

Dimensions of Well-being and the Millennium Development Goals

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1. INTRODUCTION

The concept of well-being has deep roots in philosophy [Cantril (1965)]. Much later in the 19th century modern definitions of well-being emerged. The utilitarian movement defined well-being subjectively and proclaimed individuals' well-being as an important goal of individuals' behaviour and public policy. During the 20th century social scientists started to examine well-being empirically, but a unified concept of well-being was lacking. At the beginning of the 20th century, economists developed elaborate quantitative theories of well-being, but rejected the possibility that individuals' could provide valid reports of their own well-being. In the second half of the 20th century social scientists started to develop subjective measures of well-being, and started to examine how these measures relate to demographic variables or other characteristics of individuals [Andrews and Withey (1976)].

The relationship between GDP and well-being likely depends on how rich a country is. As income increases it contributes little to overall well-being at low levels of GDP in poor country, since only a narrow segment of the population is benefiting directly. Moreover, as noted by Sen (2001) non-monetary benefits such as health and education that improve individual capabilities are often more important than income in poor countries. As the benefits of continued growth trickle down to a burgeoning middle class, social well-being rises dramatically [Torrás (2008)]. It is in this context that a number of alternatives to GDP have been introduced. For example, the United Nations Development Programme's (UNDP) human development index (HDI) uses GDP per capita to measure "access to economic resources" in well-being assessments but accords it only one-third weight in determination of the level of human development. Although national income accounting measures may sometimes not agree with popular perceptions of trends in economic well-being, GDP per capita is one of the three main components of the HDI, whose objective is to indicate the capability of people "to lead a long and healthy life, to acquire knowledge and to have access to resources needed for a decent standard of living" [Osberg and Andrew (2005)]. A second approach, multi-criteria analysis, is the Human Well-being Index which measures more realistically

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socioeconomic conditions than narrowly monetary indicators such as the GDP and covers more aspects of human well-being than HDI. 'Human Well-being is a condition in which all members of society are able to determine and meet their needs and have a large range of choices and opportunities to fulfil their potential' that generates a more comprehensive picture of the state of the world. It is the average of indices of health and population, wealth, knowledge, community and equity [Prescott-Allen (2003)].

The principal thrust of human well-being has been to supplement traditional economic indices of well-being with alternative indicators that capture non-economic or non-material dimensions of human life. In particular, it is now commonly accepted that human well-being should be treated as a multidimensional concept along the lines advocated by Sen (1993). He emphasised on promotion of human well-being and development by adding another dimension of well-being research. He argued that quality of life do not depend merely on opportunities and is determined by human capabilities as well. Classifying various well-being definitions, distinction between objective and subjective definitions of well-being is important which is based on the selection process of the criteria that are used to judge individuals' well-being. Objective definitions assume that the criteria can be defined without reference to the individual's own preferences, interests, ideals, values, and attitudes. The objective indicators of well-being are only proxies; these are indirect measures of true conditions that researchers try to evaluate. It is assumed that the objective circumstances influence satisfaction within specific life domain [Sumner (1996)]. Objective measurement is based on explicit criteria and performed by external observer. Subjective definitions require that individual preferences, interests, ideals, values, and attitudes matter. Well-being indicators can also be subjective which is based on people's perceptions of their happiness and satisfaction with living standards. These indicators are survey based and directly enquire individuals about their satisfaction with life [Hasan (2008)]. Subjective measurement involves self reports based on implicit criteria.

In response to the changing global conditions, new research priorities and improved data resources, social science research on living standards, human well-being and quality of life has altered. In this scenario all United Nations Member States in 2000, adopted the eight Millennium Development Goals (MDGs) as a framework for the development activities of over 190 countries in ten regions; they have been articulated into over 20 targets and over 60 indicators, towards the target date—2015—by which the MGDs are to be achieved. Pakistan has adopted 16 targets and 37 indicators for monitoring the MDGs. Since then the Millennium Development Goals have become a universal framework for development and a means for developing countries and their development partners to work together in pursuit of a shared future for all. The underlying premise of the MDGs is still the concept of human development. It is noted that the MDGs concentrate on the non-monetary variables which are not measured in terms of monetary units; rather the goals focus on the distribution of capabilities—education, health, nutrition, gender relations, and physical environment. They are characterised as qualitative variables or in terms of quantity [United Nation (2002)].

This paper proposes a conception of dimensions of human well-being: objective well-being by concentrating on MDGs, i.e., education, health and environmental sustainability to determine the extent of variation among districts of Pakistan in the level

of well-being. It also focuses on softer issues of subjective well-being, i.e., satisfaction with facilities/services used, education, health and security. It also elaborates a basic configuration of objective and subjective well-being across districts of Pakistan.

The paper is divided into five main sections and an appendix. Section 2 gives literature review. Section 3 examines data and methodology. Section 4 presents analyses. Finally Section 5 concludes.

2. LITERATURE REVIEW

The notion of well-being is receiving growing attention, both in academic research and policy-oriented analysis, especially in the context of MDGs. There is expanding literature that provides various measures of well-being which are discussed here.

Schimmack (2008) defined well-being as preference realisation which can be measured with affective and cognitive measures. The paper examined similarities and differences between cognitive measures of well-being and four items (happy, sad, angry, and afraid) as an affective measure of well-being.

Prescott-Allen (2003) prepared a common framework of dimensions consisting of (a) human dimensions, including health and population, national and household wealth, education and culture, community and social capital, and equity; and (b) ecosystem dimensions, including land and forests, water quality and diversity, air quality, species and genetic diversity, and energy and resources use.

Sumner (1996) provided distinction between objective and subjective definitions of well-being. The distinction is based on the selection process of the criteria that are used to judge individuals' well-being. Objective definitions assume that the criteria can be defined without reference to the individual's own preferences, interests, ideals, values, and attitudes while subjective definitions require that individuals' preferences, interests, ideals, values, and attitudes matter.

Hasan (2008) explored the concepts of city ranking as a way to measure the dynamics and complexities of urban quality of life. These ranking had various dimensions and uses. Both the context in which these rankings were organised and their nature had changed considerably over time.

Akhtar and Sarwer (2007) employed two different techniques-Z sum and weighted factor scores and 12 indicators to quantify the intertemporally compared levels of development in the districts of Pakistan. The study highlighted that provincial capital, i.e., Karachi, Lahore and Quetta consistently appear in the top ten ranking under both techniques in 1998 and 2005. In regressive districts, 5 belonged to Balochistan, 3 from Punjab and two districts were found from Sindh province.

Jamal and Amir (2007) highlighted changes in human development status in districts of Pakistan during the period 1998 and 2005. The estimates of a district level Human Development Indices provide an indication of existing trends in regional disparities in terms of economic development as well as education and health status.

Uddin (2007) reviewed social development in Pakistan with focus on the issues of access to and quality of social services and identified areas that should receive greater attention to enhance the public access to quality social services. It was observed that the demand for social services is expanding rapidly, mainly owing to high population growth and rapid urbanisation.

Siddiqui (2006) tested whether direct provision of social services improve capabilities by estimating a basic need model for Pakistan. She viewed that government provision of social services affects human capabilities significantly. She analysed that aggregate statistics at the national or provincial level hides region specific reason of poverty and inequalities. The variations in these indicators across the district within a province and across the provinces are an indicative of regional disparities in terms of income, health, education and the quality of life.

UNDP (2003) estimated that variation in Human Development Indices between provinces and districts are indicative of regional disparities in both the level of economic growth as well as in terms of health, education and quality of life.

Midhet (2004) derived development ranking by applying composite indices of several district-level variables derived from factor analysis, which are then used to predict two important indicators of reproductive health; the child-woman ratio(CWR) and maternal mortality rate (MMR). This study was designed to facilitate selection of districts for implementing operations research in safe motherhood. It is indicated that MMR decreased with accessibility of hospitals and primary health facilities. The study also identified which districts are developing satisfactorily and which are stagnant or deterioration in terms of development.

Pasha and Naeem (1999) examined whether the low level of social indicators in the country is a consequence of poor initial conditions or has there been deterioration due to relatively low rate of improvement over time? The study concluded that Pakistan is a case of a country which not only started with low level of human endowment but the situation has been exacerbated by the low level of improvement in it over time.

Ghaus, *et al.* (1996) explored regional variation in the development of social infrastructure across districts of Pakistan. The study demonstrated the importance of education indicators in determining the overall level of social development in terms of female literacy and enrolment rates. However the analysis indicated substantial variation among districts within a province in the level of social development. Least developed districts within each province are identified as targets for special development.

Pasha, *et al.* (1990) demonstrated that there are marked changes in the development ranking of a number of districts from the early 1970's to the early 1980's, especially among districts at the intermediate level of development. The indicators were selected from diverse sectors like industry, agriculture, transport and communications with basic social indicators including education, health, gender equality and housing. Districts of Punjab have generally improved their ranking in the education sector, gender equality and labour force indicators while province of Balochistan continued to fall behind the rest of the country.

Jamal and Salman (1988) concluded that despite the regional development policies pursued in the province of Sindh during the 70s little success has been achieved in narrowing regional disparities among districts. It is indicated that there is need for a fundamental re-evaluation of nature, scope and content of these policies.

Pasha and Tariq (1982) indicated that districts development rankings hide major intra-provincial disparities. The analysis demonstrates that all the provincial capitals and federal capital are included in top quartile of the national population. Provinces that are considered relatively underdeveloped like Balochistan and NWFP to have some highly developed pockets while a significant part of Punjab and Sindh appeared to be relatively underdeveloped.

The above studies discussed various measures of well-being and districts level social development in Pakistan. It is concluded that there is substantial variation among districts within a province in the level of social development and districts of Balochistan are identified as least developed in terms of quality of life.

3. DATA AND METHODOLOGY

3.1. Data

The study employs the 'Pakistan Social and Living Standards Measurement Survey' (PSLM) 2006-07 data which consists of Core Welfare Indicators Questionnaire (CWIQ) approach. It is one of the main mechanisms for monitoring the implementation of the MDGs and Poverty Reduction Strategy Paper (PRSP). It provides a set of representative, population-based estimates of social indicators and their progress under MDGs and PRSP. An important objective of the PSLM Survey is to try to establish what is the distributional impact of different government programs carried out in social sector. Policymakers need to know, for example, whether the poor have benefited from the programme or whether increased government expenditure on the social sectors has been captured by the better off. PSLM Survey consists of data relating education, child health, maternal health, household assets /amenities. It also provides subjective data relating to perception of economic situation of the households and communities where they live and satisfaction of services. The sample size for the four provinces has been fixed at 73953 households comprising 5198 sample villages / enumeration blocks, which is expected to produce reliable results at each district [Pakistan (2008)].

3.2. Methodological Choices Encountered in the Construction of Composite Indices of Well-being

The first choice encountered in index construction is the general form of the index: will it be a single composite, or a complementary composite. A single composite is a single aggregation of variables that are used in an index, whereas a complementary composite is comprised of two separate indices: a conglomerative index and a deprivational index. A conglomerative index measures the overall well-being of a society, in contrast, a deprivational index measures only the welfare of the worst off.

The next choice encountered is which variables to include in the index. This choice can be made by simply choosing data that an index constructor wants to include, or by first determining concepts that the developers seek to measure, such as inequality. After variables have been picked, functional forms must be chosen. The functional form is a functional transformation that is applied to the raw data in order to represent the significance of marginal changes in its level. Once functional forms associated to variables have been established, a uniform method of standardisation should be considered. One choice is to use raw data and not standardise. This choice leads to many problems when an attempt is made to aggregate variables. Standardisation methods allow standardised values to be compared meaningfully. Three techniques to standardise absolute values of variables are reviewed: Linear Scaling Technique which linearly scales variables to a uniform range, ordinal response, where experts assign a score to each

variable, and Gaussian normalisation, or Z-score, in which the standardised variable is the number of standard deviations away from its mean.

The final step in forming a composite index is setting the weights within the aggregation scheme. The most widely accepted and used techniques to set explicit weights in aggregation are: expert weighting set by specialist, Principal Component Analysis and explicitly set weights by another mechanism, such as equal weighting [Salzman (2003)].

3.3. Strategies to Study Dimensions of Well-being

The multidimensional view of well-being is receiving growing attention, both in academic research and policy-oriented analysis. The multifaceted nature of well-being is implicit in the set of indicators to monitor the performance of countries. Indicators are commonly recommended as tools for assessing the attainment of development, and the current vogue is for aggregating a number of indicators together into a single index. It is claimed that such indices of development help to facilitate maximum impact in policy terms by appealing to those who may not necessarily have technical expertise in data collection, analysis and interpretation. This paper constructs indices of well-being by focusing on the (UNDP) Human Development Index (HDI). While the HDI offers a composite index that summarises basic choices available to people, it has been criticised on many grounds. For example, it is argued that it does not capture the totality of issues that affect human well-being. Hence, this study is being made to widen the scope of issues covered by the index. The study examines the non-income dimensions of objective well-being that contribute to quality of life, i.e., education, child health, maternal health and housing facilities that affect human well-being while their absence will constitute some form of deprivation. Subjective well-being index is also developed to measure individuals' preferences, interests, ideas, values, and attitudes towards the satisfaction of facilities available, i.e. education, health and security. After selecting the variables 'Linear Scaling Technique' which linearly scales variables to a uniform range is applied before aggregating. However, for ease of comparison, this index is standardised to a scale of 0 to 1.

(a) Linear Scaling Technique (LST)

Let X_1, X_2, \dots, X_n be the indicators. The indicators are standardised to maintain uniformity. Each of the X_i 's are observed for each district.

$$LST_x = \begin{cases} 0 & \text{if } x_{ij} = x_{\min,j} \\ \frac{x_{ij} - x_{\min}}{x_{\max,j} - x_{\min,j}} & \text{if } x_{\min,j} < x < x_{\max,j} \\ 1 & \text{if } x_{ij} = x_{\max,j} \end{cases} \quad \dots \quad \dots \quad \dots \quad (1)$$

$x_{\min_{ij}}$ = Minimum value of i th indicator in j th district

x_{ij} = Value of i th indicator in j th district

$x_{\max_{ij}}$ = Maximum value of i th indicator in j th district

3.4. Dimensions of Objective Well-being Index (OWBI)

Dimensions of well-being are non-hierarchical, irreducible, incommensurable and hence basic kinds of human ends. Objective well-being assumes that the criteria can be defined without reference to the individual’s own preferences, interests, ideas, values, and attitudes. Its indicators are based on attributes that can be measured, for example maternal mortality rate, poverty rates and adult literacy rate, etc. In this study three basic components education, health and living conditions with sub components are taken to rank districts on the basis of objective well-being followed by [Akhtar and Sarwer (2007)]. It is assumed that the selected objective indicators of well-being are only proxies, i.e., they are indirect measures of true conditions of well-being that also influence satisfaction with specific life domain. In this study a non monetary well-being index is preferred to explain the group of variables with equal weights for each of its domain.

The formula for the overall index comprises of three main components (education, health and living conditions) each affecting, in one way or another, a human being’s life by way of his / her success to ‘means’ or desires ‘ends’. Let X_1, X_2, \dots, X_n be the indicators. The indicators are standardised by ‘Linear Scaling Technique’ to maintain uniformity. Each of the X_i ‘s are observed for each district.

The three main components of OWBI with equal weights¹ are:

$$OWBI_j = 1/3 [(EDI_{ij}) + (HI_{ij}) + (LCI_{ij})] * 100 \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

ith indicator in jth district

Where,

$OWBI_j$ = Objective well-being index in *jth* districts

$j = 1, 2, 3, \dots, \dots, \dots, 100$

$[EDI_{ij}]$ = Education index $[HI_{ij}]$ = Health index $[LCI_{ij}]$ = Living conditions index.

$$[EDI_{ij}] = 1/3 [LRI_j] + 1/3 [NPEI_j] + 1/3 [GEI_j] \quad \dots \quad \dots \quad \dots \quad \dots \quad (3)$$

$[LRI_j]$ = Literacy rate index, $[NPEI_j]$ = Net primary enrolment rate index,
 $[GEI_j]$ = Gender equality in education at primary level or higher.

$$[HI_{ij}] = 1/2 [CHI_j] + 1/2 [MHI_j] \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (4)$$

$$[CHI_j] = 1/2 [IRI_j] \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (5)$$

$[IRI_j]$ = Immunisation rate index

$$[MHI_j] = 1/4 [PCI_j] + 1/4 [SDI_j] + 1/4 [PDI_j] + 1/4 [PNI_j] \quad \dots \quad \dots \quad (6)$$

$[MHI_j]$ = Maternal health index

$[PCI_j]$ = Prenatal care index, $[SDI_j]$ = Safe delivery index.

¹Equally weighted indices are used frequently in the literature of well-being for example UNDP’s Human Development Index and International Development Research Centre’s (IDRC) Human Well-being Index.

$[PDI_j]$ = Place of delivery index, $[PNI_j]$ = Post natal care index

$$[LCI_j] = 1/4 [DWI_j] + 1/4 [SF_j] + 1/4 [SFI_j] + 1/4 [SFI_j] \dots \dots \dots (7)$$

$[DWI_j]$ = Source of drinking water index, $[SFI_j]$ = Sanitation facilities index

$[SFI_j]$ = Source of lighting index, $[SFI_j]$ = Source of fuel for cooking index.

A summary of objective well-being indicators are given in Table 1 with values of minimum, maximum, mean, coefficient variation and MDGs targets. The variation in these indicators of well-being across the districts of Pakistan is an indicative of regional disparities in the quality of life.

Table 1

Summary of Objective Well-being Indicators (%)

Indicators	Mean	Minimum	Maximum	Coefficient Variation	MGDS Target 2015
Literacy 10+	46	20	80	0.27	88
Net Enrolment at Primary	51	20	88	0.27	100
Gender Equality in Education	42	3.2	90.32	0.50	100
Fully Immunisation	70	14	100	0.30	90
Prenatal Care	44	6	86	0.63	100
Safe Delivery	38	2	80	0.66	90
Place of Delivery	22	1	78	0.51	–
Post-natal Care	20	1	63	0.65	–
Safe Drinking Water	69.8	5.74	100	0.42	93
Sanitation Facilities	41.93	0.13	93.48	0.57	90
Source of Lighting	78.72	7.34	99.84	0.28	–
Source of Fuel	15.51	0	92.26	1.21	–

Source: Computations are based on 'Pakistan Social and Living Standards Measurement Survey', 2006-07.

3.5. Choice of Indicators

To measure objective well-being three goals of MDGs are taken, i.e, education, health and environmental sustainability.

(i) Education

Goal 2: Universal Primary Education.

Goal 3: Promote Gender Equality and Empower Women.

MDGs Goal 2 aims at ensuring that by 2015 children everywhere, boys and girls alike would be able to complete a full course of primary schooling. This target is assessed in Pakistan by the trends in gross and net enrolments, the proportion of students who completed their studies from grade one to grade five and adult literacy rates. In this study two indicators are taken to analyse universal primary education; literacy, net enrolment at primary level. Literacy is taken as the ability to read a newspaper and to write a simple letter. Population aged 10 years and older that is literate expressed as a percentage of the population age 10 years and older. Net enrolment rate at primary level is taken as

[number of children age 5-9 years attending primary level (classes 1-5) divided by number of children aged 5-9 years] multiplied by 100; enrolment in *katchi* is excluded.

MDGs goal 3 aims to eliminate gender disparity in primary and secondary preferably by 2005 and to all levels of education no latter than 2015. To measure progress in this goal the study takes the ratio of girls to boys in completed primary level or higher: number of girls per 100 boys [United Nation (2002)].

(ii) Health

Goal 4: Reduced Child Mortality

This goal targets a reduction in child mortality by two third between 1990 and 2015 (reduction in infant mortality rate to 52 and child mortality rate to 77). Progress in this goal is measured through an indicator: proportion of fully immunised children 12-23 months old. The Pakistan Expanded Programme on Immunisation (EPI) follows the international guidelines recommended by the World Health Organisation (WHO). The guidelines recommended for all children a BCG vaccination against tuberculosis; three doses of DPT vaccine for the prevention of diphtheria, pertussis (whooping cough) and tetanus; three doses of polio vaccine and a vaccination against measles during the first year of the child's life. Progress in child health is measured through recall and record of full immunisation course which means that the children age 12-23 months had received: BCG, DPT1, 2, 3, Polio1, 2, 3 and measles [United Nation (2002)].

Goal 5: Improve Maternal Health

This goal aims to reduce maternal mortality rate by three quarters between the 1990-2015 periods that is 140 per 100,000 lives births. Efforts to reduce maternal mortality need to be tailored to local conditions, since the causes of death vary across developing regions and countries. The over all maternal mortality ratio is at 276 maternal deaths per 100,000 live births and approximately 1 in 89 women in Pakistan will die of maternal causes during her life time taken as lifetime risk [NIPS (2008)]. The success of this goal is measured through these indicators; prenatal consultation measured as woman received at least one Tetanus Toxoid injection, safe delivery is taken as health personals that assisted in delivery (doctor, nurse, midwives), location of delivery is considered as child birth taken place at government or private health units and post natal consultations is measured as received medical check up within six weeks of delivery for women aged 15-49 years who had a birth in the last three years.

(iii) Living Conditions

Goal 7: Ensure Environmental Sustainability

A household's access to civic amenities is determined not only by its location but also by its economic circumstances. Thus access to such services can vary across households from different districts because no district provides universal coverage. In Pakistan for the measurement of environmental sustainability four indicators are adopted; proportion of population with sustainable access to an improved water source (tap water, motor pump and hand pump) and proportion of people with access to improved sanitation

(‘flush’ consists of flush connected to public sewerage /septic tank / open drain) which are included in MDGs indicators [United Nation (2002)]. Two more indicators are also taken to ensure environmental sustainability, i.e. source of lighting measured as percentage of households have electricity connections and percentage of households using gas or kerosene oil as fuel used for cooking.

3.6. Dimensions of Subjective Well-being Index (SWBI)

By dimension mean “any of the component aspects of a particular situation”. The key features of dimensions of subjective well-being are based on people’s perceptions of their quality of life and satisfaction with living conditions. These indicators are survey based and directly enquire individuals about their satisfaction with the services/facilities available to them. Subjective measurement involves self reports based on implicit criteria.

Subjective Indicators

To estimate human well-being objective indicators be supplemented by subjective ones, as proposed by [Veenhoven (2007) and Hasan (2008)] since both capture different dimensions of well-being. The formula for the overall index of subjective well-being is as follows:

$$[SWBI]_j = \{1/3 [EDI]_j + 1/3[HI]_j + 1/3[SI]_j\} * 100 \quad \dots \quad \dots \quad \dots \quad (8)$$

where,

$[EDI]_j$ = Education index, $[HI]_j$ = Health index, $[SI]_j$ = Security index.

To measure subjective well-being, indicators are taken which are based on use and satisfaction with the facilities, expressed as percentage of those households who used these services.² This type of information has been collected for the first time in FBS household surveys. Since government is spending lot to improve the economic situation of people and also investing considerable amount in providing different types of facilities and services. Considering as how facilities / services are being passed on to the general public, the respondents are asked to give their perception in their economic as well as community improvement and how effectively services are available to them. To measure subjective well-being education, health and security services measured by police services, households are asked to give opinion about their satisfaction of the facilities/services provided by the government.

Table 2

Summary of Subjective Indicators of Well-being (%)

Indicators (Satisfaction with the Services/Facilities)	Mean	Minimum	Maximum	Coefficient Variation
Education	61.23	21.18	84.32	0.21
Health	35.31	5.88	81.03	0.46
Security (Police Services)	6.61	0	29.2	0.95

Source: Computations are based on ‘Pakistan Social and Living Standards Measurement Survey’, 2006-07.

²The non-marketed services such as education, health and sanitation etc., are used as evaluative criteria in subjective well-being [Kingdon and John (2005)].

3.7. Standard Scores for Categorisation of Well-being Index (WBI)

It indicates where the score lies in comparison to mean i.e. if the mean of index is X_w , then the score can be compared to see if it is above or below this average. Standard deviation (SD) around the mean (both side plus and minus) is taken to categorisation of the distribution of well-being index; where, $w = 1, 2$ (objective index and subjective index, simultaneously). Following [Li, *et al.* (1998) and Cummins (2000)], the six categories are classified as:

1. Highest well-being ($X_w + 1.0$ standard deviation) $< WBI = 100$
2. High well-being ($X_w + 0.5$ st. deviation) $< WBI = (X_w + 1.0 \text{ st. deviation})$
3. Upper medium well-being (X_w) $< WBI = (X_w + 0.5 \text{ st. deviation})$
4. Lower medium well-being ($X_w - 0.5$) $< WBI = (X_w)$
5. Low well-being ($X_w - 1.0$ st. deviation) $< WBI = (X_w - 0.5)$
6. Lowest well-being $0 < WBI = (X_w - 1.0 \text{ st. deviation})$

3.8. The Z Score

This technique is also used to observe the sensitiveness of the results with respect to the choice of technique for deriving the composite indicators. The Z_{-sum} is the standardised score, which has zero mean and unit variance. The higher the Z_{-sum} the more developed the district.

4. ANALYSIS

Classifying the districts in terms of categories of objective index value, i.e., highest, higher, upper medium, lower medium, low and lowest provides a useful basis for the analysis. For ease of comparison, absolute values of variables are standardised to a scale of 0 to 1 by using Linear Scaling Technique (LST) which linearly scales variables to a uniform range. It also assigns the lowest implicit weights to variables and deals with the directionality issue and provides a consistent way to aggregate variables. The composite index value gives the achievement in the level of well-being; the higher the value of index the more the level of well-being. The findings of this analysis indicate that average index value of 100 districts is 49.02 percent whereas average achievement is 74.9 percent for 17 districts in highest category while the average value of the lowest well-being index is 21.75 percent. Table 3.a gives information regarding the ranking of districts in term of highest and high well-being. Karachi, Rawalpindi and Lahore etc. are ranked in highest category among 17 districts with average 74.9 percent achievements in its dimensions with overall 37.37 percent share in population (Table 4). Second category is high well-being which includes 14 districts with overall population share is 16.48 percent. Multan, Sahiwal and Nowshera are ranked top approximately with average achievement of 63.65 percent. It is important to note that three out of four provincial capitals, i.e., Karachi, Lahore and Quetta are ranked in highest category while Peshawar comes at 29 in district ranking of well-being. The dominance of Punjab is observed in highest well-being category where thirteen out of seventeen districts

belong to this province, like Rawalpindi, Lahore, Gujrat, Gujranwala, Sialkot, Jehlum, Toba Tek Singh, Faisalabad etc. In second category of high well-being only districts of Punjab and NWFP are emerged. This tends to indicate that Punjab is ahead of the other provinces in terms of objective indicators. The relatively high enrolment rates at primary level along with access to maternal health care services are the prime reason for the relatively high ranking of districts in this province [Pakistan (2008)]. Ghaus, *et al.* (1996) ranked districts in terms of social development using Z_{sum} and weighted factor scores also come to same conclusion as in the present analysis.

Table 3a

Overall Objective Well-being Rank Orders

Highest Well-being			High Well-being		
Districts	Overall Rank Orders	Index Value (%)	Districts	Overall Rank Orders	Index Value (%)
Karachi	1	89.59	Multan	18	67.14
Rawalpindi	2	88.42	Sahiwal	19	67.12
Lahore	3	86.40	Nowshera	20	66.91
Gujrat	4	80.20	Sargodha	21	66.34
Gujranwala	5	79.28	Khushab	22	66.18
Sialkot	6	78.76	Hafizabad	23	65.95
Jehlum	7	78.44	Haripur	24	63.35
Chakwal	8	73.37	Swat	25	62.24
T.T.Singh	9	72.30	Mianwali	26	62.20
Faisalabad	10	70.75	Layyah	27	62.02
Attock	11	70.75	Kasur	28	61.19
Mandi Bahauddin	12	70.37	Peshawar	29	60.80
Quetta	13	69.76	Bahawalnagar	30	60.80
Hyderabad	14	69.51	Chitral	31	59.59
Sheikhupura	15	69.50			
Narowal	16	69.30			
Abbottabad	17	68.75			

Source: Computations are based on the 'Pakistan Social and Living Standards Measurement Survey', 2006-07.

Note: Standard scores: highest well-being index = 67.47 percent above with average index value = 74.9 percent high well-being index range = 67.46—58.25 with average index value = 63.65 percent. Islamabad is top ranked with index value 95.11 percent.

Table 3b classifies districts with upper medium and lower medium level of well-being. The upper medium category has 19 districts with average achievement of 54.51 percent with population share of 22.9 percent. Khanewal, Nowshero Feroz and Mardan are ranked top in this classification. Districts of Punjab again dominates this category where ten out of 19 districts are from this province, Sindh and NWFP have 3 and 5

districts respectively while only one district is from Balochistan. One can draw the conclusion that if a district starts with an advantage in human endowment, it is easier to maintain its relative position [Pasha and Naeem (1999)]. The fourth category of well-being is lower medium with average index value is 43.48 percent which is less than overall average value of well-being index. Sindh and NWFP districts are dominated in this category.

The last two categories which consist of 31 districts are dominated by Balochistan, with 19 districts belonging to this province followed by NWFP and Sindh as presented in Table 3c. By and large, the differences in health and educational outcomes between districts reflect the differences in access to these services. The rank ordering of districts indicates that gender disparity in education and lack of maternal health care services dominates the outcome. Analysis of the magnitude of indicators in the relatively underdeveloped districts indicates that the profile of backwardness is primarily of poor quality of civic immunities with low access to water, sanitation, electricity and gas and also with low standards of provision of health and education facilities.

Table 3b

Overall Objective Well-being Rank Orders

Upper Medium Well-being			Lower Medium Well-being		
Districts	Overall Rank Orders	Index Value (%)	Districts	Overall Rank Orders	Index Value (%)
Khanewal	32	57.86	Lower Dir	51	49.01
Nowshero Feroz	33	57.61	Swabi	52	48.17
Mardan	34	57.16	Khairpur	53	47.17
Bhakhhar	35	56.66	Karak	54	47.08
Vehari	36	56.63	Muzaffargarh	55	46.79
Sukkur	37	56.46	Dadu	56	46.52
Okara	38	56.43	Bannu	57	45.45
Mastung	39	56.43	Hangu	58	44.13
Jhang	40	55.24	Mir Pur	59	44.20
Pakpattan	41	55.23	Kalat	60	44.13
Larkana	42	55.07	Nawabshah	61	42.97
Bahawalpur	43	54.25	Sanghar	62	41.21
Malakand	44	54.13	Ghotki	63	41.52
Charsada	45	53.66	Gwadar	64	41.14
Mansehra	46	53.22	Bonair	65	41.12
R. Y. Khan	47	52.10	Lakki Marwat	66	40.39
Kohat	48	51.10	Ketch	67	40.22
D.G. Khan	49	50.67	Upper Dir	68	40.01
Lodhran	50	50.34	Shikarpur	69	39.80

Source: Computations are based on the 'Pakistan Social and Living Standards Measurement Survey', 2006-07.

Note: Standard scores: upper medium index range = 58.24-49.03 with average index value = 54.51 percent, lower medium index range = 49.02-39.81 with average index value = 43.48 percent.

Table 4

Percentage Share of Population in Level of Objective Well-being³

Area	Highest Well-being		Upper Middle		Lower Middle		Total
	Highest	High	Middle	Middle	Low	Lowest	
Punjab	46.10	21.70	27.09	3.58	1.49	0	100
Sindh	41.87	0	12.88	30.15	8.41	6.66	100
NWFP	4.965	29.10	30.26	22.66	10.33	2.66	100
Balochistan	11.34	0	2.73	12.74	25.92	47.23	100
Total	37.73	16.48	22.93	12.93	5.62	4.36	100

A look at Table 4 shows disparities in terms of percentage share of population in objective well-being categories across provinces. It is observed that Punjab has highest share of population in top category of well-being while population of Balochistan gets major share in lowest category.

To estimate the quality of life in Pakistan, [Veenhoven (2007) and [Hasan (2008)] recommended that objective indicators be supplemented by subjective ones, since both capture different dimensions of well-being. Subjective indicators focus on soft matters such as satisfaction with income and measures individual perceptions based on a respondent's judgment rather than that of policy-makers or researchers while objective indicators measure hard facts. The following tables rank districts of Pakistan in three categories which further splits into six classifications. To measure subjective well-being of households, indicators are taken which are based on use and satisfaction with the facilities, expressed as percentage of those households who used these services i.e., education, health and security measured by police services. It is interesting to note that ranking on the bases of subjective well-being is entirely different from objective well-being as highest districts are not appeared at the top ranked in subjective well-being index.

Table 5a

Overall Subjective Well-being Rank Orders

Highest Well-being			High Well-being		
Districts	Overall Rank	Index Value (%)	Districts	Overall Rank	Index Value (%)
	Orders			Orders	
Swat	1	82.89	Lakki Marwat	17	56.55
Vehari	2	82.01	D.I.Khan	18	54.62
Nowshero Feroz	3	75.78	Layyah	19	53.84
Sibbi	4	74.21	Charsada	20	53.74
Chitral	5	73.72	Khairpur	21	53.56
Bannu	6	70.92	Shangla	22	53.38
Pashin	7	67.56	Hyderabad	23	52.96
Nowshera	8	65.89	Bonair	24	52.33
Sanghar	9	65.88	Tank	25	51.76
Karak	10	64.88	Hangu	26	51.40
Mastung	11	64.41	D.G.Khan	27	51.12
Mardan	12	63.93	Badin	28	50.63
Peshawar	13	63.48			
Jhal Magsi	14	59.83			
Malakand	15	59.75			
Lower Dir	16	59.39			

Source: Computations are based on the 'Pakistan Social and Living Standards Measurement Survey', 2006-07.

Note: Standard scores: highest well-being index = 57.87 above, highest index range = 57.86 - 50.39

³Population shares are based on 'Pakistan Population and Housing Census (1998)'; although absolute number of districts population has increased during 1998 to 2006-07 but there is less significant change in proportional share of districts population.

It is important to note here that subjective view of utility recognises that everybody has his or her own ideas about happiness and the quality of life that observed behaviour is an incomplete indicator for individual. People evaluate their level of subjective well-being with regard to circumstances and comparison to other person, past experiences and expectation of the future. Measure of subjective well-being can thus serve as proxies for 'utility' since its item are subject to the law of diminishing utility [Veenhoven (2007)].

Keeping in view of above discussion, subjective well-being in hundred districts of Pakistan is estimated. Out of which 16 districts lie in first category of highest well-being, where Swat, Vehari and Nowshero Feroz ranks at the top while in second category of high well-being Lakki Marwat, Dera Ismail Khan and Layyah comes first as presented in Table 5a, although Ghaus, *et al.* (1996) indicated that these districts are least developed in terms of social development related to education, health and water supply.

Table 5b

Overall Subjective Well-being Rank Orders

Upper Medium Well-being			Lower Medium Well-being		
Districts	Overall Rank Orders	Index Value (%)	Districts	Overall Rank Orders	Index value (%)
Bahawalpur	29	49.89	Sahiwal	49	42.902
Quetta	30	48.99	Gujrat	50	42.708
Chakwal	31	48.80	Pakpatten	51	42.587
Larkana	32	47.93	Lodhran	52	41.539
Kohat	33	47.51	T.T.Sing	53	41.314
Ghotki	34	47.51	Attock	54	40.383
Rawalpindi	35	46.72	Swabi	55	40.234
R Y Khan	36	46.38	Sukkur	56	40.206
Upper Dir	37	45.51	Gwadar	57	39.643
Nawabshah	38	45.50	Faisalabad	58	39.082
Bhakhar	39	45.41	Jafarabad	59	37.984
Bahawalnagar	40	44.44	Bolan	60	37.530
Hafizabad	41	44.31	Kharan	61	37.066
Dadu	42	44.18	Lasbilla	62	36.985
Batagram	43	44.07	Ketch	63	36.426
Panjgur	44	43.85	Abbotabad	64	36.281
Jehlum	45	43.47	Khuzdar	65	36.051
Jhang	46	43.06	Okara	66	35.796
Gujanwar	47	43.01	Mianwali	67	35.664
Mandi Bahuddin	48	42.92			

Source: Computations are based on the 'Pakistan Social and Living Standards Measurement Survey', 2006-07.

Note: Standard scores: upper medium index range = 50.3 - 42.91, lower medium index range = 42.90-35.44
Islamabad is ranked in lower medium with index value 41.43

Tables 5b and 5c ranks other two categories of subjective well-being in districts of Pakistan. Three provincial capitals, Quetta, Karachi and Lahore which are classified in top ranking of objective well-being are now ranked in second and third category of subjective well-being. Most of the less developed districts of Balochistan invariably have not changed their position in these two well-being indices i.e., objective and subjective well-being. Here the important role of hard facts of well-being is not denied or minimised, because not only people living in developed regions score higher in the measurement of their satisfaction index but also when poor people receive even a modest increase in their facilities, their satisfaction level grows. Nevertheless, for less developed regions, the modest increase is merely a temporary phenomenon because such a nominal increase might simply fulfil their basic human needs and not their desires.

Table 5c

Overall Subjective Well-being Rank Orders

Lower Well-being			Lowest Well-being		
Districts	Overall Rank Orders	Index Value (%)	Districts	Overall Rank Orders	Index Value (%)
Mir Pur	68	35.41	Lahore	87	27.92
Sargodha	69	35.36	Khanewal	88	27.58
Barkhan	70	34.07	Tharpark	89	27.54
Narowal	71	33.73	Zhob	90	26.59
Khushab	72	33.60	Kasur	91	26.31
Ziarat	73	33.32	Rajanpur	92	25.87
Multan	74	32.33	Qilla Abdulah	93	24.80
Muzaffargarh	75	32.17	Loralai	94	22.73
Karachi	76	32.09	Awaran	95	22.15
Sialkot	77	31.72	Thatta	96	21.75
Sheikhupra	78	31.71	Dera Bugti	97	20.75
Mansehra	79	31.23	Kohistan	98	16.19
Haripur	80	30.72	Kohlu	99	8.08
Chaghi	81	30.63	Qilla Safullaha	100	7.48
Kalat	82	30.57			
Jacobabad	83	30.51			
Nasirabad	84	30.08			
Shikarpur	85	29.25			
Musa Khel	86	27.99			

Source: Computations are based on the 'Pakistan Social and Living Standards Measurement Survey', 2006-07.

Note: Standard scores: low well-being index range =35.44 – 27.97, lowest well-being index range = 27.96 below.

Table 6

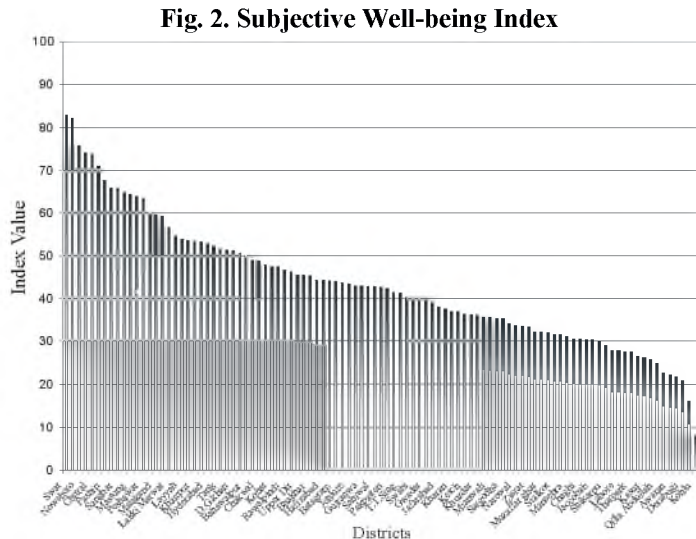
Percentage Share of Population in Subjective Well-being

Area	Upper		Lower		Low	Lowest	Total
	Highest	High	Medium	Medium			
Punjab	2.84	3.75	30.30	24.40	22.60	16.11	100
NWFP	8.345	18.31	18.60	2.98	45.11	6.66	100
Sindh	46.26	21.75	8.15	10.75	10.40	2.70	100
Balochistan	12.8	0	14.911	34.37	14.58	23.36	100
Pakistan	10.64	9.50	23.24	18.00	25.83	12.79	100

A look at Table 6 shows disparities in terms of percentage share of population in subjective well-being categories across provinces. It is observed that Sindh has highest share of population in top category of well-being while perception of Punjab population is lowest in this category. This indicates that people of Punjab are least satisfied with exiting facilities available to them in terms of education, health and security while people of Sindh are happier with services available to them. Several authors argue that subjective

satisfaction is affected by comparisons between one's own situation and that of his or her peers.

Figure 2 plots index of subjective well-being where the ranking are labeled in alternative districts. District Swat ranks at the top while Qilla Safullaha is placed at the lower end.



It is argued that social policy still needs subjective indicators and those objective indicators taken alone are inadequate. It is commonly objected that matter of the mind are unstable, incomparable and unintelligible and the subjective appraisals cannot be compared between persons. One assertion is that different people use different criteria, so two persons stating they are very happy can say so for different reasons. Another claim is that people have different scales in mind, and that people who report they are 'very happy' may in fact be equally as happy as someone who characterises his life as 'fairly happy'. Likewise it is argued that subjective appraisals can not be compared across culture as notion of poverty differ greatly between rich and poor nations and within nations between upper and lower classes which means for social policy these kinds of indicators tell policy makers little about relative performance. A related objection is that the criteria used for these subjective appraisals are largely implicit. In spite of these weaknesses, subjective indicators are indispensable in social policy, both for assessing policy success and for selecting policy goals. Achieving some goals or targets of MDGs, different dimensions of well-being should be taken into account as objective measures have limited validity and reliability. Joint use of objective and subjective measures is mostly helpful to get a complete picture, while rigid restriction to objective indicators considerably narrows the perspective [Veenhoven (2007)]. Since the underlying premise of the MDGs is still the concept of human development, so main streaming of sub-national or local targets into the national targets and priorities is needed to concentrate on least developed districts for achieving the MDGs by 2015. These can be achieved if immediate steps are taken to implement existing commitments. Reaching the goals for

development in each district of Pakistan is vital to building better, healthier and decent lives for millions of people in the country. Least developed districts within each province are identified as targets for special development allocations with Medium Term Development Framework (MTDF).

Table 7 presents a matrix of objective well-being and subjective well-being differences as developed by Veenhoven (2002) which is constructed by taking into account the major three classification of well-being [Tables 3a, b, c and Tables 4a,b,c]. The districts which are placed at diagonal, objective and subjective well-being coincide. It is interesting to note that all the provincial capitals are placed in high objective well-being index but the perception towards satisfaction of available services is low except NWFP provincial capital, Peshawar. Most of the districts of Balochistan with least developed social indicators are in low category in respect of these two well-being indices. Information about perception and satisfactions of households is quite useful in the policy process and the degree to which long and happy life is an important criterion for final policy effectiveness of MDGs. To meet MDGs targets by 2015, Pakistan will have to achieve GDP growth rate of 7-8 percent per annum, ensure continuity and sustainability of reforms, allocate additional resources and ensure their effective use, and above all increasingly involve communities in the development process [Pakistan (2008)].

Table 7

Objective and Subjective Well-being Differences: Basic Configuration

Objective Well-being	Subjective Well-being		
	High	Medium	Low
	(6.00%)	(24.19%)	(24.9%)
High	Hyderabad, Chitral, Nowshera, Peshawar, Swat	Rawalpindi, Gujrat, Gujranwala, Jehlum, Chakwal, T.T.Singh, Faisalabad, Attock, Mandi Bahauddin, Quetta, Sheikhpura, Sahiwal Bahawalnagar, Hafizabad, Abbottabad, Mianwali	Karachi, Lahore, Sialkot, Kasur, Narowal, Haripur, Khushab, Multan, Mansehra, Sargodha, Shikarpur
	(8.96%)	(17.90%)	(5.17%)
Medium	Vehari, Nowshero, Bannu, Sanghar, Karak, Mastung, Malakand, Lower Dir, Mardan, Lakki Marwat, Bonair, Hangu, D.G.khan	Bahawalpur, Larkana, Ghotki, R Y Khan, Upper Dir, Nawabshah, Lodhran Pakpatte, Bhakhar, Swabi Dadu, Jhang, Sukkur, Gwadar, Ketch, Okara	Khanewal, Mir Pur, Kalat, Muzaffar,
	(5.40%)	(1.72%)	(5.67%)
Low	Sibbi, Pashin, Jhal Mag, D.I.Khan, Layyah, Charsada, Khairpur, Shangla, Tank, Badin	Batagram, Panjgur, Jafarabad, Bolan, Kharan, Lasbilla, Khuzdar	Tharpark, Zhob, Rajanpur, Qilla Abdua, Loralai, Awaran, Thatta, Derabugti, Kohistan, Kohlu, Qilla Saifullaha, Barkhan, Chaghi, Jaccobad, Musa Khel, Nasirabad, Ziarat

Source: Computations are based on the 'Pakistan Social and Living Standards Measurement Survey', 2006-07.

Note: Population shares are in parentheses.

In Appendix Tables 1 to 4, findings from *Z-sum* technique are also presented to observe the robustness of the results with respect to the choice of technique for deriving the composite indicators. The analysis shows the validity of well-being measures by indicating convergence in both well-being measures as there are no important discrepancies in districts ranking which generalised that there are no major unobserved variations in well-being indices.

How to Explain Districts Disparities in Well-being?

The real question is how to explain districts disparities in well-being in Pakistan. In other words why is quality of life considerably lower in one area than in other areas? Some explanations in terms of socio-economic development indicators are also given as:

- (1) Remittances from overseas migrants, especially from Middle East play an important role in quality of life for Pakistani people. Recent data shows that sixty percent Pakistani in the Middle East migrated from only 20 districts with heavy concentration from Karachi, Rawalpindi, Lahore, Swat, Faisalabad, Gujranwala, etc.
- (2) Incidence of poverty is low in high well-being districts while it is quite high in 'low' or 'lowest' objective well-being districts. Per capita expenditure is quite high in 'good' and 'fair' rated objective well-being districts as compared to 'poor' or 'bad' rated quality of life [Cheema, *et al.* (2008)].
- (3) The level of urbanisation is high in 'good' objective well-being district; Karachi, Lahore, Gujranwala, Faisalabad, Multan, Rawalpindi, etc.
- (4) High dependency of the rural labour force on the agriculture sector in poor districts is seen.
- (5) Districts which have industrial zone i.e., Karachi, Lahore, Faisalabad, Gujranwala, etc are in high well-being.
- (6) Large family size, high dependency ratio in poor districts is observed in the Population Census of Pakistan, 1998.
- (7) Inequality in ownership of land is observed in Pakistan; 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' or 'bad' rated objective well-being districts. [Amjad, *et al.* (2008)].

6. CONCLUSIONS

The concern for measuring well-being objectively and subjectively is found in modern political philosophy. This paper attempts to implement empirically some of the multidimensional concepts of human well-being. Using data from the 'Pakistan Social and Living Standards Measurement Survey' 2006-07, objective well-being index and subjective well-being index are constructed. In the objective well-being approach the focus is on measuring 'hard' facts such as living conditions while subjective well-being approach in contrast consider 'soft' matters such as satisfaction with available facilities. Non-monetary human development indicator i.e. education, health and living conditions are taken in the context of Millennium Development Goals to analyse the level of well-

being across districts of Pakistan. The indices are classified in three categories, high, medium and low each with two sub categories.

The findings of the study indicate variation in the indicators of well-being across the districts of Pakistan which is an indicative of regional disparities in the quality of life. The composite index value gives the achievement in the level of well-being; the higher the value of index the more the level of well-being. Karachi, Rawalpindi, Lahore, Gujrat, Gujranwala, Sialkot, Jehlum, Chakwal, T.T.Singh and Faisalabad, etc. are ranked in highest objective well-being category among 17 districts which accounts for 37 percent share of country population. Federal and all the provincial capitals are ranked as, Islamabad, Karachi, Lahore, Quetta and Peshawar in high well-being category. It may be noted that most of the top ranked districts are located in the provinces of Punjab which tends to indicate that Punjab is ahead of other provinces in terms of objective well-being. Sindh and NWFP districts are dominated in the category of lower medium well-being. At the lower end of the distribution districts of Balochistan emerged in lowest well-being category. It is observed that Punjab have highest share of population in top category of well-being (67.8 percent) while population of Balochistan gets major share in bottom well-being category (73 percent). It is interesting to note that ranking on the bases of subjective well-being is entirely different from objective well-being as highest objective well-being districts are appeared in medium and low subjective well-being categories. It means the higher the achievements in hard facts of well-being the less satisfaction in terms of services/ facilities they used. But most of the districts of Balochistan, with least developed well-being indicators, perception about the quality of life is evident. Since, subjective appraisals can not be compared across culture as concept of well-being differ greatly between rich and poor within nations between upper and lower classes which means for social policy these kinds of indicators tell policy makers little about relative performance. In spite of these weaknesses, subjective indicators are indispensable in social policy, both for assessing policy success and for selecting policy goals. However, the results indicate substantial variation among districts within a province in the level of well-being.

Since the underlying premise of the MDGs is still the concept of human development, so main streaming of sub-national or local targets into the national targets and priorities is needed to concentrate on least developed districts for achieving the MDGs by 2015. These can be achieved if immediate steps are taken to implement existing commitments. Reaching the goals for development in each district of Pakistan is not only vital for building better, healthier and decent lives for millions of people in the country. Least developed districts within each province are identified as targets for special development allocations with MTDF.

Appendix Table A.1

Z-Sum for Provincial Ranking of Well-being

Districts of Punjab	Objective Well-being			Districts of Punjab	Subjective Well-being		
	Provincial Ranks Highest =1 Lowest =34	National Ranks Highest =1 Lowest =100	Z (Sum)		Provincial Ranks Highest =1 Lowest =34	National Ranks Highest =1 Lowest =100	Z (Sum)
Rawalpindi	1	2	20.89	D.G.Khan	1	7	3.45
Lahore	2	3	19.74	Layyeh	2	9	3.01
Jhelum	3	4	14.86	Bahawalnagar	3	11	2.78
Gujranwala	4	5	14.46	Okara	4	19	1.71
Gujrat	5	6	14.13	Faisalabad	5	20	1.66
Sialkot	6	7	12.92	Chakwal	6	23	1.3
Faisalabad	7	9	11.61	Hafizabad	7	24	1.19
T.T.Singh	8	10	11.49	Sheikhupura	8	25	1.16
Chakwal	9	11	10.84	Lodheran	9	27	0.96
Attock	10	13	10.16	Jhelum	10	29	0.6
Sheikhupura	11	16	8.85	Pakpatten	11	35	0.38
Multan	12	17	8.67	Gujranwala	12	38	0.15
Sargodha	13	19	8.14	Rajinpur	13	39	0.06
Sahiwal	14	20	7.96	M. Bahudin	14	41	0.02
M. Bahudin	15	21	7.59	Jhang	15	43	-0.08
Narowal	16	22	7.51	Lahore	16	44	-0.08
Hafizabad	17	23	7.48	Rawalpindi	17	46	-0.11
Khushab	18	24	6.81	Kasur	18	48	-0.18
Mianwali	19	27	5.03	Sahiwal	19	51	-0.29
Layyeh	20	29	4.07	Sialkot	20	53	-0.31
Kasur	21	30	3.83	T.T.Singh	21	54	-0.32
Bahawalnagar	22	32	3.43	Multan	22	55	-0.38
Khanewal	23	35	3.28	Khanewal	23	59	-0.61
Jhang	24	36	2.62	MuzafferGarh	24	60	-0.65
Vehari	25	38	2.08	Vehari	25	61	-0.71
Pakpatten	26	39	1.95	Mianwali	26	64	-0.78
Okara	27	42	1.64	Gujrat	27	66	-0.89
Bahawalpur	28	44	1.33	Narowal	28	67	-0.9
Bhaker	29	48	0.68	Bahawalpur	29	74	-1.11
R Yar Khan	30	49	0.66	R. Yar Khan	30	77	-1.36
D.G.Khan	31	53	-0.84	Attock	31	79	-1.46
Lodheran	32	54	-0.89	Bhaker	32	87	-1.92
MuzafferGarh	33	60	-2.61	Khushab	33	88	-1.93
Rajinpur	34	85	-9.12	Sargodha	34	89	-2.03

Source: Computations are based on Pakistan Living Standard Measurement Surveys, 2006-07.

Appendix Table A.2

Z-Sum for Provincial Ranking of Well-being

Districts of NWFP	Objective Well-being			Z(sum)	Districts of NWFP	Subjective Well-being		Z (Sum)
	Provincial Ranks	National Ranks				Provincial Ranks	National Ranks	
	Highest =1 Lowest =24	Highest =1 Lowest=100				Highest =1 Lowest =24	Highest =1 Lowest =100	
Abbotabad	1	14	9.26	Bonair	1	1	4.05	
Swat	2	15	8.95	Chitral	2	2	3.93	
Nowshera	3	18	8.55	Malakand	3	3	3.87	
Haripur	4	25	6.56	Sangila	4	4	3.8	
Peshawer	5	26	5.59	Lower Dir	5	5	3.51	
Chitral	6	31	3.52	Swat	6	8	3.24	
Mardan	7	37	2.43	Upper Dir	7	10	2.92	
Manshera	8	40	1.75	Charsada	8	12	2.74	
Charsada	9	41	1.64	Swabi	9	13	2.74	
Malakand	10	43	1.57	Lakki Marwat	10	14	2.3	
Kohat	11	45	1.23	Karak	11	15	2.27	
Lower Dir	12	47	0.99	Peshawer	12	16	1.9	
Hangu	13	50	0.21	Bannu	13	18	1.74	
Bannu	14	51	-0.14	Dera I.Khan	14	22	1.47	
Karak	15	52	-0.45	Nowshera	15	28	0.83	
Swabi	16	56	-1.28	Hangu	16	31	0.5	
Lakki Marwat	17	62	-3.44	Mardan	17	33	0.43	
Bonair	18	66	-4.24	Tank	18	34	0.39	
Batagram	19	69	-5.45	Batagram	19	47	-0.12	
Upper Dir	20	70	-5.97	Haripur	20	50	-0.25	
Tank	21	72	-6.91	Kohat	21	71	-1.02	
Sangila	22	78	-7.85	Kohistan	22	76	-1.34	
Dera I.Khan	23	81	-8.42	Manshera	23	81	-1.58	
Kohistan	24	95	-13.72	Abbotabad	24	85	-1.77	

Source: Computations are based on Pakistan Living Standard Measurement Surveys, 2006-07.

Appendix Table A3

Z -Sum for Provincial Ranking of Well-being

Districts of Sindh	Objective Well-being			Z (sum)	Districts of Sindh	Subjective Well-being		Z (sum)
	Provincial Ranks	National Ranks				Provincial Ranks	National Ranks	
	Highest =1 Lowest =16	Highest =1 Lowest =100				Highest =1 Lowest =16	Highest =1 Lowest =100	
Karachi	1	1	23.56	TharParker	1	6	3.46	
Hyderabad	2	8	11.96	Mirpur khas	2	30	0.58	
Sukker	3	28	4.32	Jacobabad	3	37	0.35	
Larkana	4	33	3.35	Noshro Feroz	4	52	-0.3	
Noshro Feroz	5	34	3.29	Ghotki	5	65	-0.84	
Mirpur khas	6	55	-1.26	Sukker	6	68	-1	
Khairpur	7	57	-1.43	Khairpur	7	69	-1.01	
Dadu	8	58	-1.88	Karachi	8	72	-1.04	
Nawabshah	9	59	-1.98	Shikarpur	9	80	-1.51	
Shanger	10	64	-4.08	Hyderabad	10	83	-1.65	
Shikarpur	11	65	-4.15	Badin	11	91	-2.17	
Ghotki	12	67	-4.38	Thatta	12	94	-2.37	
Badin	13	68	-5.37	Dadu	13	96	-2.58	
Jacobabad	14	75	-7.57	Shanger	14	97	-2.76	
Thatta	15	82	-8.9	Larkana	15	99	-3.07	
TharParker	16	98	-15.54	Nawabshah	16	100	-3.08	

Source: Computations are based on Pakistan Living Standard Measurement Surveys, 2006-07.

Appendix Table 4

Z-Sum for Provincial Ranking of Well-being

Districts of Balochistan	Objective Well-being			Districts of Balochistan	Subjective Well-being		
	Provincial Ranks	National Ranks	Z (Sum)		Provincial Ranks	National Ranks	Z (Sum)
	Highest =1	Highest =1			Highest =1	Highest =1	
	Lowest =26	Lowest =100			Lowest =26	Lowest =100	
Quetta	1	12	10.17	Ziarat	1	17	1.79
Mastung	2	46	1.17	Pishin	2	21	1.63
Kalat	3	61	-3.37	Qilla Abdulah	3	26	1.04
Gwader	4	63	-3.71	JhalMagsi	4	32	0.45
Ketch	5	71	-6.1	Sibi	5	36	0.37
Kharan	6	73	-7.2	Jafferabad	6	40	0.04
Pishin	7	74	-7.49	Quetta	7	42	0.02
Awaran	8	76	-7.61	Qilla Saifullah	8	45	-0.1
Sibi	9	77	-7.62	Kharan	9	49	-0.21
Ziarat	10	79	-8.06	Kolhu	10	56	-0.53
Khuzdar	11	80	-8.2	Nasirabad	11	57	-0.56
Chaghi	12	83	-8.95	Gwader	12	58	-0.57
Jafferabad	13	84	-8.98	Zhob	13	62	-0.75
Barkhan	14	86	-9.45	Ketch	14	63	-0.77
Qilla Saifulah	15	87	-9.56	Barkhan	15	70	-1.01
Lasbella	16	88	-9.58	Khuzdar	16	73	-1.09
Zhob	17	89	-10.49	Mastung	17	75	-1.23
Bolan	18	90	-11.4	Musakhel	18	78	-1.37
Qilla Abdulah	19	91	-12.29	Dera Bugti	19	82	-1.62
Loralai	20	92	-12.68	Loralai	20	84	-1.66
Musakhel	21	93	-13.27	Kalat	21	86	-1.9
Panjgur	22	94	-13.36	Bolan	22	90	-2.16
JhalMagsi	23	96	-14.25	Chaghi	23	92	-2.24
Nasirabad	24	97	-14.99	Awaran	24	93	-2.28
Dera Bugti	25	99	-16.65	Lasbella	25	95	-2.47
Kolhu	26	100	-19.24	Panjgur	26	98	-2.93

Source: Computations are based on Pakistan Living Standard Measurement Surveys, 2006-07.

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