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Subjective Well-Being and Its Macroeconomic and Institutional Predictors: A Panel Data Analysis of South Asian Countries

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Abstract:
Most studies that investigated the impact of macro-economic factors (GDP per capita, income inequality, inflation, unemployment, health expenditure, etc.) and institutional factors (i.e., gender equality, corruption etc.) focused on the global context or developed countries or European countries. There was little information about the impact of these objective variables on the subjective well-being of South Asian countries. Simultaneously, these studies focused on the cognitive component of subjective well-being (i.e., life satisfaction, happiness, etc.) and ignored the affective components (i.e., positive affect and negative affect). This study assessed the impact of these objective factors on subjective well-being (including cognitive and affective components) in South Asian countries. The country-level panel data for the study variables from 2007 to 2019 (13 years) were used in this study. Pooled ordinal least square model, fixed-effects model, and random-effects model with fixed–year effect and clustered standard error were estimated. The results suggested that log GDP per capita, income inequality, unemployment, and gender equality were significant predictors of life satisfaction. GDP per capita and gender equality were substantial predictors of positive affect; inflation, health expenditure, and gender equality were significant predictors of negative affect. These findings have importance in policy discussions to improve the well-being of south Asian people. There were some differences in the findings with previous studies investigating the association between study variables in global or developed country contexts. These differences emphasize considering the cultural differences in studying subjective well-being.

Keywords: domestic product, income inequality, gender equality, subjective well-being, South Asia.

主观幸福感及其宏观经济和制度预测因素：南亚国家的面板数据分析

摘要：
大多数调查宏观经济因素（人均国内生产总值、收入不平等、通货膨胀、失业、医疗支出等）和制度因素

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（即性别平等、腐败等）影响的研究都集中在全球背景或发达国家 或欧洲国家。关于这些客观变量对南亚国家主观幸福感影响的信息很少。同时，这些研究侧重于主观幸福感的认知成分（即生活满意度、幸福感等）而忽略了情感成分（即积极影响和消极影响）。本研究评估了这些客观因素对南亚国家主观幸福感（包括认知和情感成分）的影响。本研究使用了 2007 年至 2019 年（13 年）研究变量的国家级面板数据。估计了具有固定年份效应和聚类标准误差的合并有序最小二乘模型、固定效应模型和随机效应模型。结果表明，对数人均国内生产总值、收入不平等、失业和性别平等是生活满意度的重要预测因素。人均国内生产总值和性别平等是积极影响的重要预测指标；通货膨胀、医疗支出和性别平等是负面影响的重要预测指标。这些发现对于改善南亚人民福祉的政策讨论具有重要意义。与之前调查全球或发达国家背景下研究变量之间关联的研究结果存在一些差异。这些差异强调在研究主观幸福感时考虑文化差异。

关键词：国内生产、收入不平等、性别平等、主观幸福感、南亚。

1. Introduction

Subjective well-being and its determinants have been the subject matter of research interest among social scientists, psychologists, and economists for a long time. Hayo and Seifert (2003) described three motivations for studying subjective well-being. Economists engage in studying subjective well-being because – i) it's the "key target variable of economic policy" to maximize welfare (p. 330), ii) it influences "support for a market economy and democracy" (p. 331), and iii) it is "important to understand the relationship between objective and subjective indicators of well-being" (p. 331). Social scientists often relate subjective well-being to objective data on macroeconomic factors (i.e., GDP, income inequality, inflation, unemployment, health expenditure, etc.) and institutional factors (i.e., gender equality, corruption perception, etc.) (Damayanti et al., 2020).

Subjective well-being can be defined as how people evaluate their life events. It is an umbrella term that includes positive and negative life events. It contains both affective reactions (i.e., joy and sadness) and cognitive evaluations (i.e., life satisfaction, happiness, etc.) to life events (Diener, 2006). Previous studies have operationalized subjective well-being as self-reported life satisfaction. Although researchers often use subjective well-being, happiness, and life satisfaction interchangeably, there are some differences among these terms. In this study, subjective well-being assessment includes cognitive (life satisfaction) and affective components (positive and negative affect). Life satisfaction or happiness is already an established indicator of subjective well-being. However, Diener (2006) opined to include other facets of subjective well-being (i.e., positive and negative modes, etc.). In this study, life satisfaction and positive and negative affect are the variables of interest for assessing subjective well-being. Life satisfaction is one's overall assessment of one's attitude and feeling toward own life. Positive affect includes pleasant moods and emotions (i.e., joy and affection), and negative affect includes unpleasant moods and emotions (i.e., sadness, stress, worry, etc.). A few studies have assessed the association between country-level positive and negative affect and macroeconomic data (Yin et al., 2021). Therefore, the subsequent description would be about life satisfaction, happiness, or well-being.

The objective of this study is to identify macroeconomic (GDP, income inequality, inflation, unemployment, health expenditure, etc.) and institutional predictors (gender equality, corruption perception, etc.) of subjective well-being. Almost all studies that assessed the association between study variables included life satisfaction or happiness. Moreover, the association between study variables was studied globally or focused more on European and North American countries. The association explored by previous studies would differ across geographical locations due to cultural differences. For example, Yin et al. (2021) have found that the impact of HDI indices on life satisfaction differed across geographical locations and cultures. Therefore, the impact of variables of interest in this study is probably different on subjective well-being indicators (life satisfaction, positive affect, and negative affect) in South Asian countries (Bangladesh, India, Nepal, Pakistan, Sri Lanka, Bhutan, etc.) due to cultural and geographical differences from the rest of the world. South Asian countries have 23.96% of the world's population but hold 4.25% of the world's GDP (World Bank, 2022). Before the COVID-19 pandemic, the GDP growth was 3.91% (World Bank, 2022). The present study assessed the impact of GDP, income inequality, inflation rate, unemployment rate, health expenditure, gender equality, and corruption perception sectors on life satisfaction, positive affect, and negative affect in South Asian countries. Because of availability, the data for Bangladesh, India, Nepal, Pakistan, and Sri Lanka were included in this study.

2. Literature Review

2.1. GDP and Subjective Well-Being

In this world, all countries spend a significant amount of their GDP on the well-being of their people. However, the association between GDP and indicators of subjective well-being is still a matter of debate among economists. Richard Easterlin, the first modern economist who assessed the association between GDP and happiness, suggested a positive association between

income and happiness (Easterlin, 1974). However, this association declined for countries that met the basic needs (Easterlin, 1974). It is known as the "Easterlin Paradox." Later studies have found similar findings (Diener & Seligman, 2004; Stevenson & Wolfers, 2013). According to Layard (2003), "once a country has over $15,000 per head, its level of happiness appears independent of its income per head" (p. 17). Diener and Seligman (2004) suggested a marginally positive effect between these two variables after a GDP of $10000. Stevenson and Wolfers (2013) found that the positive association between life satisfaction and GDP flattens after $15000 to $30000, and this relationship declined after $30000 GDP. Proto and Rustichini (2013) found an increased association between GDP per capita below $15000 and life satisfaction, which dropped for more affluent countries. Proto and Rustichini (2013) also provided interesting findings about reporting life satisfaction. In contrast to countries with per capita GDP of around 15,000 USD, the poorer countries with GDP per capita below $5600 have more than 12% of likelihood of reporting higher life satisfaction. Life satisfaction is the highest in countries with GDP per capita around $30000, which significantly declines for the richer countries (Proto & Rustichini, 2013). These studies supported the Easterlin paradox and suggested that life satisfaction increases with an increase in GDP in poor countries, and this association is flattened in richer countries. The GDP per capita of South Asian Countries is below $15000. Therefore, the following hypothesis was formulated:

H1: GDP per capita positively predicts life satisfaction and positive affect and negatively predicts negative affect.

2.2. Income Inequality and Subjective Well-Being

The mixed results on the association between GDP and subjective well-being suggest that the GDP is not the only objective factor that contributes to subjective well-being, some other macroeconomic factors (i.e., income inequality, inflation, unemployment, life expectancy, etc.) and institutional factors (i.e., transparency, accountability, and corruption in public sectors, etc.) would influence subjective well-being. Since the 1980s, inequality in income and wealth has increased (Piketty, 2014). Researchers have raised their concern about the impact of income inequality on well-being. Studies suggested mixed results regarding the association between income inequality and life satisfaction. Some studies suggested a positive association between these two variables (Berg & Veenhoven, 2010; Helliwell & Huang, 2008; Rözer & Kraaykamp, 2013), and some studies suggested a negative association (Delhey & Dragolov, 2014; García-Muñoz et al., 2019; Oishi et al., 2011), whereas some studies suggested a non-significant association between these two (Graham & Felton, 2006; Senik, 2004; Veenhoven, 2005). The association between these two variables is also varied across geographic locations (Alesina et al., 2004; Berg & Veenhoven, 2010; Verme, 2011), economic prosperity (Helliwell & Huang, 2008; Layte, 2012; Ott, 2005), quality of governance (Helliwell & Huang, 2008), and income and its mobility (Alesina et al., 2004; Oishi et al., 2011). From the above description of the association between income inequality and subjective well-being, the following hypothesis was formulated:

H2: Income inequality negatively predicts life satisfaction and positive affect and positively predicts negative affect.

2.3. Inflation, Unemployment, and Subjective Well-Being

Besides GDP and income inequality, inflation and unemployment have received good attention among macroeconomists. Studies have suggested a negative association between subjective well-being indicators (i.e., life satisfaction) and inflation and unemployment (Di Tella et al., 2001; Winkelmann & Winkelmann, 1998). Arthur Okun, a macroeconomist, developed the "misery index" combining inflation and unemployment rate to assess its impact on national well-being (Blanchflower et al., 2014). This index assigns equal weight to both the unemployment and inflation rate. However, there is an absence of empirical evidence for assigning equal weights. Studies have found that higher inflation and unemployment negatively impact well-being, whereas unemployment has a higher impact (Blanchflower, 2007; Blanchflower et al., 2014). Winkelmann and Winkelmann (1998) opined that unemployment results in both income loss and psychological cost (i.e., loss of self-esteem, social standing, etc.). From the above description of the association between inflation, unemployment, and subjective well-being, the following hypotheses were formulated:

H3: Inflation negatively predicts life satisfaction and positive affect and positively predicts negative affect.

H4: Unemployment negatively predicts life satisfaction and positive affect and positively predicts negative affect.

2.4. Health Expenditure and Subjective Well-Being

Better health is important for better well-being. Every country spends an amount of its GDP for the health and well-being of its people. Kotakorpi and Laamanen (2010) found a positive association between health expenditure and life satisfaction after controlling health status. Hessami (2010) assessed the impact of government expenditure, including health expenditure, on the subjective well-being of 12 European countries over 1990–2000. Although the results revealed a significant negative impact of health expenditure on subjective well-being, the author did not make any meaningful remark about the association between these two variables as individual-level health information was unavailable. Nordheim and Martinussen (2020) found that social health spending positively impacts subjective well-being in OECD countries. Satrovic et al. (2019) analyzed panel data for 59 countries from 2007–2014

and found a positive link between health expenditure and happiness. It is expected that more public health expenditures would have a positive impact on well-being. Based on the existing literature, the following hypothesis was formulated:

H5: Health expenditure positively predicts life satisfaction and positive affect and negatively predicts negative affect.

2.5. Gender Equality and Subjective Well-Being

Gender equality can be defined as "the extent, to which women and men have an equal share of paid work, money, decision-making power, and time in society" (Looze et al., 2018, p. 1074). Historically, women's rights to property, paid work, decision-making ability, voting, participating in political activities, etc. were ignored. In the 20th century, many countries adopted legal and social programs to ensure women's rights and increase their participation in economic, political, and social activities. Given the importance of gender equality, the United Nations has included gender equality as one of the Sustainable Development Goals (SDG goal – 5). According to the Global Gender Gap report, 2022 (World Economic Forum, 2022), gender gap ranks for south Asian countries ranged between 71st and 146th. The global gender gap has reduced for most South Asian countries since 2006 (the Global Gender Gap report published for the first time). Studies have suggested an association between gender equality and subjective well-being (Audette et al., 2019; Looze et al., 2018). Audette et al. (2019) found that gender equality leads to subjective well-being. Ferrant et al. (2017) analyzed the data from 94 countries and found that gender discrimination in social institutions reduces life satisfaction. Based on existing literature and gender gap statistics, there would be an association between gender equality and subjective well-being in South Asian countries. To test the association between gender equality and subjective well-being, the following hypothesis was formulated:

H6: Gender equality positively predicts life satisfaction and positive affect and negatively predicts negative affect.

2.6. Corruption and Subjective Well-Being

Corruption is the "abuse of entrusted power for private gain" (Transparency International, 2022). According to the Corruption Perception Index, 2021 (Transparency International, 2021), South Asian countries, studied in this study, were ranked between 85 and 147 among 180 countries. The association between corruption and subjective well-being would be either positive or negative. How one perceives the corruption would impact their subjective well-being. If one perceives that corruption makes it easier to complete his task and generate a personal gain, it would increase one's subjective well-being. Some researchers have proposed that corruption helps overcome the institutional inefficiency that promotes economic growth (Huntington, 1968). In contrast, other researchers opined that corruption increases institutional inefficiency, reducing economic growth (Lambsdorff, 2003). Most of the previous studies have found that corruption negatively impacted life satisfaction (Djankov et al., 2016; Wu & Zhu, 2016). Tay et al. (2014) found that corruption lowers the national income and decreases institutional trust, decreasing life satisfaction. In this study, we also hypothesized the negative association between corruption and subjective well-being in south Asian countries. The following hypothesis was formulated –

H7: The corruption index positively predicts life satisfaction and positive affect and negatively predicts negative affect.

3. Methodology

3.1. Data and Data Sources

In this study, the dependent variables were country-level life satisfaction, positive affect, and negative affect. The independent variables were GDP per capita, income inequality, inflation, unemployment, health expenditure, gender equality, and corruption. Data from 2007 to 2019 (13 years) were used in this study.

The Cantril Ladder data presented in the World Happiness Report 2021 (Helliwell et al., 2021) from the Gallup World Poll were used to measure country-level life satisfaction. This index is the most common measure for assessing subjective well-being (Clark, 2016; Flèche et al., 2020). The question for the Cantril Ladder was as follows: "Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?" This data is available from 2003 to 2020 for over 160 countries. Data about positive and negative affect were taken from the World Happiness Report, 2021 (Helliwell et al., 2021), which took these data from the Gallup World Poll. The positive affect data is the average of the following three questions: "Did you experience the following feelings MOST OF THE DAY yesterday? How about happiness?," "Did you smile or laugh a lot yesterday?," and "Did you experience the following feelings MOST OF THE DAY yesterday? How about enjoyment?" (Helliwell et al., 2021). The negative affect data is the average of the average of the following questions: "Did you experience the following feelings MOST OF THE DAY yesterday? How about worry?," "Did you experience the following feelings MOST OF THE DAY yesterday? How about sadness?," and "Did you experience the following feelings MOST OF THE DAY yesterday? How about anger?" (Helliwell et al., 2021).

In this study, GDP purchasing power parity data from the World Bank database (World Bank, 2022) were used to measure GDP per capita. This measure of

GDP provides "per capita values for the gross domestic product (GDP) expressed in current international dollars converted by the purchasing power parity (PPP) conversion factor" (World Bank, 2022). The log of the GDP PPP was used in this study. For income inequality, the Gini index of inequality from the Standardized World Income Inequality Database (SWIID) (Version 9.3) was used (Solt, 2019). The index of income inequality measures the extent the individual/household income distribution deviates from the perfectly normal distribution (Ismaulina et al., 2022). Among the two Gini indices in the SWIID database, the Gini index that equivalised (using the square-root equivalence scale) for household disposable income [post-tax, post-transfer] was used in this study.

Inflation [consumer prices (annual %)] data from the World Bank database (World Bank, 2022) were used in this study as a measure of the inflation rate. This index shows the annual change in the average consumer cost for collecting goods and services. Unemployment [total (% of the total labor force) (modeled ILO estimate)] statistics from the World Bank database (World Bank, 2022) were used in this study as a measure of the unemployment rate. Here, unemployment suggests the proportion of the labor force without available workers looking for employment. Current health expenditure (% of GDP) data from the World Bank database (World Bank, 2022) were used as the measure of health expenditure in this study. This measure includes healthcare goods and services consumed in each year.

For assessing gender equality, the overall global gender gap index data from the WEF-Global Gender Gap Report of the World Bank database (World Bank, 2022) were used. This index included information about four subindices (Economic Participation and Opportunity, Educational Attainment, Health and Survival and Political Empowerment) that are composed of 14 different indicators. This index ranges between 0 (inequality) and 1 (equality). The corruption perception data presented in the World Happiness Report 2021 (Helliwell et al., 2021) from the Gallup World Poll were used to measure country-level corruption. The question for the corruption perception in the GWP was as follows: "Is corruption widespread throughout the government or not" and "Is corruption widespread within businesses or not?" This country-level corruption perception data is the average of the individual-level corruption perception data.

The summary of the study variables, description with source, and descriptive statistics (mean, standard deviation, minimum, and maximum observations) is presented in Table 1.

Table 1. Summary statistics of the study variables

Variable	Description	Obs.	Mean	SD	Min.	Max.
Life satisfaction	Life satisfaction index (Cantril Ladder) (Helliwell et al., 2021)	64	4.690	0.499	3.249	5.831
Positive affect	Pleasant emotional reaction (Helliwell et al., 2021)	64	0.674	0.090	0.536	0.864
Negative affect	Unpleasant emotional reaction (Helliwell et al., 2021)	65	0.281	0.072	0.152	0.466
GDP_PPP	GDP purchasing power parity (World Bank, 2022)	65	8.403	0.516	7.517	9.520
Gini coefficient	Income inequality index (Solt, 2019)	49	40.996	6.620	34	48.6
Inflation	Inflation [consumer prices (annual %)] (World Bank, 2022)	65	7.626	3.891	2.135	22.565
Unemployment	Unemployment [total (% of total labor force) (modeled ILO estimate)] (World Bank, 2022)	65	3.782	1.508	0.4	5.97
Health expenditure	Current health expenditure (% of GDP) (World Bank, 2022)	65	3.424	0.780	2.344	5.466
Gender equality	Global gender gap index (World Bank, 2022)	65	0.642	0.060	0.546	0.746
Corruption	Corruption perception (Helliwell et al., 2021)	64	0.806	0.070	0.635	0.950

Notes: Obs. - number of observations; SD - standard deviation; Min. - minimum value; Mix. - maximum value

3.2. Econometric Models

The basic econometric models of this study were established as the following equations –

$$SWB_{it} = \alpha + \beta gdp\_ppp_{it} + \beta gini\_d_{it} + \beta infla\_c_{it} + \beta ur_{it} + \beta le_{it} + \beta cpia_{it} + \varepsilon_{it} \quad (1)$$

Here, i represent the country, t represents time, SWB_{it} will successively be the s country-level life satisfaction, positive affect, and negative affect, α represents intercept, β represents regression coefficients of corresponding independent variables, and ε represents error.

3.3. Statistical Analysis

In this study, the panel contained data for five countries and 13 years. Pooled OLS estimation, fixed-effects model, and random-effects model were estimated. Twenty-seven models were estimated, three for each dependent variable and estimation. For each dependent variable and estimation, the effect of macroeconomic variables (log GDP PPP, income inequality, inflation, unemployment, and health expenditure) was assessed in the first model. The effect of institutional variables (gender equality and corruption perception) was assessed in the next model, and all predictors' effects were assessed in the second next model. In all the models, fixed–year effect and clustered standard error were estimated to capture the common shock. Next, the following four assumptions were tested – normality, multicollinearity, heteroscedasticity, and autocorrelation for model 8 for all the dependent variables. Normality was tested through the Jarque-Bera normality test, where the rejection of the H_0 suggests a violation of normality. Multicollinearity was estimated through the variance inflation factor (VIF) test. As per the rule of thumb, VIF values exceeding 10 suggest a serious multicollinearity issue. Heteroscedasticity was estimated through Cameron & Trivedi's decomposition

of the IM-test, where the rejection of the H_0 suggests the presence of heteroscedasticity. Autocorrelation was estimated through the Box-Pierce LM Test for autocorrelation, where the rejection of the H_0 suggests the presence of autocorrelation. All the statistical analyses were run using STATA MP 14.0.

4. Results

Tables 2–4 showed little variation in independent variables across time; therefore, the fixed-effects model is inappropriate here. The coefficients from the pooled OLS and random-effects model were the same. Breusch and Pagan Lagrangian multiplier test suggested the pooled OLS model as better over the random-effects model (p = 1.00). Therefore, the results of pooled OLS models were reported in this study.

4.1. Predictors of Life Satisfaction

Table 2 shows the regression results for life satisfaction. In Model 1, none of the macroeconomic variables predicted life satisfaction. In Model 2, gender equality significantly predicted (coeff. = -5.225, se = .747, p < .001) life satisfaction. While considering macroeconomic and institutional variables together (Model 3), Table 2 shows that the log GDP PPP (coeff. = .588, se = .054, p <.001), Gini coefficient (coeff. = -.080, se = .009, p < .001), unemployment (coeff. = .185, se = .035, p < .01), and gender equality (coeff. = -6.461, se = 1.109, p < .001) were significant predictors of the country-level life satisfaction. Results, considering all the variables together, suggested that increase in GDP per capita and unemployment increase life satisfaction, while income inequality and gender equality lessen life satisfaction. Macroeconomic variables contributed 52.2% variability, institutional variables contributed 40.9% variability, and macroeconomic and institutional variables together contributed 78.9% variability of life satisfaction. These results partially support H1 and H2.

Table 2. Regression results of life satisfaction by log GDP PPP, income inequality, inflation, unemployment, health expenditure, gender equality, and corruption perception

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Log GDP ppp	.103 (.347)		.588 (.054)***	-1.727 (1.958)		-.925 (2.370)	.103 (.347)		.588 (.054)***
Gini coefficient	-.035 (.036)		-.080 (.009)**	.570 (.351)		.175 (.349)	-.035 (.036)		-.080 (.009)***
Inflation	.002 (.019)		-.002 (.009)	-.010 (.025)		-.008 (.022)	.002 (.019)		-.002 (.009)
Unemployment	-.030 (.075)		.185 (.035)**	-.047 (.201)		.007 (.204)	-.030 (.075)		.185 (.035)***
Health expenditure	-.157 (.192)		.104 (.134)	.217 (.116)		.363 (.190)	-.157 (.192)		.104 (.134)
Gender equality		-5.225 (.747)**	-6.461 (1.109)**		-1.938 (4.678)	-5.424 (5.101)		-4.745 (1.447)**	-6.461 (1.109)***
Corruption perception		-2.782 (1.131)	.797 (1.098)		-.766 (1/218)	1.428 (1.337)		-2.137 (1.253)	.797 (1.098)
R^2	.522	.409	.789	.358	.335	.123	.522	.406	.789

Notes: Model 1 - pooled OLS estimation for macroeconomic variables; Model 2 - pooled OLS estimation for institutional variables; Model 3 - pooled OLS estimation for all variables; Model 4 - fixed effect estimation for macroeconomic variables; Model 5 - fixed effect estimation for institutional variables; Model 6 - fixed effect estimation for all variables; Model 7 - random effect estimation for macroeconomic variables; Model 8 - random effect estimation for the institutional variable; Model 9 - random effect estimation for all variables; * p < .05, ** p < .01, *** p < .001; values in the parenthesis are robust standard errors.

4.2. Predictors of Positive Affect

Table 3 shows the regression results for positive affect. In Model 10, the log GDP PPP (coeff. = .126, se = .015, p < .01), inflation (coeff. = -.006, se = .002, p < .05), and health expenditure (coeff. = . 031, se = .010, p < .05) were significant predictors of the country-level positive affect. In Model 11, none of the institutional variables significantly predicted positive affect. Macroeconomic variables contributed 74.5% variability, and institutional variables contributed 43.0% variability of positive affect. Regression results considering all the study variables together (Model 12) show that log GDP PPP (coef. = .131, se = .017, p < 0.01) and gender equality (coef. = .569, se = .431, p < 0.05 predicted positive affect. The results suggested that higher GDP per capita and gender equality higher positive emotions. All the macroeconomic and institutional variables together contribute 81.4% variability of positive affect. These results partially support H1 and H6.

Table 3. Regression results of positive affect log GDP PPP, income inequality, inflation, unemployment, health expenditure, gender equality, and corruption perception

Variable	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18
Log GDP ppp	.126 (.015)**		.131 (.017)**	-.043 (.098)		.012 (.082)	.126 (.105)***		.131 (.017)***
Gini coefficient	-.001 (.004)		-.003 (.003)	.001 (.007)		-.037 (.030)	-.001 (.004)		-.003 (.003)
Inflation	-.006 (.002)*		-.008 (.003)	-.005 (.003)		-.005 (.005)	-.006 (.002)**		-.008 (.003)*
Unemployment	.003 (.011)		-.002 (.009)	-.028 (.010)*		-.026 (.012)	.003 (.011)		-.002 (.009)
Health expenditure	.031 (.010)*		.007 (.014)	.031 (.022)		.051 (.023)	.031 (.010)**		.007 (.014)
Gender equality		.794 (.431)	.569 (.124)*		-.849 (.550)	-.496 (.549)		.794 (.431)	.569 (.124)***
Corruption perception		.602 (.374)	.445 (.205)		.065 (.212)	.260 (.343)		.602 (.374)	.445 (.205)*
R^2	.745	.430	.814	.024	.021	.332	.745	.430	.814

Notes: Model 10 - pooled OLS estimation for macroeconomic variables; Model 11 - pooled OLS estimation for institutional variables; Model 12 - pooled OLS estimation for all variables; Model 13 - fixed effect estimation for macroeconomic variables; Model 14 - fixed effect

estimation for institutional variables; Model 15 - fixed effect estimation for all variables; Model 16 - random effect estimation for macroeconomic variables; Model 17 - random effect estimation for the institutional variable; Model 18 - random effect estimation for all variables; * p < .05, ** p < .01, *** p < .001; values in the parenthesis are robust standard errors.

4.3. Predictors of Negative Affect

Table 4 shows the regression results for negative affect. The results for Models 19 and 20 show that none of the macroeconomic and institutional variables significantly predicted the country-level negative affect. Regression results considering all the variables together (Model 21) demonstrated that inflation (coef. = .007, se = .002, p < 0.05), health expenditure (coef. = -.063, se = .014, p < 0.05), and gender equality (coef. = -.614, se = .112, p < 0.01) predicted negative affect. These coefficients suggest that increasing inflation increases negative emotions and decreasing health expenditure and gender equality lower the negative emotions. All the macroeconomic and institutional variables together contributed 81.2% variability of negative affect. These results partially support H3, H5, and H6.

Table 4. Regression results of negative affect log GDP PPP, income inequality, inflation, unemployment, health expenditure, gender equality, and corruption perception

Variable	Model 19	Model 20	Model 21	Model 22	Model 23	Model 24	Model 25	Model 26	Model 27
Log GDP ppp	-.046 (.046)		-.024 (.037)	-.330 (.161)		-.325 (.212)	-.046 (.046)		-.024 (.037)
Gini coefficient	.009 (.004)		.007 (.003)	-.019 (.028)		-.035 (.043)	.009 (.004)*		.007 (.003)*
Inflation	.006 (.002)		.007 (.002)*	.003 (.001)**		.002 (.001)	.006 (.002)**		.007 (.002)**
Unemployment	-.019 (.009)		-.004 (.010)	-.041 (.011)*		-.038 (.015)	-.019 (.009)*		-.004 (.010)
Health expenditure	-.089 (.013)		-.063 (.014)*	.010 (.027)		.016 (.023)	-.089 (.013)***		-.063 (.014)***
Gender equality		-.551 (.137)	-.614 (.112)**		.776 (.561)	.180 (.477)		-.091 (.325)	-.614 (.112)***
Corruption perception		-.062 (.110)	-.164 (.185)		.334 (.098)	.275 (.103)		.061 (.063)	-.164 (.185)
R^2	.696	.602	.812	.064	.031	.046	.696	.477	.812

Notes: Model 19 - pooled OLS estimation for macroeconomic variables; Model 20 - pooled OLS estimation for institutional variables; Model 21 - pooled OLS estimation for all variables; Model 22 - fixed effect estimation for macroeconomic variables; Model 23 - fixed effect estimation for institutional variables; Model 24 - fixed effect estimation for all variables; Model 25 - random effect estimation for macroeconomic variables; Model 26 - random effect estimation for the institutional variable; Model 27 - random effect estimation for all variables; * p < .05, ** p < .01, *** p < .001; values in the parenthesis are robust standard errors.

4.4. Tests for Assumptions

Jarque-Bera normality test results (for life satisfaction: χ^2 = 1.495 [p = .474], for positive affect: χ^2 = 3.615 [p = .164], for negative affect: χ^2 = 1.603 [p = .449]) suggested the normality assumptions meet for model 3, 12, 21, respectively, for all the three dependent variables. VIF values for these models range between 1.47 and 8.80. None of the predictors has a VIF value of 10 or over. Therefore, there is the absence of multicollinearity. Cameron and Trivedi's decomposition of the IM-tests results for heteroscedasticity (for life satisfaction: χ^2 = 35.10 [p = .464], for positive affect: χ^2 = 41.93 [p = .200], for negative affect: χ^2 = 29.50 [p = .731]) suggested the absence of heteroscedasticity. Box-Pierce LM Test for autocorrelation results (for life satisfaction: LM test =.0003 [p = .986], for positive affect: χ^2 = 2.396 [p = .122], for negative affect: χ^2 = 5.124 [p = .024]) suggested the absence of autocorrelation for life satisfaction and positive affect at 5% level of significance. However, LM test results for negative affect could be considered the absence of autocorrelation at 1% level of significance.

5. Discussion

This study assessed the impact of macroeconomic and institutional factors on subjective well-being indicators in South Asian countries. The results regarding the association between the study variables were mixed. They showed that GDP per capita positively impacted life satisfaction and positive affect. Yin et al. (2021) found similar results for the effect of GDP per capita on life satisfaction and positive affect on global data. The association between GDP per capita and life satisfaction confirmed previous studies that also reported a positive association between these two variables for countries having lower GDP per capita (Layard et al., 2014; Proto & Rustichini, 2013). This study also supports the "Easterlin Paradox." However, this impact was not similar to subjective well-being's affective aspect related to negative mood. GDP per capita had non-significant impacts on negative affect both individually and while considering other predictors.

The results also showed that the Gini coefficient negatively impacted life satisfaction. This finding supports previous studies (García-Muñoz et al., 2019; Oishi et al., 2011). Income inequality may increase social conflict that may in turn decrease life satisfaction (Schneider, 2016). Studies also suggested that economic worries, social comparison, trust, etc. are the underlying mechanisms for the association between these two variables (Delhey & Dragolov, 2014; Hopkins, 2008; Roth et al., 2016). Besides, *'distaste for inequality*' (Senik, 2004) would play a role in this association. People have an intrinsic dislike to inequality. Decreasing life satisfaction with increasing inequality suggests *'distaste for inequality*' in South Asian countries. However, results suggested a non-significant association between income inequality and the affective component of subjective well-being. This result suggested that income inequality does not impact on emotions both positive and negative.

Results on inflation and unemployment showed that inflation decreases positive emotions while considering macroeconomic variables and increases negative emotions while considering all the variables together. The association between inflation and the affective component of subjective well-being can be explained as the "bad-actor-sticky-wage" explanation (Shiller, 1997).

As per this explanation, people's primary concern about the impact of inflation is that it will reduce the standard of living. Besides, they are concerned about the price hike by unscrupulous individuals or companies. Therefore, inflation causes an increasing experience of unpleasant emotional experiences. The results on unemployment suggested that it increases life satisfaction while considering all the study variables together. This result contradicts the existing evidence about the association between unemployment and life satisfaction (Blanchflower, 2007; Blanchflower et al., 2014). Further exploratory studies would be undertaken to explore why there was a positive association between unemployment and the cognitive aspect of subjective well-being (life satisfaction) in south Asian countries.

The results also suggested that health expenditure did not significantly impact life satisfaction and positive affect. This study contradicts studies that found a positive association between health expenditure and life satisfaction (Kotakorpi & Laamanen, 2010; Satrovic et al., 2019). However, health expenditure reduces negative mood. Yin et al. (2021) found that the health index of the Human Development Index was significantly associated with life satisfaction but unassociated with positive affect and negative affect.

The results on the association between gender equality and subjective well-being indicators showed gender equality as a strong predictor of subjective well-being indicators. The results showed that gender equality reduces life satisfaction and negative moods and increases positive moods. The negative association between gender equality and the cognitive component of subjective well-being contradicts previous studies that reported a positive association between these two variables (Audette et al., 2019; Ferrant et al., 2017). This contradiction would be subjected to patriarchal culture and conservatism in south Asian countries. Increasing scores in the Global Gender Gap index (World Economic Forum, 2022) suggested that gender gaps are reducing in most south Asian countries day by day. Due to conservatism, many people (both men and women) are not satisfied with more female participation in economic activities and greater opportunities, socio-political involvement, etc., for them. In parallel, traditionally, most families in south Asian countries are headed by a male member. More involvement in economic participation and socio-political activities increases women's participation in decision-making greater than earlier. Due to conservatism, many people do not accept it, especially in rural areas. However, exploratory studies are needed to identify the exact reasons for the negative association between gender equality and cognitive aspects of subjective well-being. The results also showed that gender equality increases positive moods and reduces negative moods. The finding about the affective component of subjective well-being is consistent with previous studies that gender equality increases well-being (Audette et al., 2019; Looze et al., 2018).

The results on the association between corruption and subjective well-being showed that corruption was non-significantly associated with subjective well-being in South Asian countries. This finding contradicts previous studies (Djankov et al., 2016; Wu & Zhu, 2016). A further exploratory study must determine why corruption was not associated with subjective well-being in South Asian countries.

5.1. Implications of the Study

This study is one of the early studies that included cognitive and affective aspects of subjective well-being [after Yin et al. (2021)] and assessed the impact of common macroeconomic and institutional objective measures (GDP per capita, Gini coefficient, inflation, unemployment, health expenditure, gender equality, and corruption) on these aspects. This study considered the cultural differences in subjective well-being indicators. The results supported these differences as the association between study variables differed from previous studies that included data from western countries or global data. Therefore, the present study findings would be important in policy discussion by the government of South Asian countries, international organizations (e.g., World Bank, IMF, ADB, etc.), and other stakeholders to improve the well-being of people in South Asian countries. Moreover, this study would also contribute to the discussion about the association between subjective and objective well-being indicators (Michalos, 2014; Oswald & Wu, 2010). This study widens the scope of further study to explore the causes of why the impact of macroeconomic and institutional objective measures varied across aspects (cognitive, affective, etc.) of subjective well-being. This study found a positive association between unemployment and life satisfaction, and negative association gender equality and life satisfaction demands further studies to identify why these associations existed in south Asian countries.

6. Conclusion

This study assessed the impact of GDP per capita, income inequality, inflation, unemployment, health expenditure, gender equality, and corruption on the subjective well-being of south Asian countries. Subjective well-being measures included both cognitive and affective measures. Life satisfaction is associated with GDP per capita, income inequality, unemployment, and gender equality. Positive affect is associated with GDP per capita and gender equality, and negative affect is associated with inflation, health expenditure, and gender equality. Gender equality is the strongest predictor of subjective well-being. This study revealed that macroeconomic factors contribute more to subjective well-being compared to institutional factors. Some findings of this study supported the previous studies' findings, while others contradicted these. This study has broadened the scope of further studies to explore the queries why the association between study

variables differed in South Asian countries compared with global data. This study would also facilitate a policy discussion about the well-being of people living in South Asian countries.

7. Limitations of the Study

This study has some limitations. First, problems related to conceptualization and perception of aspects of subjective well-being. The perception and expectations about life satisfaction and positive and negative affect may differ from country to country. These differences are not reflected in the measurement of subjective well-being included in this study. Second, this study used data from five South Asian countries only. The data for Afghanistan, Bhutan, and Maldives were excluded from the analysis due to the unavailability of data for some study variables. Therefore, the present study findings are generalizable to these five countries only. Third, this study does not have individual-level information (i.e., sex, age, marital status, health status, etc.). Therefore, the individual differences in the perception of subjective well-being are ignored in this study. Fourth, the data used in this study were before the COVID-19 pandemic. COVID-19 pandemic would have an impact on the associations studied in this research. The COVID-19 pandemic brings many changes in people life across the world. Potential users of the findings of this study should consider this issue.

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