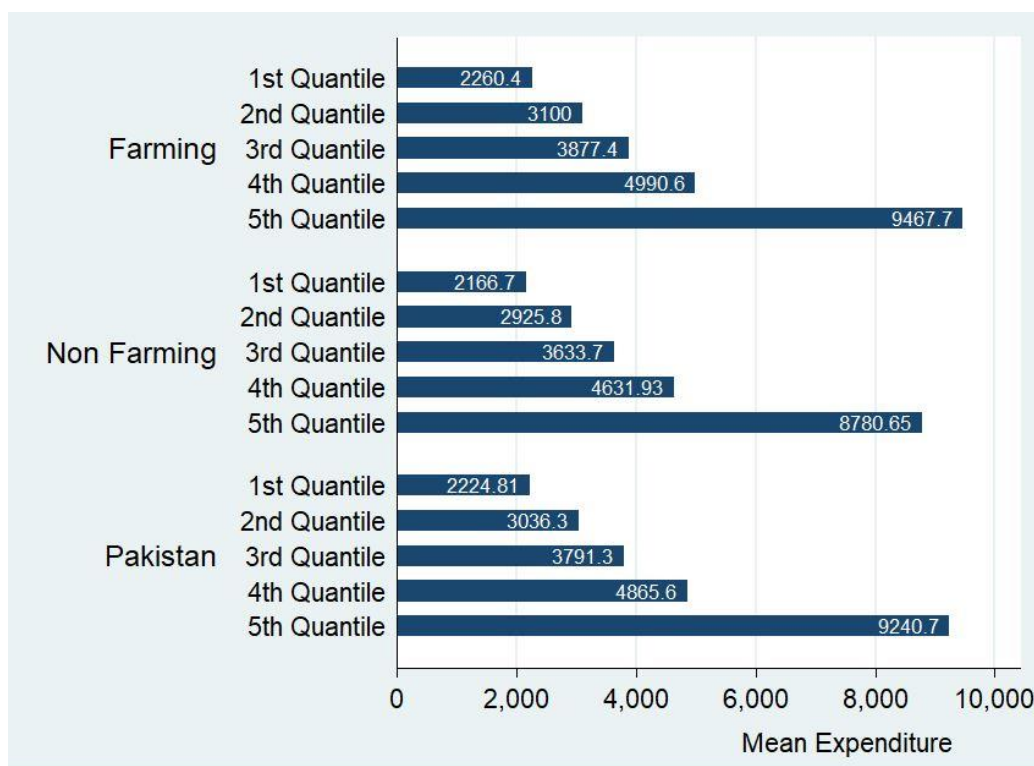
Figure 1: Mean per Head Consumption Expenditure of Individuals at National Level & across the Farming and Non-farming Communities in Pakistan in Different Quintiles

Table 3 shows the estimated results of single-dimensional poverty for 2015-16, under two different minimal thresholds, food energy intake (FEI) and cost of basic need methods (CBN), by taking per capita consumption expenditure as a primary variable. Like preceding measurement of the year 2013-14, initial results of overall Pakistan for the year 2015-16 according to FEI yardstick, i.e., 2434.15 rupees per adult per month states that at general level 8.26% individual is uni-dimensional poor with population contribution to overall figure 100% and depth (severity) of poverty 1.21% (0.28%) respectively.

Similarly, according to CBN minimal threshold, 26.47% of indi-

viduals live under the poverty threshold of Rs: 3258.17 rupees per month with a depth (severity) of poverty of 5.19% (1.50%) respectively. Similar to national measurements, the conclusions of the farming community indicate that 7.54 percent of the population (25.03%) is unidimensional poor, with a population contribution of 100 percent, a depth of poverty of 1.13 percent (4.84%), and severity of poverty of 0.26 percent (1.4%). The results of the non-farming community indicate that 9.60% of the population is unidimensional poor, with a population contribution of 100%, a depth of poverty of 1.35 % (5.83 %), and a severity of poverty of 0.30 % (1.70 %) accordingly In Punjab, Sindh, KPK, and Baluchistan, under the FEI (CBN) minimal threshold, 8.09 percent of the population (23.74%), 10.80 percent (31.23%), 4.24 percent of the population (20.32 percent), and 11.8 percent of the population (38.42 percent) are financially poor, with population contributions of 39.95 percent, 23.98%, 24.0 percent, and 12.02 percent, respectively; the depth of poverty is 1.13 percent (4.8 percent), 1.6 percent (6.5 percent.

However, according to the benchmarks discussed above, within the farming community in each province, 7.33 percent (21.74 percent), 9.78 percent (29.03 percent), 3.86 percent (20.82 percent), and 11.10 percent (37.58 percent) of the people are financially impoverished. 39.34%, 21.50 %, 26.76 %, and 12.72 %; poverty severity 0.24 % (1.29%), 0.29 % (1.81%), 0.10 % (0.84%), and 0.5 % (2.22%). Lastly, 9.42% (27.23%), 12.21% (34.26%), 4.38% (19.02%), and 13.38% (40.10%) of the non-farming population in each province, according to the minimum criteria, are unidimensional or financially poor, with population contribution to the overall non-farming number. 41.05 %, 28.60 %, 19.11 %, and 11.28 %; depth of poverty 1.26 % (5.52%), 1.81 % (7.23%), 0.47 % (3.02 %), and 2.03 % (8.20 %); and severity of poverty 0.28 % (1.60%), 0.34 % (2.15%), 0.44 % (2.42%), and 0.30 % (1.70 %).

Table 3: Calculates of Uni-dimensional Poverty in Pakistan its Provinces and Representative Farming and Non-Farming Communities 2015-16

Regions	Pop.	Cont.	FEI Approach			CBN Approach		
			P_o	P_1	P_2	P_o	P_1	P_2
Punjab	62968	39.95	8.09	1.13	0.25	23.74	4.80	1.40
Farming	40099	39.34	7.33	1.05	0.24	21.74	4.39	1.29
Non- Farming	22869	41.05	9.42	1.26	0.28	27.23	5.52	1.60
Sindh	37795	23.98	10.80	1.66	0.39	31.23	6.52	1.96
Farming	21888	21.50	9.78	1.56	0.29	29.03	6.01	1.81
Non- Farming	15907	28.60	12.21	1.81	0.34	34.26	7.23	2.15
KPK	37925	24.06	4.24	0.51	0.10	20.32	3.29	0.81
Farming	27278	26.76	3.86	0.53	0.10	20.82	3.39	0.84
Non- Farming	10647	19.11	4.38	0.47	0.09	19.02	3.02	0.74
Baluchistan	18948	12.02	11.86	1.98	0.48	38.42	7.64	2.29
Farming	12664	12.42	11.10	1.94	0.50	37.58	7.36	2.23
Non- Farming	6284	11.28`	13.38	2.03	0.44	40.10	8.20	2.42
Pakistan	157636	100.00	8.26	1.21	0.28	26.47	5.19	1.50
Farming	101929	100.00	7.54	1.13	0.26	25.03	4.84	1.40
Non- Farming	55707	100.00	9.60	1.35	0.30	29.12	5.83	1.70

Source: Author's Citation Using HIES 2015-16 data and STATA-12 Statistical Package
P_o = Headcount Ratio; P_1 =Poverty Gap Ratio; P_2 = Squared Poverty Gap Ratio

Figure 2 examines the average estimates of individual consumption expenditures on several essential products for 2015-16 in Pakistan and its two sample communities, farming, and non-farming. Estimates by quintile for overall Pakistan estimates that in 2015-16, households with low incomes are classified in the first three quintiles because their expenditures on necessities are relatively common; the majority of these quintiles' earners are daily wage laborers, those with small-scale government jobs, and paddlers, whereas those with higher incomes are classified in the fourth and fifth quintiles. This quintile primarily comprises high-income earners, such as landlord farmers, high-level government employees, and large business owners. In 2015-16, the 1st, 2nd, 3rd, 4th,

and 5th quintiles spent an average of Rs. 2,550, Rs. 3,558, Rs. 4545.17, Rs. 6025.30, and Rs. 12332.50 per adult per month on the consumption of necessities, based on the results of an initial survey of Pakistan. Non-farming community individuals had higher average consumption expenditures in the fourth and fifth quintiles compared to their farming counterparts in Pakistan. Individuals in the first three quintiles of both groups spend less of their income on essential food and non-food items. In contrast, those in the fourth and fifth quintiles spend a considerable portion of their income on a precise basket of essential food and non-food products. In 2015-16, empirical measurements of the farming (non-farming) community determined that the average monthly expenditures of

the first, second, third, fourth, and fifth quintiles on essential food and non-food items were respectively 2556.75 (2538.60), 3556.43 (3559.43), 4545.40 (4544.80), 6025.93 (6023.96), and 12229.10 (12555.4) rupee per adult. A comparison of the fiscal years 2013–14 and 2015–16 reveals that, over time, per capita consumption has increased, indicating that the level of living of the average citizen has risen.
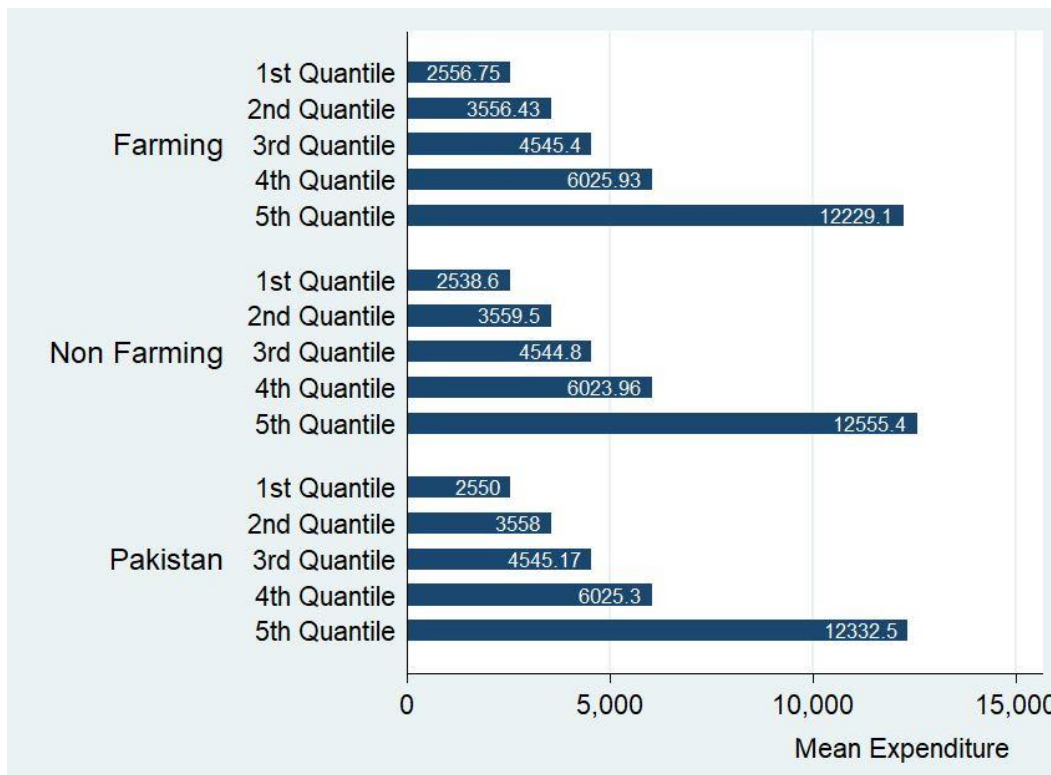
Figure 2: Mean per Head Consumption Expenditure of Individuals at National Level & across the Farming and Non-farming Communities in Pakistan in Different Quintiles

Table 4 presents the projected findings of single-dimensional poverty for 2018-19, based on two distinct minimal thresholds, food energy intake (FEI) and cost of basic need methods (CBN), with per capita consumption expenditure as the primary variable. Initial results of Pakistan for the year 2018-19 according to the FEI standard, i.e., 2818 rupees per adult per month, indicate that at the overall level, 5.23 percent of individuals are unidimensional poor, with population contribution to the overall figure being 100 percent and the severity of poverty is 0.67 percent (0.14%). Similarly, according to the CBN, 20.45% of the population lives below the poverty threshold of Rs: 3,777 per month, with the severity of poverty at 3.60% (0.95%). Similar to national measurements, the outcomes of the farming community indicate that 4.24 percent (19.34 percent) of individuals are unidimensional poor, with a population contribution of 100 percent, a depth of poverty of 0.5 percent (3.23 percent), and severity of poverty of 0.09% (0.09 percent). The results of the non-farming community indicate that 5.78 percent (21.06 percent) of the population is unidimensional poor, with a population contribution of 100 percent, a depth of poverty of 0.76 percent (3.8 percent), and a verity of poverty of 0.16 percent (1.0 percent) accordingly. Like the previous discussion, the data of both communities under different poverty thresholds demonstrate that non-farming community residents are significantly more likely to be impoverished than their farming counterparts, both historically and in the present. Nonetheless, comparative analysis reveals that, similar to the improvement in per capita consumption expenditure, poverty has decreased marginally from 2015-16 to 2018-19 and significantly from 2013-14 to 2018-19, validating that the living standard of the commoner has been raised in Pakistan as a whole and across two communities.

In Punjab, Sindh, KPK, and Baluchistan, under FEI (CBN) minimal threshold, 3.80% (16.62%), 8.05% (26.10%), 3.70% (18.12%), and 7.86% (29.18%) individuals are financially poor, with population contribution to overall figure 42.71%, 24.41%, 21.14%, and 11.78%, depth of poverty 0.47% (2.78%), 1.09% (5.06%), 0.45% (2.90%), and 0.94% (5.12%).

However, according to the benchmarks discussed above, 2.54 percent (14.16 percent), 8.06 percent (29.74 percent), 3.09 percent (16.88 percent), and 9.12 percent (34.59 percent) of the farming community in each province are financially poor, with population contribution to the total figure. 41.89%, 22.32%, 29.83%, and 12.22%, poverty severity 0.05% (0.52%), 0.18% (1.41%), 0.07% (0.64%), and 0.20% (1.50%). Lastly, 4.59 % (18.18 %), 8.06 % (34.65 %), 4.14 % (19.01 %), and 9.12 % (34.59 %) of the

non-farming population in each province are unidimensional or financially impoverished, with population contribution to the overall non-farming figure. 44.72%, 29.50%, 15.20%, and 10.59%, poverty severity 0.12% (0.82%), 0.27% (1.43%), 0.09% (0.77%), and 0.18% (1.2%).

Table 4: Calculates of Uni-dimensional Poverty in Pakistan its Provinces and Representative Farming and Non-Farming Communities 2018-19

| Regions	Pop.	Cont.	FEI Approach			CBN Approach		
			P_0	P_1	P_2	P_0	P_1	P_2
Punjab	68333	42.71	3.80	0.47	0.09	16.62	2.78	0.71
Farming	47490	41.89	2.54	0.30	0.05	14.16	2.18	0.52
Non- Farming	20843	44.72	4.59	0.57	0.12	18.18	3.16	0.82
Sindh	39050	24.41	8.05	1.09	0.24	26.10	5.06	1.43
Farming	25304	22.32	8.06	0.91	0.18	29.74	5.44	1.41
No- Farming	13746	29.50	8.06	1.16	0.27	24.65	4.91	1.43
KPK	33814	21.14	3.70	0.45	0.08	18.12	2.90	0.72
Farming	26727	29.83	3.09	0.38	0.07	16.88	2.69	0.64
Non- Farming	7087	15.20	4.14	0.51	0.09	19.01	3.06	0.77
Baluchistan	18784	11.74	7.86	0.94	0.18	29.18	5.12	1.35
Farming	13850	12.22	9.12	1.08	0.20	34.59	6.09	1.59
Non- Farming	4934	10.59	7.40	0.88	0.18	27.14	4.75	1.26
Pakistan	159981	100.00	5.23	0.67	0.14	20.45	3.60	0.95
Farming	113371	100.00	4.24	0.50	0.09	19.34	3.23	0.80
Non- Farming	46610	100.00	5.78	0.76	0.16	21.06	3.80	1.03

Source: Author's Citation Using HIES 2018-19 data and STATA-12 Statistical Package
P_0= Headcount Ratio; P_1=Poverty Gap Ratio; P_2= Squared Poverty Gap Ratio

By combining global assessments, it has been determined that overall, and among non-farming communities, KPK has the lowest incidence of unidimensional poverty. In contrast, Punjab has the lowest incidence of poverty within agricultural communities. In contrast, Baluchistan province is most affected by the issue of poverty in the unidimensional spectrum under both minimal thresholds and across both communities. Comparative analysis between farming and non-farming groups at the national and provincial levels finds that, except in Baluchistan, non-farming communities are disproportionately affected by unidimensional poverty in all provinces save Baluchistan. Lastly, a federal and local level comparative analysis concludes that from 2013-14 to 2015-16, poverty in Pakistan has decreased marginally at the overall level and across both communities and that from 2013-14 to 2018-19, poverty has decreased significantly, indicating that with time, individuals' living standards have improved and they have become financially stronger.

Figure 3 examines the average estimates of individual consumption expenditures on several essential products for 2018-19 in Pakistan and its two sample communities, farming and non-farming. Estimates by quintile for overall Pakistan estimates that in 2018-19, households with low incomes are classified in the first three quintiles because their expenditures on necessities are relatively common; the majority of these quintiles' earners are daily wage laborers and paddlers, whereas individuals with higher incomes are classified in the fourth and fifth quintiles. In these quintiles, most persons are high-income earners, such as landlord farmers, high-level government employees, and large business owners. In 2018-19, the 1st, 2nd, 3rd, 4th, and 5th quintiles spent an average of 2915.40, 3940.42, 4890.96, 6292.50, and 11540.40 rupees per adult per month on the consumption of necessities, respectively. However, the consumption expenditures of the farming community on food and non-food products are greater than those of the non-farming population at the national level in Pakistan, except for the first and fifth quintiles. Individuals in the first three quintiles of both communities spend a smaller proportion of their income on essential food and non-food items. In contrast, those in the fourth and fifth quintiles spend a substantial proportion of their income on a precise basket of critical food and non-food items. In 2018-19, the farming (non-farming) community's empirical data indicates that the average monthly expenditures on essential food and non-food items for the 1st, 2nd, 3rd, 4th, and 5th quintiles are 2912.30 rupees (2922.23), 3941.23 rupees (3938.47), 4891.25 rupees (4890.26), and 6294.15 rupees (6288.25) per adult. A comparison of the last five years, from 2013-14 to 2018-19, reveals that the per capita consumption of persons has increased over time, indicating that the living level of the average person has improved [26-48].
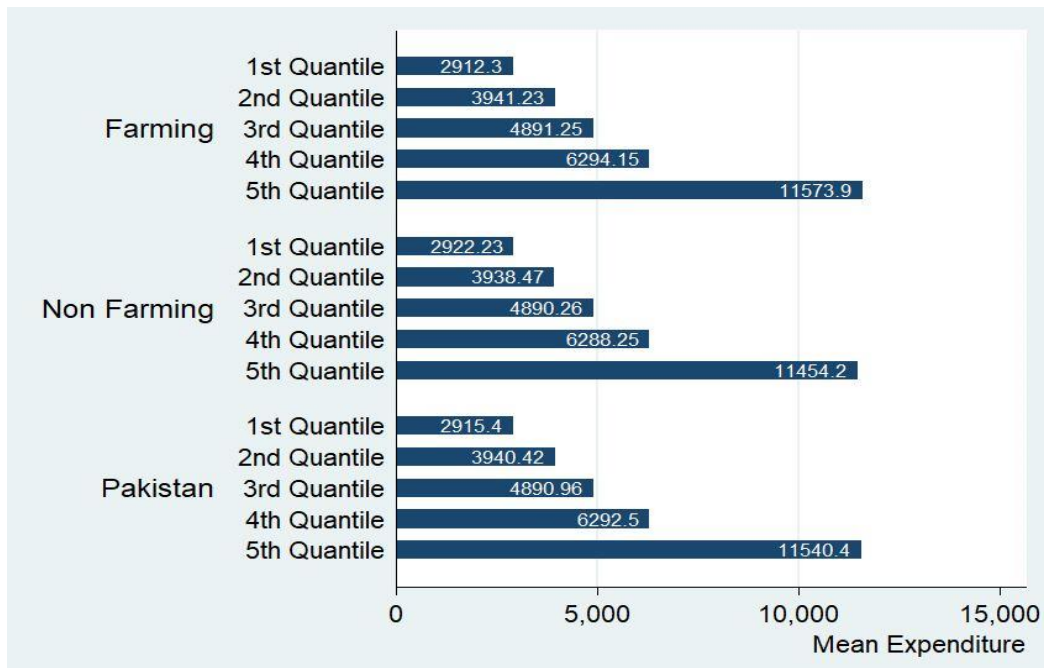
Figure 3: Mean per Head Consumption Expenditure of Individuals at National Level & across the Farming and Non-farming Communities in Pakistan in Different Quintiles

Conclusions

Recent methodological advancements in assessing poverty have included ordinal and cardinal variables in a multidimensional framework for a more extensive and nuanced comprehension of the issue. The study consists of unidimensional and multidimensional poverty assessments using the Pakistan Bureau of Statistics' HIES national cross-sectional data collection from 2013-14 to 2018-19. The study's overall estimates were derived from three fundamental approaches: the first and second approaches are indexing techniques that evaluate the outcomes of single and multidimensional poverty along with population decomposition for single-dimensional measures and sub-dimensional decomposition for multidimensional measures at the national, sub-national, and divisional levels in Pakistan, as well as two distinct communities (farming and non-farming), while the third approach is a multidimensional poverty indexing technique. The study's correlations illustrate, on average, how changes in various social, financial, and demographic factors impact the poverty problem.

The unidimensional perspective of the analysis depicts that both poverty thresholds, i.e., FEI and CBN, at the national and provincial levels for the non-farming population have worsened in comparison to the agricultural community for all of the years under consideration. The first two data sets, i.e., 2013-14 and 2015-16, reveal that the province of Baluchistan has the highest incidence of single-dimensional poverty. In contrast, the area of Punjab has the lowest incidence of single-dimensional poverty at the total level and across both communities (farming and non-farming). However, for 2018-2019, estimated metrics reveal a dynamic scenario compared to the first two years, in which KPK province residents are least afflicted by poverty and Sindh province residents are most affected by poverty.

In line with the indexing measures, the statistical diagnostics indicate that most indicators negatively impact multidimensional poverty across all the years. The outcomes of household's head age, education, ownership of assets, access to purified water, access to BHU, number of earners, non-farming community, and per capita expenditure causes to reduce the magnitude of poverty in the multidimensional spectrum. Hence, the variability of age and education of household heads enlarge the experience and awareness that leads take suitable decisions toward earning, education of children, and use of modern housing facilities that lead to mitigating poverty. While on the other hand, increasing access of the population toward purified water and BHU facilities decline different water diseases (typhoid, giardiasis, intestinal worms, diarrhea, cryptosporidium infections, and gastroenteritis ultimately reducing deprivation in the health sector and causing a reduction in MDP. Furthermore, an increase in ownership of assets (electrical appliances, etc.) reduces multidimensional poverty because the rise in assets reduces the deprivation in housing facilities. Similarly, an increase in the number of earners minimizes the unemployment rate, and an increase in per capita expenditure boosts the commoner's living standard, ultimately leading to reduced MDP. However, like the declining impact of various variables on MDP, the positive change across a few variables also uplifts poverty in the multidimensional scenario.

Competing Interests

The authors declare no conflict of interest.

Data Availability Statement

All relevant data are within the paper and according to the consent signed by the participants, which stated that the information they provided would only be used for the study.

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