

Variation in the Quality of Life within Punjab: Evidence from MICS, 2007-08

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1. INTRODUCTION

Since quality of life research is essentially concerned with measuring and monitoring welfare. In order to measure quality of life, one must have a theory of what makes up a good life [Cobb (2000)]. There is a variety of such theories and notions of what constitutes a ‘good life’ and correspondingly different concepts of welfare and quality of life have been developed. Various approaches and operationalisations are to be distinguished, each of which reveals a different concept of welfare and thus highlights different components and dimensions [Noll (2000)]. Among the various efforts to operationalise welfare in general and the quality of life concept in particular, two contrary approaches are to be distinguished, which define the two extreme positions on a broad continuum of concepts currently available: the Scandinavian level of living approach [Erickson (1993)] and the American quality of life approach [Campbell (1976)]. The Scandinavian approach focuses almost exclusively on resources and objective living conditions, whereas the American approach emphasises the subjective well-being of individuals as a final outcome of conditions and processes.

A more recent and to some respect similar concept of welfare and quality of life is that of ‘capabilities’, which has been developed by Amartya Sen. This approach is “based on a view of living as a combination of various ‘doings and beings’, with quality of life to be assessed in terms of the capability to achieve valuable functionings” [Sen (1993)]. This notion of welfare and quality of life has also been elaborated within the ‘Human Development Approach’. The World Health Organisation defines as the individual’s perception of their position in life with the context of culture and value systems in which they live and in relation to their goals. The Organisation of Economic Cooperation and Development prefers to define as the ‘aggregate wellbeing of a group of individuals’, and

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'societal wellbeing' to describe the evaluation of institutional structure of society [Schuessle (1985)].

As measures of welfare or quality of life, social indicators are required to display specific characteristics. First, they should be related to individuals or private households rather than to other social aggregates. Secondly, they should be oriented towards societal goals. Thirdly, they should measure the output not the input of social processes or policies. As welfare indicators, social indicators always have a direct normative relationship and one should be able to interpret changes in indicators unequivocally as improvement or deterioration in quality of life.

The assessment and monitoring of wellbeing is also the major focus of the broader field of quality of life research. Lane (1994) focuses on the relation between the subject elements and object circumstances when defining quality of life. The subject elements consist of a sense of personal development, learning, and growth, known as "quality of persons". The objective circumstances consist of opportunities for exploitation by the person living a life taken as quality of conditions. So quality of life can be taken as a function of quality of persons and quality of conditions. These two concepts are deliberately separated because the capacity to enjoy life is clearly different from achieving such capacity.

Regional disparity in quality of life is a common phenomenon in both developed and developing economies. It is more acute and glaring in the case of the latter in its manifestations because of differences in levels of development and incomes. It is particularly cause of concern in Pakistan due to its size, diversity and wide range of resource endowment. In Pakistan's sixty three years, most governments have neglected the overall wellbeing of people. In the recent past a high economic growth has resulted in disproportionate social development. Given the relatively, high population growth, high incidence of poverty, low literacy rate, low life expectancy, high infant and maternal mortality rates, poor basic civic amenities and residents' ability to afford such services have significantly differentiated quality of conditions and quality of persons between districts. Lower quality of life may affect population redistribution and in turn influence resource allocation among areas. The performance of government in improving quality of life has remained poor and growth in per capita GDP does not necessarily affect the improvement in quality of life. Social development ranking of districts were analysed in Pakistan by focusing on education, health, housing and other social services. Siddiqui (2008) views, that government provision of social services affects human capabilities significantly. She analyses that aggregate statistics at the national or provincial level hides region specific reasons of poverty and inequalities. The variations in these indicators across the districts within a province and across the provinces are an indicative of regional disparities in terms of health, education and the quality of life [UNDP (2003)]. Wellbeing by objective and subjective indicators were also analysed indicating that all the provincial capitals are ranked in high wellbeing category [Haq (2009)]. It may be noted that most of the top ranked districts are located in the province of Punjab in terms of objective wellbeing. Pasha and Naeem (1999), Cheema, *et al.*

(2008), Amjad, *et al.* (2008) and Haq and Uzma (2008) etc., also confirmed that province of Punjab is ahead of other provinces in term of social development. Estimating the variation in the sub district level is also important because a district may differ in the degree of urbanisation and industrialisation thus reflecting different socio-economic structures.

This study attempts to analyse empirically intra-district variations in Punjab at *tehsil*-level in quality of life measured by quality of persons and quality of conditions. The analysis will also provide distribution of districts and *tehsils* in four quartiles categories as good, fair, medium and poor quality of life. The paper will provide empirically based knowledge on living conditions and wellbeing of the whole province specific sub groups within a society.

The paper is organised as follows. After the brief introduction, data and methodology is presented in Section 2. A discussion on quality of life research is presented in Section 3. Concluding remarks are given in the final section.

2. DATA AND METHODOLOGY

Data

The study is based on “Multiple Indicator Cluster Survey” (MICS) Punjab 2007-08, which is a provincially representative survey of households, women and children. The survey provide estimates on more than 70 indicators for the province, area of residence (major cities, other urban and rural), 9 divisions, 35 districts and 143 *tehsils* or towns with sample size of 91,280 households. The sample was selected in two stages. Within each of the 273 sampling domains, enumeration areas were selected with probability proportional to sample sizes. Household listing was carried out within each randomly selected enumeration areas and a systematic sample of 12 households in urban areas and 16 households in rural areas was randomly drawn.

The Punjab MICS 2007-08 fulfils an important role in monitoring progress towards attaining goals and targets of the Millennium Development Goals for which Pakistan is a signatory. It also allows the provincial government and districts to gauge and monitor their respective status of human and social development with precise data on a variety of key indicators. It will assist the decision-makers to move towards new avenues of human and social development.

Quality of Life based on Quality of Persons and Quality of Conditions

In this study quality of life is analysed in terms of two major dimensions: quality of persons and quality of conditions. To measure quality of life four domains are taken, i.e., education, health and housings which are also taken by Siddiqui (2008), Jamal and Amir (2007), Akhtar and Sarwer (2007) for districts rankings of Pakistan. To identify the right of child states, child protection domain is also included. The variation in these indicators and statistics are given in Table 1.

Table 1
Variations in Quality of Life Indicators in 2007-08. (%)

| | Mean | Minimum | Maximum | Co-efficient of Variation |
|-----------------------------------|-------|---------|---------|------------------------------|
| Quality of Persons | | | | |
| Underweight Children < 5 Years | 33.68 | 16.10 | 63.0 | 24.14 |
| Stunting | 42.42 | 21.80 | 71.90 | 22.94 |
| Wasting | 13.40 | 6.0 | 42.2 | 40.67 |
| Child Labour | 4.48 | 0.20 | 20.20 | 84.38 |
| Child Labour with School | 3.27 | 0 | 19.0 | 95.41 |
| Antenatal Care | 53.38 | 12.5 | 89.30 | 30.29 |
| Skilled Personnel | 43.17 | 5.2 | 92.90 | 40.24 |
| Delivery Facility | 38.62 | 4.0 | 88.0 | 42.18 |
| Postnatal Care | 41.50 | 5.20 | 92.90 | 40.58 |
| Contraceptive Use | 31.3 | 1.9 | 59.0 | 35.81 |
| Unmet Need of Family Planning | 25.9 | 7.1 | 55.1 | 33.40 |
| Chronic Cough during last 3 Week | 2.09 | 0.1 | 10.70 | 87.08 |
| Tuberculosis | 0.33 | 0 | 1.70 | 57.58 |
| Hepatitis | 0.69 | 0 | 3.10 | 56.52 |
| Adult Literacy Male 15-24 Years | 79.59 | 32.1 | 97.3 | 13.15 |
| Adult Literacy Female 15-24 Years | 67.0 | 12.60 | 97.10 | 27.76 |
| Gender Parity at Primary | 0.96 | 0.52 | 1.26 | 11.46 |
| Gender Parity at Secondary | .89 | 0.38 | 1.55 | 21.35 |
| Unemployed Seeking Job | 6.8 | 2.3 | 18.9 | 42.94 |
| Quality of Conditions | | | | |
| Access to Health Facility | 72.93 | 21.80 | 99.60 | 23.98 |
| Access to Primary School Male | 93.50 | 56.60 | 100.0 | 6.95 |
| Access to Primary School Female | 91.4 | 49.9 | 100.0 | 9.34 |
| Access to Middle School Male | 64.32 | 16.1 | 98.5 | 25.48 |
| Access to Middle School Female | 64.94 | 13.4 | 99.4 | 27.61 |
| Access to Secondary School Male | 50.60 | 7.80 | 97.6 | 32.57 |
| Access to Secondary School Female | 46.90 | 6.5 | 96.4 | 38.32 |
| Gas usage as Fuel | 74.35 | 0.30 | 99.7 | 34.03 |
| Electricity | 91.89 | 32.0 | 100 | 10.51 |
| Drinking Water | 96.31 | 68.50 | 100 | 5.50 |
| Sanitation Facility | 69.2 | 15.60 | 98.7 | 25.87 |
| Waste Water | 51.83 | 0 | 99.8 | 54.35 |
| Solid Waste | 14.1 | 0 | 98.0 | 120.57 |
| Birth Registration | 78.88 | 8.2 | 100.0 | 26.23 |
| Crowding | 3.71 | 2.40 | 4.7 | 10.78 |
| Ownership of Durable Goods Index | 41.13 | 15.71 | 75.31 | 26.19 |

Source: Computations are based on "Multiple Indicator Cluster Survey" (MICS) Punjab 2007-08.

Following are the domains applied in principal component analysis.

Health

- (1) Adult health: It is measured by three indicators i.e., percentage of population reported a diagnosis of chronic cough, tuberculosis or hepatitis.
- (2) Child Health: It is measured by malnourishment based on anthropometric measurement. Prevalence of underweight (weight for age), stunting (height for age) and wasting (weight for height) among children under 5 years of age.
- (3) Maternal health: Percentage of married women aged 15-49 having antenatal care, delivery at health facility, health personnel, postnatal care, current use of contraception and unwanted pregnancy measured as unmet need of family planning.
- (4) Access to health facility private or public.

Education

- (1) Adult literacy male and female 15-24 years.
- (2) Gender parity at primary, gender parity at middle and secondary.
- (3) Access to primary, middle and secondary school for male and female.

Child Protection

- (1) Child labour: Child age 4 to 15 involved at least 1 hour of economic work. The percentage of child labourers and those who are also attending school.
- (2) The percentage of children under 5 years of age whose birth is registered.

Environment

- (1) Safe drinking water: Improved source of drinking water include piped water, public tap, hand pump, motorised pump, tubewell, protected well.
- (2) Proper disposal of waste water and solid waste.
- (3) Crowding: Number of persons per room.

Socio-economic Development

- (1) Unemployed and seeking jobs.
- (2) Electricity and gas usage.
- (3) A composite index for ownership of durable goods: Composite index of TV, telephone, mobile phone, computer, fridge, air conditioner/cooler, cooking range, stitching machine, iron, water pump, scooter and vehicle.

3. METHODOLOGY

Principal Component Analysis

The most commonly used techniques for aggregating social indicators are, indexing, principal component analysis and composite development indicators. This study adopts a strategy for analysing the question: a multivariate analysis on the form of Principal Component Analysis (PCA) [Murtag and Heck (1987)]. The procedure in

which a set of correlated variables is transformed into a set of uncorrelated variables (called Principal Components) that are ordered by reducing variability. The uncorrelated variables are a linear combination of the original variables. The main use of the PCA is to reduce the dimensionality of the data set while retaining as much information as possible. It does not establish weights a priori. It computes a compact and optimal description of the data set.

Principal Components Analysis (PCA) generates components in descending order of importance, that is, the first component explains the maximum amount of variation in the data, and the last component the minimum.

The Principal Component Analysis-PCA developed in this study has the form:

$$X_i = \lambda_{i1}F_1 + \lambda_{i2}F_2 \dots + \lambda_{ij}F_j \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

where,

X_i is the i th indicator

λ_{ij} is called the factor loading which represents the proportion of the variation in X_i which is accounted for by the j th factor.

$\sum \lambda_{ij}$ is called the communality and it is equivalent to the multiple regression coefficients in regression analysis. F_j symbolises j th factor or component.

Principal Components Analysis (PCA) generates components in descending order of importance, that is, the first component explains the maximum amount of variation in the data, and the last component the minimum.

To compute weighted factor score (WFS), the individual factor scores are derived from the following equation:

$$(WFS)_k = \sum ke_j (FS)_{kj} \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

Where

FS_{kj} represents factor score of the k th region and j th factor. e_j is the Eigen value of the j th factor which depicts the proportion of variation in the data set. The WFS is used as an index for ranking quality of life on the basis of social indicators.

Equalisation Method

Before running principal component analysis all indicators are standardised. The indicators are standardised by using equalisation method so that the indicators always lie between 0 and 1. This is done with a view to remove any scale bias and to avoid the negative sign of the indicators, if standardised following the standard rule. Following Raychoudhuri and Haldar (2008), first the Best and the Worst values of an indicators in a particular dimension are identified. In case of a positive indicator, the highest value will be treated as the best value and the lowest, will be considered as the worst value. Similarly, if the indicator is negative in nature, then the lowest value will be considered as the best value, and the highest, considered the worst value. Once the best and the worst values are identified, the following formula is used to obtain normalised values:

$$X_i = 1 - [BestX_i - ObservedX_i] / [BestX_i - WorstX_i] \quad \dots \quad \dots \quad \dots \quad (3)$$

4. EMPIRICAL RESULTS

Intra-district disparity is particularly relevant in terms of quality of life. The disparity can be articulated in terms of indicators of health, education, child protection, environment, and socio economic development. In this section the results are based on the Principal Component Analysis. The objective of its use in this instance is to 'explain' most of the variation between the regions of Punjab for its 35 welfare indicators of quality of life in terms of far fewer 'Factors'. These 35 indicators are classified into a small number of clusters each of which is associated with just one of the factors, and in this case the variables within any one cluster are likely to be quite strongly correlated with each other, but not, on the whole, so strongly correlated with variables outside that cluster.

An Initial Solution Using the Principal Components Method KMO and Bartlett's Test

| | |
|---|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | 0.906 |
| Bartlett's Test of Sphericity | 8480.631 |
| Df | 595 |
| Sig | .0009 |

First, the study employs KMO and Bartlett's test to see the strength of the relationship among variables. Large values for the KMO measure indicate that a factor analysis is a good idea. The measure of sampling adequacy is greater than 0.906, indicating the degree of common variance among the thirty five variables is 'Meritorious' which characterised by Kaiser, Meyer, and Olkin. The value is large enough to precede a factor analysis for the data.

Bartlett's test of Sphericity is another indicator of the strength of the relationship among the variables that the population correlation matrix is uncorrelated. The observed significance level is .0009. In this study, each variable is standardised to have a mean of 0.0 and a standard deviation of ± 1.0 . Thus the variance of each variable is equal to 1.0, and the total variance to be explained is 35. Since 6 components are extracted, the same as the number of variables factored. Eigenvalues reflect the relative importance of the factors. The first factor always explains the most variance and has the largest Eigenvalue, the next the second-most, and so on. The sum of Eigenvalues is total variance. In this analysis first component explains 48 percent variance having 18 variables second component 9 percent, third component 6 percent, fourth 5 percent, fifth component 4 percent and sixth component have 3.3 percent variance. The cumulative variance explained by the first six factors is 76.26 percent. One main conclusion of factor analysis is that access to middle and secondary school, access to health facilities, household utilities and ownership of durable goods, adult female literacy, gender parity at secondary level and maternal health will bring greater change in quality of life than other social indicators.

For indexing quality of life, factor scores are employed which are like predicted scores for each district/sub district score for each factor. It is formed as weighted sum of factor scores following the Equation (2). The weighted factor scores are used as quality of life index for ranking districts/*Tehsils* of Punjab on the basis of the welfare indicators in Tables 2 and 4.

Table 2

Ranking of Quality of life at Districts Levels: 2007-08

| Name of Districts | Weighted Factor | | Name of Districts | Weighted Factor | |
|-------------------|------------------------------|-----------------------------------|-------------------|------------------------------|-----------------------------------|
| | Quality of Life: Good | Scores by Principal Component 1-6 | | Quality of Life: Medium | Scores by Principal Component 1-6 |
| Lahore* | 1 | 44.57 | Kasur | 19 | -8.21 |
| Rawalpindi* | 2 | 23.6 | Khanewal | 20 | -8.29 |
| Gujranwala* | 3 | 23.04 | Vehari | 21 | -8.84 |
| Gujrat | 4 | 17.21 | Khushab | 22 | -9.49 |
| Sialkot* | 5 | 16.96 | Okara | 23 | -9.8 |
| Faisalabad* | 6 | 11.69 | Bahawalpur* | 24 | -10.96 |
| Jhelum | 7 | 11.23 | Lodhran | 25 | -11.05 |
| Multan* | 8 | 6.49 | Bhakkar | 26 | -11.66 |
| Sheikhupur | 9 | 5.3 | R Y Khan | 27 | -13.04 |
| | Quality of Life: Fair | | | Quality of Life: Poor | |
| Chakwal | 10 | 3.64 | Mianwali | 28 | -13.15 |
| Sahiwal | 11 | 2.54 | Layyah | 29 | -14.48 |
| Sargodha* | 12 | 0.27 | DG Khan | 30 | -14.69 |
| Attock | 13 | -0.03 | Jhang | 31 | -14.8 |
| M. Bahauddin | 14 | -0.14 | Pakpattan | 32 | -14.87 |
| T.T Singh | 15 | -0.35 | Bhawalnaga | 33 | -15.72 |
| Hafizabad | 16 | -1.36 | Rajanpur | 34 | -20.73 |
| Narawal | 17 | -2 | Muzaffarga | 35 | -21.15 |
| Nankana sahib | 18 | -3.71 | | | |

Source: Computations are based on "Multiple Indicator Cluster Survey" (MICS) Punjab 2007-08.

*Major cities located.

Ranking of Quality of Life: A District / *tehsil* Level Analysis for Punjab

This section examines quality of life in terms of quality of persons and quality of conditions in districts and *tehsils* of Punjab. Assessments of quality of life must include these two dimensions of life, since both capture different dimensions of wellbeing. Joint use of these indicators is mostly helpful to get a complete picture.

The result based on principal component analysis for assessing quality of life is presented in Table 2 and Tables 4a and 4b. The study reports the estimates at the level of district and *tehsils* (sub-districts). Province of Punjab is also divided into northern, central, southern and western regions based on, geographical boundaries, official district, regional economic differences, variations in irrigation, agriculture, and cropping patterns, differences in farm-size and land tenure patterns, and distinct historical, cultural, and linguistic influences in each region as suggested by Wilder (1999).

For rank ordering of quality of life the study employs four rating of wellbeing by making four quartiles of 35 districts of Punjab in descending order of weighted factor scores. The four quartiles are rated as good, fair, medium and poor in Table 2. The population share of each district in respective category is sum up to show the performance of quality of life.

According to weighted factor scores ranking, the top 9 districts are rated as 'good' shown in Table 2. It is observed that six major cities are located in 'good' quality of life districts. These districts also include Lahore, the provincial capital of

Punjab at the top. The district of Lahore is sub divided in ten *tehsils* out which 7 are at the top ranking whereas bottom three are ranked as 18,28 and 38 respectively as in Appendix A, indicating intra-district disparity in quality of life. District Rawalpindi which ranked at second, its top two *tehsils* are performing well but Kotli Sattian which is at the bottom within district ranked at 128 out of 143 sub-divisions. In the same way all the other districts which are rank as ‘good’ quality of life districts not necessary its *tehsils* are also have same ranking. It is observed access to education, access to health facilities and housing are the important variables in capturing variation in the district. It is also observed that those districts which are more urbanised and have major cities are ranked in upper quartile. Cheema, *et al.* (2008) also suggested that urbanisation co-exists with a large poor population that inhabits the periurban areas of the districts. The top 9 districts having household share of 33.07 percent in total sample of Punjab are concentrated in this category as seen in Table 3. As the Province of Punjab is sub grouped on the bases of geographical zone, central Punjab indicates highest share in ‘good’ quality of life while western Punjab gets zero share. In northern Punjab districts population is concentrated in ‘good’ and ‘fair’ rated quality of life while in western Punjab district population is seen in ‘medium’ and ‘poor’ quartiles of quality of life. MICS 2003-04 and 2007-08 estimated that mean per capita income and expenditure are also lowest in this region. The second quality of life categorised as ‘fair’ has one major city and out of 9 districts seven are located in central Punjab while two are in northern Punjab. The third quartile is termed as ‘medium’ quality of life where 23 percent population is residing, majority of which are from southern Punjab. The bottom quartile is categorised as ‘poor’ where districts from western Punjab are dominated. It shows some dynamic in variation of quality of life within districts of Punjab.

Table 3

Sub-Provincial Variation in Quality of Life Rating by Districts (%)

| Zones ¹ | Good | Fair | Medium | Poor | Overall |
|--------------------|-------|-------|--------|-------|---------|
| North Punjab | 6.89 | 5.19 | – | – | 12.08 |
| Central Punjab | 22.20 | 15.31 | 5.32 | 4.77 | 47.08 |
| Southern Punjab | 4.01 | – | 17.41 | 4.34 | 25.76 |
| Western Punjab | – | – | 3.71 | 12.09 | 15.08 |
| Overall Punjab | 33.07 | 20.51 | 25.44 | 21.20 | 100 |

Source: Computations are based on “Multiple Indicator Cluster Survey” (MICS) Punjab 2007-08.

¹*Note:* North Punjab: Rawalpindi, Attock, Chakwal and Jhelum.

Central Punjab: Faisalabad, Jhang, TobaTak Singh, Nankana Sahib, Gujranwala, Gujrat, Hafizabad, Mandi Bahauddin, Narowal, Sialkot, Kasur, Okara, Sheikhpura, Pakpattan, Sahiwal, Sargodha and Lahore.

Southern Punjab: Bahawalpur, Bahawalnagar, Rahimyar Khan, Multan, Khanewal, Lodhran and Vehari.

Western Punjab: D.G. Khan, Layyah, Muzaffargarh, Bhakkar, Khushab, Rajanpur and Mianwali.

Table 4a

Ranking Quality of Life at Tehasil Levels: 2007-08

| Name of Tehsils | Rank Ordering | | Name of Tehsils | Rank Ordering | |
|------------------|-----------------------|--|-----------------|-----------------------|--|
| | Quality of Life: Good | Weighted Factor Scores by Principal Components 1-6 | | Quality of Life: Fair | Weighted Factor Scores by Principal Components 1-6 |
| Samanabad Town | 1 | 57.93 | Murree Town | 37 | 9.94 |
| Gulberg Town | 2 | 56.72 | Wahga Town | 38 | 9.22 |
| DG Buksh Town | 3 | 51.04 | Hazro | 39 | 8.8 |
| Shalimar Town | 4 | 50.45 | Sheikhpura | 40 | 8.55 |
| Rawal Town | 5 | 47.32 | Potohar | 41 | 8.31 |
| Ravi Town | 6 | 43.62 | Mandi Bahatian | 42 | 7.98 |
| Aziz Bhatti Town | 7 | 36.23 | Sargodha | 43 | 7.62 |
| Lahore Cantt | 8 | 36.15 | Muridke | 44 | 7.49 |
| Jinnah Town | 9 | 33.98 | Kallar Saidan | 45 | 7.44 |
| Qila Didar Singh | 10 | 32.52 | Gujjar Khan | 46 | 6.89 |
| Taxila | 11 | 31.08 | Boson Town | 47 | 6.43 |
| Madina Town | 12 | 28.32 | Sahiwal | 48 | 6.01 |
| Sialkot | 13 | 27.61 | Hafizabad | 49 | 5.42 |
| Nandipur | 14 | 27.57 | T. T. Singh | 50 | 2.73 |
| Aroop Town | 15 | 26.85 | Shangla Hill | 51 | 2.31 |
| Allama I Town | 16 | 24.72 | Chichawatni | 52 | 2.3 |
| Iqbal Town | 17 | 24.47 | Gojra | 53 | 2.05 |
| Pasrur | 18 | 23.3 | Sumundri | 54 | 1.95 |
| Kamoke Town | 19 | 22.85 | Sohawa | 55 | 1.4 |
| Khiali Shah | 20 | 21.84 | Kahuta Town | 56 | 0.29 |
| Gujrat | 21 | 21.61 | Bhalwal | 57 | 0.02 |
| Jhelum | 22 | 21.46 | Sharaqpur | 58 | -0.01 |
| Shah RA Town | 23 | 20.52 | Sambrial | 59 | -0.15 |
| Dina | 24 | 20.05 | Shakargarh | 60 | -0.49 |
| Mumtazabad | 25 | 18.14 | Pind Dadan Kn. | 61 | -0.56 |
| Sher Shah Town | 26 | 17.67 | Narowal | 62 | -0.64 |
| Wazirabad | 27 | 16.97 | Fatehjang | 63 | -0.75 |
| Nishtar Town | 28 | 16.76 | Okara | 64 | -0.84 |
| Bahawalpur City | 29 | 15.68 | Shah Kot | 65 | -1.03 |
| Layallpur Town | 30 | 14.52 | Yazman | 66 | -1.08 |
| Sara-e-alam | 31 | 14.46 | Ferozewala | 67 | -1.26 |
| Attock | 32 | 12.92 | Choa Saidan Sh. | 68 | -2.51 |
| Daska | 33 | 12.21 | Burewala | 69 | -2.92 |
| Kharian | 34 | 11.39 | Talagang | 70 | -3.16 |
| Nowshera Virkan | 35 | 10.11 | Malakwal | 71 | -3.21 |
| Chakwal | 36 | 10.03 | Pattoki | 72 | -3.28 |

Source: Computations are based on "Multiple Indicator Cluster Survey" (MICS) Punjab 2007-08.

Table 4b

Ranking Quality of Life at Tehasil Levels: 2007-08

| Name of Tehsils | Quality of Life: Weighted Factor Scores by Principal Components 1-6 | | Name of Tehsils | Quality of Life: Weighted Factor Scores by Principal Components 1-6 | |
|-----------------|---|--------|-----------------|---|--------|
| | Medium | Poor | | Poor | Medium |
| Kamalia | 73 | -3.29 | Darya khan | 109 | -12.63 |
| Jahanian | 74 | -3.3 | Kot addu | 110 | -12.73 |
| Safdarabad | 75 | -3.44 | Pindi Bhatia | 111 | -12.82 |
| Sillanwali | 76 | -3.61 | Piplan | 112 | -13.33 |
| Chak jhumra | 77 | -3.74 | Kallur kot | 113 | -13.44 |
| Jaranwala | 78 | -4.62 | Mailsi | 114 | -13.91 |
| Khushab | 79 | -6.16 | Hasilpur | 115 | -13.93 |
| Khanewal | 80 | -6.51 | Arifwala | 116 | -13.98 |
| Phalia | 81 | -6.96 | Tandlianwala | 117 | -14.77 |
| Dunya pur | 82 | -7.22 | Noorpur Thal | 118 | -15.38 |
| Lodhran | 83 | -7.89 | Rajanpur | 119 | -16.12 |
| RY khan | 84 | -7.93 | Pakpattan | 120 | -16.17 |
| Christian | 85 | -8.43 | Depalpur | 121 | -16.38 |
| Sahiwal | 86 | -8.45 | Fort Abbas | 122 | -16.41 |
| Renala khurd | 87 | -8.51 | Essa khel | 123 | -16.5 |
| Bhakkar | 88 | -8.78 | Bahawalnagar | 124 | -16.71 |
| Kasur | 89 | -8.86 | Mankera | 125 | -16.91 |
| Kabirwala | 90 | -8.97 | Kotli sattian | 126 | -16.95 |
| Jand | 91 | -9.04 | Keror pacca | 127 | -17.63 |
| Pindigheb | 92 | -9.35 | Shujabad town | 128 | -18.63 |
| Karor lal | 93 | -9.47 | Muzaffarghar | 129 | -19.48 |
| Chunian | 94 | -9.6 | Shorkot | 130 | -20.18 |
| Hasanabdal | 95 | -9.79 | Ahmadpur Sial | 131 | -20.19 |
| Vehari | 96 | -10.84 | Taunsa | 132 | -20.61 |
| Mianwali | 97 | -11 | Jalal pirwala | 133 | -20.98 |
| Mian chamu | 98 | -11.19 | Khairpur | 134 | -21.77 |
| Layyah | 99 | -11.44 | Bahawalpur | 135 | -21.86 |
| Nankana sahab | 100 | -11.6 | Rojhan | 136 | -22.14 |
| Chinniot | 101 | -11.6 | Liaquatpur | 137 | -22.24 |
| Kot momin | 102 | -11.71 | Jampur | 138 | -23.17 |
| Khanpur | 103 | -11.77 | Jatoi | 139 | -27.99 |
| Haroonabad | 104 | -11.96 | Minchinabad | 140 | -28.68 |
| Sadiqabad | 105 | -12.02 | Ahmadpur east | 141 | -29.02 |
| Shahpur | 106 | -12.05 | Choubara | 142 | -29.88 |
| DG Khan | 107 | -12.27 | Ali pur | 143 | -32.17 |
| Jang | 108 | -12.46 | | | |

Source: Computations are based on "Multiple Indicator Cluster Survey" (MICS) Punjab 2007-08.

In order to further explore variation in quality of life based on weighted factor scores at sub-district (*tehsil*) levels in four quartiles is also analysed. As indicated in Tables 4a and 4b ranking based on sub district level are significantly different from district level quality of life. District Rawalpindi which ranked at second categorised as 'good quality' of life, had eight sub divisions, five are classified as 'fair' and one is 'poor'. In examining the classification of quality at sub-districts level, *tehsils* of Gujranwala, Gujrat, Khanawal, Sahiwal, Narowal, Pakpattan, Rajanpur and Muzafarghar are located in their respective categories as the districts. Some districts like Bahawalpur, Hafizabad, Okara and Bahawalnagar have sub division which categorised above in terms of quality of life with their districts ranking as given in Appendix

A. Intra districts variation in quality of life can be quantified by 143 sub districts i.e., *tehsils*. *Tehsil* Samanabad that is located in district Lahore ranked at the top while *tehsil* Alipur located in Muzafarghar placed at the bottom. Variation in quality of life with in district can be observed in Appendix A. It is however to note that even the relatively good quality of districts have pocket low quality sub regions like Rawalpindi. Alternatively, even a relatively low ranking district has some *Tehsils* with high level of quality of life like, Bahawalpur.

Variation in quality of life at sub-district (*Tehsil*) level by provincial zone is demonstrated in Table 5. The population from each *Tehsil* in respective categories are sum up to show the performance of the quality of life in Punjab.

Table 5

Sub-District (Tehsil) Level Variation in Quality of Life (%)

| Zones | Good | Fair | Medium | Poor | Overall |
|-----------------|-------|-------|--------|-------|---------|
| North Punjab | 4.86 | 5.54 | 1.47 | 0.21 | 12.08 |
| Central Punjab | 16.10 | 17.84 | 9.02 | 4.12 | 47.08 |
| Southern Punjab | 2.83 | 2.20 | 11.08 | 9.65 | 25.76 |
| Western Punjab | – | – | 5.19 | 9.89 | 15.08 |
| Overall Punjab | 23.79 | 25.58 | 26.76 | 23.87 | 100 |

Source: Computations are based on “Multiple Indicator Cluster Survey” (MICS) Punjab 2007-08.

Identifying Quality of Life Differences in Punjab

The key question is how to explain regional variations in quality of life in districts and sub districts levels in Punjab. In other words why is quality of life considerably poor in one area than in other areas? Some explanations in terms of socio-economic development indicators are also given as:

- (1) Incidence of poverty is low in ‘good’ quality of life regions while it is quite high in ‘poor’ rated districts. Per capita expenditure and income is quite high in ‘good’ and ‘fair’ rated districts as compared to ‘poor’ classified areas [Cheema, *et al.* (2008)].
- (2) The level of urbanisation is high in ‘good’ quality of life districts; Lahore, Gujranwala, Faisalabad, Multan, Rawalpindi, etc.
- (3) In southern Punjab, employment prospects in industry and the services sector are lower than the regions that are better connected to major centres of growth.
- (4) High dependency of the rural labour force on the agriculture sector in poor districts is a cause of concern.
- (5) Districts which have industrial zone i.e., Lahore, Faisalabad, Gujranwala, etc., are
- (6) in are placed in top ranking.
- (7) Districts which have cantonment areas i.e., Lahore, Jhalum, Rawalpindi, Gujranwala, etc in are placed in top ranking.
- (8) Remittances from overseas migrants, especially from Middle East play an important role in quality of life of Pakistani people. Recent statistics shows that sixty percent Pakistani in the Middle East migrated from only 20 districts with heavy concentration from Rawalpindi, Lahore, Faisalabad and Gujranwala, etc.

- (9) Inequality in land ownership is high; only less than half of all rural households own any agriculture land while the top 2.5 percent of all households account for over 40 percent of all land owned. Gini coefficient for land distribution is high in 'poor' rated quality of life districts.
- (10) In north Punjab, alongside of Islamabad Rawalpindi city has generated a lot of opportunities for its rural population as well as populations from neighbouring districts, including Jhelum, Chakwal and Attock, by providing them employment opportunities, mainly in the services sector [Amjad, *et al.* (2008)].
- (11) Large family size, high dependency ratio in poor districts is observed in the Population Census of Pakistan, 1998.

5. CONCLUSIONS

Quality of life is a multi-level and amorphous concept, and is popular as an endpoint in the evaluation of public policy. The study explores intra district variation in quality of life in Punjab by employing MICS, 2007-08 while in methodology principal component analysis is used for indexing wellbeing. The quality of life is examined through two dimensions, quality of persons and quality of conditions based on five domains: education, health, child protection, environment, and other socio economic conditions. All the thirty five districts and one forty three *Tehsils* (sub districts) are categorised in four quartiles that is good, fair, medium and poor.

According to weighted factor scores ranking, the top 9 districts are rated as 'good' quality of life districts where six major cities of Punjab are located, i.e., Lahore, Rawalpindi, Gujranwala, Gujrat, Faisalabad and Sailkot, etc. The second quality of life categorised as 'fair' has one major city and out of 9 districts seven are located in central Punjab while two are in north Punjab, i.e., Sargodha, Sahiwal, Chakwal and Attock. The third quartile is termed as 'medium' quality of life where 23 percent population is residing, majority of which are from south Punjab. The bottom quartile is categorised as 'poor' where districts from west Punjab are dominated, i.e. Mianwali, Jhang and Muzafferghar etc. Intra districts variation in quality of life quantified by *Tehsils* is quite considerable. Some district like Rawalpindi, Faisalabad, Multan and Jhelum observed significant variation in quality of life in their respective *Tehsils*. Distribution of population by geographical zones also highlights sub districts discrepancies in quality of life when comparing it with districts. Some important determinants of regional variation in quality of life are access to middle and secondary school, access to health facilities, household utilities and ownership of durable goods, adult female literacy, gender parity at secondary level and maternal health as depicted by factor components. Some explanations in terms of socio-economic development indicators are poverty rates, extent of urbanisation, overseas migration, industrial zones and geographical significance, etc.

Finally, the study has identified *Tehsils* ranked as 'poor' quality of life within each district as target for special resource allocation within Medium Term Development Framework. It is also suggested for enhancing rural-urban linkages through infrastructure development, encouraging establishment of industrial zone, regional gaps in human capital through better quality education and health facilities, agro based industries, increase access to overseas employment and credit facilities for small and medium term enterprises.

Appendix-A

Intra Districts Disparity in Quality of life in Punjab: 2007-08

| Name of Districts | Tehsils Ranking within District | Overall Tehsils Ranking in Punjab | Name of Districts | Tehsils Ranking within District | Overall Tehsils Ranking in Punjab |
|----------------------|---------------------------------|-----------------------------------|----------------------|---------------------------------|-----------------------------------|
| 1. Lahore | 1 | | 7. Jhelum | | |
| Samanabad | 1 | 1 | Jhelum | 1 | 22 |
| Gulberg town | 2 | 2 | Dina | 2 | 24 |
| DG Buksh t | 3 | 3 | Sohawa | 3 | 55 |
| Shalimar t | 4 | 4 | Pind dadan | 4 | 61 |
| Ravi town | 5 | 6 | 8. Multan | | |
| Aziz Bhatti | 6 | 7 | Shah R A | 1 | 23 |
| Lahore cantt | 7 | 8 | Mumtazabad | 2 | 25 |
| Allama Iqbal t | 8 | 18 | Sher Shah t | 3 | 26 |
| Nishtar town | 9 | 28 | Boston | 4 | 47 |
| Wahga town | 10 | 38 | Shujabad | 5 | 128 |
| 2. Rawalpindi | | | Jala Pirwala | 6 | 133 |
| Rawal town | 1 | 5 | 9. Sheikhpura | | |
| Taxila | 2 | 11 | Sheikhpura | 1 | 40 |
| Murree town | 3 | 37 | Muridke | 2 | 44 |
| Potohar town | 4 | 41 | Sharaqpur | 3 | 58 |
| Kallar sayadan | 5 | 45 | Ferozwala | 4 | 67 |
| Gujar Khan | 6 | 46 | 10. Sahiwal | | |
| Kahuta town | 7 | 56 | Sahiwal | 1 | 48 |
| Kotli Sattian | 8 | 126 | Chechawatni | 2 | 52 |
| 3. Gujranwala | | | 11. Chakwal | | |
| Qila didar | 1 | 10 | Chakwal | 1 | 36 |
| Nandi pur | 2 | 14 | Choa saidan | 2 | 68 |
| Aroop town | 3 | 15 | Talagang | 3 | 70 |
| Kamok t | 4 | 19 | 12. T.T Sing | | |
| Khiali sha | 5 | 20 | Toba tk sing | 1 | 50 |
| Wazirabad | 6 | 27 | Gojra | 2 | 53 |
| Nowshera irkan | 7 | 35 | Kamalia | 3 | 73 |
| 4. Gujrat | | | 13. Mandi BD | | |
| Gujrat | 1 | 21 | Malakwal | 1 | 71 |
| Sara Alamgir | 2 | 31 | Phalia | 2 | 81 |
| Kharian | 3 | 34 | 14. Attock | | |
| 5. Sialkot | | | Attock | 1 | 32 |
| Sialkot | 1 | 13 | Hazro | 2 | 39 |
| Pasrur | 2 | 18 | Fateh jang | 3 | 63 |
| Daska | 3 | 33 | Jand | 4 | 91 |
| Sambrial | 4 | 59 | Pindigheb | 5 | 92 |
| 6. Faisalabad | | | Hasan Abdal | 6 | 95 |
| Jinnah | 1 | 9 | 15. Narowal | | |
| Madina | 2 | 12 | Shakargarh | 1 | 60 |
| Iqbal | 3 | 17 | Narowal | 2 | 62 |
| Faisalabad | 4 | 30 | 16. Sargodha | | |
| Samundari | 5 | 54 | Sargodha | 1 | 43 |
| Chak jhumer | 6 | 77 | Bhalwal | 2 | 57 |
| Jaranwala | 7 | 78 | Sahiwal | 4 | 86 |
| Tandlianwala | 8 | 117 | Kot Momin | 5 | 102 |
| | | | Shahpur | 6 | 106 |

Continued—

Appendix-A—(Continued)

| | | | | | |
|-----------------------|---|-----|-----------------------|---|-----|
| 17. Hafiz abad | | | 27. R.Y. Khan | | |
| Hafiz abad | 1 | 49 | R.Y khan | 1 | 84 |
| Pindi bhatian | 2 | 111 | Khan pur | 2 | 103 |
| 18. Nankana sa | | | Sadiq abad | 3 | 105 |
| Shangla hil | 1 | 51 | Liaqat pur | 4 | 137 |
| Shahkot | 2 | 65 | 28. Mianwali | | |
| Safdar abad | 3 | 75 | Mianwali | 1 | 97 |
| Nankana sa | 4 | 100 | Piplan | 2 | 112 |
| 19. Kasur | | | Essa khail | 3 | 123 |
| Patoki | 1 | 72 | 29. Lyyah | | |
| Kasur | 2 | 89 | Karor lal | 1 | 93 |
| Chunian | 3 | 94 | Lyyah | 2 | 99 |
| 20. Khanewal | | | Chubara | 3 | 142 |
| Jahanian | 1 | 74 | 30. D. G. Khan | | |
| Khanewal | 2 | 80 | D.G khan | 1 | 107 |
| Kabirwala | 3 | 90 | Taunsa | 2 | 132 |
| Mian chanue | 4 | 98 | 31. Jhang | | |
| 21. Vehari | | | Chinniot | 1 | 101 |
| Burewala | 1 | 69 | Jhang | 2 | 108 |
| Vehari | 2 | 96 | Shorkot | 3 | 130 |
| Mailsi | 3 | 114 | Ahmadpur s | 4 | 141 |
| 22. Khushab | | | 32. Pakpattan | | |
| Khushab | 1 | 79 | Arifwala | 1 | 116 |
| Nurpur thal | 2 | 118 | Pakpattan | 2 | 120 |
| 23. Okara | | | 33. Bahawalna | | |
| Okara | 1 | 64 | Chistian | 1 | 85 |
| Renala khu | 2 | 87 | Haroonabad | 2 | 104 |
| Depalpur | 3 | 121 | Fort Abbas | 3 | 122 |
| 24. Bahawalpu | | | Bahawalnaga | 4 | 124 |
| B.pur city | 1 | 29 | Minchinabad | 5 | 140 |
| Yazman | 2 | 66 | 34. Rajanpur | | |
| Hasilpur | 3 | 115 | Rajanpur | 1 | 119 |
| Ahmadpur | 4 | 131 | Rojhan | 2 | 136 |
| Khairpur | 5 | 134 | Jampur | 3 | 138 |
| B.pur sadar | 6 | 135 | 35. Muzaffarga | | |
| 25. Lodhran | | | Kotaddu | 1 | 110 |
| Duniapur | 1 | 82 | Muzaffargar | 2 | 129 |
| Lodhran | 2 | 83 | Joti | 3 | 139 |
| Keror paca | 3 | 127 | Alipur | 4 | 143 |
| 26. Bhakkar | | | | | |
| Bhakkar | 1 | 88 | | | |
| Darya khan | 2 | 109 | | | |
| Kallur kot | 3 | 113 | | | |
| Mankera | 4 | 125 | | | |

Source: Computations are based on "Multiple Indicator Cluster Survey" (MICS) Punjab 2007-08.

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