Happiness across the life span: Evidence from urban Pakistan

Khadija Shams
Shaheed Benazir Bhutto Women University, Peshawar, Pakistan

Alexander Kadow
Frankfurt University of Applied Sciences, Germany

Drawing on survey data for urban Pakistan, this paper tries to investigate subjective well-being across the life span, taking various socio-economic factors into account. The results suggest that well-being is positively associated with being male, educational attainment as well as the health and employment status. Living in a relatively affluent area contributes positively as well. In contrast to empirical evidence on industrialized countries, happiness increases with the number of children. Our results moreover suggest a U-shaped age-happiness pattern. Taken together, these findings corroborate the notion of children offering insurance to the elders against economic risks in countries where the social safety net is relatively weak. Providing a subjective well-being perspective, this study may therefore also add to our understanding of the relatively high birth rates in many developing countries, giving rise for appropriate policy considerations.

Keywords: Subjective Well-being; Quality of Life; Happiness; Socio-Economic Indicators; Life Span; Urban Pakistan.
JEL Classification: I31; I15; I25; R58.

Emotions have long played an important role in economics. If you are a college student, would you guess that right now is the happiest time of your life? Or might it be after you graduate and start earning a living in your chosen career? What about the least happy period? Would you guess the turbulent teenage years when you were dealing with puberty and trying to fit in with your peers? Or the old age, when everything from your income to your health might be waning? If you were asked to pick the period in your life when you would probably be happiest and the period when you would probably be least happy, what might you guess? This paper will focus on happiness across the life span with reference to urban Pakistan.

While most branches of behavioural economics are typically concerned with individual decision-making, insights from happiness studies tend to be more general and increasingly shape policy debates in industrialized countries. Examples of this are the regular reports on World Happiness published by the United Nations (UN, 2017) or the OECD's Better Life Initiative (OECD, 2015). These studies are motivated by the idea that understanding drivers of individual well-being has direct implications for designing appropriate policies that improve national well-being.

The use of self-report to measure subjective well-being (SWB) is standard in psychology, yet less common in economics.[1] Our paper is closely related to the growing literature that tries to decompose happiness into various variables, for instance; age, gender, income, employment and marital status (see for example, Diener et al., 1999).

Corresponding concerning this article should be addressed to Dr.Khadija Shams, Assistant Professor at Shaheed Benazir Bhutto Women University, Department of Economics, Peshawar, Pakistan. Email: kshams2008@gmail.com

[1] In the remainder, "Happiness" and "Life Satisfaction" will be used as alternative terms for overall measure of well-being, that is subjective well-being (SWB).

While happiness studies provide some empirical evidence for industrialized countries (see for instance, Blanchflower, 2008), there are few studies (for instance, Kingdon & Knight; 2006 on South Africa and Knight et al., 2009 on rural China) that try to link SWB with demographic as well as socio- economic drivers in the developing world. Ravallion and Lokshin (1999) in a study on subjective economic well-being in Russia find that employed, more educated and healthier individuals have higher self-reported well-being. Similarly, Guardiola and Garcia-Munoz (2011) from a sample study in rural Guatemala suggest that certain variables, for instance, education and various livelihood parameters such as quality of housing and size of land holding have positive influence on self-reported basic needs satisfaction. Income, on the other hand, holds no influence on it.

Building upon Shams (2014, 2016) who focuses on rural Pakistan, we turn to the urban areas of this major emerging economy.[2] Pakistan is a country of high geopolitical importance because of its strategic location in Asia. It shares its borders with India, China, Afghanistan and Iran. Pakistan is typically characterized by high population growth rate, poverty, income inequality and low literacy rate particularly among females. As insights into drivers of happiness in major parts of the developing world remain scarce we hope that the present research will contribute to the existing literature and may motivate future research on other parts of the developing economies. In particular, our results allow for comparisons between drivers of happiness in rural and urban areas.

Using original survey data for the year 2016, this paper is hence a further initiative to connect two important disciplines of general social welfare i.e. "Economics of Happiness" and "Development Studies" with the "Life Course Studies". SWB refers in this context to the overall well-being as reported by individual households. SWB has been used by development policies makers for a long time, to assess all domains shaping our life courses and the present study depicts that approach.

Our analysis reveals how SWB varies across the life span. First, it declines reaching a statistically significant turning point at an advanced mid-age. After that, happiness increases. Factors that are supportive of life satisfaction are getting married and living in relatively stable areas. Educational attainment matters too. In contrast to industrialized countries, happiness increases with the number of children. One interpretation of this important result is the presence of children as a mechanism to insure against economic risks at an advanced age in countries such as Pakistan, where social safety nets are relatively weak.

This paper is designed as follows. Section 2 provides grounds for comparative analysis. The survey design and descriptive statistics of our SWB measure are presented in Section 3. We develop the notion of SWB in terms of happiness with the socio-economic status to understand the happiness paradox applied to the data in Section 4. Section 5 concludes.

Some basic concepts

Before turning to the econometric analysis, it is instructive to summarize some of the main stylized facts on happiness in the literature. As Helliwell (2002) suggests, the concept of perceived life satisfaction is more of a socio-economic nature that includes several aspects such as gender, age, education, health and marital status, social capital, religion, political and social institutions. Based on US and European panel data, the main findings from happiness and life satisfaction at least for industrialized countries may be summarized as follows (Blanchflower, 2008; Cheng et al., 2017): Other things equal, i) SWB is higher among females, married couples, young and old (U-shaped behaviour), highly educated, those with high income, those who are actively involved in religion, healthy, sexually active, having one sex partner (monogamy) and those without children. ii) SWB is lower among those with children, separated or newly divorced, unemployed, poor, less educated, sexually inactive, minorities and immigrants, commuters, people in their mid to late 40s and those who are in poor health.

---

[2] According to World Bank data for 2015, annual per capita GDP growth in constant US-$ amounted to 4.7% in Pakistan. This compares to 0.8% in Afghanistan and 4.3% in Iran (for 2014).

Happiness is a holistic concept which encompasses various dimensions and experiences of life matter (also see McGregor & Sumner, 2010; Lewis, 1996; Appadurai, 2004). It is still believed that income and wealth ensure higher life satisfaction in terms of higher education, improved health status and longevity (Bruni & Porta, 2005).[3] It should thus follow (cet.par.) that those households are relatively happier than others, although gains are likely to accrue at a diminishing rate (Frey & Stutzer 2000, 2002). In the light of these stylized facts, we explore in the following to what extent these insights carry over to the developing world.

Method

Our data comes from a household survey (2016) in urban Pakistan. The dataset comprises of all the four provinces of Pakistan: Punjab, Sind, Baluchistan and Khyber Pukhtunkhuwa (KPK). The sample comprises households in eight major cities (i.e. roughly two thirds of the total number of major cities) across the country (stratified sampling) thereby ensuring representativeness. The number of cities from each province has been chosen in line with population figures as follows. In all cases the corresponding provincial capital has been included in the sample. In the case of Punjab, next to the national capital Islamabad, data have been collected in additional major cities. The selected cities in Punjab are Lahore, Faisalabad, Rawalpindi, Multan and Islamabad; Karachi in Sind; Peshawar in KPK and Quetta in Baluchistan. These cities satisfy several criteria. First, they are far away from remote rural areas. Second, they ensure a good representation of urban Pakistan in terms of population as well as the socio-economic environment.

The sample households have been selected randomly within these predetermined strata. The data was collected by means of questionnaire method from the head of the household (breadwinner). The target was to attain a total sample of fifteen hundred households (*N* = 1500). To run a regression analysis a larger sample size (ideally a multiple of five hundreds) is normally favored by the economists to get potentially promising results. The questionnaire method for data collection is usually preferred over interview method while addressing a larger sample size. It saves time and energy on the part of the researcher. The research was carried out by local correspondents/people in the sample regions where the researchers' access was not possible because of social and cultural constraints. The researchers took considerable time and care in choosing a correspondent/person with excellent knowledge of the locality and its people.

Based on population figures of the provinces and the sampled cities, a total of 750 households (50%) from Punjab (i.e. 375 from Lahore, 150 from Faislabad, 112 from Rawalpindi, 75 from Multan and 38 from Islamabad); 600 households (40%) from Sind (Karachi), 90 households (6%) from KPK (Peshawar) and 60 households (4%) from Baluchistan (Quetta) have been selected. Moreover, sample weights (weights normalized) have been applied to the sample households, corresponding to the cities they belong, as given in Table A-1. The subsequent regression analyses are based on that weighting scheme.

According to Blanchflower and Oswald (2004), SWB is measured through an ordinal scale, such that a higher index shows a higher level of happiness. In order to measure a household's self-perceived well-being, a subjective well-being metric is formulated by asking the following question from the head of the household (the bread winner): *"What is your level of happiness from your existing socio-economic status?"* Answers were recorded from 1 to 4, for instance, 1 denotes *"Not at all happy"*; 2 as *"Less than happy"*; 3 as *"Rather happy"* and 4 as *"Fully happy"*.

Descriptive statistics

Table B-1 presents summary statistics for our SWB metric. Most of the responses lie on the lower end of the happiness scale with more than fifty percent of the respondents being *"Not at all happy"* and *"Less than happy"*, while the remainder is almost equally distributed across the other categories. This rather dispersed distribution is in contrast to what is commonly observed in many developed countries. Angeles

---

[3] Analysing happiness may thus be used to capture poverty in broader terms. Sen (1983, 1993) introduced the capabilities poverty to well-being approach, which is defined as an individual's capability to access various important functions that are required to achieve a quality living. Similarly, the Multidimensional Poverty Index (MPI) basically assess the three major components of poverty, that is: health, education and living standard (Alkire, 2010; Alkire and Santos, 2010).

(2009), for instance, did a similar study on British households and found that more than three quarters of the respondents reported an above-average satisfaction level.

Tables B-2 and B-3 report average happiness indices and average monthly incomes across the provinces, respectively. Both tables rank, on average, Punjab as the province with the highest happiness index and income followed by Sind, KPK and Baluchistan.

Assessing Subjective Well-Being (SWB)
The model

In line with the literature (Bruni and Porta, 2007; White et al., 2012), happiness is considered as a function of various factors as briefed in Section 2. The model we use to assess SWB for urban Pakistan is an application from this strand of the happiness literature and takes the following form:

$$SWB_i = \beta_0 + \beta_1(sex_i) + \beta_2(age_i) + \beta_3(age_i)^2 + \beta_4(educ_i) + \beta_5(unemployment_i) + \beta_6 ln(income_i) +$$
$$\beta_7(number of children_i)_{dummy} + \beta_8(marital status_i) + \beta_9(health_i) + \beta_{10}(region_i) + \beta_{11}(religion_i) +$$
$$\beta_{12}(age_i * children_i)_{dummy} + \varepsilon_i. \quad (1)$$

Our dataset allows us to consider different potential determinants of SWB. As discussed before, SWB is measured in terms of the ordinal scale (1-4). Given the nature of our SWB metric, we estimate Model (1) on the basis of ordered probit regressions. The regressors are: sex, age, years of education, employment status, household's monthly absolute nominal income (given in natural logs), number of children, marital status, overall family's health status and regional as well as religious background of household i. There are several binary variables: sex, unemployment, marital status and religion. Those take the value of 1 if the respondent is male, unemployed, living as a married couple or being a non-muslim and 0 otherwise. Age effects are allowed to be *non-linear*. In order to evaluate the household's health status, a health index has been structured by asking the following question from the head of the household: "During the last year, how would you rate your household's health status?" The responses were recorded as: Excellent, Good, Fair, Poor and Very Poor and were coded into a health index of 4, 3, 2, 1 and 0, respectively.[4] The Region variable corresponds to three separate dummies for households that belong to Punjab, Sind and KPK, respectively. The reference group comprises of households in Baluchistan.

Many studies in the happiness literature include children as one of the explanatory variables of life satisfaction, but the results obtained are conflicting. For instance Blanchflower (2008) and Tella et al., (2003) find a negative impact of children on household's happiness, while some (Stutzer & Frey, 2006) find a positive or no effect (Clark, 2006; Clark et al., 2008), respectively. Angeles (2009) using the British Household Panel Survey (BHPS) finds that having children has a positive, large and increasing effect on life satisfaction of married couples, while the majority of unmarried couples appears to be worse off with children. Frey and Stutzer (2000) conclude on the basis of Swiss household survey data that having children hardly affects the happiness of married couples but has a large negative impact on the life satisfaction of single parents. Stutzer and Frey (2002) suggest that economic well-being depends more particularly on age, health and income. Having children in developing countries, however, may have a different meaning altogether.

Following Shams (2014, 2016) we investigate to what extent children serve as an insurance mechanism especially for later years in relatively poor societies. We account for this idea in Model (1) by incorporating dummies on the corresponding number of children in a household. Particularly, the effect of the number of children on SWB in (1) is shown by β_7. We imposed three separate dummies for having one child, two, three (or more) children in the respective household and selected childless households as the reference category.[5]

---

4 Thus, a higher index value implies a higher level of health. The baseline category here refers to the very poor health status (indexed at level 0).

5 Note that children are here considered as individuals living in a household with their parents and basically who are less than 16 years old.

The interaction effect of age and children on SWB is given by β_{12} in (1) such that age and children are measured in terms of binary variables. For instance, age takes the value of 1 if it is greater than forty years and 0 otherwise; similarly, having children in a household takes the value of 1 and 0 otherwise (i.e. being childless).

Results and discussion

We evaluate Model (1) using ordered probit regression analysis as shown in Table B-5.6. As expected, SWB increases with increase in education, income and health, while well-being is decreasing among those who are unemployed and less educated. This is in line with Sen (1997) who pointed out that education aims to empower people through developing their capabilities so that they can look after themselves. Indeed, Guardiola and Garcia-Munoz (2011) for rural Guardiola observe that education, access to public services and various livelihood parameters such as quality of housing and size of land holding have positive influence on self-reported basic needs satisfaction. These findings are confirmed by others: Kingdon and Knight (2006) for South Africa, Knight et al. (2009) for rural China, Rojas (2004, 2008) for Mexico and Pradhan and Ravallion (2000) for Jamaica and Nepal.

Also our results regarding age and marital status are supported by the existing literature. For instance, Knight et al. (2009) analyzing subjective well-being for rural China find that married couples tend to be happier compared to those living in widowhood, separation or divorce. Moreover, they observe a U-shaped relationship between happiness and age. Easterlin (2006) based on General Social Surveys from 1973 to 1994 also finds evidence for financial well-being as well as health in the US to follow a U-shaped pattern in age. Similar to those results, we establish a U-shaped pattern between happiness and age with a statistically significant turning point of approximately forty years of age. Naturally, age-specific turning points are likely to differ across countries and over time. Based on US and European panel data, for example, those may vary between the mid to late 40s years of age (Blanchflower, 2008). One factor for both health and financial satisfaction to increase as individuals become older are perhaps the compulsory social insurance programmes typically in place.[7]

There are several results emerging from our analysis which are in contrast to common findings for industrialized countries. First, being female makes you unhappy.[8] Second, we establish empirical evidence for the presence of children contributing to happiness within families. More specifically, happiness rises as the number of children increases. There are several potential explanations as to why having no children at all makes you unhappy in a developing country such as Pakistan. Our findings support the concept of having children in the developing world to insure parents against economic risks particularly at an advanced age.[9] In developed countries, on the other hand, having more children implies an additional financial burden on the part of parents in terms of their children's education and health expenses. This is in contrast to developing countries, where parents tend to hold a different view about their children. Investing in children is considered a way to compensate for the fact that in many cases there is little or no institutional support whatsoever for elderly people after retirement.

We also controlled for religion and regional background. Whilst our result suggests that in principle being a non-muslim (living in minority) decreases the chance of being happy, but this is of no statistical significance. Furthermore, we find that well-being depends on region; for instance, people in Punjab are more likely to be

---

[6] Table B-6 reports no omitted-variable bias for the baseline Model (1). Therefore, the linktest is found to be statistically insignificant.

[7] It should be noted, however, that the U-shaped age-happiness pattern has also been questioned empirically (Horley and Larvey, 1995).

[8] One possible explanation could be that in most developing countries, women are usually suppressed at their homes and even at their workplaces. Second, from a more psychological point of view, women's greater vulnerability to negative emotions and mood disorders "should" result in somewhat lower levels of SWB for women than for men.

[9] For instance, Perz (2001) suggests that parents need children to help in preparation and cultivation of land for farming at the Brazilian Amazon. Similarly, Sutherland et al. (2004) favor the idea of children being considered as an economic security against the scarce resources.

happier in comparison to people in Baluchistan. This is in line with Easterlin (2001) who argues that life satisfaction rises with average incomes. The interaction effect of age and children on SWB is found to be positive which indicates that having children in the old age increases the overall wellbeing or happiness.

The marginal effects for Model (1) resulting from the ordered probit regression are reported in Table B-7 and confirm our baseline results. In contrast to what holds as stylized facts in developed countries, our results suggest that being male increases the chance of experiencing higher happiness outcomes such as 3 or 4 and, equally, decreases the probability of being observed in a lower happiness category, say 1. Similarly, living in a richer area increases perceived well-being. For instance, respondents from Punjab and Sind show an elevated probability to report the higher happiness indices (3 and 4). Also, a large family size is beneficial for a household's happiness level. Compared to households that do not have any children, the reference category, the presence of one or two children increases the chances of a household being observed in the higher happiness categories (3 or 4). This reiterates the point that children are considered part of an insurance mechanism by their parents in developing countries such as Pakistan, where there is limited public provision of social security in terms of pensions or old age benefits. Happiness moreover appears to be U-shaped in age, with an estimated turning point of approximately forty years of age. This implies that households below this estimated threshold are relatively more likely to be reported in the lower happiness outcomes (1 and 2) compared to the higher happiness categories (3 and 4). The probability of reporting relatively lower happiness levels decreases for households, on the other hand, exceeding the estimated turning point. The marginal effects of the interaction term between age and children on SWB also support the baseline results.

As expected, with rising levels of income and education, the likelihood of being in the higher response categories (3 and 4) increases and at the same time chances of being in the lower happiness categories (1 and 2) decrease. Similarly, a higher reading of the health index ensures a higher level of happiness and vice versa such that households reporting a more satisfactory health profile are also more likely to be observed in the higher happiness categories. Unemployment, on the other hand, leads to relatively lower happiness outcomes. In particular, being unemployed increases the probability of experiencing lower happiness outcomes (1 and 2) and reduces one's chance of being in a higher happiness category. Controlling for other variables, married couples report greater happiness compared to divorced or separated couples, widowed and people who are never married or are not living as a couple. Married couples are most likely to report a higher happiness outcome and are less likely to report a lower happiness outcome.[10]

Having juxtaposed our results with industrialized countries, we can moreover compare those to other parts in the developing region. In particular, we can draw upon insights for rural Pakistan as natural benchmark (Shams 2014, 2016). While important drivers such as the level of education, children and the region in which the household resides have similar effects, some differences also emerge from this exercise. For instance, being a married couple does not have a statistically significant impact on happiness levels in rural Pakistan, whereas there is evidence for a positive association in the urban areas – probably reflecting the relatively higher level of development there in several socio-economic dimensions.

Concluding remarks

Using original survey data for urban Pakistan, an attempt has been made to investigate the impact of socio-economic and demographic factors on household's self- reported well-being throughout the life course. We follow the literature on the economics of happiness by considering life satisfaction as a holistic concept of well-being (Bruni & Porta 2005, 2007). Our well-being metric indeed might have some potential to converge with the *Satisfaction With Life Scale (SWLS)* which has a good reliability (in the spirit of Pavot & Diener, 2008).

This might be the first study of SWB in urban Pakistan. We estimate a happiness model to evaluate potential drivers of life satisfaction in this part of the developing world and compare results throughout with other major both developing and advanced countries.

---

[10] See Ravallion and Lokshin (1999) for evidence on Russia, Easterlin (2006) on the US and Blanchflower (2008) on the US and many European countries.

Our results confirm several findings commonly established in the happiness literature: SWB is higher among married couples, educated, employed, healthy and relatively richer households. Similarly, our results confirm that households living in relatively richer areas report higher life satisfaction. The latter finding is in line with evidence for rural Pakistan and, taken together, may be regarded as further evidence in favour of the well-known Easterlin Paradox which suggests that within a country richer people, on average, tend to report higher well-being but that would not be the case while looking across the countries. However, there are also important differences. In contrast to evidence that exists predominantly for developed countries, our findings reveal happiness to be higher among males in comparison to females.

Our results support furthermore the notion of an U shaped pattern which characterizes the age-happiness profile. Crucially and unlike advanced economies, the study finds evidence for SWB to increase in the number of children. These findings may be connected: children are seen as insurance mechanism for parents in general and particularly in their advanced stages of their life span as indicated in Table B-4.

While further empirical evidence is needed, SWB as holistic approach may contribute to our understanding of happiness in general and across the life span. On a related note, this paper may also add to our understanding of the relatively high birth rates and the practice of early marriages in many developing countries. Several policy implications may hence result from this study and other analyses on countries with similar socio-economic profiles. Most importantly, the government should put more emphasis on social insurance programs in fighting rising old age dependency ratios. For instance, it should try to give high coverage to old age and poor population in social security schemes; strengthen institutional and organizational structure of pension schemes; bring unorganized/informal sector under the social security or pension net and expand private pension and social welfare schemes. In particular, it appears that policies which foster educational attainment increase employment credibility and thus saving potential in the old age. This may over time also lower the burden on future cohorts of young people in terms of expectations and dependency of their elders.[11]

References

Alkire, S. (2010). Multidimensional poverty and its discontent. *In Measure for Measure: How Well Do We Measure Development? Proceedings of the 8th AFD- EUDN Conference*, 53-96.

Alkire, S. & Santos, M.E. (2010). Acute multidimensional poverty: A new index for developing countries. *OPHI Working Paper Series,* 38.

Angeles, L. (2009). Do children make us happier? *Discussion Paper Series Uni- versity of Glasgow.*

Appadurai, A. (2004). The Capacity to Aspire: Culture and the Terms of Recog- nition. *Culture and Public Action*, Stanford: Stanford University Press, 59-84.

Blanchflower, D.G. (2008). International evidence on well-being. *NBER Work- ing Paper No. w14318*.

Blanchflower, D. & Oswald, A. (2004). Wellbeing over time in Britain and the USA, *Journal of Public Economics, 88*, 1359-1386.

Bruni, L. & Porta, P. L. (2005). *Economics and Happiness - Framing the anal- ysis*. Oxford: Oxford University Press.

Bruni, L. & Porta, P. L. (2007). *Handbook on the Economics of Happiness*. Northampton: Edward Elgar Publishers.

Cheng, T.C., Powdthavee N., & Oswald A. J. (2017). Longitudinal Evidence for a Midlife Nadir in Human Well-being: Results from Four Data Sets. *Economic Journal, 127* (599): 126-142.

Clark, A. E. (2006). Born to be mild? Cohort effects do not explain why well- being is U-shaped in age. *PSE Working Papers n-2006-35*.

Clark, A. E., Frijters, P. & Schields, M. A. (2008). Relative income, happiness and utility: an explanation for the Easterlin paradox and other puzzles. *Journal of Economic Literature, 46* (1), 95-144.

Diener, E., Suh, E. M., Lucas, R. E. & Smith, H. L. (1999). Subjective Well- Being: Three Decades of Progress. *Psychological Bulletin, 125* (2), 276-302.

Easterlin, R. (2001). Income and happiness: Towards a unified theory. *Economic Journal, 111*, 465-84.

Easterlin, R. (2006). Life cycle happiness and its sources: Intersections of psy- chology, economics and demography. *Journal of Economic Psychology, 27*, 463-482.

Frey, B. & Stutzer, A. (2000). Happiness, economy and institutions. *The Eco- nomic Journal, 110*, 918-938.

---

[11] See Mahmood and Nasir (2008) and the references therein.

Frey, B. & Stutzer, A. (2002). What can economists learn from happiness re- search? *Journal of Economic Literature, 40,* 402-435.

Guardiola, J. & Garcia-Munoz, T. (2011). Fulfilment of basic needs from a subjective point of view in rural Guatemala. *International Journal of Social Wel- fare, 20(4),* 393-403.

Helliwell, J. F. (2002). How's life? Combining individual and national variables to explain subjective well-being. *Economic Modelling, 20*, 331-60.

Horley, J. & Lavery, J. J. (1995). Subjective well-being and age. *Social Indi- cators Research, 34*, 283-286.

Kingdon, G. G. and Knight, J. (2006). Subjective well-being poverty vs. income poverty and capabilities poverty? *Journal of Development Studies, 42*(7), 1199- 1224.

Knight, J., Song, L. & Gunatilaka, R. (2009). Subjective well-being and its determinants in rural China. *China Economic Review, 20(4),* 635-649.

Lewis, O. (1996). The Culture of Poverty, Urban Life: Readings in Urban An- thropology.

Mahmood, N. & Nasir, Z.M. (2008). Pension and social security schemes in Pakistan: Some Policy Options. *PIDE Working Papers,* 42.

McGregor, A. & Sumner, A. (2010). Beyond business as usual: What might 3-D wellbeing contribute to MDG momentum? *IDS Bulletin, 41* (1), 104-112.

OECD (2015), How's Life? 2015: Measuring Well-being, OECD Publishing, Paris.

Pakistan, Government of. (2001). *1998 Census Report on Pakistan.* Islamabad: Statistics Division, Population Census Organisation.

Pavot, W. & Diener, E. (2008). The satisfaction with life scale and the emerging construct of life satisfaction. *The Journal of Positive Psychology, 3*, 137-152.

Perz, S. (2001). Household demographic factors as life cycle determinants of land use in the amazon. *Population Research and Policy Review, 20* (3), 159-186.

Pradhan, M. and Ravallion, M. (2000). Measuring poverty using qualitative per- ceptions of consumption adequacy. *The Review of Economics and Statistics, 82* (3), 462-471.

Ravallion, M. & Lokshin, M. (1999). Subjective economic welfare. *World Bank Development Research Group (DECRG).*

Rojas, M. (2004). Well-being and the Complexity of Poverty. *Research Paper, United Nations University, WIDER no.2004/29.*

Rojas, M. (2008). Experienced Poverty and Income Poverty in Mexico: A Sub- jective Well-Being Approach. *World Development, 36* (6), 1078-1093.

Sen, A. (1983). Poor, relatively speaking. *Oxford Economic Papers, 35*, 153-69.

Sen, A. (1993). *The Quality of life*. Oxford: Oxford University Press.

Sen, A. (1997). Editorial: Human Capital and Human Capability. *World Devel- opment, 25* (12), 1959-1961.

Shams, K. (2014). Determinants of Subjective Well-Being and Poverty in Rural Pakistan: A Micro-Level Study. *Social Indicators Research, 119*, 1755-1773.

Shams, K. (2016). Developments in the Measurement of Subjective Well-Being and Poverty: An Economic Perspective. *Journal of Happiness Studies, 17* (6), 2213- 2236.

Stutzer, A. & Frey, B. (2002). *Happiness and Economics*. Princeton: Prince- ton University Press.

Stutzer, A. & Frey, B. S. (2006). Does marriage make people happy or do happy people get married? *The Journal of Socio-Economics, 35*, 326-347.

Sutherland, E., Carr, D. & Curtis., S. (2004). Fertility and the environment in a natural resource dependent economy: Evidence from Petén, Guatemala. *Población y Salud en Mesoamérica, 2* (1), 1-14.

Tella, R. D., MacCulloch, R. J. & Oswald, A. J. (2003). The macroeconomics of happiness. *Review of Economics and Statistics, 85*, 809-827.

UN (2017). World Happiness Report 2017. *United Nations Sustainable Develop- ment Solutions Network (UNSDSN).*

White, S., Gaines, S. & Jha, S. (2012). Beyond subjective well-being: A crit- ical review of the Stiglitz report approach to subjective perspectives on quality of life. *Journal of International Development, 24* (6), 763-776.

A   Weighting matrix

Table A-1: *The weighting scheme. The last column reports the corresponding weights for the sample households*

Province/City	Census 1998		Survey 2016		
	Total Population (in k)	Urban Population (in k)	Sample Population	pweights $[(UP)_j/(SP)_j]$	pweights-normalised $[(pw)_j/\Sigma(pw)_j]$
(k/j)	$(TP)_j$	$(UP)_j$	$(SP)_j$	$(pw)_j$	$(pw)'_j$
Punjab	**74,426**	**23,548**	750		
Lahore	5,443	4,485	375	11.96	0.18
Faisalabad	2,009	858	150	5.72	0.08
Rawalpindi	1,410	750	112	6.70	0.10
Multan	1,197	505	75	6.74	0.10
Islamabad *(Capital territory)*	529	348	38	9.15	0.14
Sind	**30,440**	**14,840**	600		
Karachi	9,339	9,122	600	15.20	0.22
KPK	**17,744**	**2,994**	90		
Peshawar	983	477	90	5.30	0.08
Baluchistan	**6,566**	**1,569**	60		
Quetta	565	420	60	7.00	0.10
Σ	-	-	-	-	1.00

B   Tables

Table B-1: *Descriptive statistics of the SWB metric. Source: Survey 2016.*

	SWB **happiness** **with** **socio-economic status** **(1-4)**
Mean	2.23
SD	1.17
Frequency of value: 1	40%
2	16%
3	25%
4	19%

Table B-2: *Happiness index across the provinces. Source: Survey 2016*

Average happiness with ...	Punjab	Sind	KPK	Baluchistan
Socio-Economic Status (SES)	2.36	2.21	2.13	1.56

Table B-3: *Average monthly income across the provinces .Source: Survey 2016*

Average monthly income in ...	Punjab	Sind	KPK	Baluchistan
Pakistani Rupee (PKR)	42,641.22	35,297.15	35,116.67	22,075.00

Table B-4: *Partial correlation of happiness index with age and children variables.*
*,**,*** denote 10%, 5% and 1% levels of statistical significance, respectively.
Source: Survey 2016.

Partial correlation of happiness index with		
Variable	Corr.	Sig.
Age	-0.0838**	0.041
AgeSquared	0.1460***	0.000
Child1	0.1027***	0.012
Child2	0.1771***	0.000
Child3 (or more)	0.2271***	0.000
(Age * Children)dummy	0.1995***	0.000

Table B-5: *Baseline results. *, **, *** denote 10%, 5% and 1% levels of statistical significance, respectively*

Ordered probit regression		
Number of obs	=	1500
Wald χ^2(19)	=	318.88
Prob > χ^2	=	0.0000
Pseudo R^2	=	0.4513
Log pseudolikelihood	=	-435.4678

Dependent variable: SWB

Independent Variables	Coef.	Robust Std. Err.
Male	0.6012*	0.3199
Age	-0.3414***	0.0611
Age-squared	0.0043***	0.0007
Years of education	0.1338***	0.0262
Unemployed	-0.2738*	0.1566
Log of household's income	2.7208***	0.2192
No. of children:		
Being childless	*Reference Group*	
Child 1	0.0525*	0.2010
Child 2	0.5767***	0.1181
Child 3 (or more)	2.3898***	0.3828
Marital status:		
Married couple	0.2935*	0.1757
Health index:		

4	0.5233**	0.2693
3	0.3982*	0.2383
2	0.3346	0.2722
1	0.0989	0.1247
0	Reference Group	
Region:		
Punjab	0.2974*	0.1778
Sind	0.2574*	0.1540
KPK	0.0794	0.1163
Baluchistan	Reference Group	
Religious belief:		
Non-Muslim	-0.0513	0.1182
(Age *Children)dummy	0.0632***	0.0247
/cut1	19.6866	2.3606
/cut2	20.6818	2.3956
/cut3	22.2772	2.4630

Table B-6: *Specification error test: Baseline Model (1).*

Specification error test		
Number of Obs	=	1500
Wald $\chi^2(2)$	=	221.52
Prob $> \chi^2$	=	0.0000
Pseudo R^2	=	0.4517
Log pseudolikelihood	=	-435.19531

Dependent variable: SWB		
Independent Variables	coef.	Robust Std. Err.
-hat	1.7256* [0.052]	0.8881
-hatsq	-0.0174 [0.416]	0.0214
/cut1	27.1896	9.2166
/cut2	28.1960	9.2420
/cut3	29.7803	9.2191

*Notes: Square brackets enclose the p-values; *, **, *** indicate statistical significance at 10%, 5% and 1% levels, respectively.*

Table B-7: *Ordered probit analysis: Marginal effects baseline Model (1). Note: 1.* [a,b,c] *denote 10%, 5% and 1% levels of statistical significance, respectively. 2. (*) indicates discrete change of a dummy variable from 0 to 1.*

Prob(SWB=1) = 0.257
Prob(SWB=2) = 0.377
Prob(SWB=3) = 0.340
Prob(SWB=4) = 0.026

SWB	(1)		(2)		(3)		(4)	
Variables	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
Male*	-0.2205^a	0.1262	0.0241	0.0436	0.1745^b	0.0796	0.0220^c	0.0085
Age	0.1100^c	0.0208	0.0185^a	0.0092	-0.1076^c	0.0206	-0.0209^c	0.0060
AgeSquared	-0.0014^c	0.0003	-0.0002^a	0.0001	0.0014^c	0.0003	0.0003^c	0.0001
Years of education	-0.0082^c	0.0023	-0.0072^a	0.0037	0.0422^c	0.0089	0.0431^b	0.0071
Unemployed*	0.0934^a	0.0559	0.0850^a	0.0474	-0.0055	.0071	-0.0139^a	0.0087
Log of household's income	-0.0863^a	0.0472	-0.0276	0.0236	0.0911^a	0.0532	0.1663	0.0330
No. of children: Child 1*								
	-0.0167^a	0.0633	-0.0031	0.0132	0.0165^a	0.0633	0.0033	0.0132
Child 2*	-0.1658^c	0.0307	-0.05714^c	0.0220	0.1749^c	0.0351	0.0480^c	0.0162
Child 3* (or more)	-0.3004^c	0.0326	-0.3551^c	0.0408	0.0501^a	0.1080	0.6054^c	0.1351
Marital status: Married couple*	-0.0863^a	0.0472	-0.0276	0.0236	0.0911^a	0.0532	0.0229	0.0172

Table B-7: *(continued)*

SWB	(1)		(2)		(3)		(4)	
Variables	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
Health Index:								
4*	-0.1775^a	0.0942	-0.0103	0.0129	0.1605^b	0.0799	0.0273^a	0.0144
3*	-0.1328	0.0860	-0.0127	0.0106	0.1237^a	0.0744	0.0219	0.0146
2*	-0.1132	0.0960	-0.0083	0.0085	0.1039	0.0825	0.0176	0.0136
1*	-0.0316	0.0395	-0.0059	0.0085	0.0312	0.0392	0.0062	0.0085
Region:								
Punjab*	- 0.1010	0.0662	-0.0139	0.0174	0.0924^a	0.0557	0.0157^a	0.0087
Sind*	-0.0829	0.0952	-0.0067	0.0080	0.0811^a	0.0490	0.0154^a	0.0085
KPK*	-0.0256	0.0373	-0.0043	0.0068	0.0250	0.0368	0.0049	0.0072
Religious belief:								
Non-Muslim*	0.0165	0.0381	0.0028	0.0065	-0.0162	0.0373	-0.0031	0.0073
(*Age * Children*)*	-0.0196^c	0.0078	-0.0047^b	0.0022	0.0199^c	0.0078	0.0043^b	0.0019