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Happiness, generativity and social preferences in a developing country

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Happiness, generativity and social preferences in a developing country

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Abstract

Happiness, generativity and social preferences are pivotal factors for betterment and sustainability of societies. However, little is known about the relationship among happiness, generativity and social preferences along with sociodemographic factors within a single analytical framework. We hypothesize that generativity and social preferences are the determinants for happiness, and conduct a survey experiment collecting the data of five subjective happiness scales, generativity, social value orientation and sociodemographic variables in one urban area (Dhaka) and two rural areas (Bogra and Gaibandha), Bangladesh. With the data, we empirically characterize the determinants of subjective happiness with a focus on generativity and social value orientation, controlling for sociodemographic factors. The statistical analysis consistently shows positive association between subjective happiness and generativity, irrespective of the types of happiness scales, while social value orientation does not exhibit any significance. Rural residents have lower peer relative happiness than urban ones, and household income has positive relationship with general subjective happiness, leading each of these factors to be significant in overall subjective happiness. In summary, our results suggest that generativity and income are the main determinants, and economic growth with further urbanization, which is expected to occur in future, can negatively affect people's happiness if it brings a decrease in generativity.

Key Words: Happiness; generativity; social value orientation; sociodemographic factors; developing countries

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Nomenclature

AH	Absolute self-rated happiness
BDT	Bangladeshi Taka
GBC	Generativity behavioral checklist
GSH	General subjective happiness
GSU	General subjective unhappiness
OLS	Ordinary least squares
OSH	Overall subjective happiness
PRH	Peer relative happiness
SD	Standard deviation
SH	Subjective happiness
SHS	Subjective happiness scale
SVO	Social value orientation

1 Introduction

Ancient philosophers and modern scholars, such as Aristotle and Bentham, claim that happiness is an ultimate goal of humans life (Lyubomirsky, 2001, Sato et al., 2015). Happiness is interpreted to be an outcome of “good life,” which might be driven by social status and/or some sociodemographic

5 factors in contemporary societies (Diener et al., 1985, Frey, 2008, John Knight, 2009, Asadullah
6 and Chaudhury, 2012). On the other hand, generativity and prosociality are claimed to be crucial
7 factors for the betterment and sustainability of societies, because they are conceptualized as a
8 concern and commitment for people in current and future generations, and prosocial people with
9 high generativity tend to help, mentor and educate general others (McAdams and de St. Aubin,
10 1992, Timilsina et al., 2019). Therefore, happiness, generativity and prosociality shall be considered
11 basic foundations of current and future societies, and this paper addresses the relationship among
12 the three factors along with sociodemographic factors.

13 Social status and/or sociodemographic factors have been studied as possible determinants of
14 “good life,” leading to an increase in individual happiness. Past literature has focused on examining
15 the association of particular economic factors and urbanization with happiness. Income is generally
16 reported to have positive relationship with happiness, while age, gender, education and religion have
17 mixed outcomes (Tepperman and Laasen, 1990, Fujita et al., 1991, Lyubomirsky and Ross, 1997,
18 Kahneman et al., 1999, Easterlin, 2001, Helliwell, 2003, Easterlin, 2003, Blanchflower and Oswald,
19 2004, Biswas-Diener et al., 2004, Lyubomirsky et al., 2005, Kahneman et al., 2006, John Knight,
20 2009, Asadullah and Chaudhury, 2012, Jiang et al., 2012, Ngamaba and Soni, 2017, Asadullah
21 et al., 2018). Requena (2015) and Kim (2018) compare people’s happiness between rural and urban
22 areas in both developed and developing countries. They illustrate that rural residents have lower
23 happiness than urban ones in developing countries, while the opposite is true in developed countries.
24 They argue that the result may be due to living standards and availability of public goods depending
25 on the stages of economic development.

26 Research on happiness along with social behaviors and psychological factors has gained wide
27 interest for the last few decades. The literature finds that charity or buying some gifts for friends
28 has a positive association with happiness, demonstrating that such prosocial acts and individual
29 happiness possess a positive feedback loop (Dunn et al., 2008, Konow and Earley, 2008, Konow,
30 2010, Dunn et al., 2010, Akinin et al., 2012, Dunn et al., 2014, Geenen et al., 2014, Bischoff and
31 Krauskopf, 2015, Koch, 2015, Nelson et al., 2016). There are several researches in psychology that

32 examine the correlation between generativity and happiness. McAdams and de St. Aubin (1992),
33 de St. Aubin and McAdams (1995) and Keyes and Ryff (1998) establish the positive correlation
34 using student and adult subject pools in USA. Stewart et al. (2001) study a temporal change in
35 happiness with middle-aged women in USA, finding that happiness does not necessarily decline
36 in age and has positive association with generativity. Hofer et al. (2007), Huta and Zuroff (2008),
37 Hofer et al. (2014, 2016) and Au et al. (2019) address possible mediators between happiness, life
38 satisfaction and generativity with student subjects in Canada and adult ones in Cameroon, Costa
39 Rica, Germany, Czech Republic and Hong-Kong, respectively. They find some mediators such as
40 symbolic immortality and altruism to explain the relation among the factors.

41 Previous studies establish that there is positive association between happiness and generativity
42 using two-variable correlation analysis possibly with structural modeling, and prosocial acts tend to
43 increase happiness. However, it is claimed that prosocial acts are at most spontaneous or temporal,
44 and it is important to consider individual social preferences along with sociodemographic factors,
45 because the preference is established to be stable or not to change in the long run (Varian, 1992,
46 Aknin et al., 2012, Carlsson et al., 2014). Moreover, little is known about the relationship among
47 happiness, generativity and social preferences along with sociodemographic factors within a single
48 analytical framework, despite the importance of the three factors in understanding the betterment
49 and sustainability of societies in future. We hypothesize that generativity and social preferences
50 are the determinants for happiness, and conduct a survey experiment collecting the data of five
51 subjective happiness scales, generativity, social value orientation and sociodemographic variables in
52 one urban area (Dhaka) and two rural areas (Bogra and Gaibandha), Bangladesh. With the data, we
53 empirically characterize the determinants of subjective happiness with a focus on generativity and
54 social value orientation, controlling for sociodemographic factors.

2 Methods and materials

We conducted a questionnaire survey and experiment in three districts of Bangladesh: Dhaka, Bogra and Gaibandha (figure 1). We consider them as one urban area of Dhaka and two rural areas of Bogra and Gaibandha. We choose the regions because they possess the same culture, language and religious variation except sociodemographic factors and economic development where Bangladesh is culturally and ethnically a homogeneous country. Dhaka is the capital city representing an urban society and it is located between $23^{\circ}55'$ and $24^{\circ}81'$ north latitude, and between $90^{\circ}18'$ and $90^{\circ}57'$ east longitude (Dewan and Corner, 2014). The population, population density and total area are 14.51 million, $10\,484\text{ km}^{-2}$ and 1371 km^2 , respectively, which makes Dhaka the most populated city in the world.

The rural areas consist of two districts: (i) Bogra and (ii) Gaibandha. Bogra consists of two unions of the Shajhanpur subdistrict in the northern districts, Amrool and Chopinagar (figure 1). The location of Shajhanpur subdistrict is between $24^{\circ}41'$ and $24^{\circ}50'$ north latitudes, and between $89^{\circ}16'$ and $89^{\circ}29'$ east longitudes. Shajhanpur's land area is 54 783 acres; Amrool's and Chopinagar's land areas are 6106 acres and 4048 acres, respectively (Bangladesh Bureau of Statistics, 2011). The population densities in Amrool and Chopinagar are 951 km^{-2} and 1357 km^{-2} , respectively, whereas the country average is 1218 km^{-2} (Bangladesh Bureau of Statistics, 2011). Villages in these two unions are agrarian societies, while agro-based and small-scale businesses are available in very limited areas.

Gaibandha comprises three unions of the Palashbari subdistrict, which are Harinathpur, Hossainpur and Monoharpur. The location of the Palashbari is between $25^{\circ}11'$ and $25^{\circ}19'$ north latitude; and between $89^{\circ}16'$ and $89^{\circ}32'$ east longitude. Land area, population density and total population in the Palashbari are 45 774 acre, 1321 km^{-2} and 244 792, respectively (Bangladesh Bureau of Statistics, 2011). Villages in the unions are also agrarian societies and they are considered the least developed in Bangladesh. All the dwellers engage in farming either as subsistence farmers or as cash-crop farmers. In what follows, we refer to these study areas as Bogra and Gaibandha, interchangeably mentioning them as rural areas.

82 We collected 105 subjects in Dhaka by an individual survey, basing our randomization on the
83 proportion of each occupation in the population (Bangladesh Bureau of Statistics, 2015). The number
84 of subjects needed in each occupation was determined, and we selected a number of organizations
85 for each occupation. After that, we contacted these organizations and we randomly invited subjects
86 from these organizations based on their responses. The response rates for organizations and for
87 subjects were 50 % and 60 %, respectively. We collected 142 and 150 subjects in two rural areas of
88 Bogra and Gaibandha, respectively, by an individual survey with the following random sampling
89 procedures. First, we obtained a list of the households that resides in Bogra and Gaibandha
90 from local city offices, and we randomly chose households that approximate the representatives
91 for each area. Second, we sent a letter to invite one member (who earns income) from each
92 household to participate in our survey and experiment, and the response rate was 75 %. As of
93 the measurement for the main variables in our analysis, the subjective happiness scale (SHS),
94 generative behavioral checklist (GBC) and social value orientation (SVO) are employed to represent
95 the subjects' happiness, generativity and social preferences, respectively (McAdams and de St.
96 Aubin, 1992, Van Lange et al., 1997, McAdams et al., 1998, Lyubomirsky and Lepper, 1999, Van
97 Lange et al., 2007).

98 [Figure 1 about here.]

99 We use the subjective happiness scale of a four-item measurement developed by Lyubomirsky
100 and Lepper (1999) where each item is a 7-point Likert scale. The first question in the scale reports
101 individual absolute self-rated happiness (AH) by stating “in general, I consider myself” and its
102 anchors are “not a very happy person” and “a very happy person.” The second item reports individual
103 relative happiness as compared with peers by stating “compared to my peers, I consider myself”
104 and its anchors are “less happy” or “more happy” and it is called peer relative happiness (PRH.)
105 Third and fourth items correspond to a general description of a happy and/or unhappy person where
106 subjects make a choice to describe them most. In the items, “some people are generally very happy.
107 They enjoy life no matter what is going on, getting the most of everything. How much does this
108 sentence describe you?” and “some people are generally not very happy. Although they are not

109 depressed, they never seem as happy as they might be. How much does this sentence describe you?”
110 The anchors are “not at all” and “a great deal.”, which are called general subjective happiness and
111 unhappiness (i.e., GSH and GSU), respectively. To calculate the overall subjective happiness (OSH),
112 the average of the four items is calculated, while the fourth item is reversely coded.

113 The generative behavior checklist (GBC) developed by McAdams and de St. Aubin (1992) is
114 employed to measure the frequency of people’s generative behaviors in the last two months. This
115 measure contains a list of 50 activities, out of them, only 40 activities are considered indicators
116 of “generativity.” “Taught somebody a skill,” “Gave a money to a charity,” “Made a decision that
117 influence many people” and “Served as a role model for a young person” are some examples of the
118 generative activities. Subjects need to tick one of the three options for each activity. The “zero,”
119 “one” or “two” are the scores to indicate that subjects have not participated in each generative activity,
120 participated in it once or participated in it more than once over the last one year, respectively. The
121 score of the generativity for each subject is calculated as the sum of the scores in all the 40 items.

122 The social value orientation (SVO) developed by Van Lange et al. (1997) is employed to identify
123 the social preference for each subject. This game consists of 9 items, each of which contains
124 three choices. Subjects are asked to make one choice for each item for dividing an amount of
125 money between himself and a stranger, for example, (A) you get 500 and the other gets 100,
126 (B) you get 500 and the other gets 500 and (C) you get 560 and the other gets 330. Option (A)
127 represents the competitive person as it maximizes the gap between self point and the other’s point
128 ($500 - 100 = 400$). Option (B) represents the prosocial person as it maximizes the joint benefit
129 ($500 + 500 = 1000$), while option (C) is the individualistic person as it maximizes own benefits
130 without considering the other (Van Lange et al., 2007). Four types of individual SVO are identified
131 by this game, i.e., individualistic, competitive, prosocial and unidentified, based on their choices
132 in the game. When the subject makes a consistent choice in 6 items for one orientation (i.e.,
133 individualistic, competitive or prosocial), then she is considered to be that orientation, otherwise
134 “unidentified.” We randomly matched two subjects as a pair to compute their final payoff based on
135 their performances in the game. Subjects are paid on average 100 BDT for the SVO, while a fixed

136 participation fee of 150 BDT is paid to all the subject and the total payment on average is 250 BDT
137 per subject.

This study hypothesizes that generativity and social preferences are the determinants for happiness. To test this hypothesis, parametric and nonparametric statistical analyses are employed by utilizing the data of SHS, GBC, SVO and sociodemographic factors collected in a questionnaire survey and experiment. The nonparametric Mann-Whitney tests are applied to check the difference in the distributions of subjective happiness (SH) between the urban and rural areas or between prosocial and proself orientations in SVO, while the Pearson correlation is applied to discover the nature of the relationship between SH and generativity and the key sociodemographic factors. We also employ regression analyses to quantitatively identify the determinants of SHS. The Poisson regression is applied for the four components of SHS as the scales are count variables (i.e., absolute self-rated happiness (AH), peer relative happiness (PRH), general subjective happiness (GSH) and general subjective unhappiness (GSU), while we apply ordinary least squares (OLS) for the aggregate SHS (i.e., overall subjective happiness) as it is a continuous variable. The following equation is estimated for Poisson regression and OLS ($k \in \{AH, PRH, GSH, GSU, OSH\}$):

$$Y^k = \beta_0^k + \beta_1^k X + \beta_2^k S + \beta_3^k Z + \epsilon^k \quad (1)$$

138 where Y^k is the explanatory variable (AH, PRH, GSH, GSU and OSH), X is the generativity
139 score of subjects, S is a dummy variable representing SVO that takes unity for individualistic and
140 competitive subjects (i.e., proself) and 0 otherwise, Z is a vector of sociodemographic variables
141 that may affect SH and ϵ^k is the error term (See table 1 where the definitions of every variable used
142 in the statistical analysis). The parameters β_i s for $i = 0, 1, 2$ are the coefficients for intercept, X
143 and S to be estimated, while β_3 is a vector of coefficients for independent variables Z related to
144 sociodemographic factors.

145 With the regression analyses of equation (1), we intend to examine a conceptual framework for
146 the relationship among subjective happiness (SH), generativity and SVO along with sociodemo-

147 graphic factors in figure 2. In this framework, a coefficient on each key variable, $\beta_i, i = 0, 1, 2$, is
148 considered to represent the marginal effect of that variable on SH, after the effects of other variables
149 are netted out. For example, β_1 is considered to represent the effect of generativity on SH, after the
150 effects of SVO and sociodemographic factors have been netted out, while some possible mediators
151 may play roles in characterizing subjective happiness through several independent variables. In this
152 research, our focus is on estimating β_1, β_2 and β_3 in figure 2. The interpretation of these coefficients
153 in Poisson regression is derived as follows (Wooldridge, 2013); the marginal effect of a continuous
154 independent variable such as generativity should be calculated by the formula of $100 \times \beta_j$ to be a
155 percentage change in Y when the continuous variable increases by one unit. In the case of a dummy
156 independent variable such as SVO (proself = 1, otherwise 0), it is calculated by $\exp(\beta_j) - 1$ to be
157 interpreted as a percentage change in Y when the dummy variable increases from 0 to 1.

158

[Figure 2 about here.]

159 **3 Results**

160 Table 1 summarizes basic statistics of generativity, social value orientation (SVO), sociodemo-
161 graphic variables and subjective happiness (SH) for the urban subjects (Dhaka), the rural subjects
162 (Bogra and Gaibandha) and overall subjects in the sample. The mean score of subjects' generativity
163 in the urban area, the rural areas and overall sample are fairly similar at 28.57 points (SD = 12.3),
164 29.25 points (SD = 11.88) and 29.09 points (SD = 11.98), respectively. By contrast, SVO is
165 different among the urban area, the rural areas and the overall sample as the percentages of pro-
166 self subjects are 84%, 64% and 70%, respectively. The result is consistent with past literature
167 in that sense that the percentage of proself people becomes higher in urban areas than in rural
168 areas (Shahrier et al., 2016, Timilsina et al., 2017, 2019). Another difference is on the average
169 year of education as urban subjects have 12.68 years (SD = 4.91), rural subjects have 8.97 years
170 (SD = 3.86) and overall subjects in the sample have 9.95 years (SD = 4.47) on an average.

171 The largest variation in the sample is found in average household income as it is 47.7 thousand
172 BDT (SD = 49.02), 16.6 thousand BDT (SD = 21.41) and 24.81 thousand BDT (SD = 34.02) in
173 the urban area, the rural areas and the overall sample, respectively. Regarding happiness, urban
174 subjects have a higher SH in the four scales of subjective happiness scale than rural subjects and
175 overall subjects in the sample, leading the overall subjective happiness (OSH) to be higher for urban
176 subjects with an average of 5.12 points (SD = 0.99) than rural subjects with an average of 4.72
177 points (SD = 1.05) and overall subjects in the sample with an average of 4.83 points (SD = 1.69).
178 These statistics suggest that urban subjects may generally have a higher level of SH than rural
179 subjects, regardless of happiness scales, being in line with Requena (2015) and Kim (2018).

180 [Table 1 about here.]

181 Figure 2(a) is a histogram to present the distribution of OSH for overall subjects in the sample
182 where the vertical axis denotes the frequencies and the horizontal axis denotes OSH. The highest
183 spike is found between 4.5 and 5 points and the distribution appear to follow a normal distribution,
184 but be slightly skewed at one side (almost a bell-shaped distribution). We run a Shapiro-Francia
185 normality test with the null hypothesis that the OSH distribution is normal. The result shows that the
186 null hypothesis is not rejected even with a 10 % significance level, meaning that the OSH distribution
187 follows a normal distribution. Therefore, we run a ordinary least squared (OLS) regression for OSH,
188 while other happiness scales are analyzed by applying Poisson regressions. Figure 2(b) presents a
189 scatter plot between OSH (vertical axis) and generativity (horizontal axis) where one dot represents
190 an observation for each subject in our sample. This scatter plot appears to suggest that there is a
191 positive association between the two, and we confirm that there is a positive association between
192 OSH and generativity by Pearson correlation ($r = 0.11, p < 0.03$).

193 Figure 2(c) is a box plot to demonstrate a difference in OSH distributions between prosocial
194 and proself subjects. It presents that the OSH distribution in proself subjects is located slightly
195 higher than that in prosocial subjects with respect to the medians and the supports. To statistically
196 check the distributional difference, we run a Mann-Whitney test with the null hypothesis that
197 the OSH distributions between proself and prosocial subjects are the same. The result finds

198 that there is no significant difference in the OSH distributions between prosocial and proself
199 subjects ($Z = -0.426, p = 0.67$). We next look at the relation between OSH and some key
200 sociodemographic factors such as household income and residence areas. The Pearson correlations
201 demonstrate that OSH and household income (residence area) have positive (negative) association
202 with $r = 0.18, p < 0.01$ ($r = -0.15, p < 0.01$). Figure 2(d) is a boxplot to visualize a difference
203 in the OSH distributions between rural and urban subjects, showing that urban subjects tend to
204 have a higher OSH than rural ones. The Mann-Whitney test confirms that there is a significant
205 difference in OSH distributions ($Z = 3.38, p < 0.01$) between urban and rural subjects. Overall,
206 these statistical analyses suggest that generativity, income and residence area could be considered
207 possible candidates as determinants for subjective happiness, while SVO may not.

208 [Figure 3 about here.]

209 We conduct regression analyses to quantitatively understand how SH is characterized by gen-
210 erativity, SVO, household income and residence area, controlling for other sociodemographic
211 factors (See table 2).¹ The first four columns in table 2 present the marginal effects of independent
212 variables on the four components of subjective happiness scale, such as absolute self-rated happiness
213 (AH), peer relative happiness (PRH), general subjective happiness (GSH) and general subjective
214 unhappiness (GSU), using Poisson regressions, and the last column shows the marginal effect on
215 overall subjective happiness (OSH) using the OLS. The results reveal that generativity is statistically
216 significant (i.e., $p < 0.05$ except in AH regression $p < 0.10$ and in GSH regression $p < 0.01$)
217 across the four different scales of SH and OSH. More specifically, the expected AH, PRH and
218 GSH increase by 13.17 %, 15.57 % and 31.15 %, respectively, and GSU declines by 19.17 % with a
219 rise in subjects' generativity score by one standard deviation (SD). The relationship between OSH
220 and subjects' generativity score is consistent with the four scales of SH as OSH increases by 0.11
221 points when subjects' generativity score goes up by one-SD. These results show that generativity
222 is a consistent and robust determinant across all scales of SH and OSH, indicating that subjects'

¹We have tried different specifications of regression models to check the robustness of our results with possible interaction terms, confirming that the main results in table 2 remain the same.

223 generativity could be one of the most important factors on their happiness.

224 Table 2 shows that residence area and household income are only sociodemographic factors that
225 come with statistical significance and associated with different subjective happiness scales. The
226 PRH and OSH for rural subjects are 41 % and 0.25 points lower than these for urban subjects.² An
227 increase in the household income by 10 BDT is associated with a rise in GSH and OSH by 5 %
228 and 0.04 points, respectively. The results demonstrate that generativity, urban-rural difference and
229 household income are main determinants of SH, which can be considered to be line with previous
230 literature. de St. Aubin and McAdams (1995) find that generativity is positively correlated with
231 SH, and Ball and Chernova (2007) demonstrate that there is a strong positive relationship between
232 income and SH. In developing countries, Requena (2015) confirms that subjects in urban areas have
233 a higher level of SH than subjects in rural area.

234 [Table 2 about here.]

235 Generativity is demonstrated to be a robust and consistent determinant for SH, while SVO is
236 not. Past literature demonstrates that prosocial actions (NOT preferences) lead to an increase in
237 happiness (Dunn et al., 2008, Konow, 2010, Dunn et al., 2014, Koch, 2015), while there is little
238 research to examine people's happiness with different social value orientations or preferences. It is
239 generally considered that proself and prosocial people may have their own way to be happy and tend
240 to consistently make proself and prosocial choices, respectively, because the proselves (prosocials)
241 become happier by being more proself (prosocial) than by being more prosocial (proself). However,
242 we conjecture that the magnitude of a change in individual SH may not be characterized by SVO
243 or be different between prosocial and proself people, based on the fact that the SVO variable is
244 insignificant in our analyses. Rather, the magnitude of a change in individual SH may be more
245 attributed to something more personal or person-specific factors such as self-esteem, self-positivity
246 or self-efficacy along with SVO.

²As mentioned in section 2, the marginal effect of a dummy variable on PRH (OSH) is calculated by the following formula: $\exp(\beta_j) - 1$ where β_j is an estimated coefficient for the dummy variable. For instance, $\exp(0.347) - 1 \approx 0.41 = 41\%$.

247 Generativity is calculated by the scores of how many activities from the generativity behavioral
248 checklist (GBC) people have taken in the last two months. The GBC contains certain activities
249 both prosocial and proself people are likely to take in their daily life. Some activities in GBC such
250 as “learned a new skill,” “produced a plan for an organization or group outside my family” and
251 “was elected or promoted to a leadership position” may be likely to be taken by proself people.
252 On the other hand, the activities in GBC such as “gave money to a charity,” “taught somebody a
253 skill” and “made something for somebody and then gave it to them” may be likely to be taken
254 by prosocial people. Simply, it appears that there are mainly two channels of motivations to be
255 more generative for future generations: (i) proself and (ii) prosocial channels, implying that the
256 basic motives behind the generative actions could be different. Proself people may be driven by
257 “legacy motives,” whereas prosocial people may be driven by “motives of helping hands” for future
258 generations (Bang et al., 2017, Wade-Benzoni, 2019, Timilsina et al., 2019). Therefore, it is our
259 conjecture that generative actions may be able to uniformly contribute to individual SH, irrespective
260 of prosocial and proself motives behind the actions, and therefore, generativity is a consistent and
261 robust determinant for SH in the analysis.

262 Our results also show that PRH and OSH vary by residence areas, and urban people have higher
263 PRH and OSH than rural people. Life in a rural society is known to be homogeneous in terms of
264 choice sets, social status and sources of happiness.³ For instance, a main and common entertainment
265 among rural people in Bangladesh is attending a social gathering, “mela,” in which all people in
266 the village can come and gather at the same time and place. In that gathering, people enjoy all the
267 social and communal activities together by sharing a feeling of “commonality.” On the other hand,
268 urban areas are heterogeneous in terms of choice sets, social status and sources of happiness as
269 there are more possibilities in many aspects. For instance, entertainment in urban areas includes
270 wider varieties with more accessibility, giving people more freedom of choices. In this type of urban
271 environment, people can express different preferences and value judgments over what to do and

³A PRH question in GBC uses 7-point Likert scales, and its anchors are “less happy” and “more happy.” It means that the middle point of the scale (e.g., 4 points) describes the subject who is “as happy as her peers.” An average PRH for rural subjects is closer to 4 points than that for urban subjects, implying that rural ones might feel closer to be “as happy as their peers” than urban ones.

272 how to spend, inducing themselves to see a “difference” of how each of people is distinct from one
273 another. Therefore, urban people may be able to consider themselves as happy in their own way,
274 because they are considered to choose being so, leading urban people to feel happier as compared
275 with their peers than rural people.

276 Cities are predicted to expand and grow with further urbanization over the next 50 years,
277 and 65 % - 75 % of the earth population will reside at the cities in Asia and Africa (American
278 Association for the Advancement of Science, 2016, Wigginton et al., 2016). Economic theory
279 establishes that urbanization brings about an increase in people’s income, potentially implying that
280 economic growth with urbanization is positive on happiness along with our result as well as the past
281 literature (Wheaton and Lewis, 2002, Bloom et al., 2008, Zhang, 2011, Requena, 2015). However,
282 behavioral sciences and social psychology report that urbanization is changing human societies in
283 the way that people’s generativity declines, so-called, “generativity crisis” (see, e.g., Sasaki, 2004,
284 Timilsina et al., 2019). Sasaki (2004) claims that the rapid economic growth, urbanization and social
285 changes in Japan have led to a decline in people’s generativity. Some other scholars also argue that
286 degrowth of economies is inevitable to ensure wellbeing for future generations (Schneider et al.,
287 2010, Alexander, 2012, Andreoni and Galmarini, 2014, Buchs and Koch, 2019). Given the two
288 possible paths of growth and degrowth, a natural question arises “which is better, economic growth
289 with urbanization or degrowth for the current and future generations’ wellbeing?” Our results in
290 this research clearly suggest that the answer depends on whether and how economic growth with
291 urbanization (and/or degrowth) affects generativity, which should be addressed and established in
292 further researches.

293 **4 Conclusion**

294 This paper has analyzed the relationship among subjective happiness (SH), generativity and
295 social value orientation (SVO) within a single analytical framework, hypothesizing that generativity
296 and SVO are the determinants for happiness. We conduct a survey experiment collecting the data

297 of five subjective happiness scales, generativity, SVO and sociodemographic variables in an urban
298 city (Dhaka) and rural areas (Bogra and Gaibandha), Bangladesh. With the data, we empirically
299 characterize the determinants of SH with a specific focus on generativity and SVO, controlling for
300 other factors. The statistical analysis shows a positive association between SH and generativity,
301 irrespective of the types of happiness scales, while SVO does not exhibit any significant effect.
302 Rural people have lower peer relative happiness than urban ones, and household income has a
303 positive relationship with general subjective happiness, leading each of these factors to be significant
304 in overall subjective happiness.

305 The results demonstrate that generativity and income are the main determinants, and further
306 urbanization, which is expected to occur in future, will positively affect people's happiness if it
307 can bring an increase in generativity and income. However, some authors claim that the economic
308 growth along with urbanization and social changes is likely to decrease people's generativity (Sasaki,
309 2004, Timilsina et al., 2019). If this is the case, we may need to think about the way how we
310 can develop our societies to not only achieve economic growth but also raise or maintain people's
311 generativity for wellbeing. If it is considered impossible, we may need to pursue the degrowth
312 scenario as suggested by some past literature (Schneider et al., 2010, Alexander, 2012, Andreoni
313 and Galmarini, 2014, Buchs and Koch, 2019). Which way, economic growth with urbanization
314 or degrowth, is better for wellbeing of the current and future generations? This is an important
315 question, and our answer is "it depends on whether and how economic growth with urbanization
316 (and/or degrowth) would affects people's generativity."

317 We note some limitations to our study and future avenues of research. This paper studies
318 happiness, generativity and SVO in only one country (i.e., Bangladesh) which is considered a
319 culturally and ethnically homogeneous society. We believe that further studies with the same
320 analytical framework in other countries will widen our understanding on generativity and some
321 missing factors in relation to SH. In addition, we do not study the detailed mechanism of how and
322 why generativity and happiness are positively associated. Therefore, future studies should be able
323 to focus on addressing how each of generative behaviors more directly influences happiness than

324 the others by collecting finer individual behavioral data. Along with it, the most importantly, future
325 researches should focus on clarifying whether and how economic growth affect the generativity and
326 happiness within a single framework. To this end, some lab & field experiments and/or neuroscience
327 research can be conducted to see how people perceive or the brains react when people take &
328 observe generative actions. These caveats notwithstanding, it is our belief that this research is
329 an important 1st step in understanding people's happiness, generativity and social preferences in
330 developing countries for the betterment and sustainability of societies.

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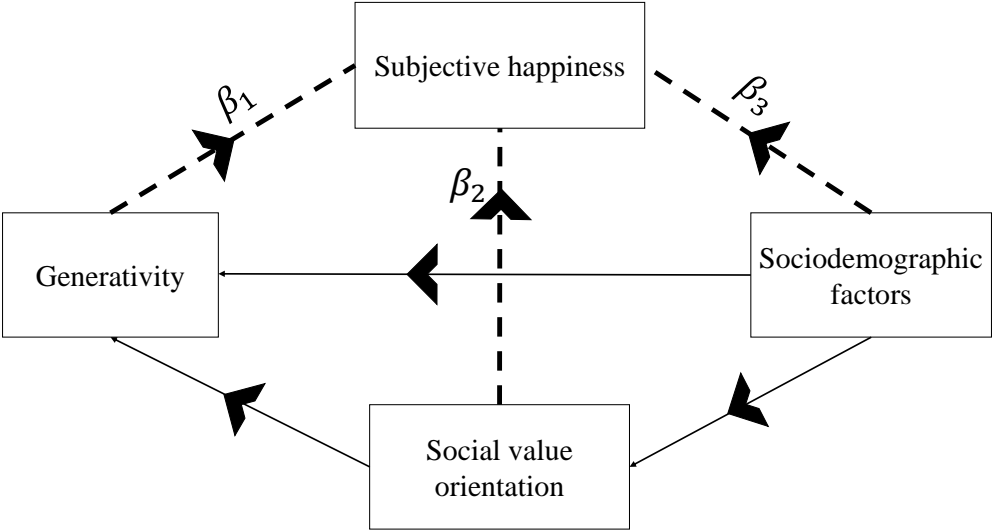
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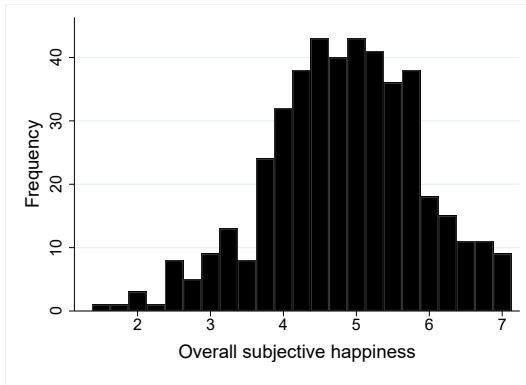
Figure 1: Map of Bangladesh



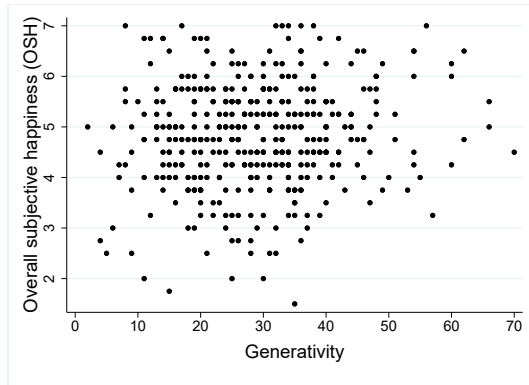
Figure 2: A conceptual framework for the relationship among subjective happiness, generativity, social value orientation and sociodemographic factors



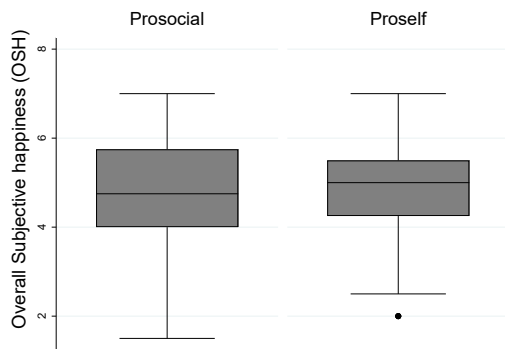
(a) Frequency distribution of overall subjective happiness (OSH)



(b) A scatter plot between overall subjective happiness (OSH) and generativity



(c) A box plot between overall subjective happiness (OSH) and social value orientation (SVO)



(d) A box plot between overall subjective happiness (OSH) and residence areas

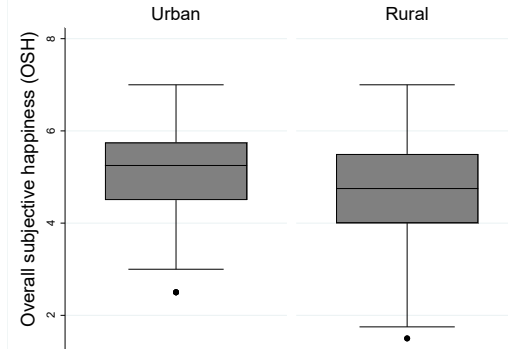


Figure 3: An overview of happiness with respect to generativity, social value orientation and urban-rural differences

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Table 1: Summary statistics

	Urban (Dhaka)					Rural (Bogra and Gaibandha)					Overall				
	Mean	Median	SD	Min	Max	Mean	Median	SD	Min	Max	Mean	Median	SD	Min	Max
Generativity ¹	28.57	28	12.30	6	66	29.25	29	11.88	2	70	29.07	29	11.98	2	70
Proself ²	0.84	-	0.37	0	1	0.64	-	0.48	0	1	0.70	-	0.46	0	1
Age ³	0.39	0	0.69	0	3	0.97	1	1.25	0	5	0.82	0	1.16	0	5
Years of education	12.68	16	4.91	0	20	8.97	10	3.86	0	17	9.95	10	4.47	0	20
Household income in thousand	47.73	30	49.02	7	300	16.56	12	21.41	0.50	250	24.81	15	34.02	0.50	300
Gender ⁴	0.16	-	0.37	0	1	0.04	-	0.21	0	1	0.07	-	0.26	0	1
Religion ⁵	0.07	-	0.26	0	1	0.01	-	0.09	0	1	0.02	-	0.15	0	1
No. of siblings ⁶	4.05	4	2.14	1	11	4.54	4	2.34	1	14	4.41	4	2.30	1	14
Family structure ⁷	0.30	0	0.46	0	1	0.38	0	0.49	0	1	0.36	0	0.48	0	1
Rural (Bogra and Gaibandha) ⁸	-	-	-	-	-	-	-	-	-	-	0.74	1	0.44	0	1
Subjective happiness scales (SHS)															
Absolute self-rated happiness(AH)	4.91	5	1.36	1	7	4.79	5	1.44	1	7	4.82	5	1.42	1	7
Peer relative happiness(PRH)	5.08	5	1.42	1	7	4.66	5	1.51	1	7	4.77	5	1.50	1	7
General subjective happiness(GSH)	5.22	5	1.47	1	7	4.82	5	1.38	1	7	4.93	5	1.42	1	7
General subjective unhappiness (GSU)	2.72	2	1.68	1	7	3.38	3	1.66	1	7	3.21	3	1.69	1	7
Overall subjective happiness(OSH)	5.12	5.25	0.99	2.50	7	4.72	4.75	1.05	1.50	7	4.83	4.75	1.05	1.50	7
Observations	105					292					337				

¹ Generativity is defined as a count variable that takes values from 0 to 70 based on how many activities subjects have done in the last year from a generativity behavior checklist.

² Proself is a dummy variable for SVO and it takes the value of 1 if subject is characterized to be individualistic or competitive and 0 otherwise.

³ Age variable is defined as an ordered categorical variable of 0, 1, 2, 3, 4 and 5 where 0 is under 20 and 5 is above 60 and the rest is with an interval of 10 years.

⁴ Gender variable is a dummy variable that takes 1 when the subject is male and 0 otherwise.

⁵ Religion is a dummy variable that takes 1 when the subject is non-Muslim and 0 otherwise.

⁶ No. of siblings is a count variable for the number of siblings.

⁷ Family structure is a dummy variable that takes 1 when it is a joint family and 0 otherwise.

⁸ Rural is a dummy variable that takes 1 when a subject is living in Bogra and Gaibandha and 0 otherwise.

Table 2: Regressions results

Variables	Marginal effects of Poisson regression				OLS
	(1)	(2)	(3)	(4)	(5)
	Absolute self-rated happiness (AH)	Peer relative happiness (PRH)	General subjective happiness (GSH)	General subjective unhappiness (GSU)	Overall subjective happiness (OSH)
Generativity	0.011* (0.006)	0.013** (0.006)	0.026*** (0.006)	-0.016** (0.008)	0.009** (0.004)
Proself	0.233 (0.164)	-0.008 (0.169)	-0.086 (0.164)	0.109 (0.192)	0.062 (0.126)
Rural (Bogra and Gaibandha)	-0.054 (0.203)	-0.347* (0.184)	-0.251 (0.190)	-0.367 (0.244)	-0.257** (0.126)
Age	0.146 (0.179)	0.001 (0.183)	0.0863 (0.161)	0.093 (0.207)	0.08 (0.125)
Age Square	-0.019 (0.047)	0.036 (0.044)	-0.013 (0.042)	-0.009 (0.052)	-0.001 (0.031)
Years of education	-0.012 (0.019)	0.0135 (0.020)	-0.001 (0.020)	0.021 (0.022)	0.005 (0.014)
Household income in thousand	0.003 (0.004)	0.002 (0.003)	0.005*** (0.002)	0.004 (0.003)	0.004** (0.002)
Gender	0.436 (0.306)	0.152 (0.354)	0.223 (0.359)	0.07 (0.339)	0.229 (0.250)
Religion	-0.016 (0.425)	-0.102 (0.563)	-0.342 (0.526)	0.521 (0.494)	0.031 (0.403)
No. of siblings	0.001 (0.035)	-0.029 (0.036)	-0.061 (0.037)	-0.021 (0.038)	-0.027 (0.024)
Family structure	0.168 (0.153)	0.024 (0.150)	0.049 (0.147)	-0.259 (0.185)	-0.006 (0.107)
Observations	397	397	397	397	397
Wald χ^2	11.73	19.25*	44.55***	26.07***	29.30***
Pseudo R^2	0.0036	0.0053	0.0102	0.0087	0.065

*** $P < 0.01$, ** $P < 0.05$, * $P < 0.10$

Numbers in parentheses are standard errors.