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Impact of Employment on Multidimensional Poverty: A Case Study of Rawalpindi District Pakistan

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ABSTRACT

Objective: This study attempts to empirically investigate the role of employment on multi-dimensional poverty (MPI) of Rawalpindi district.

Research Gap: The existing empirical literature on poverty in Pakistan hints to numerous general inferences; for example, a large number of studies focused on the measurement and determinants of monetary poverty. However, limited number of empirical studies has examined multidimensional poverty. However, little attention has given the impact of employment on multidimensional poverty particularly at the household level in the Rawalpindi district. This study aims to fill this gap in the literature.

Design/Methodology/Approach: In this study, the Alkire and Foster (2011) methodology is used to estimate the incidence of poverty. Poverty is measured at two levels (district and regions) and in three dimensions (Education, health, and living standard). For this purpose, the employment status, occupations, and major industrial sector are considered for households. Further, study investigates the impact of employment on multidimensional poverty using Ordinary least square method (OLS).

Main Findings: Using regression analysis we find that employment status is significant and negatively associated with the poverty of households. The community sector is showing negative and significant results. Overall, the results show that employment and poverty have an inverse relation.

Theoretical / Practical Implications of the Findings: Theoretically, this study is based on Amartya Sen's Capability approach, which states that poverty is a multidimensional term in nature. Since there are many different aspects to poverty, measuring it only in monetary terms is not useful. Based on the empirical findings, this study urges decision-makers to move beyond income-centric views of poverty and must focus on enhancing people's freedoms to lead lives that they give value.

Originality/Value: By employing the regression analysis using a multidimensional poverty dataset, the study provides valuable insight on the impact of employment level on poverty in Rawalpindi district. Further, the findings provide practical implications for policymakers to reduce poverty and enhance the employment level at the household level in the Rawalpindi district.

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1. Introduction

The Sustainable Development Goals (SDGs) are based on the condition of fulfilling the requirements of the current generation without harming the needs of the future generation (Osondu-Oti, 2020). The very first objective of the SDGs is "to end poverty in all its forms everywhere" (Bici, 2023)., Poverty is still widespread across the globe (Feronas & Kourachanis, 2025). For the first time in the last two decades, global extreme poverty is expected to rise in 2020 due to the dispersion of the COVID-19 pandemic (Ronaghi & Scorsone, 2024). According to (World Bank, 2020),1.4 percent of the world's population may slip into extreme poverty as a result of the epidemic and global recession. Therefore, eliminating poverty in all its dimensions is the biggest global issue and crucial for sustainable development.

Eliminating poverty worldwide is the prime United Nations Sustainable Development Goal (SDG-1) and the main concern of international agencies (Alkire & Kanagaratnam, 2021). In developing countries, policymakers' top priority is providing and creating decent jobs to eradicate the poverty. It has received even more attention since the Millennium Development Goals (MDGs) were adopted. Most impoverished individuals in developing countries work in the informal sector, where they receive insufficient wages to raise themselves out of poverty. As a result, the quality of current jobs should be improved to eradicate poverty while also creating new job possibilities (Bell& Newitt, 2010; Olabiyi, 2022). The type of explicit or indirect agreement of employment between a certain person and other people or organizations is referred to as employment status. Both sectors/industries of employment and occupations of work are affected by the employment's status. The type of business where a person is engaged, or the activity of a corporation, institution, office, or department, is defined by the industry/sector. The term "occupation" refers to the type of job that people conduct within a certain period. It applies independently of the employed person's rank or industry of employment (Ullah Awan et al., 2019).

Poverty is a world-wide phenomenon that has been extensively discussed by academicians and researchers and has remained the focal point of policymakers for a long time (Long & Renbarger, 2023). Pakistan is the 5thmost extremely populated country in the world and is located in Southeast Asia with a lower middle-income status, where 29.5% of the population lives below the poverty line (see for instance Tang, 2019; George, 2023). According to Shabnam et al. (2023), Pakistan's economy has seen dynamic patterns of poverty both over time and across space since its founding. Political instability, unemployment, inflation a negative balance of payments, rising import costs, a comparatively uninnovative agricultural system, reliance on foreign aids and loans, lack of infrastructure in the health and education sectors, and several other micro- and macroeconomic problems prevent the nation from emerging from the poverty cycle (Asghar et al., 2022).

Punjab is the largest province of the country inhabiting around 53% of the total population (Nawab et al., 2023).Inequality has taken roots in the fields of health, education, and other important sectors of development (Islam et al., 2022). The core of the province's economic development—improving agricultural output and disaster management—was not given the proper attention. In order to achieve the SDGs, it is indispensable to study areas with high rates of poverty.Multidimensional poverty index (MPI) in Pakistan tries to minimize poverty and increases the development programs with socio – economic factors and attempts to meet Pakistan's 2025 vision. The aim of the MPI in Pakistan is to reduce poverty caused by a lack of money, as well as a lack of hospitals and healthcare facilities in the nation, which are linked to a high percentage of illiteracy and other social concerns affecting the entire population (Saleem, et al., 2021).

Employment is an important tool that can effectively eliminate poverty from both rural and urban areas of a country (Faturohim et al., 2023). Creation of jobs and opportunities directly impact reduction of multidimensional poverty (Sehnbruch et al., 2022). For a huge reduction in poverty and long-term prosperity of the country, everyone should have access to sufficient work opportunities (Ullah et al., 2019; Rahim et al., 2019).According to a UNDP (2013), Pakistan's employment-to-population proportion was extremely low, with the majority of those engaged in the agricultural sector. The survey also discovered that total labor productivity in Pakistan had fluctuated over time, with the lowest value of -4.4% for 2008-09 as well as the highest value of 1.6% in 2011-12.

According to the "Pakistan Employment Trends" study from 2011, the problem in Pakistan is not a lack of economic activities, but rather the existence of poor and low-productive economic activity, which is the primary reason for the country's low incomes. Pakistan is classified as a lower-middle-income country because 55 percent of the population earns less than $2 per day and 43 percent earn around $2 to $6 per day. That is why, in papers such as Vision 2030, Pakistan's national development goal encourages decent and productive jobs. Pakistan's employment to population ratio in 2021 was 47.9%. Despite significant fluctuations in previous years, Pakistan's employment to population ratio tended to decline from 2002 to 2021, reaching a low of 47.9 percent in that year. The government reported in September 2021 that 22% of the country's population is living below the national poverty line, which is set at Rs3030 (US$13) per month.

The existing empirical literature on poverty in Pakistan hints to numerous general inferences: most empirical studies focus on the measurement (Ahmad & Faridi, 2020), and determinants of monetary poverty (Ahmad & Faridi, 2020; Chishti et al., 2022) few empirical studies have examined multidimensional poverty (Saleem et al., 2021). Nonetheless, little attention has given the impact of employment on multidimensional poverty particularly in Rawalpindi city. This study aims to fill this gap in the existing literature.

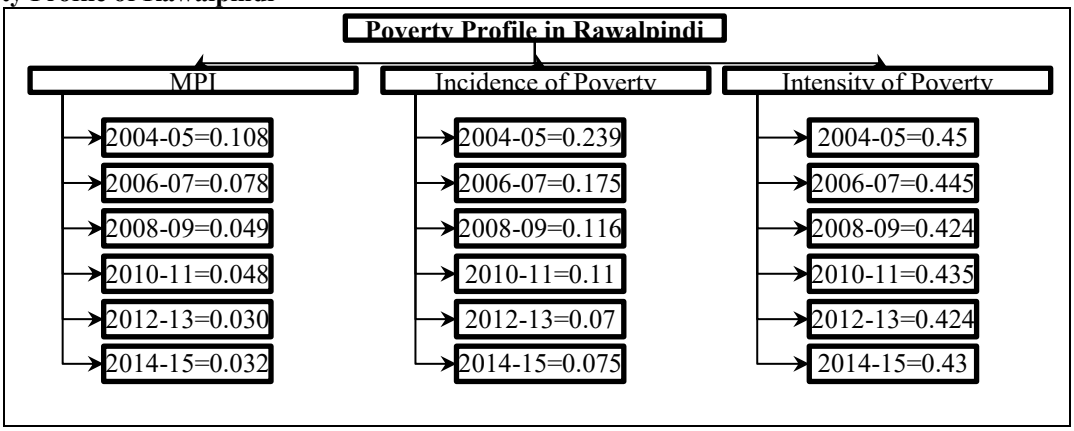
In the economic literature it is assumed that rise in the employment rate in an economy help to alleviate the poverty, however, the findings remains blurred whether it successfully decrease deprivation across multiple dimensions of the individuals. Thus this study addresses this potential gap by exploring the influence of employment on multidimensional poverty in the Rawalpindi context. More specifically in order to determine household deprivation according to the multiple dimensions of poverty, it is important to consider the typical household structure and family setup in Pakistan, which includes the joint family system, large household size, multiple nutrition deficiencies in the household members and less engagement of women in income-generating activities (Abbas et al., 2020; Saddique et al., 2023).Therefore, this study seeks to clarify the relationship between employment and multiple dimensions of poverty. The study analyses household-level data from a survey to investigate how employment influence the multidimensional poverty levels in Rawalpindi city. Therefore, based on the above discussion the decision makers need a inclusive understanding of the nexus between employment and multidimensional poverty to design effective poverty reduction policies, and the findings based on this empirical study offer new insights.

The layout of this research is arranged as follows. 2. In Sect. 2, the review of the existing literature is discussed. In Sect. 3, we discuss the data and methodology. Further, Sect. 4 dedicated to empirical findings and discussions. Finally, the conclusions and recommendations are reflected in Sect. 5.

1.1 Poverty Profile of Rawalpindi

This study investigates the impact of poverty on employment in Rawalpindi district.

Figure1: Poverty Profile of Rawalpindi



Source: MPI Report of Pakistan (2016)

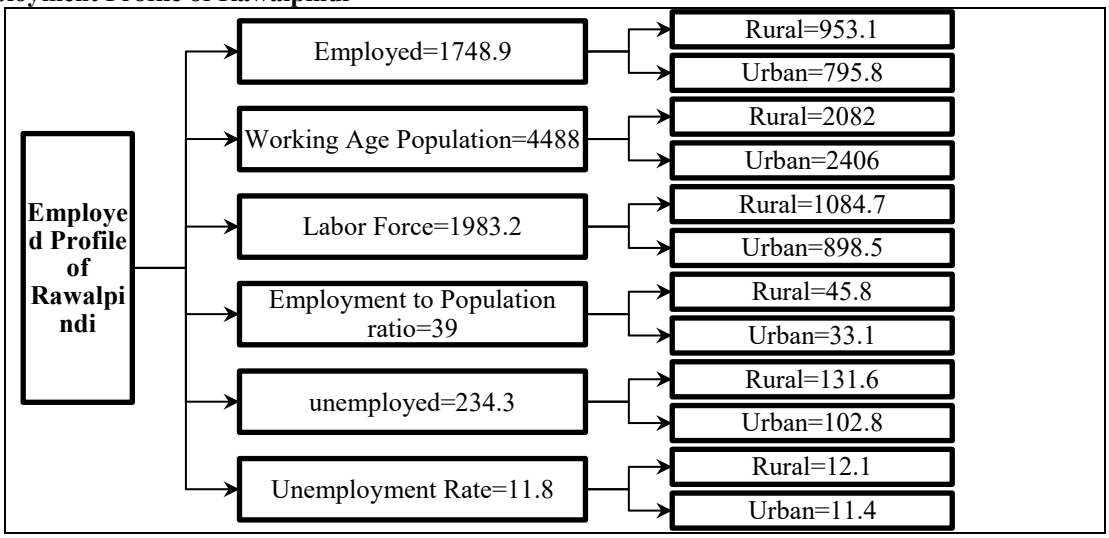
The selection for Rawalpindi district is based on two reasons; first, there is a wide range of living standards, economical activities, market accessibility, and infrastructure in this region, which includes both plain and

mountainous terrain. Second, it is situated in a dry region where rain is essential for agriculture. Since farming communities make up the majority of the rural population, it was believed that the level of poverty in this area would be significantly higher than in other areas of this country. Therefore, choosing Rawalpindi for this study's multidimensional measurement of poverty is appropriate. The poverty profile of the Rawalpindi district is taken from the report on multidimensional poverty in Pakistan (2016) from 2004 to 2015. The figure1 shows the poverty profile in the Rawalpindi district.

1.2 Employment Profile of Rawalpindi

This study shows the impact of the employment on multidimensional poverty in Rawalpindi district. In Figure 2 we depict the employment profile of Rawalpindi for 2020 – 2021. In this employment profile, the values are in thousand for employed, working-age population, labor force, and unemployed. Employment to population ratio and employment rate in percentage for both urban Rawalpindi and rural Rawalpindi. Similarly employment status includes both employed and employed.

Figure2: Employment Profile of Rawalpindi



Source: Labor force survey (2020-21)

2. Literature Review

In general poverty is affected by numerous economic and social factors of a country and remained a burning question among the scholars regarding finding ways to eradicate it (Mansi et al., 2020). Nevertheless, from income inequality to price indexes and changes in investment positions, it is always remain challenging to determine the factors with accuracy that what drives it and how can we bring the level down. Poverty has been serious challenge in the history of developing world as 22% of 107 developing country are multidimensional poor. Of course, improving education is the best approach to increasing the employability of the poor. However, a lack of jobs cannot be solved by education alone. In under-developed countries, there are frequently more educated people than there are jobs to employ them; due to labor market friction, jobs may not be filled even though economic development creates job opportunities. Ejaz (2011) suggested that female labor force participation, family size, and labour-saving gadgets have an inverse U-shaped connection. More empowered women were more likely to be working than less empowered women, according to empowerment indices. Qurat-ul-Ann and Mirza (2021) document that the size of the household, gender of the household head, the dependence ratio, and the kind of family were all shown to be strongly connected to poverty status. While being male, dependency ratio and family size are positively connected to poverty status; the head's education and income of head's work are negatively related.

2.1 Impact of Employment on Multidimensional Poverty

Employment is a key factor in reducing the poverty rate in the economy. The most effective strategy to reduce poverty is to raise the poor's income by providing them with a gainful job that leads to better earnings. SDGs are to end hunger and poverty. Employment not only provides a reliable source of money, but also improves other aspects of well-being such as skills, physical ability, and self-esteem. Creating job opportunities is the

responsibility of the government. Poverty reduction is aided by increased economic growth. It is impossible to have economic development, growth, and reducing multidimensional poverty without the creation of job opportunities. Employment is a critical component of both economic growth and poverty reduction. The employment-growth-poverty-reduction nexus claims that the link between poverty alleviation and growth is not direct, but rather indirectly through the employment channels (Islam, 2004; Selim, 2006; Yameogo & Omojolaibi, 2021; Tackie et al., 2022). The ability of economic progress to alleviate poverty is mostly contingent on employment. Economic growth can only help reduce poverty if it improves the quality of work and provides impoverished people with modest earning prospects (Yerrabati, 2022).

It is extremely difficult to create jobs in a developing, labor-intensive economy like Pakistan. Before developing a plan that could result in the creation of jobs, however, attention was not given to this issue. A huge workforce (64 million), a high unemployment rate (7 percent), and slow GDP growth are all contributing to the falling job-generating trends (Ahmed et al., 2019; Tackie et al., 2022). By generating work opportunities, education not only boosts the economy but also helps a nation develop, making it possible to eradicate poverty through employment. According to studies, small and medium-sized businesses (SMEs) play a crucial role in the development of the economy and the reduction of poverty by creating jobs and creating wealth (Sharafat et al., 2014; Abisuga-Oyekunle et al., 2020; Yameogo & Omojolaibi, 2021).

Poverty is a financial situation that makes it difficult to maintain an adequate quality of life and limits people's ability to use their initiative to explore possibilities (e.g., Sen, 1999; Zulher & Ratnasih,2021). One of the main ways people can escape or eliminate poverty is through productive labor force participation that generates sufficient sources of income. However, not even all types of labor are equally strong enough to prevent poverty, and employment doesn't often mean escaping poverty (Smith, 2015; De Bruijn & Antonides, 2022). People could be currently unemployed, jobless, and nonemployee if they lack access to adequate employment possibilities. Whenever a person works a job that is insufficient in some way compared to their requirements or desires, this is referred to as underemployment (McKee-Ryan & Harvey, 2011). Unemployed people, on the other hand, are unable to use their skills and talents until they become successful in their job hunt and get hired again. Sadly, the difficulty of getting employment during or after the Great Recession (2007-09) has also contributed to an increase in the percentage of unemployed people; as a result of their extended periods of unemployment, they have essentially stopped working altogether (Bureau of Labor Statistics, 2017a).

Sial and Cheema (2012) find that incidence of poverty was higher in homes where the head of the family worked in livestock, hunting, and agriculture, and lowest in households where the head of the household worked in social services and community. Poverty rates by occupation showed that individuals whose heads worked in agricultural skilled employees and primary occupations had the highest rates of poverty. Awan andIqbal (2010) revealed that the rate of poverty is highest among daily wage workers and in the construction industry, while it is lowest for government workers.

In Pakistan, a very few studies (Masood et al., 2012; Saboor et al., 2016; Khan et al., 2016; Nawab et al., 2023; Saddique et al., 2023) have been done on measuring the multidimensional poverty index (MPI) by using Alkire Foster (hereafter AF) methodology and especially in the Rawalpindi district there is no study available in past on the impact of employment on multidimensional poverty. Jamal (2009) made the first effort in Pakistan to estimate the magnitude of multidimensional poverty using popular poverty indices. With the use of 15 deprivation indicators from education, health, and living standard, author constructed poverty indices (headcount, poverty gap, poverty severity). Similarly, Zaman and Salahuddin (2012), Khan et al. (2016) and Saleem et al. (2021) used the AF Multidimensional to measure poverty measure.

Similarly, Naveed and Tanweer-ul-Islam (2012) gave a close assessment of poverty measurement in Pakistan and argued for the adoption of a multidimensional methodological framework in their study. Based on AF method Ashraf and Usman (2012) established a new measure of the Multidimensional Poverty Index (MPI) for the Punjab province (2007, 2009). Further, Niazi and Khan (2011) used the AF method to measure educational deprivation and estimate the incidence of multidimensional poverty in Punjab. While Pakistan's

official poverty assessment and analysis has always been uni-dimensional, very few studies have been done on the measurement of multidimensional poverty. Filmer and Pritchet (2001), Sahn and Stifel (2003), Gwatkin et al. (2007), Jamal (2009), and Schreiner (2010), are the most significant works in this approach. Sharif et al. (2019) analyzed the relationship between the household employment and household poverty in Multan district. Ullah Awan et al. (2019) measured poverty incidence and decomposition of poverty incidence across employment status, industry /sectors of employment and occupation of employment in Pakistan. However, in the literature these monetary based estimations are criticized see for instance; Anwar and Qureshi (2002). Rawalpindi district is one of the low multidimensional poverty (MPI) districts and at the same time it is among the districts with a high proportion of employment in the services sector (more than 50%). The bulk of poor individuals in developing countries work in the informal sector, in which they receive insufficient wages to raise themselves out of poverty. As a result, to eradicate poverty while also creating new job opportunities, the quality of current jobs must be improved (Bell & Newitt, 2010).

It is critical to investigate the links between poverty incidence with labour market indicators in Pakistan to manage the threat of poverty. Poverty has rarely been connected to labour market variables in prior research. This study examines the influence of employment status and type (occupation & sector) of work on household poverty incidence in an attempt to address these gaps and build links between the incidence of poverty and the labour market. Thus, the main aim of this study is to show the impact of employment on multidimensional poverty in the Rawalpindi district by using the AF methodology. In addition to that, for identification and aggregation of the poor, a dual cut-off strategy is used. To the best of our knowledge limited number of studies are available on the said issue in Pakistan however, no single study is available particularly on Rawalpindi district.

The primary objective of Sustainable Development Goals is the eradication of poverty in all of its forms. The elimination of poverty is the biggest issue facing the world. The goal of this study is to examine the situation in Pakistan's Rawalpindi District by using a multidimensional approach. The study extends on household/community growth difficulties to highlight areas that may need policy formation to support economic development; hence the findings are important for policymakers. People can maintain themselves independently once MPI is fulfilled. Because of this, stressing the MPI as a way to fight poverty is successful.

$H_0 =$ There is no impact of employment on multidimensional poverty

$H_A =$ There is impact of employment on multidimensional poverty

3. Data and Methodology

3.1 Description and Data Sources

This section develops a model based on studies and then goes into detail regarding data collection and sample size. This section gives definitions and details of the variables with references and lastly, constructs a model based on supporting studies and briefly explores how they may be measured.

3.2 Classification of Multidimensional Poverty index

3.3 Classification of Employment

The following are three categories defined the nature of employment (LFS, 2020-21):

Employed	People who work above the age of 10 years for no less than one hour under the period of consideration. They may be paid employment and self-employment are knowns as employed.
Occupation	Regardless of industry or the person's position, occupation is a type of work performed by those employed during the time frame.
Industry	Industry is either the firm, office, facility, or department where a person works, or the type of business in which he or she engages, is referred to as industry.

3.4 Status in Employment

The data for this study is derived from the Pakistan Social and Living Standards Measurement (PSLM) Survey 2019–2020. The unit of analysis is the individual. In the Rawalpindi district, the total number of

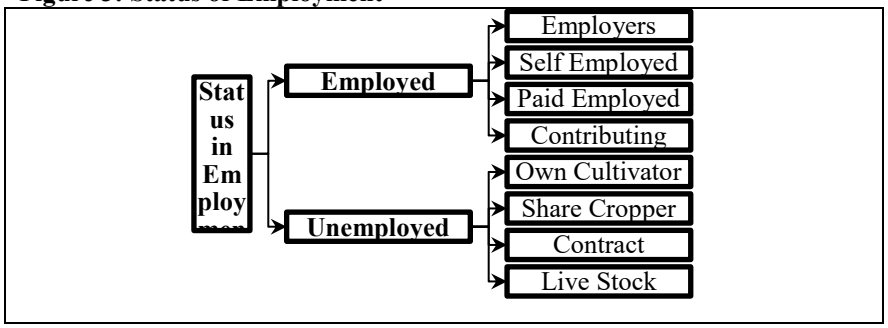
individuals surveyed was 22,208. The field enumeration for the PSLM 2019–2020 was conducted between October 2019 and March 2020.

The sort of direct or indirect terms and conditions of employment that a person has with other people or organisations is referred to as status in employment. An economically active person's job status, i.e., whether he or she is an employer, self-employed worker, employee, or unpaid family worker.

- A self-employment work is one in which the pay is based solely on the profits (or prospective profits) generated by the goods produced and services provided.
- A worker or employee for a publicly or privately employer and therefore is paid in the terms of wages, salaries, commissions, gratuities, piece rate, or money in kind is referred to as an employee.
- Employers, self-employed, and paid employees are considered as employed persons according to PSLM.

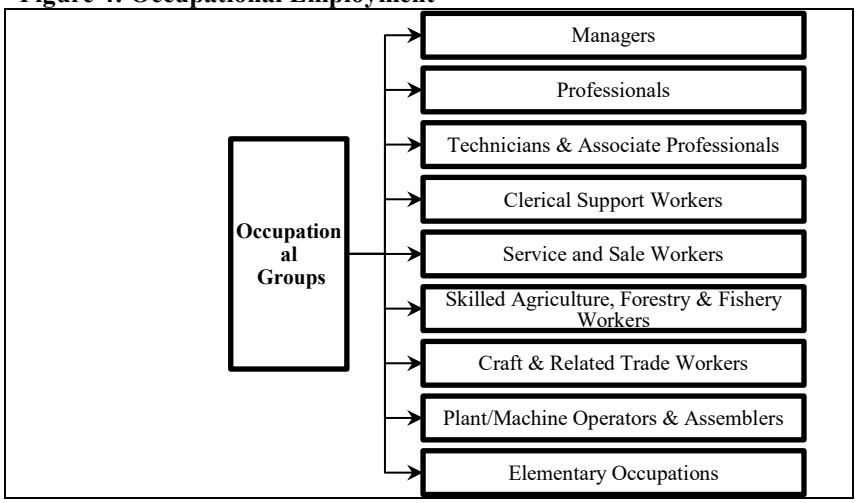
In the following Figures 3 to 5 we provide status of employment, occupational employment, and job subcategories in industrial sector in Rawalpindi district respectively.

Figure 3: Status of Employment



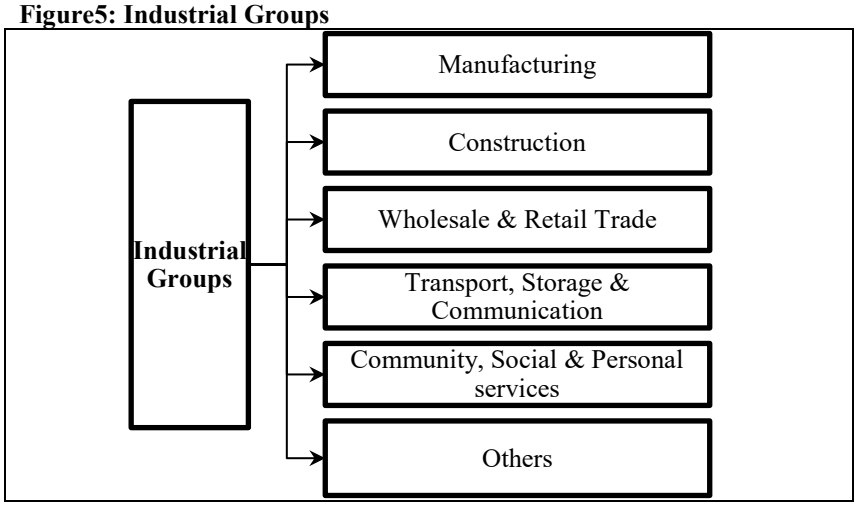
Source: Labor force survey (2020-21)

Figure 4: Occupational Employment



Source: Pakistan Standard Classification of Occupations (2015).

Figure5: Industrial Groups



Source: Pakistan Standard Industrial Classification (2010)

3.5 Multidimensional Poverty Measurement

The Alkire-Foster methodology is a widely used approach for measuring multidimensional poverty, building upon the Foster-Greer-Thorbecke (FGT) poverty measures. By incorporating multiple dimensions, indicators, and equal weighting schemes, this approach provides a more nuanced and comprehensive depiction of individual and household well-being. Notably, it serves as the basis for calculating the Multidimensional Poverty Index (MPI).

Despite its utility, the application of the Alkire-Foster method in Pakistan remains limited. Only a few empirical studies, such as those by Masood et al. (2012), Saboor et al. (2016), and Khan et al. (2016), have utilized this methodology to estimate multidimensional poverty in the country.

The estimation process under this method involves two main stages: identification and aggregation. In the identification stage, the dual cut-off approach is employed to determine who is deprived in each dimension and subsequently identify individuals as poor or non-poor based on a specified poverty threshold. The headcount ratio then quantifies the proportion of the population that is multidimensionally poor. In the aggregation stage, the information gathered from identified poor individuals is combined to construct an overall poverty measure. This allows for a more holistic understanding of poverty and enables policymakers to target specific dimensions of deprivation effectively (Alkire & Foster, 2011).

3.6 Dual cut off criteria (identification approach)

In this dual cut-off process, the first cut-off is applied to all dimensions in which to decide whether this person is deprived or not. Normally it is represented by ‘z’ and all deprived achievement levels are standardized as $(z_i - y_{ij})/ z_i$ and non-zero (positive) values “1” for deprived and 0 otherwise. In the second cut-off for each deprived household, we created a vector by computing each column vertically before allocating a weight. The non-poor and poor individuals are included in the sample data. k denotes the deprived person in a cut off method that should be greater or equal to k. It is necessary to estimate k, which can be approximated by dividing the total number of dimensions by two, to determine the dimension of poverty.

3.7 Multidimensional headcount ratio (aggregation approach)

The multidimensional headcount ratio, represented by the letter 'H,' reflects the percentage of the poor population when an individual is the unit of analysis. The headcount ratio is calculated using the aggregate cut-off point 'k'. The value of the cut-off point 'k' is calculated by dividing the dimensions by two, and it is needed to determine the poor in a multidimensional context. The headcount value lies between 0 and 1. It’s easy to compute and understand the multidimensional headcount ratio. To identify the poor, Alkire and Foster (2011) used an integer between zero and d (number of dimensions), i.e.,$c_i \geq k$ where c_i signifies the cut-off within a dimension. The following is the general formula for calculating the multidimensional headcount ratio (Khan et al., 2014).:

$$H(X; z) = \frac{1}{n}\sum_{1=d}^{n}\left[\sum_{j=1}^{n} g_{ij(k)}\right]^{0} = \frac{q}{n}$$

where q represents number of poor and n represents total population.

3.8 Adjusted headcount ratio

Adjusted headcount ratio M_0 is also known as MPI. This measure represents the both incidence (H) and intensity (A) of poverty. M_0 can be calculated with cardinal and ordinal data.

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

Here: $q = \text{Number of Poor};\ n = \text{Total Population}$

$$A = \frac{\sum_{i=1}^{n} c_i(k)}{q}$$

$c_i(k)$ is the censored deprivation score of an individual; $q = \text{Number of Poor}$

M_0 is product of both:

$$M_0 = H * A$$

whereas,

$$H = \text{Multidimensional Headcount Ratio};\ A = \text{Average Deprivation Gap},$$

3.9 Model Specification and Estimation

This research aims to investigate the impact of employment on multidimensional poverty. The Ordinary Least Squares (OLS) method is employed to estimate the model. The dependent variable is the incidence of multidimensional poverty. The explanatory variables include place of residence, gender of the household individual, age, age squared, household size, household size squared, and employment status. Following Ngubane et al. (2023), the study considers a non-linear relationship between age and deprivation score, hence the inclusion of the squared age term. As suggested by Lloyd et al. (2023), deprivation increases with age up to a certain point, after which it declines. The squared term for household size accounts for economies of scale, implying that larger households can distribute resources more efficiently, thereby reducing per capita deprivation. The study also incorporates nine major occupational groups, six major industrial sectors, and different categories of employment status to capture the diverse dynamics of employment and its influence on poverty.

4. Results and Discussions

4.1 Comparisons of Results

This study measures the Multidimensional poverty for the Rawalpindi district using PSLM survey 2019-2020. The Alkire and Foster (2011) methodology is used to estimate the incidence of poverty. Poverty is measured at two levels (district and regions) and in three dimensions i.e., Education, health, and living standard. We provide the snapshot of the MPI with the help of figures. These Figures from 6 to 11 provides us the detail of MPIs in Rawalpindi district.

Figure 6 shows the MPI results of the Rawalpindi district. Results show that the multidimensional poverty in Rawalpindi is 0.047 which means that multidimensionally poor people in Rawalpindi experience 4.7% of the total deprivations that would be experienced if all people were deprived in all indicators. Figure 7 depicts the dimension- wise poverty is higher in education than in the health and living standard dimension.Figure8

indicates the contribution of each indicator toward the MPI of the Rawalpindi district. The health facilities contribute is about 36% which is high as compared to others and Years of schooling contributes the 34% which is less than health facilities. Finally, the child's school attendance is 8%. Figure 9 we present the region-wise MPI. It is observed that region-wise poverty is higher in rural areas as compared to urban areas. Figure 10 shows the percentage of deprived individuals whose indicator value is below the threshold. 41.305% of the population are deprived of health facilities meaning they are below the cut-off value (K=0.33) and then deprived of land 32.811% of the population are deprived. Moreover, poverty has different levels of poverty. That is ordinary poverty, vulnerable poverty, and severe poverty. In ordinary poverty, the cut-off value is 0.33. All those populations where a deprivation score is greater and equal to 33% consider multidimensionally poor. In vulnerable poverty, the cut-off value is 0.20. Those populations with deprivation scores greater than 0.20 and less than 0.33 are considered the vulnerable multidimensionally poor. In severe poverty the cut-off value 0.50. All those populations with deprivation scores greater than 0.50 are in severe multidimensional poverty. Finally Figure 11 shows the picture of the contribution of each indicator by region. In urban regions, deprivation is high in health facilities at 37.1%. In years of schooling, deprivation is 36.1% which is comparatively low than health. In the rural region, health contributes 35% and years of schooling contribute 32% of deprivation in multidimensional poverty.

Figure 6: MPI of Rawalpindi District

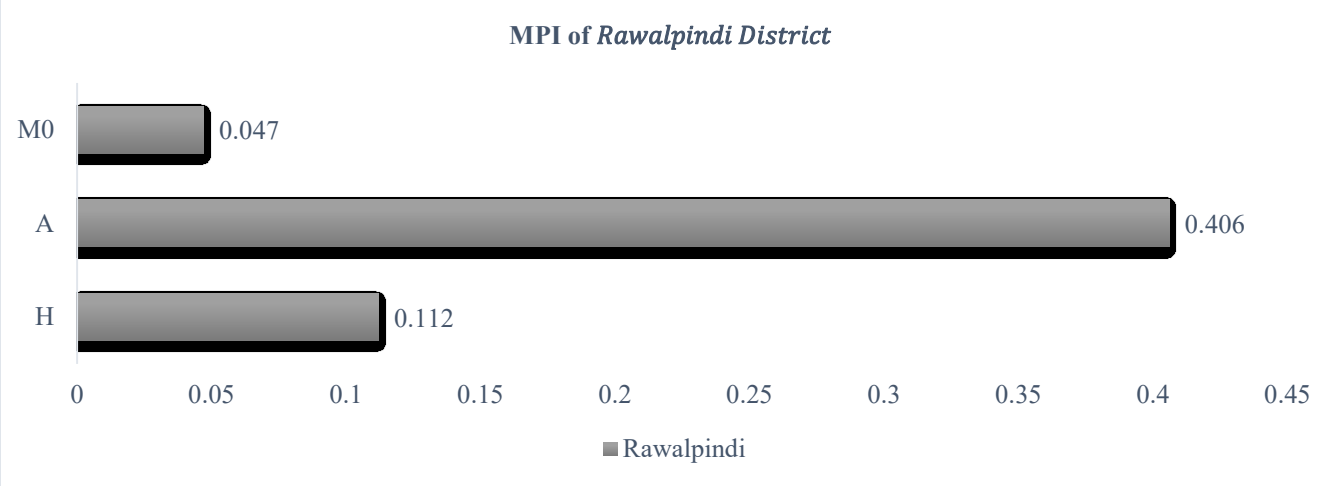


Figure 7: Education, Health, and Living Standard Contribution to MPI

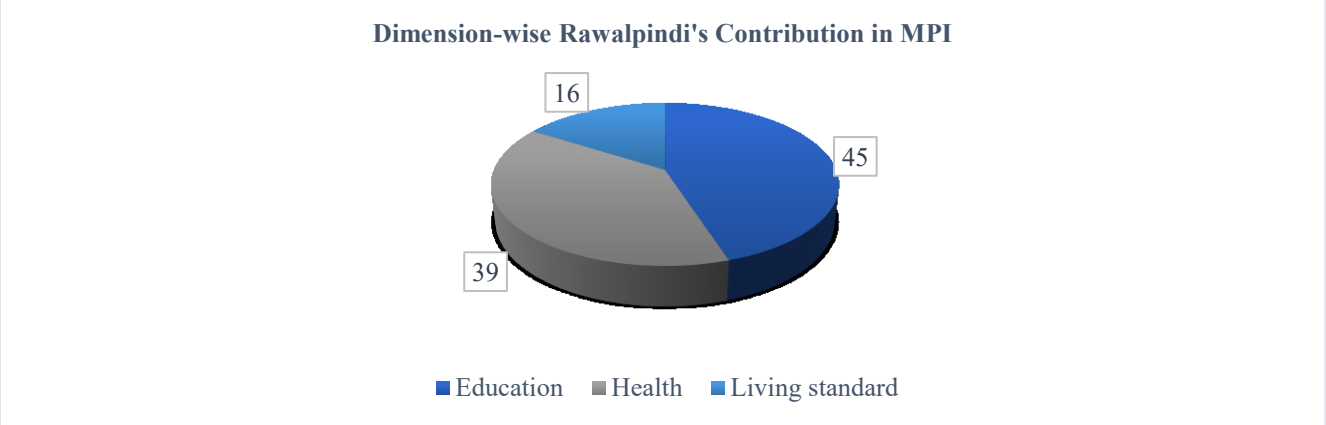


Figure 8: Overall Contribution of each Indicator in MPI

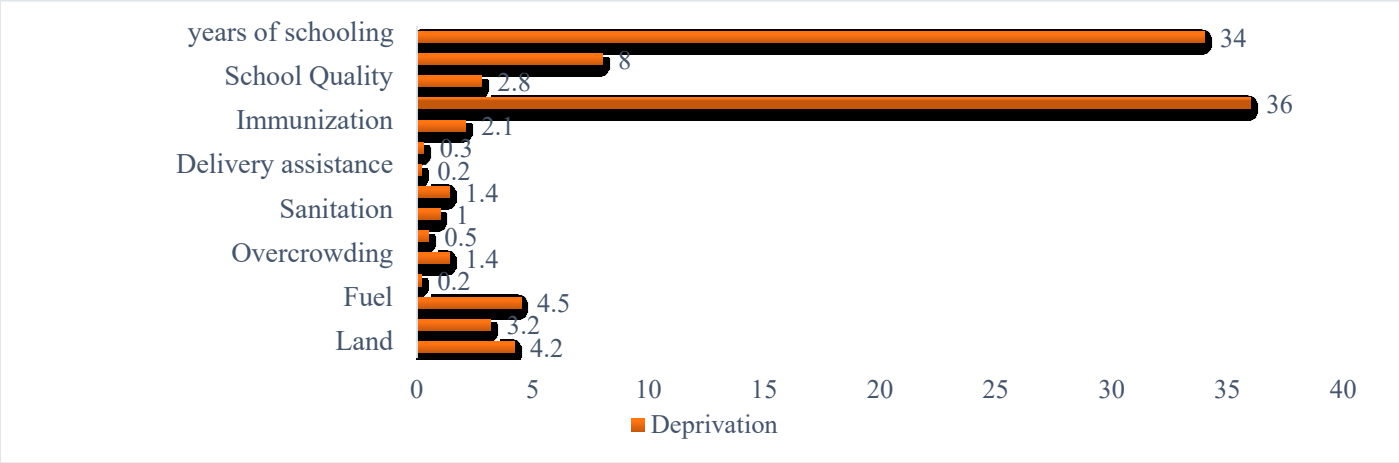


Figure 9: Decomposition by Region

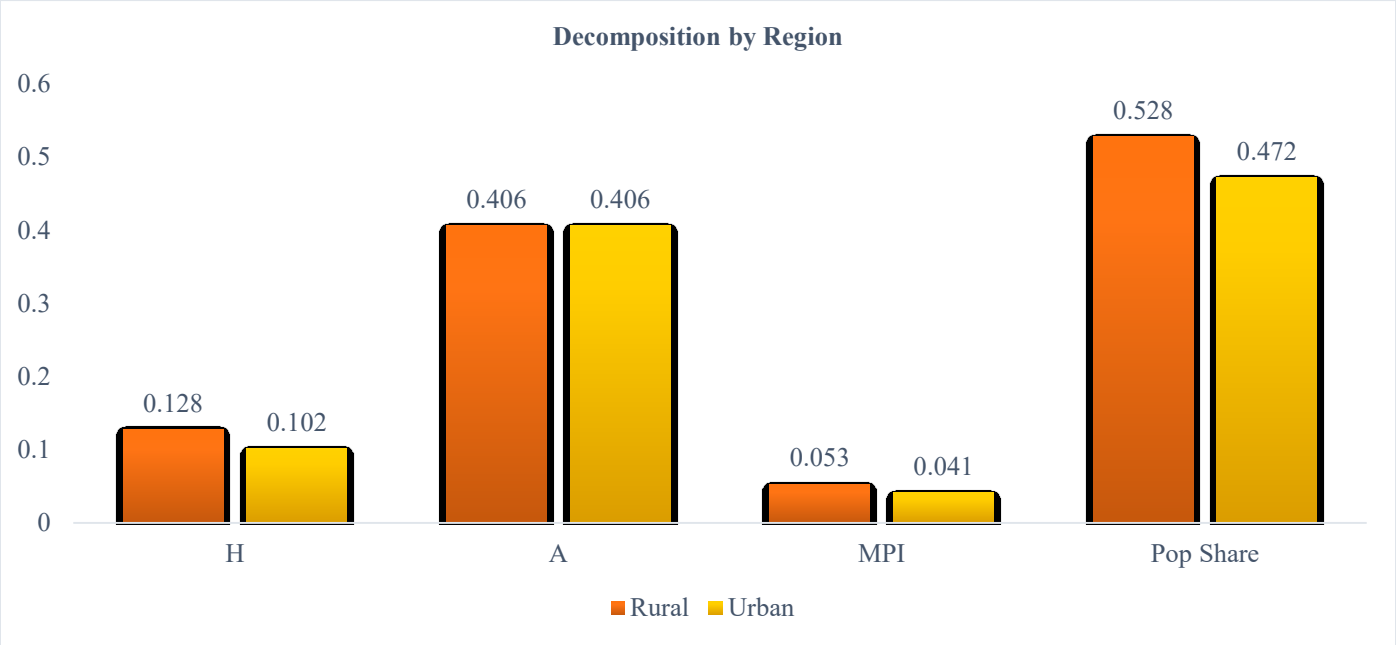


Figure 10: Deprived: Percentage of Individuals whose Indicator Values are Below the Threshold

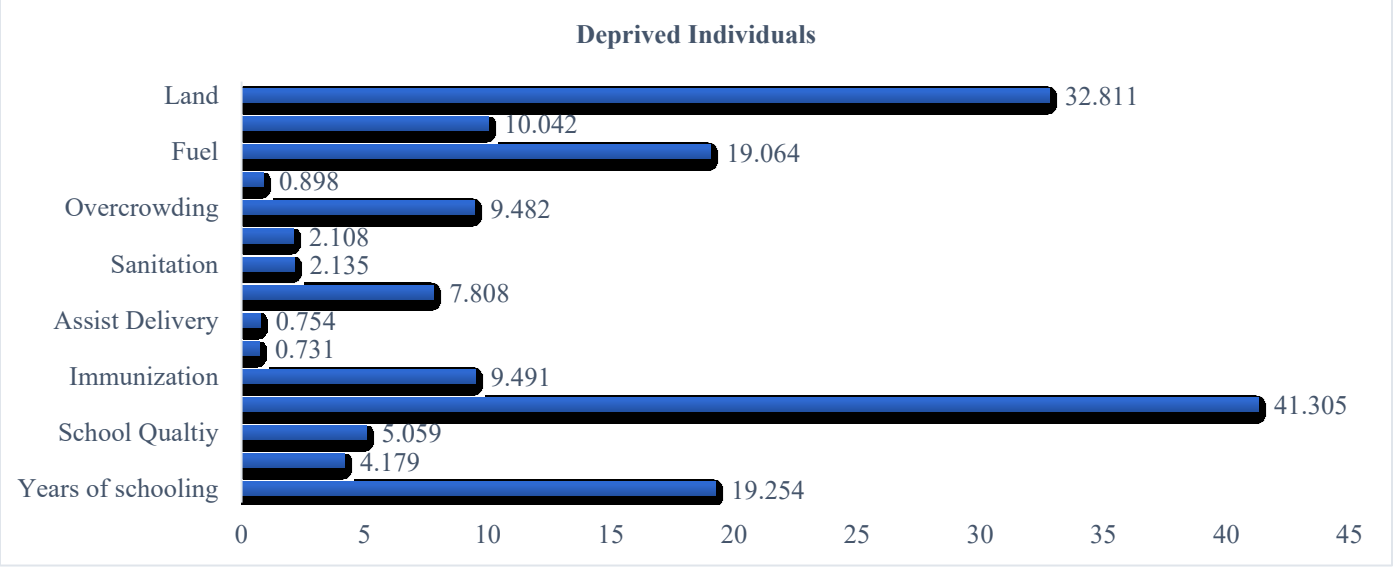
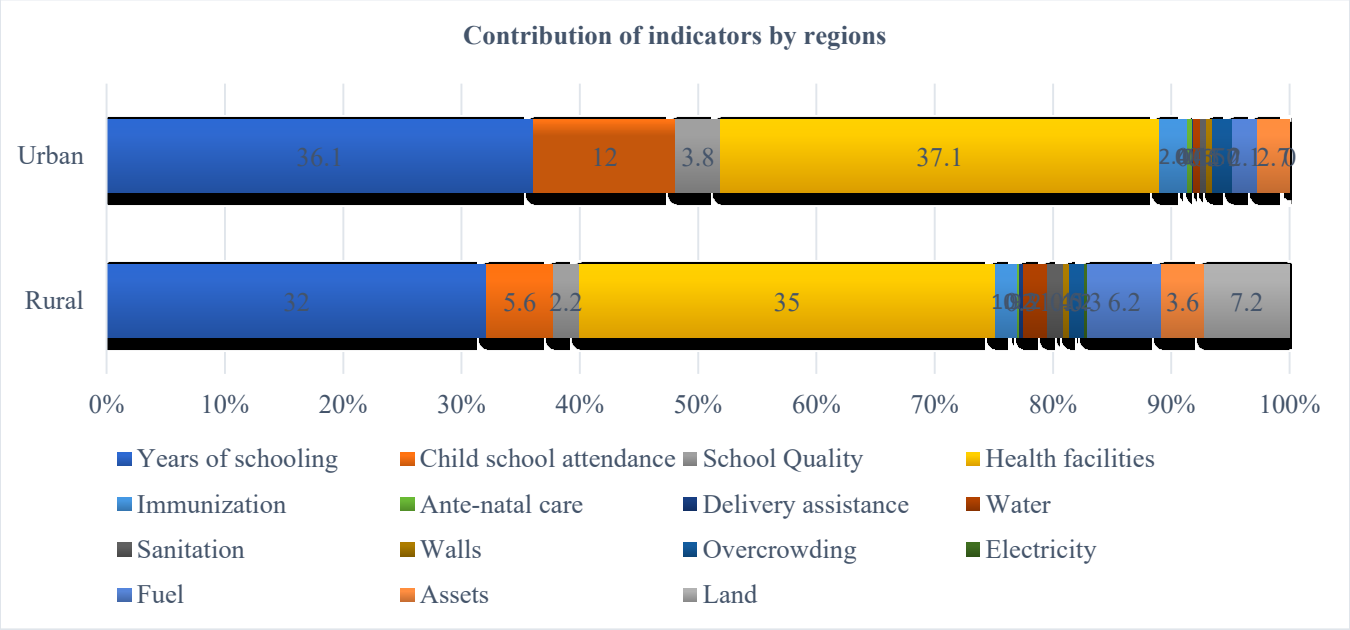


Figure 11: Contribution of each indicator by region



Source: Figures 6 to 9 are authors own calculation based on PSLM survey 2019-20.

4.2 Employment's impact on Multidimensional poverty in Rawalpindi district

At the household level, employment includes employment status, occupational employment and industrial sector employment. In the model ten major occupations, dummies are used that are categorized by Pakistan Standard Classification of Occupations (2015), and six industrial groups are used that are categorized by Pakistan Standard Industrial Classification(2010). In this model dependent variable is poverty and other variables are taken as independent variables like, region (urban/rural), gender, age, age square, household size, household size square, employment occupations, and employment industrial groups. The Table 1 shows the impact of employment on deprivation scores of household for the Rawalpindi district.

4.3 Regression Results

Table 1: Regression Results

	Robust					
Variables	**Coefficient**	**Std. Err.**	**t-static**	**P>t**	**95% conf. interval**	
D_urban	-0.04518	0.00170	-26.51	0.000	-0.04852	-0.41837
Gender	0.00570	0.00193	2.95	0.003	0.00191	0.00949
Age	-0.00167	0.00016	-10.16	0.000	-0.00200	-0.00135
Age2	0.00002	2.22e-06	8.77	0.000	0.00002	0.00002
Household size	-0.00092	0006103	-1.51	0.130	-0.00212	0.00027
Household size2	0.00021	0.00002	9.84	0.000	0.00017	0.00025
D_Employed	0.01229	0.00252	4.88	0.000	0.00736	0.01723
Constant	0.18141	0.00463	39.18	0.000	0.17233	0.19049

Source: Author own Calculations
Number of observations= 22,157
Dependent variable is deprivation scores of households

D_Employed shows the dummy for the employed person by 1 and 0 otherwise that is a variable of interest in the given regression analysis. Employment status is significant at a 1% level of significance. The deprivation score increases by 0.012 units, on average keeping other variables constant. The possible explanation can be that the higher contribution of health and education in multidimensional poverty relative to the standard of living. Further, it may be associated with the notion that that employed persons do not have sufficient time and resources to improve their health and education. In the regression, location, gender, age, age square,

household size and household size square are used as control variables. For instance, D_urban is significant at a 1% level of significance. The estimated coefficient of D_urban is -0.045 which means that an increase in one unit of urban population decreases the deprivation score by 0.045 on average keeping other variables constant. These findings show that deprivation is higher in rural areas of the Rawalpindi district than in urban areas. The results are consistent with Haq (2005). Further, gender is significant at a 1% level of significance.

4.4 Linear Regression for Occupations

The empirical results demonstrated in Table2 reflect large differences in the association between the types of occupation and deprivation scores in a given sample. For instance,in occupation groups managers, professionals, technicians, and clerics show negative and significant relationship with deprivation at a 1% level of significance as presented in Table 2.

The possible explanation of these findings can be that a rise in employment within these occupational categories is linked with a fall in deprivation score in the Rawalpindi region. However, these occupational categories sin general offer relatively higher wages, more social benefits to the workers, and better working environment, which ultimately contribute to enhanced household well-being.

Table 1: Linear Regression for Occupations

	Robust					
Variables	**Coefficient**	**Std. Err.**	**t-static**	**P>t**	**95% conf. interval**	
D_urban	-0.042	0.002	-24.52	0.000	-0.046	-0.039
Gender	0.009	0.002	4.56	0.000	0.005	0.013
Age	-0.002	0.00017	-10.90	0.000	-0.002	-0.002
Age2	0.00002	0.00001	9.52	0.000	0.0000	0.0000
Household size	-0.00102	0.00060	-1.69	0.090	-0.0022	0.0002
Household size2	0.00021	0.00002	10.00	0.000	0.0002	0.0003
D_1_Managers	-0.027	0.006	-4.28	0.000	-0.039	-0.015
D_2_Professionals	-0.030	0.004	-6.86	0.000	-0.039	-0.022
D_3_Technicians	-0.015	0.005	-2.96	0.003	-0.024	-0.005
D_4_Clerical	-0.019	0.006	-3.07	0.002	-0.032	-0.007
D_5_Serviceworkers	0.014	0.004	3.71	0.000	0.007	0.022
D_6_skilledAgricultural	0.018	0.005	3.49	0.000	0.008	0.028
D_7_Craftworkers	0.020	0.005	4.14	0.000	0.010	0.029
D_8_Plantoperaters	0.025	0.006	4.44	0.000	0.014	0.037
D_9_Elementryoccupations	0.083	0.006	14.43	0.000	0.072	0.094
Constant	0.176	0.005	38.08	0.000	0.167	0.185

Number of observations= 22,157, Dependent variable is deprivation scores of households
Source: Author own Calculations

However, in contrast the services workers, skilled agricultural, craft workers, plant operators, and elementary occupations show a positive and significant effect on deprivation at a 1% level of significance. In other words employment in the elementary occupations correlates with higher level of deprivation. These findings show the difficulty faced by the workers in typically low-paying and volatile sectors in Rawalpindi district. In addition to that, Haq (2001) also reports higher poverty incidence in agricultural and service workers. Moreover, Cheema and Sial, (2012) also document the higher poverty incidence in elementary occupations. These work professions are usually characterized by higher job insecurity, lower wages, and a lack of access to social benefits, which contributes to unrelenting vulnerability and poverty among labours in these sectors.

4.5 Linear regression for Industrial Sector

In Table 3 we document the impact of occupation (industrial sector) on the deprivation score of the household in Rawalpindi district. Based on regression analysis we find that D_urban, age, and community variables are significant and negatively associated with deprivation score of the household. It means that an increase in employment in the community sectors decreases the deprivation score of household in the Rawalpindi district. However, age square, household square, agriculture, manufacturing construction and wholesale workers

variables are positively and significantly associated with the deprivation score of the household. These positive associations can be explained as; workers with lower-skill in industrial occupations, for example plant operators or in any other elementary roles, often face income job insecurities, limited upward mobility, low wages and also income instability. This can add to higher deprivation scores at household level in particular because these work positions in industrial sector are less apparent to present sufficient wages.

Table 1: Linear Regression for Industrial Sector

Robust						
Variables		Std. Err.	t-static	P>t	95% conf. interval	
D_urban	-0.043	0.002	-24.91	0.000	-0.047	-0.040
Gender	0.007	0.002	3.64	0.000	0.003	0.011
Age	-0.002	0.000	-10.76	0.000	-0.002	-0.001
Age2	0.000019	2.15e-06	9.18	0.000	0.00007	0.000024
Household size	-0.00099	0.001	-1.62	0.105	-0.00218	0.000205
Household size2	0.00021	0.000	9.93	0.000	0.000	0.000251
Agriculture	0.019	0.005	3.66	0.000	0.009	0.029
Manufacturing	0.015	0.005	2.82	0.005	0.005	0.026
Construction	0.060	0.006	10.11	0.000	0.048	0.072
Wholesale	0.016	0.004	3.78	0.000	0.008	0.024
Community	-0.012	0.006	-2.06	0.040	-0.023	-0.001
Others	0.003	0.004	0.79	0.430	-0.005	0.011
Constant	0.179	0.005	38.94	0.000	0.170	0.188

Number of observations= 22,157,
Dependent variable is deprivation scores of households
Source: Author own Calculations

The others (including mining & quarrying, electricity, gas & water, and financial and insurance activities) appear insignificant in the regression analysis. The influence of industrial sector occupations on the deprivation score in Rawalpindi district shows mixed results. The rationale behind these findings can be that Rawalpindi's economic landscape by and large influenced by its locality and manufacturing base, which in particular highlights considerable employment in manufacturing and also in arm industry. However, these occupational disparities within industrial sector mostly contribute to disparities in the outcome of deprivation scores of household. The findings are in line with Cheema and Sial, (2012) and Ullah Awan et al. (2019).

Table 2: Comparison of Results

	Regression Results		Occupational Results		Industrial Results		Combine results	
Variables	**Coefficient**	**P>t**	**Coefficient**	**P>t**	**Coefficient**	**P>t**	**Coefficient**	**P>t**
D_urban	-0.04518	0.000 ***	-0.04232	0.000 ***	-0.04322	0.000***	-0.04214	0.000***
Gender	0.00570	0.003 ***	0.00891	0.000 ***	0.00686	0.000 ***	0.00901	0.000***
Age	-0.00167	0.000 ***	-0.00180	0.000 ***	-0.00170	0.000 ***	-0.00180	0.000***
Age2	0.00002	0.000 ***	0.00002	0.000 ***	0.00002	0.000 ***	0.00002	0.000***
Household size	-0.00092	0.130	-0.00102	0.090 *	-0.00099	0.105	-0.00103	0.09*
Household size2	0.00021	0.000 ***	0.00021	0.000 ***	0.00021	0.000 ***	0.00021	0.000***
D_Employed	0.01229	0.000 ***						
D_1_Managers			-0.02688	0.000 ***			-0.02471	0.001***
D_2_Professionals			-0.03021	0.000 ***			-0.02941	0.000***
D_3_Technicians			-0.01465	0.003 ***			-0.01082	0.078*
D_4_Clerical			-0.01934	0.002 ***			-0.01686	0.017**
D_5_Serviceworkers			0.01433	0.000 ***			0.01311	0.037**
D_6_skilledAgricultural			0.01792	0.000 ***			0.01617	0.445
D_7_Craftworkers			0.01962	0.000 ***			0.01900	0.007***
D_8_Plantoperaters			0.02531	0.000 ***			0.02614	0.000***
D_9_Elementryoccupations			0.08271	0.000 ***			0.07897	0.000***
Agriculture					0.018902	0.000***	0.00197	0.926
Manufacturing					0.015081	0.005***	-0.00542	0.483

Construction					0.059908	0.000***	0.01167	0.148
Wholesale					0.015649	0.000 ***	0.0028144	0.670
Community					-0.011695	0.040 **	-0.0119585	0.076*
Others					0.003217	0.430	-0.0010427	0.838
Constant	0.18141	0.000 ***	0.17615	0.000 ***	0.179098	0.000 ***	0.175973	0.000

(Note) (i) ***, **, * indicate significance at the level 1%, 5% and 10% respectively.
Source: Author own Calculations
Number of observations= 22,157
Dependent variable is deprivation scores of households

In Table 4 we present the empirical findings which combine both occupational and industrial sector variables to check the robustness of earlier results. The reason of this combined empirical investigation is to quantify how both sets of variables influences the associations between occupation, industry and deprivation scores at household level. In the combined model it is observed that the most variables maintain the same sign and significance as in the previous model. This consistency in terms of sign and significant level suggests that the earlier findings vis-à-vis the influence of occupation and industry on deprivation score at household level remain robust, yet we considered together in a more comprehensive model as well. However, the significance of the manufacturing variable varies from significant to insignificant in combined empirical analysis. This variation advocates that when industrial and occupational factors are jointly considered, the direct effect of the manufacturing sector on deprivation score turn out to be less obvious. It possibly can be due to overlapping effects with other variables for example; occupations within the manufacturing sector that better explain the variation in deprivation score at household level.

5. Conclusions and Policy Recommendations

The main objective of this study is to investigate the impact of employment on multidimensional poverty at the household level in the Rawalpindi district. For this purpose, the employment status, occupations, and major industrial sector are considered for households. Poverty is measured at the district level, regional, and also by gender. Alkire and Foster methodology is used to calculate multidimensional poverty. Further, ordinary least squares method is used to investigate the impact of employment on the deprivation score of each household. The empirical findings show that skilled worker reduce deprivation score at household level in Rawalpindi district. Further, investigations show that employment opportunities boost productivity.

Based on the empirical findings of this study here are some policy recommendations: Government must initiate vocational training programs according to the requirements of key industries in Rawalpindi, such as manufacturing, services, and agriculture. The government must design a policy framework to collaborate with private sector to design job-specific training skill program that must be line up with local industrial demand. In the empirical findings we document that skilled employees play a role to reduce poverty score in the Rawalpindi district. Therefore, it is highly recommended that expanding access to skill development will aid more households to escape multidimensional poverty the region.

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