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**The Exploration of Subjective Wellbeing  
in the Context of Pakistan**

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**July 2018**

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## Abstract

This paper contributes to the literature on the subjective wellbeing (SWB) by providing empirical evidence regarding the correlates of SWB in the context of Pakistan. Instead of using single measure of life satisfaction or happiness to represent the level of SWB, a composite index with four different aspects; overall life satisfaction, happiness, financial satisfaction and subjective health status is developed for Pakistan using World Value Survey 2012 data. Differences in self-reported evaluation of current wellbeing are statistically explored through socio-demographic and behavioral characteristics of respondents.

The statistical exercise reveals that law and order situation or feeling of insecurity in neighborhood is the most significant factor which is impacting SWB with large negative marginal effect. Similarly, variables representing vulnerability to poverty and security are also statistically significant with an inverse relation with SWB. In contrast, the results reveal that religiosity plays a positive and significant role in explaining differences in SWB. Nonetheless, the marginal positive impact of religiosity is much less than the negative impacting factors.

Keywords: Subjective Wellbeing, Life satisfaction, Happiness, Determinants, Pakistan

JEL Classification: I31, O53



## 1. Preamble

In the context of Subjective Wellbeing (SWB), the highly-cited Stiglitz Commission report (Stiglitz et al., 2009), states that “SWB encompasses different aspects (cognitive evaluations of one’s life, happiness, satisfaction, positive emotions such as joy and pride, and negative emotions such as pain and worry): each of them should be measured separately to derive a more comprehensive appreciation of people’s lives”. In terms of quantification of happiness, the report argues that “The greatest strength of this approach is its simplicity: relying on people’s own judgments is a convenient shortcut and potentially provides a natural way to aggregate various experiences in a way that reflects people’s own preferences. Further, this approach makes it possible to reflect the diversity of people’s views about what is important in their lives”. Consequently, the report recommends that “... [SWB] should be included in larger-scale surveys undertaken by official statistical offices”.

The opponents however raise concerns regarding the objectivity of the measurement of wellbeing and happiness. For instance, Schwartz and Strack (1994) argued that SWB scores can be influenced by a number of factors such as:

- ❖ situational factors,
- ❖ the type of scales that are used for measuring wellbeing,
- ❖ the order in which the items are presented for probing in the survey questionnaire, and
- ❖ the mood of the respondent at the time when the measurement was taken

These factors generate biases and thus affect comparability of estimated SWB across groups and over time. Moreover, Dolan et al. (2008) concludes that “One very firm conclusion that can be drawn from our review is that the existing evidence base [for wellbeing] is not quite as strong as some people may have suggested....This, in addition to lack of clear evidence on causality, makes it difficult to make clear policy recommendations at this stage.”

Despite these reservations, the interest in bringing wellbeing into public policy continues to rise and researchers are incessantly using scientific approaches to conduct studies on happiness and wellbeing. According to Graham (2005), happiness economics study not only opens a field of research on wellbeing, it also enriches the study on the behavioral economics or the national wellbeing indicators for a better understanding on economic growth and political behavior patterns as well as creation of a better policy.

Nonetheless in terms of policy implications, Campbell (1974) observation must be noted. He states that “There is no suggestion that objective data should be set aside in favor of subjective measures. The value of subjective measures of the kind proposed here is to give additional information to the repertoire of the scholar and decision-maker, to provide an array of psychological data parallel to the more familiar kinds of indices. It is to be hoped that integration of the two kinds of data will make possible a fuller and truer representation of the state of society than we command at present.”

While most of the research on self-reported SWB has been conducted for developed countries, there is still a dearth of such studies in Asia and other parts of the less developed world. This

study presents the evidence from Pakistan on the correlates of SWB using World Value Survey (Wave-6, 2012) data<sup>1</sup>. Instead of using single-question scale to measure SWB, a composite index with four SWB aspects; overall life satisfaction, financial satisfaction, happiness and subjective health status is developed for the purpose of exploring determinants or correlates of SWB.

The paper is organized as follows. Next section describes the methodology for measuring SWB for this research. Average estimated values of SWB across provinces, gender and age of respondents are also provided in this section. The definitions of correlates or determinants of SWB are provided in Section 3, while estimated results of multivariate regression are furnished in the subsequent section. The last section is reserved for few concluding remarks.

## **2. Measurement of Subjective Wellbeing**

Measures of SWB are obtained through self-reporting. People are asked to evaluate their lives as a whole or some aspect of it. A vast majority of research on the determinants or correlates of SWB evaluates cognitive overall life-satisfaction through responses of the question “All things considered, how satisfied are you with your life as a whole these days?” Responses were rated on a scale from 1 (completely dissatisfied) to 10 (completely satisfied). Analogously, research on wellbeing also assesses life satisfaction through happiness question which is structured as “Taken all together, how you would say things are these days? Would you say that you are very happy, quite happy, not very happy and not at all happy? It is argued that respondents have little trouble answering this question due to the framework of explicit categories instead of scale.

These indicators might appear crude at first sight, but has been demonstrated to be very robust (Lucas 2007; Frey 2008; Martin 2005) if used in analysis comparing relatively homogeneous societies with regards to the understanding of life-satisfaction. Further, these single-question scales have shown to be a reasonably valid instrument for measuring life satisfaction in large-sample surveys (Andrews and Withey 1976; Layard 2005). Diener *et al.* (1999) also observed that “single-item scale are very widely used in international surveys and have been found to have acceptable levels of reliability and validity”.

These two hedonic measures -life satisfaction and happiness- of overall (life as a whole) wellbeing are widely used alternatively to evaluate SWB across nations, groups or regions. However, Cummins et al (2003) noted that “While the classic –life as a whole– question is useful as an estimate of the homeostatic set-point, due to its high level of abstraction it cannot provide information about the components of life that also contribute, positively or negatively, to this sense of wellbeing. In order to approach such information, questions need to be directed at satisfaction with life domains”. Accordingly, research on SWB also has been directed to define wellbeing through some aspects of life, separately or in the form of indices; such as job satisfaction, health status, financial satisfaction, achievement of personal goals, autonomy, spiritual freedom et cetera<sup>2</sup>.

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<sup>1</sup> Brief description of sample data is provided in the Appendix – A.

<sup>2</sup> Emma (2007) proposes six domains (aspects) for the purpose of international comparison of subjective wellbeing. The proposed indicators include; Material wellbeing (food, housing and income), Health, Productivity, Security, Intimacy and Community.

Thus in addition to life satisfaction and happiness indicators, this research also considers two more domains of wellbeing which are most important in the context of developing or poor countries; financial satisfaction and health status. World Value Survey (WVS) contains a tested question regarding materialist domain or financial satisfaction. It is structured as "How satisfied are you with the financial situation of your household?" Responses were rated on a scale from 1 (completely dissatisfied) to 10 (completely satisfied). The question which is framed to assess subjective health status in WVS narrates as "All in all, how would you describe your state of health these days? Would you say it is very good, good, fair or poor?"

Instead of analyzing different aspects of wellbeing independently, a composite SWB index is preferred for this research. The index contains responses of the above four WVS questions<sup>3</sup>; overall satisfaction, happiness, financial satisfaction and health status. Two questions tap the abstract dimension, while two are about specific domains of life. Following Cummins et al (2003) which has developed National Index of Subjective Wellbeing for Australia, this study applies the Principal Components Analysis (PCA) for summing the above-mentioned four aspects. The technique<sup>4</sup> of PCA mainly used to resolve issues of substitutability among the components and assignment of weights to constituents of the composite indices. PCA provides weighing scheme derived from the given data instead of weighting recommended by experts, policy makers or through public opinion polls. Thus application of statistical weights for constructing composite indices is a better option as these remove the subjectivity and personal biases. PCA assigns weighted factor score to each respondent in the dataset which denotes relative positions or ranking of respondents in terms of SWB. On the basis of these assigned scores, an index is developed on a scale of 0-100; from low to high level of self-evaluated wellbeing.

Exhibits 2.1 through 2.4 summarize responses of different aspects of SWB used for the development of the composite index, while average values of merged SWB are portrayed in Exhibit 2.5.

The provincial picture in the Exhibit 2.5 clearly indicates that the residents of KPK are relatively more satisfied with their lives as compared with the residents of other provinces. The average score of self-evaluated wellbeing in KPK province is 86 which is relatively high with the average national score of 70. On the other extreme, the average value of SWB index is below the national average in case of Baluchistan province. The visual look at different components (Exhibit 2.1 through 2.4) of the merged SWB also corroborates this phenomenon.

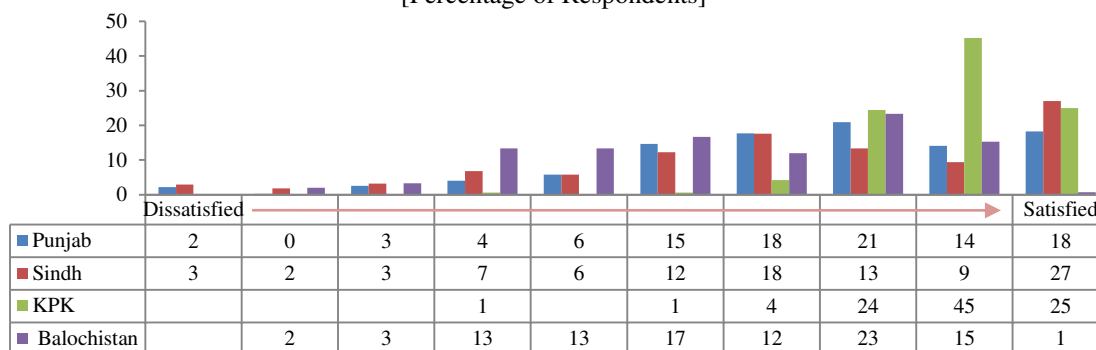
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<sup>3</sup> The internal consistency or reliability was examined through Cronbach alpha test, which yields a value of 0.79. Cronbach's alpha is the most common measure of internal consistency ("reliability"). It is mostly used when we have multiple Likert questions in a survey/questionnaire that form a scale and wish to determine if the scale is reliable (Tavakol and Dennick, 2011). The higher value of Alpha indicates high relatedness between the questions and the construct. The test-value of alpha greater than 0.7 indicates 'good' internal consistency across various dichotomous questions.

<sup>4</sup> Very brief description of Principal Components is provided in the Appendix-B. For conceptual clarity and computational details, see Adelman and Morris (1972).

Exhibit – 2.1  
Satisfaction with Life

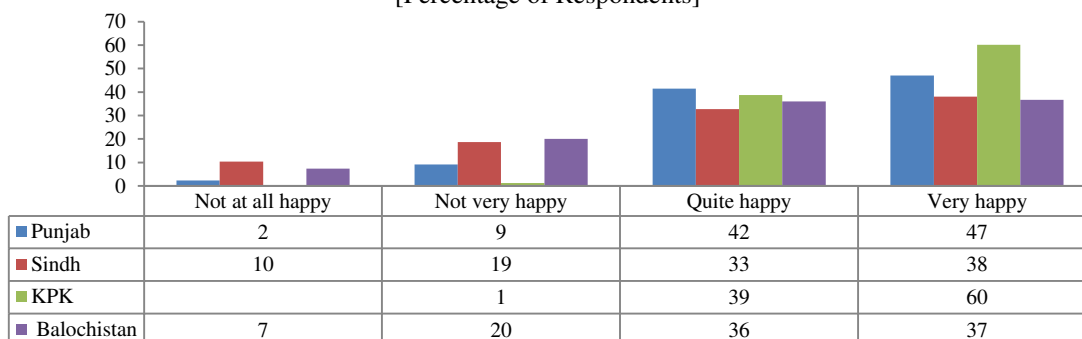
Question Wording: “*All things considered, how satisfied are you with your life as a whole these days?*”  
Rated on a scale from completely dissatisfied (1) to completely satisfied (10)  
[Percentage of Respondents]



Data Source: World Value Survey, Wave-6 (2012)

Exhibit – 2.2  
Feeling of Happiness

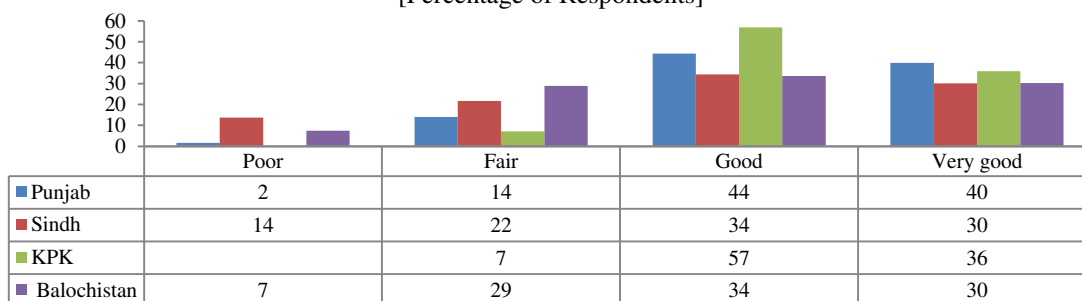
Question Wording: “*Taking all things together, would you say you are?*”  
[Percentage of Respondents]



Data Source: World Value Survey, Wave-6 (2012)

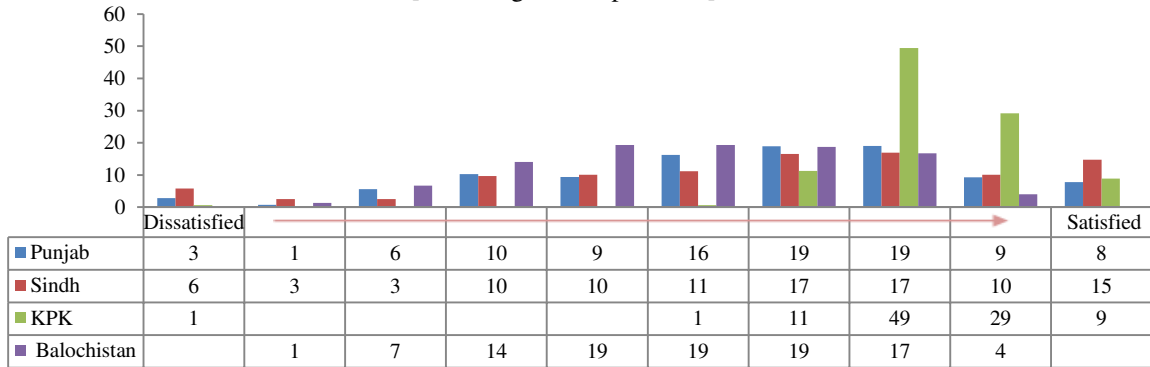
Exhibit – 2.3  
State of Health – Subjective

Question Wording: “*All in all, how would you describe your state of health these days?*”  
[Percentage of Respondents]



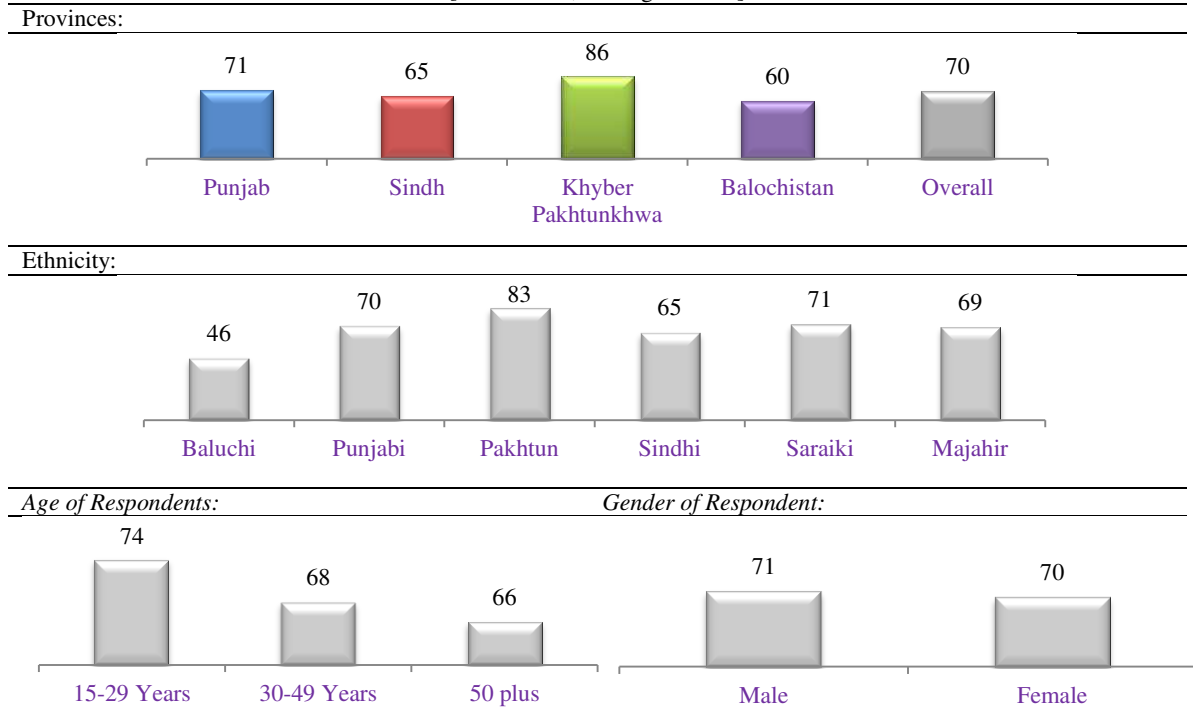
Data Source: World Value Survey, Wave-6 (2012)

Exhibit – 2.4  
Satisfaction with Household Financial Situation  
Question Wording: **“How satisfied are you with the financial situation of your household?”**  
Rated on a scale from completely dissatisfied (1) to completely satisfied (10)  
[Percentage of Respondents]



Data Source: World Value Survey, Wave-6 (2012)

Exhibit – 2.5  
Composite Subjective Wellbeing Index  
[Scale 0-100, Average Values]



Data Source: World Value Survey, Wave-6 (2012)

Self-evaluation of wellbeing in terms of respondents’ ethnicity reveals highest (83) average value in case of Pukhtun respondents, while average SWB score is the lowest (46) for Baluchi speaking respondents. An inverse relationship between SWB and respondent’s age is also evident in the Exhibit. The average value of SWB is 74 for the age group 15-29 years, while it is 66 for respondents aged 50 plus years. Moreover, apparently no gender differences are observed in the self-evaluated wellbeing.



However, these results represent bivariate relationship which ignores the impact of other important determinants on SWB. Thus the diverse correlates are incorporated in a multivariate analysis to estimate the net impact on the level of SWB. The discussion on potential determinants and estimated statistical results are furnished in the subsequent sections.

### 3. Correlates of Subjective Wellbeing

A multivariate regression framework is used to determine the importance of micro<sup>5</sup>-level determinants of subjective wellbeing in the context of Pakistan. The dependent variable ( $SWB_i$ ) is a composite index (0-100 scale), described above and refers to the relative self-reported multiple wellbeing in terms of; overall satisfaction, happiness, financial satisfaction and health status of an individual respondent ( $i$ ). It is regressed on explanatory variables which were considered potential correlates based on review of relevant literature and data availability in the wave-6 WVS. Specifically, OLS regression is applied to estimate the following function.

$$SWB_i = f(L_i, E_i, SEC_i, IA_i, BC_i, RC_i, INS_i, V_i)$$

where  $L$ ,  $E$ ,  $SEC$ ,  $IA$ ,  $BC$ ,  $RC$ ,  $INS$  and  $V$  denote respondents' residential location, ethnicity, respondents' perceptions on belongingness to socioeconomic class, background attributes of respondent, religiousness, insecurity and vulnerability respectively. It is worth to highlight that the cross-sectional nature of the data does not allow inference of causal relationships between the determinants and SWB. For the purpose of this study however, these determinants have been considered as causes that may influence the level of self-evaluation of wellbeing either positively or negatively.

Brief descriptions of these dimensions are furnished below, while Exhibit 3.1 portrays a schematic view of potential correlates of SWB with definition, coding scheme and average values.

To control for the differences in the level of development, ethics, norms and culture, two provincial dummy variables were created for Punjab and Sindh provinces which covers 80 percent of the sample. Residents of Baluchistan and KPK are treated as reference category. Regional location of respondent in terms of urban and rural areas is very important in explaining differences in SWB because urban residents face quite dissimilar environment and have vast differences in income, education, standard of living et cetera as compared with their rural counterpart. Unfortunately, the available WVS Wave-6 data does not provide code for this disaggregation. Thus this limitation should be kept in mind while interpreting estimated results.

Respondent's background characteristics which were considered important determinants in the literature of SWB include; age, gender, marital status, educational attainment and type of employment. Barring age and educational attainment, dummy (dichotomous) variables were created with 0 or 1 value; where 0 represents the reference characteristic. For employment category, employed persons were evaluated against self-employed, unemployed, retired or

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<sup>5</sup> For cross-country and/or inter-temporal research on SWB however requires considering macro factors such as GDP, inflation, inequality, political governance et cetera. These determinants are commonly analyzed in SWB studies which cover a range of countries. For variance references see Dolan *et al.* (2008).

student for explaining the differences in SWB. Highest educational attainment of respondent was recorded in the following 9 categories; No formal education, incomplete primary school, complete primary school, incomplete secondary school (technical/vocational type), complete secondary school (technical/vocational type), incomplete secondary (university-preparatory type), complete secondary (university-preparatory type), some university-level education without degree and university-level education with degree.

Exhibit – 3.1  
Description of Variables Used in the Multivariate Regression Analysis

<b>Components of Subjective Wellbeing:</b>		Average Value
Level of Life Satisfaction	[Rated on a scale from 1 (completely dissatisfied) to 10 (completely satisfied)]	7.48
Level of Financial Satisfaction	[Rated on a scale from 1 (completely dissatisfied) to 10 (completely satisfied)]	6.72
Felling of Happiness	[Categories: 1=Not at all happy, 2=Not very happy, 3=Quite happy, 4=Very happy]	3.25
Subjective State of Health	[Categories: 1=Poor, 2=Fairly, 3=Good, 4=Very good]	3.09
<b>Location:</b>		
Residence of Punjab	[0,1 Categories]	0.50
Residence of Sindh	[0,1 Categories]	0.23
Residence of KPK	[0,1 Categories][Reference Category]	0.14
Residence of Baluchistan	[0,1 Categories] [Reference Category]	0.13
<b>Ethnicity:</b>		
Pusho Speaking Respondents		0.19
<b>Socioeconomic Class – Subjective</b>		
Income Class	[Rated on a scale from 1 (Lowest Income Group) to 10 (Highest Income Group)]	5.51
Social Class	[Categories: 1=Lower, 2=Working, 3=Lower middle, 4=Upper middle, 5=Upper Class]	2.79
<b>Individual Attributes:</b>		
Respondent's age	[Years]	34.0
Male Respondent	[0,1Categories]	0.52
Marital Status – Married	[0,1Categories] [Reference: Unmarried, Widow]	0.73
Highest Educational Attainment	[1-9Categories]	4.01
Occupation - Employed	[0,1Categories][Reference: Self-Employed, Retired, Student, Un-employed]	0.19
<b>Behavioral Context:</b>		
Freedom of Choice and Control	[Rated on a scale from 1 (No choice at all) to 10 (A great deal of choice)]	7.30
More Responsibility for Service provision	[Rated on a scale from 1 (Government) to 10 (People)]	5.74
Importance of Family in Life	[0,1 Categories, Family is very Important in Life=1]	0.94
<b>Religious Context:</b>		
God is Important in Life	[Rated on a scale from 1 (Not at all important) to 10 (Very important)]	9.60
Practicing Muslim	[0,1 Categories, Pray several times a day=1]	0.62
<b>Law and Order:</b>		
Unsecure in Neighborhood	[0,1 Categories, Not at all Secure=1]	0.07
Frequent Theft, Snatching and Robberies	[0,1 Categories, Very frequent incidences =1]	0.06
<b>Worries regarding Vulnerability to Poverty and Safety:</b>		
Unsecure in home	[0,1 Categories, Often feel unsafe from crime in home=1]	0.11
Gone without a Cash Income	[0,1 Categories, Often gone without cash income=1]	0.10

Data Source: World Value Survey, Wave-6 (2012)

Sense of belonging to certain income or social class definitely influences the subjective level of life satisfaction. The question for belongingness to social class was worded as “People sometimes describe themselves as belonging ....to the certain class.... Would you describe yourself as belonging to the Upper class, Upper middle class, Lower middle class, Working class and Lower class?” The reverse of this ordinal scheme (lower class to upper class) is used in the multivariate regression analysis. The belongingness to income class was inquired using different format. The question was framed as “On this card is an income scale on which 1 indicates the lowest income group and 10 the highest income group in your country. We would like to know in what group your household is? ”Respondent were requested to specify the appropriate number on the scale, considering wages, salaries, pensions and other incomes that come in.

Behavioral dissimilarities among respondents were measured through the responses of the following three WVS questions; freedom of choice and control, opinion regarding responsibility for service provision and importance of family over one's life.

To assess the extent of self-empowerment and to determine self-evaluated level of choice and control (autonomy) over one's life, the WVS question was worded as "Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them". The responses were rated over the scale of 1 to 10, where 1 means "no choice at all" and 10 means "a great deal of choice"; however respondent might choose any number in-between.

It is hypothesized that people in developing countries who believe that mainly the government is responsible for providing services to citizen normally unhappy and carping due to the failure on the part of the government to discharge its duty. This behavior is compared with people who think that people should also share the responsibility for providing services. The WVS questionnaire evaluates this behavior through two comparative statements; "Government should take more responsibility to ensure that everyone is provided for" and "People should take more responsibility to provide for themselves". The responses were rated over the scale of 1 to 10, where 1 means respondent agrees completely with the first statement; 10 means she/he agrees completely with the second statement. The respondent however might choose any number between 1 and 10 to symbolize his/her views.

The WVS question to assess the level of importance of family in one's life was framed as "How important family is in your life? Would you say it is Very important, rather important, not very important or not at all important?" A dichotomous variable is created for those respondents whom answer was "Very Important". Thus this dummy variable denotes the proportion of respondents who believe that "family is very important" in their lives.

The relationship between religious involvement and subjective wellbeing has been widely investigated. Evidences from several studies<sup>6</sup> support the idea that greater life satisfaction is related to religiousness. Thus a positive influence of religious certainty on wellbeing is hypothesized. Two aspects of religiosity are included in this research to control for the differences among respondents. The importance of God in one's life is appraised with the WVS question "How important is God in your life?" The responses were recorded on a scale 1 to 10; 10 means "very important" and 1 means "not at all important". The second dimension of religiosity which was included relates to the practicing of religious act. Muslim respondents were probed by asking question "how often do you pray?" A dichotomous variable is created which represents the proportion of respondent who pray "several times a day".

Feeling of insecurity due to the worse law and order situation and terrorism is an important external negative factor which influences the self-evaluation of SWB, especially in the context of poor, bad governed and conflict-affected countries. Accordingly, a negative relationship is expected between rating of SWB and extent and level of insecurity. This phenomenon is scrutinized through the responses of two WVS questions in the context of Pakistan. The question regarding security in the neighborhood was framed as "Could you tell me how secure do you feel

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<sup>6</sup> See for example, Christopher (1991) and Alexander and Welzel (2011).

these days in your neighborhood”? A dummy (dichotomous) variable which represents the proportion of respondents who categorically answered “not at all secure” was created for the multivariate regression analysis. Besides this general question, WVS also probed regarding specific incidences causing worries and insecurity e.g. robberies, police or military interfere with people’s private life, racist behavior of neighbors, drug sale in streets etc. The pertinent question was framed as “How frequently do the following things occur in your neighborhood?” This research incorporates the incidence of robberies which is most commonly observed, especially in urban areas of Pakistan. For the dichotomous variable, respondents who affirmed incidences of robberies, theft and snatching by saying “Very Frequently” were assigned value 1, while 0 (reference category) was assigned to other respondents who answered with phrases; “Quite frequently”, “Not frequently” and “Not at all frequently”.

Various worrying factors that lead to a low SWB rating were probed in the Wave-6 of WVS. Two aspects which are directly related to insecurity and vulnerability to poverty are included in the regression framework to determine the impact of these worries on the level of SWB. The wording of the pertinent questions was: In the last 12 months, how often have you and your family *felt unsafe from crime in your home*” and *gone without enough food to eat*”. Two dichotomous variables were created and assigned value 1 to represent those respondents who categorically answered “often”, while the reference category (0) covers those who answered “sometime” or “rarely” or “never”.

#### **4. Empirical Evidence**

The Exhibit 4.1 furnishes the estimated OLS regression results regarding the correlates of SWB in the context of Pakistan. The magnitude of adjusted  $R^2$  is 0.414 which is considered well enough for acceptability of the cross-section model. Except the coefficient associated with ‘Occupation’, all coefficients are statistically significant at least at 90 percent level of significance.

High multicollinearity results in large standard error, which affects the estimation of the coefficients. Variance Inflation Factor (VIF) is used to check on the linear relationships among the independent variables to determine if there exists multicollinearity. VIF ranges between 1 and 10, while high VIF indicates serious multicollinearity problem. The VIFs for all the variables included in this study are less than 3, indicating there is no serious multicollinearity problem<sup>7</sup>.

Having illustrated the summary statistics of estimated function, some observations regarding SWB correlates or determinants are in order.

##### ***Residential Location:***

Both provincial dummy variables which were included in the regression mainly to control for the regional disparities in terms of socioeconomic and infrastructure development are statistically significant with large positive marginal effects. The findings which indicate that self-evaluated SWB is relatively higher in Punjab and Sindh provinces as compared with the reference (Baluchistan and KPK) provinces are plausible and corroborate the provincial ranking in terms of economic development.

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<sup>7</sup> In fact, VIF is less than 2, except locations and ethnicity variables.

Exhibit – 4.1  
Determinants of Subjective Wellbeing

	Estimated Coefficients	t-Value	Significance
<b>Location:</b>			
Residence of Punjab	8.84	4.54	0.000
Residence of Sindh	3.54	1.77	0.077
<b>Ethnicity:</b>			
Pushto Speaking Respondents	9.55	4.39	0.000
<b>Socioeconomic Class – Subjective</b>			
Income Class (Subjective)	1.68	5.81	0.000
Social Class (Subjective)	1.60	2.63	0.009
<b>Individual Attributes:</b>			
Age (Years)	-0.12	-2.31	0.021
Marital Status - Married	-4.01	-2.99	0.003
Highest Educational Attainment	0.47	1.81	0.071
Occupation - Employed	-2.16	-1.54	0.125
<b>Behavioral Context:</b>			
Freedom of Choice and Control	2.83	11.26	0.000
People Should Take More Responsibility for Service Provision	0.57	3.32	0.001
Family is Important in Life	8.91	4.05	0.000
<b>Religious Context:</b>			
God is Important in Life	2.11	4.49	0.000
Practicing Muslim	3.40	2.87	0.004
<b>Law and Order:</b>			
Unsecure in Neighborhood	-13.03	-6.19	0.000
Frequent Theft, Snatching and Robberies	-7.06	-3.37	0.001
<b>Vulnerability to Poverty and Security:</b>			
Often Felt Unsafe from Crime in Home	-3.83	-2.20	0.028
Often Gone without a Cash Income	-5.15	-2.93	0.004
(Intercept)	2.54	0.42	0.672
<b>Model Summary:</b>			
	R <sup>2</sup> – Square	0.423	
	Adjusted R <sup>2</sup> – Square	0.414	
	F-Value	45.79 (Significant at 99 Percent)	
	Number of Observations	1141	
<b>Note:</b> Except the coefficient associated with ‘Occupation’, all coefficients are statistically significant at least at 90 percent level of significance.			
Data Source: World Value Survey, Wave-6 (2012)			

### ***Ethnicity:***

According to the Exhibit, the variable representing ‘Pashto’ speaking respondents<sup>8</sup> is positive and statistically significant with large marginal effect. The estimated regression thus suggests that self-evaluated level of satisfaction of Pashtuns respondents is relatively high as compared with other ethnic groups (reference category).

### ***Subjective Socioeconomic Class:***

Both variables which represent sense of belonging to income and social class are statistically significant, however with relatively low marginal effect. Thus higher level of self-evaluated SWB is expected by respondents who believe that they belong to higher income or social class.

<sup>8</sup> It should be noted that in KPK close to 25 percent of population speak other than ‘Pashto’ language; such as Hindko, Saraiki, Punjabi, Kohistani etc.

These variables were included mainly to control for behavioral dissimilarities in terms of self-esteem. Interestingly, questions regarding to income or social class were placed at the end of questionnaire after assessing self-evaluation with respect to overall satisfaction, happiness, financial satisfaction and subjective health status. This precaution therefore minimizes the respondents' biases in self-evaluating SWB aspects.

### ***Age:***

Most of the studies suggest a U-shaped curve relation between age and subjective wellbeing; younger and older age group respondents tend to be happier than middle aged respondents (Ferrer-i-Carbonell and Gowdy, 2007). Other studies find a different shape of relation (Baird *et al.*, 2010), but nevertheless, agree, that age is an important determinant of happiness. This study however did not get evidence of commonly observed quadratic relationship. It might be due to the use of composite index of life satisfaction instead of using single scale. However, the findings of this study reveal a negative and statistically significant coefficient associated with the respondents' age indicating a decrease of satisfaction over the life course. Nonetheless, its marginal effect is relatively very low as compared with the marital status and occupation.

### ***Marital Status:***

Many researcher (Mastekaasa, 1994; Myers, 2000) have found that “married people are generally happier than those who are unmarried, whether they are separated, divorced or single”. One explanation of the link between marriage and happiness is the benefits that marriage brings in terms of intimacy, companionship, sharing etc. Their findings indicate that marriage can help to reduce loneliness and offer a faithful companion. Similarly, Diener et al., (1998) found that “married couples were happier than non-married couples, especially in collectivist cultures such as India”. The findings of this research however do not confirm the positive relationship between marriage and self-evaluated wellbeing. Empirics in the context of Pakistan indicate low rating of SWB by married respondents. The principal reason may be the nature of dependent variable which is defined for this study with four aspects of wellbeing including the level of financial satisfaction, while studies quoted above used single feature of SWB. Financial satisfaction is an important aspect in the context of marital status.

### ***Gender:***

The empirical literature suggests no consensus among researchers whether gender is an important correlates of SWB. According to Graham (2004) and Dolan et al. (2008), “gender differential on life satisfaction varies from country to country, but the differentials tend to be rather insignificant in most Asian and Western countries”. This research also fails to establish statistical relationship between gender and the self-evaluation of life satisfaction in the context of Pakistan. Hence, the gender variable was dropped from the final estimated model due to statistically insignificant coefficient and very low t-value (less than 1).

### ***Education:***

It is hypothesized that higher educated people tend to have higher opportunity to earn higher income which is positively associated with happiness, subjective wellbeing and life satisfaction (Schimmel 2009). However there is no wide and unambiguous consensus on the effect of education on SWB. Some studies show positive effect with increasing life satisfaction in higher education groups (Blanchflower and Oswald, 2004; Ferrante, 2009), others argue that education



effect is correlated to income and health and therefore the latter should be controlled in order to measure the net impact of education (Bukenya *et al.*, 2003). This study found positive and statistically significant association between level of educational attainment and SWB rating though with a low marginal effect.

***Job:***

Also there is no clear answer whether type of work is significant in determining happiness. Some studies suggest that self-employed respondents tend to be more satisfied (Blanchflower and Oswald, 1998), but this relation obviously needs more investigation. The findings of this research suggest relatively low SWB rating by employed respondents as compared with the reference category (mostly self-employed). However, low statistical significance of the pertinent coefficient is observed.

***Behavioral Context:***

According to the Exhibit 4.1, all three variables which were included in the econometric model to control for behavioral dissimilarities among respondents have positive association with self-reported level of SWB and are also statistically significant. In terms of relative marginal impact on the level of SWB, large influence is estimated for the variable representing “importance of family in life” followed by the variable which represents autonomy or freedom of choice and control over life. Accordingly, the current wellbeing was rated relatively high by respondents who believe that family is ‘very important’ in their lives.

***Religiousness:***

Poloma and Pendleton (1990) provided a comprehensive critique of the research literature on religiosity and domains of general wellbeing. Employing eight measures of religiosity, these authors found that religiosity is an important predictor of general life satisfaction, existential wellbeing, and overall happiness. They concluded that “the concept of religion obviously is a domain that merits the serious study of those who research wellbeing” (1990). In the context of Pakistan, this research endorses the empirically tested positive relationship between religiosity and SWB. Both variables (importance of God in life and praying several time a day) which were included in the regression are positive and statistically significant.

***Law and Order:***

As a little research on SWB has been conducted in developing, poor or conflict-affected countries, the impact of insecurity on SWB is under researched. The World Value Survey for Pakistan was conducted during 2012 when Pakistan was facing numerous problems of bad governance in terms of law and order besides violent terrorists’ attacks across the country. Thus the WVS data provides an opportunity to investigate the relationship by quantifying the influence of neighborhood insecurity and street crime on the self-evaluated level of satisfaction in Pakistani context. The empirical evidence corroborates negative impact of insecurity feeling in neighborhood on the rating of SWB. According to the estimated results (Exhibit 4.1), the highest negative marginal impact is associated with the feeling of insecurity among all determinants considered in the regression model. Street crimes such as theft, snatching and robberies have also significant large negative impact on the level of self-evaluation of current wellbeing.

### ***Vulnerability to Poverty and Security:***

Various worrying factors may influence the self-reported rating of current wellbeing. Based on the WVS data, two aspects have been examined in this research; vulnerability to poverty (“Often gone without a cash income”) and vulnerability to security (“Often felt unsafe from crime in home”). These are included in the regression framework to determine the marginal impact of these worries on the level of SWB. According to the estimated regression, both are statistically significant and are inversely related with the level of SWB. The marginal impact of vulnerability to poverty is however large as compared with vulnerability to security.

## **5. Concluding Remarks**

This paper presents evidence of empirical relationship between self-reported status of current wellbeing and perceptions and beliefs of respondents regarding religiosity, law and order situation, and vulnerability with reference to insecurity and poverty. Instead of using single measure of life satisfaction to represent the level of SWB, a composite index with four SWB aspects; overall life satisfaction, financial satisfaction, happiness and subjective health status is developed. The composite score of the index which represents the self-evaluated level of SWB is used to establish the relationship between SWB and its correlates. Important aspects related to individual attributes or background characteristics of respondents and locational and cultural heterogeneity were included in the econometric analysis to control for the dissimilarities among respondents. Moreover, the estimated model also comprises few variables to control for behavioral differences among respondents. World Value Survey (Wave-6, 2012) data for Pakistan is used for this exercise.

An important finding of this research is that Law and Order situation or feeling of insecurity in neighborhood appears as the most significant factor with highest negative marginal effect. Similarly, variables representing vulnerability to poverty and security are also statistically significant and as expected, are inversely related with SWB. The results also reveal that religiosity plays a positive and statistically significant role in explaining differences in SWB. Pushto speaking respondents, according to the regression results are relatively happier and more satisfied with their lives as compared with other ethnic groups.

Systematic research on SWB in terms of its measurement, correlates and causes is a rapidly developing field and are receiving increasing attention from social scientists and policy makers. The relevant literature however, indicates that yet SWB research has important gaps, especially in terms of its use to shape and appraise public policy. The literature highlights various possible uses of SWB data for making policies related to quality of life and wellbeing; however, its use as a complement to existing measures of well-being is recommended by the majority of authors working in the subject area. Thus in the context of Pakistan, it is recommended that a systematic and comprehensive SWB module should be developed and included in larger-scale household surveys undertaken by federal and provincial bureaus of statistics. The SWB data and statistics should be disseminated to compare regions and provinces in terms of self-evaluated wellbeing. After controlling for the macroeconomic changes, inter-temporal comparison of SWB would facilitate in evaluating public policies related to quality of life and wellbeing.



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## About the Sample Data

The two largest datasets containing comparable measures of subjective wellbeing are the Gallup World Poll and the World Values Survey (WVS). The WVS has longer history with the first wave have been collected between 1981 and 1983 and covering 15 countries. There have been five subsequent waves, with the most recent wave collected between 2010 and 2014 and has covered 90 countries. The data for the seventh wave (2017-19) is currently being collected. WVS is coordinated by the World Values Survey Association (Stockholm) and undertaken by social scientists since 1981 (<http://www.worldvaluessurvey.org/WVSContents.jsp>). It provides data on socio-cultural and political change worldwide. The WVS consists of national sample surveys in over 90 countries, using a common questionnaire with variables on beliefs, values, economic development, democratization, religion, gender equality, social capital. It also contains measures of life evaluation, subjective wellbeing and overall happiness, as well as more focused measures of experienced mood and aspects of psychological wellbeing. The WVS is the largest non-commercial, cross-national, time series investigation of human beliefs and values ever executed, currently including interviews with almost 400,000 respondents. Moreover the WVS is the only academic study covering the full range of global variations, from very poor to very rich countries, in all of the world's major cultural zones

This research is based upon data collected in the most recent available wave-6 (2010-14) of the World Values Survey (WVS). Gallop Pakistan was the executing agency for conducting household survey and collecting data for Pakistan project. With the technical support of WVS team, data was collected during October, 2012 and October 2013. The realized sample for Pakistan covers 1200 households, while the sample is proportionally distributed among provinces according to estimated population for the year 2012; Punjab (57%), Sindh (24%), KPK (14%) and Balochistan (5 %). The data was accessed from the following WVS website:

WORLD VALUES SURVEY Wave-6 2010-2014  
OFFICIAL AGGREGATE v.20150418  
World Values Survey Association ([www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)).  
Aggregate File Producer: Asep/JDS, Madrid, SPAIN  
[<http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp>]

**Brief Introduction of Principal Component Analysis:**

Use of Factor Analysis (FA) technique<sup>9</sup> for indexing multidimensional phenomena has been well-established. FA essentially consists of consolidating the data so as to arrange it around the covariance structures of the variables. This technique reduces the number of relationships by grouping or clustering together all those variables which are highly correlated with each other into one factor or component. The FA model can be described as follows:

$$X_i = a_{i1}F_1 + a_{i2}F_2 + a_{i3}F_3 + \dots \dots a_{ij}F_j$$

where;  $X_i$  = Attribute or Dimension  
 $a_{ij}$  = Proportion of the variation in  $X_i$  which is accounted for by the  $j$ th factor  
 $F_j$  =  $j$ th factor or component

The Principal Component Analysis (PCA) procedure in the FA method produces 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. Thus, the first few components<sup>10</sup> (Principal Components) account for a sizeable part of the variation in the data and subsequent components contribute very little. This traditional PCA is best for continuous and normally distributed data as the technique assumes linear relationship between numeric variables.

For category indicator or variables, a team of Leiden University has developed Categorical Principal Components Analysis (CATPCA)<sup>11</sup>. The technique is now available in SPSS and may be applied for data reduction when variables are categorical (e.g. ordinal) and the researcher is concerned with identifying the underlying components of a set of variables (or items) while maximizing the amount of variance accounted by the principal components. The primary benefit of using CATPCA rather than traditional PCA is the lack of assumptions associated with CATPCA. CATPCA does not assume linear relationships among numeric data nor does it require assuming multivariate normal data. Furthermore, optimal scaling is used in SPSS during the CATPCA analysis and allows the researcher to specify which level of measurement (nominal, ordinal, interval/ratio, spline-nominal, & spline-ordinal etc.) in the optimally scaled variables is required.

Having a representation of the data in the component form, every household is ascribed a ‘score’ on each derived principal component using factor loading (variance in the individual attribute) as a weight and then multiplying this score with the standardized value of variables or dimensions. An overall score (OS) using scores of all principal components for an individual or household is obtained as follows:

$$(OS)_i = \sum_n [\sum (a_{ij} * Z_j)]$$

where;  $\sum_n$  = Summation over  $n$  principal components  
 $a_{ij}$  =Factor Loading of  $i$ thFactor and  $j$ th indicator (weights)  
 $Z_j$  =Standardized value of  $j$ th variable or dimension

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<sup>9</sup> For detailed discussion, see Adelman and Morris (1972).

<sup>10</sup> A threshold of Eigen-Value (greater than 1) is used to determine the number of Principal Components.

<sup>11</sup> Data Theory Scaling System Group (DTSS), Faculty of Social and Behavioral Sciences, Leiden University, The Netherlands.