Measuring of the Population Happiness Index of Bandung City

Yuyun Hidayat1, Titi Purwandari2, Sukono3, Subiyanto4

1,2Department of Statistics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, INDONESIA
3Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, INDONESIA
4Department of Marine Sciences, Faculty of Fishery and Marine Sciences, Universitas Padjadjaran, INDONESIA

sukono@unpad.ac.id, yuyun.hidayat@unpad.ac.id

Abstract. The progress of development based on economic indicators, is considered not reflect the level of welfare. Happiness Index is an indicator that measures of well-being subjectively is beyond GDP. Happiness Index is a composite index based on the level of satisfaction with the 10 essential aspects of life: health, education, occupation, household income, family harmony, the availability of free time, social relations, housing conditions and assets, the environment and safety conditions. Bandung Regional Development Planning Agency has cooperated with the Laboratory of Quality Control Department of Statistics University Padjadjaran to measure the level of happiness of the population of Bandung. Survey carried out in 30 Districts with the random sampling design that is intended to represent the level of happiness of the citizens of Bandung. Covered 151 villages in Bandung with a sample of more than 2 times than in 2014-SPTK-BPS Happiness index of Bandung in 2015 was 70.60. Calculations using the framework of the American Customer Satisfaction Index produces greater happiness index which is 74. Three aspects of life that have the highest contribution are Employment (11.91%), Social Affairs (11.39%) and Harmony Family (11.28%). The highest happiness index is related to family harmony. Strategic recommendations given are the increase in the program: employment and self-employment, housing, education, increased hedonic level of Affect, increase self-function.

1. Introduction

The limitations of economic indicators in representation the public welfare level have improved the world’s attention to the social aspects of development. The development of the building that has been seen more from economic indicators, such as economic growth and poverty reduction is not enough to describe the true level of welfare. These economic indicators are generally measured objectively with monetary-based indicators. The level of community welfare can be measured in two ways, namely using objective and subjective indicators. One of the subjective indicators is an indicator of happiness. Measurement of the happiness index is known as measurement that is beyond GDP. Bandung city government has designed and implemented the various work programs that are expected to support the happiness improvement. At the beginning of his term, the mayor of Bandung formed 25
work programs, one of which was happiness index work program. The program is in charge of managing various activities designed to identify and improve the happiness index of people, as follows the index of happiness research of Bandung version, Roadmap of index of Happiness Bandung, age-based festivals (children, adults, elderly), the best family photo contest every month, mayor/vice dinner with residents once every week, a monthly draw for a free wedding reception in Pendhapa, and a day with the mayor for children of elementary and middle school once in every month [6].

Happiness is something that is felt differently by each person; therefore measurement of happiness is subjective, which is used to complete objective indicators. Various studies on the happiness index link happiness to components of life satisfaction and positive emotions. Development of indicators to measure the level of happiness of the Indonesian population has been carried out by the Central Bureau of Statistics. The Indonesian Happiness Index was first released in 2013 based on the results of studies with national level estimation representations. In 2014, BPS again conducted measurements of the level of happiness of the Indonesian population through the 2014 Happiness Level Measurement (SPTK), BAPPEDA KOTA BANDUNG (2014) with sample coverage that can be used for national and provincial level estimates. In particular, BPS Kota Bandung in collaboration with the Government of Bandung City expanded household samples to produce an estimate of the level of happiness of the population of Bandung City in 2014.

In 2015 the Development Building Planning Agency of Bandung City collaborated with the Quality Control Laboratory of the Statistics Department of University Padjadjaran again to measure the level of happiness of the residents of Bandung. SPTK 2015 respondents are the head of the household or their partner. The SPTK of Bandung City in 2015 was carried out throughout the administrative area of Bandung City with a random sampling design aimed at representing the level of happiness of Bandung residents in 30 Districts. Therefore, a policy was taken to cover all 151 villages in the city of Bandung with a sample more than 2 times that of the 2014 SPTK. The happiness index was measured using the primary data of the survey results. According to the respondent's category, the composition of respondents as household heads was 59 percent. By sex, there were fewer female respondents than male respondents, namely 47 percent and 53 percent, respectively. In addition, most respondents graduated from high school / vocational high school (45.9%) and about 13 percent of respondents graduated from college.

2. Methodology

2.1 Terminology Related to Life Satisfaction as a Representation of Happiness

One of the objectives of the establishment of an Indonesian state government is to promote public welfare. The concept of advancing public welfare in the Indonesian constitution is not only meaningful to promote material prosperity but also to increase the happiness of citizens. Happiness is something that is perceived subjectively by everyone, some experts define happiness as: the extent to which individuals positively assess the quality of their entire life. Various studies say that happiness has two components, namely affective components and cognitive components. Affective components relate to the extent to which individuals feel positive about themselves (hedonic level of affect), while the cognitive component relates to the level of individual satisfaction with what he earns in life (contentment / life satisfaction) [11].

The word "happiness" is often a vague term for some experts so they often change the term happiness to "subjective well-being" to define it. The term "subjective" is used because in reality person experiences happiness is relative only to people who experience it alone. Or in other words, "the best judge about how someone feels happiness is the person himself". But in the end a number of studies have succeeded in delivering accurate and reliable reports to measure individual happiness (Akhor, 2010). To interpret the meaning of "welfare" experts have learned more than just good and positive emotional feelings, but they have also learned the meaning and satisfaction of life (Crabtree, 2012). Experts have defined happiness as an experience of positive emotions combined with deeper feelings about the meaning and purpose of life. In happiness there is a positive mood about the present and its
views about the future. A study by Martin Seligman, a pioneer in positive psychology, has confirmed that people who pursue purity may only benefit temporary happiness, and not answer the meaning of happiness intrinsically "(Akhor, 2010). Experts use the word "subjective well-being" not only because it is easier and easier to read, but because the term can be used as a natural umbrella to explain the satisfaction and meaning of their lives as a whole in their lives.

A number of literature and research have explained happiness and can be identified a number of key dimensions of aspects of happiness that can be learned. There are eight main dimensions of happiness as explained below, namely:

a) **Perspectives**, namely personal views on life that give rise to feelings of optimism and positivity;
b) **Balance**, namely the stability that a person feels about taste guaranteed, felt trusted, not afraid of losing livelihood, feeling belonging, and able to express themselves (self-actualization);
c) **Autonomy**, namely the ability of a person to direct themselves about how, when and where he can express themselves, develop and be trusted in the scope of their activities and lives;
d) **Mastery**, namely the ability to develop skills that match their activities or work;
e) **Objectives**, namely the feeling of harmony between government goals and their personal values, feeling involved, finding meaning in their activities as the main motivator of their activities (Kelly, 2012);
f) **Progress**, which is to achieve progress from day to day that leads to the achievement of their goals in life;
g) **Culture**, namely the existence of a culture of mutual support in interpersonal relationships, so that a sense of belonging grows; and
h) **Appreciation**, namely the implementation of a positive climate of openness accompanied by recognition and respect for each other. The creation of an environment that can support the dimensions of happiness: such as respect, giving recognition, honesty and politeness, giving encouragement, expressing trust, conveying emotional expressions, so that people feel more connected through empathy and affiliation that reflects the expression of trust, appreciation, and affection.

According to positive psychology, life satisfaction can be associated as a measure of happiness with a subjective measurement approach, while welfare tends to be associated with an assessment of living conditions with an objective and psychological measurement approach. Life satisfaction is a measure that describes the level of happiness, while happiness is also a measure of prosperity because at a higher level. Happiness is a reflection of the conditions of life and the level of welfare that has been achieved.

Life satisfaction as a reflection of the level of happiness, in various studies can be measured by asking a general question that is "how does your life feel until now?" In order to determine the right answer related to the level of happiness, then usually the respondent will use a thought approach to life satisfaction experienced so far both in general and specifically according to the domain of life. Some life domains that are used as a basis for consideration in assessing life satisfaction include: education, health, work/income, family life, and so on. Life satisfaction measured is that which reflects the real life situation, is stable, and not a momentary euphoria that is easy to change. The measured life satisfaction is actually different from happiness which is often understood as feelings of pleasure, feelings of cheerfulness, feelings of pleasure, or other feelings of joy that are easily changed in a relatively short time.

2.2  **The unit of analysis**

The unit of analysis on this is household. Information related to households is represented by respondents who are household heads or their partners. Therefore the unit of analysis in the preparation of this publication is an individual so that the measured level of life satisfaction reflects the level of individual life satisfaction. The life satisfaction index obtained in general means showing
the level of life satisfaction and happiness of the population of Bandung City according to various aspects of life.

2.3 **Main Variables and Concepts Used**

The research variables consist of several observed variables that are designed to describe the concept/construct on a particular domain. Some of the main variables, concepts and definitions used in the preparation of this publication are as follows:

2.3.1 **Satisfaction with health conditions**

This variable is an assessment of respondents' satisfaction with their current health conditions. Good health conditions become a basic need for everyone so that they can run their daily activities more optimally. The respondent's health conditions include physical and mental health, such as disturbing health complaints, chronic illnesses and functional difficulties that may be suffered and so on. The community's ability to exist with health conditions can give a positive perception to their health conditions even when they are sick [10]. [9] states that one of the characteristics of individuals happy is that they always love themselves. According to [12] mentally healthy individuals are not only individuals who are free from mental illnesses and disorders, but individuals who realize their potential and overcome the stresses of life within the normal threshold of contributing positively to their communities. Measurement of positive mental health involves aspects of personality, and affective [13]. The mental health that is measured is the individual's perception and assessment of the sense of coherence and meaning of life, self-esteem, self-control in daily life and work, and optimism [14].

2.3.2 **Satisfaction with education and skills**

This variable is an assessment of respondents’ satisfaction with education and skills possessed. Education refers to the level of the school that is completed by the respondent while the skill refers to a person's special ability in creating something, intelligence on something.

2.3.3 **Job satisfaction**

This variable is an assessment of respondents' satisfaction with their work. [3] shows that the negative relationship between statuses is not working and life satisfaction is not generally applicable. Satisfaction with work can be reviewed from various perspectives related to work and not only limited to the field of business and position in the job. As an illustration, whether the respondent likes the field of work, whether the atmosphere in the work environment is fun, how is the relationship with co-workers, is it free to express opinions / ideas, good management, and the sustainability of work / business (related to permanent employee / contract status) and so.

2.3.4 **Satisfaction with household income**

This variable is an assessment of respondents' satisfaction with household income received, [4] states that there is a positive association between life satisfaction and income. This is reinforced by [5]. Revenue in question includes income from economic activities (salaries, wages, profits for self-employed business owners, and so on), property income (dividends, rent, etc.), social benefits in cash (pensions, family allowances, income allowances, etc.) and income from gifts received by all household members.

2.3.5 **Satisfaction with security conditions**

This variable is an assessment of respondents' satisfaction with the security conditions in the environment where they live and the security of all forms of crime that may be experienced in carrying out daily activities.

2.3.6 **Satisfaction with social relations**

This variable is an assessment of respondents' satisfaction with the conditions of social relations in the neighborhood. The conditions of social relations in question can be linked to harmony/cohesiveness/trust between respondents and citizens and the availability of time and opportunities to socialize with the community in the respondent's environment.
2.3.7  **Satisfaction with the availability of spare time**
This variable is an assessment of respondents' satisfaction with the amount of free time they have.

2.3.8  **Satisfaction with the condition of the house**
This question is used to determine the respondent's satisfaction with the condition of his house. Respondent's assessment can be given by considering various aspects of the house that are appropriate or not in accordance with what they want, such as the status of home ownership, building area and so on.

2.3.9  **Life's happiness**
This variable is the assessment of respondents related to happiness in the life of the respondent. A person's assessment of happiness is strongly influenced by mood or emotion at the time of enumeration.

2.3.10  **Expectations/wishes that have been achieved**
This question is used to find out how much the respondent's expectations have been reached. Basically everyone must have the desire to achieve the dreamed conditions of life. Desire sometimes changes according to the increase in life experienced by someone.

2.3.11  **Life satisfaction**
This variable aims to determine respondents' satisfaction with life as a whole.

2.3.12  **Satisfaction with environmental conditions**
This variable is an assessment of respondents' satisfaction with the environmental conditions faced by respondents in their daily lives. Environmental quality of respondents is believed to have a direct impact on their health and well-being. As an example, a natural environment provides comfort for a person to move and allows people to recover from stress due to the routine of life.

2.3.13  **Satisfaction with family harmony**
This variable is used to determine the respondent's satisfaction with the harmony of his family. The harmony that wants to be measured includes the harmony of respondents with other family members (family life that tends to be good, peaceful, and away from contention), compactness (united in living everyday life and facing all problems), trust among families (sure that among members families will act within positive limits) and sufficient time for family activities (e.g. watching/gathering/spending time relaxing with family, recreation/fishing/traveling out of town with family, etc.).

2.4  **Happiness Index Calculation Method**
The happiness index is a composite index that is measured in a weighted manner and includes indicators of individual satisfaction with ten essential domains/variables. The ten domains/variables that reflect substantially and collectively the level of individual happiness include: employment, household income, housing and assets, education, health, family harmony, social relations, availability of free time, environmental conditions, and security conditions. The weighted weight of each domain/variable on the happiness index is calculated proportionally based on the distribution of data with the Factor Analysis technique. Measurement of the happiness index is done with the following steps:

2.4.1  **Weighing calculations for each variable**
Weighing for each variable is calculated based on the value of the variable loading factors and the rotation sums of squared loading (% of variance) value on the formed factor. The weighing calculation for each variable is carried out in 2 (two) stages, namely:

a) Weighing calculation for each variable in a factor with formula:

\[ B = \frac{LF}{RLE} \times RS \]

where,

- **\( B \)** = weighing value;
- **\( LF \)** = value of loading factors;
RLF = average loading factor in one factor;  
RSL = rotation sums of squared loading (% of variance) value.
b) Weighing calculations standardize each variable in a factor with a formula:  
\[ b = \frac{B}{JB} \]
where,  
b = standardized weighing value;  
B = weighing value;  
JB = number of all weathers.

2.4.2 Index measurement of each individual
The results of the standardized weighing measurement are used as a multiplier of the respondent's answer value for each construct. The formula used is as follows:  
\[ I_a = b_i * X_{ai} \]

in this case,  
I_a = the individual's life satisfaction index value;  
b_i = i standardized variable weighing value;  
X_{ai} = the value of the answer to the-i, individual a-variable.

2.4.3 Measurement of aggregate index
The measurement of aggregate life satisfaction index is done by calculating the average index value of each individual. The formula used is as follows:  
\[ I = \frac{JI}{n} \]
in this case,  
I = aggregate life satisfaction index;  
JI = the sum of all individual life satisfaction index values;  
n = number of samples / individuals.

2.4.4 Measurement of life satisfaction index
The index measurement results in the previous stage 3 have a scale of 1 to 10. To facilitate further interpretation, the index scale equalization from a scale of 1-10 to 0-100 is made. The index of the results of a scale change using the construction does not change the position of the individual. This means that index ranking before and after the scale change does not change. The formula used to do the equalization is:
\[ IKH = \frac{(I - 1) \times 100}{Range} \]
where,  
IKH = life satisfaction index scale 0-100;  
I = life satisfaction index scale 1 - 10.  
Range = the difference between the largest and the smallest value on the measurement scale.

Quality Control Statistics Laboratory of Universitas Padjadjaran also has index calculations using the framework of The American Customer Satisfaction Index (ACSI). ACSI is a new type of measurement in market-based performance for a system, industry, economic sector and national economy [7].

Referring to the ACSI framework, happiness index (IK) is calculated using the general form of ACSI as follows:
\[ ACSI = \frac{E[\xi] - \text{min}\{\xi\}}{\text{max}\{\xi\} - \text{min}\{\xi\}} \times 100. \]

In this case, \( \xi \) is a latent variable for overall customer satisfaction, and \( E[\xi] \), \( \text{min}\{\xi\} \), and \( \text{max}\{\xi\} \). Respectively, express expectations, minimum values, and maximum of variables.

2.4.5 Sampling Design
The SPTK of Bandung City in 2015 was carried out throughout the administrative area of Bandung City with a random sampling design aimed at representing the level of happiness of Bandung residents in 30 Districts. Therefore a policy was taken to cover all 151 villages in the city of Bandung with a sample size more than 2 times that of the 2014 SPTK. The happiness index was measured using the primary data from the survey. Surveys with direct interview techniques for the Head of the Family or their partner were carried out in early November 2015.

The sampling technique used is the four stages stratified random sampling. The stages of this method are as follows:

a) the first stage, establishes 151 villages in the city of Bandung as strata. So there are 151 populations that will be sampled;

b) the second stage, creating a RW sampling frame in 151 villages;

c) The third stage is proportionally determining the number of RTs per kelurahan by considering the cost constraints;

d) the fourth stage uses Proportional to Size (PPS) with replacement method to select RT. This method allows RTs in RWs with a large number of RTs in one kelurahan to have a greater chance of being sampled;

e) the fifth stage, from each selected RT, a number of ordinary household heads or their partners (m = 10) are chosen randomly. Access to the head of household or selected partner is done through coordination with the RT management to use the KK document.

The randomization process is given in detail in Appendix 2. Bound of error and 95\% confidence coefficient, for the sampling design used are shown in Table-1.

| No. | Sub-District          | Population | Margin Error | Confidence Level | Sample Size |
|-----|-----------------------|------------|--------------|------------------|-------------|
| 1   | SUKASARI              | 16.025     | 11.15\%     | 95\%             | 80          |
| 2   | SUKAJADI              | 22.762     | 9.50\%      | 95\%             | 110         |
| 3   | CICENDO               | 23.619     | 9.50\%      | 95\%             | 110         |
| 4   | ANDIR                 | 25.539     | 9.50\%      | 95\%             | 110         |
| 5   | CIDADAP               | 15.131     | 11.90\%     | 95\%             | 70          |
| 6   | COBLONG               | 47.819     | 6.73\%      | 95\%             | 220         |
| 7   | BANDUNG WETAN         | 7.298      | 14.10\%     | 95\%             | 50          |
| 8   | SUMUR BANDUNG         | 12.933     | 14.10\%     | 95\%             | 50          |
| 9   | CIBEUNYING KALER      | 22.461     | 9.97\%      | 95\%             | 100         |
| 10  | CIBEUNYING KIDUL      | 44.411     | 6.88\%      | 95\%             | 210         |
| 11  | KIARACONDONG         | 24.633     | 8.75\%      | 95\%             | 130         |
| 12  | BATUNUNGGA           | 29.715     | 8.14\%      | 95\%             | 150         |
| 13  | LENKONG               | 16.163     | 11.15\%     | 95\%             | 80          |
| 14  | REGOL                 | 20.446     | 10.52\%     | 95\%             | 90          |
| 15  | ASTANANYAR            | 17.845     | 10.52\%     | 95\%             | 90          |
| 16  | BOJONGLOA KALER       | 29.117     | 8.75\%      | 95\%             | 130         |
| 17  | BABAKAN CIPARAY       | 24.895     | 9.10\%      | 95\%             | 120         |
| 18  | BOJONGLOA KIDUL       | 21.475     | 9.97\%      | 95\%             | 100         |
| 19  | BANDUNG KULON        | 35.248     | 7.88\%      | 95\%             | 160         |
| 20  | ANTAPANI              | 17.989     | 10.52\%     | 95\%             | 90          |
| 21  | ARCAMANIK             | 19.652     | 9.97\%      | 95\%             | 100         |
| 22  | UJUNGBERUNING        | 18.467     | 9.97\%      | 95\%             | 100         |
| 23  | CIBIRU                | 16.341     | 11.90\%     | 95\%             | 70          |
| 24  | RANCASARI             | 22.042     | 9.97\%      | 95\%             | 100         |
| 25  | BUAHBATU              | 25.127     | 9.10\%      | 95\%             | 120         |
| 26  | BANDUNG KIDUL        | 15.203     | 12.88\%     | 95\%             | 60          |
| 27  | GEDEBAGE              | 7.654      | 14.10\%     | 95\%             | 50          |
| 28  | PANYILEUKAN           | 8.409      | 14.10\%     | 95\%             | 50          |
| 29  | CINAMBO               | 6.357      | 15.70\%     | 95\%             | 40          |
| 30  | MANDALAJATI          | 16.439     | 11.15\%     | 95\%             | 80          |
| Total | 631.215             | 1.82\%     | 95\%         | 3,020             |
3. Result and Analysis

3.1. Bandung City Happiness Index in 2015

The Bandung Happiness Level Measurement Survey in 2015 used the BPS framework to produce the Bandung City Happiness Index of 70.60 on a scale of 0-100. We also performed calculations using the framework of The American Customer Satisfaction Index and produced a larger Happiness Index number of 74. When viewed from each of the essential aspects of life which substantially reflect together the level of individual happiness, it turns out that each aspect of life has a different amount of contribution to the happiness index. The three aspects of life that have the highest contribution are Employment (11.91%), Social Relations (11.39%) and Family Harmony (11.28%).

The highest happiness index of Bandung City is related to Family Harmony with an index value of 78.34. The second and third order of the Bandung community happiness index is the happiness index associated with Social Relations with an index value of 74.20 and a happiness index associated with the Security Conditions with an index value of 73.56 or a Health Condition of 73.55. Facts related to positive mental health in Bandung City community are consistent with [8] study which concluded that the frequency of positive emotional experiences associated with happiness is twice as strong as the experience of negative emotions. According to [10] people with high life satisfaction will lead a rich and satisfying social life and spend the least time alone. Meanwhile, Household Income is the life domain that has the lowest happiness index, with an index value of only 63.72. These figures illustrate the relationship of kinship, kinship and friendship is a culture that is still adhered to by the people of Bandung City. Thus the life orientation of the majority of the citizens of the city of Bandung is more driven by the motivation to maintain harmony and relationships (need of affiliation), rather than achievement motivation (need of achievement) or power of motivation (need of power), as seen from the domain of household income as a relative index the lowest, as an illustration of achievement motivation that is less strong. Figures Family Harmony Index is with an index value of 78.34 indicating a positive indicator of family in the city of Bandung. The subtle figures indicate that the population of Bandung is in a Very Happy condition in terms of Family Harmony. [1] found that the influence of children's ownership on life satisfaction (happiness) will be greater for individuals who are married. In full, the level of happiness in 10 aspects of life is presented in Table-2.

Table 2. Ranking of 10 Aspects of Life, Happiness Index Value and Weight of Contribution (BK) to the Happiness Index (IK) of Bandung City in 2015

| Ranking | Aspect of IK                  | IK Value | BK to IK Value |
|---------|-------------------------------|----------|----------------|
| 1.      | Family Harmony                | 78.34    | 11.28          |
| 2.      | Social Relations              | 74.20    | 11.39          |
| 3.      | Security Conditions           | 73.56    | 10.91          |
| 4.      | Health                        | 73.55    | 11.05          |
| 5.      | Environmental Conditions      | 71.94    | 7.54           |
| 6.      | Availability of Free Time     | 71.79    | 8.97           |
| 7.      | House Conditions and Asset    | 69.00    | 10.02          |
| 8.      | Job                           | 66.97    | 11.91          |
| 9.      | Education                     | 65.09    | 9.14           |
| 10.     | Household Income              | 63.72    | 7.8            |

Three aspects of life that have the highest contribution to the happiness index are employment (11.91%), social relations (11.39%), and family harmony (11.28%).

3.2. Index of Happiness According to Demographic and Economic Characteristics
Some interesting findings generated from the happiness index of Bandung City based on demographic and economic characteristics, namely:

a) The happiness index of the male population is relatively higher than that of women even though the difference is not significant (71.02 versus 71.01).

b) Married status has the highest happiness index, which is 70.74. While those who are unmarried have a lower happiness index of 68.62.

c) The population aged 65 years and over has the highest happiness index of 71.66, meanwhile, the population aged under 24 has the lowest happiness index of 64.82.

d) The higher the level of education, the higher the happiness index. The population who graduated from elementary / MI had the lowest happiness index (67.80), while the highest happiness index was owned by residents with a level of S2 or S3 education (77.45).

e) The higher the average household income, the higher the happiness index. The highest happiness index is owned by the level of income above 4.8 million - 7.2 million per month with the happiness index reaching 74.19, and at the level of income below 1.8 million rupiah has the lowest happiness index by 69.04.

3.3. Development of Bandung Community Happiness Index in 2014-2015

We present the development of various happiness indices in Bandung City below:

| Variable/Level | 2014 | 2015 | GAP | Progress |
|----------------|------|------|-----|----------|
| City           | 68.23| 70.60| 2.37| +        |
| Demographic and Economic Characteristics | | | | |
| Gender |
| Male | 68.25 | 71.02 | 2.77 | + |
| Female | 68.22 | 71.01 | 2.79 | + |
| Marital Status |
| Single | 69.26 | 68.62 | (0.64) | - |
| Married | 68.57 | 70.74 | 2.17 | + |
| Divorced | 69.87 | 69.51 | (0.36) | - |
| Death Divorce | 65.10 | 69.17 | 4.07 | + |
| Group of Age |
| 17-24 | 70.60 | 64.82 | 5.78 | - |
| 25-40 | 69.01 | 70.91 | 1.90 | + |
| 41 - 64 | 67.62 | 70.48 | 2.86 | + |
| 65 Years Old and Over | 68.38 | 71.66 | 3.28 | + |
| Position in the Household |
| Head of Family | 67.83 | 70.61 | 2.78 | + |
| Pair of Head of Family (Wife/Husband) | 68.89 | 70.42 | 1.53 | + |
| Number of Household members |
| 1 Person | 68.03 | 71.93 | 3.90 | + |
| 2 People | 68.98 | 70.61 | 1.63 | + |
| 3 People | 68.13 | 70.20 | 2.07 | + |
| 4 People | 67.67 | 71.27 | 3.60 | + |
| 5 People | 68.82 | 69.58 | 0.76 | + |
| 6 People | 68.64 | | | |
| 7 People or more | 68.17 | | | |
| The Highest Graduated Education |
| No/Never attended School | 70.45 | 70.11 | (0.34) | - |
| Not graduated from elementary school | 63.87 | 67.96 | 4.09 | + |
| Elementary school/Paket A | 64.88 | 67.80 | 2.92 | + |
| Middle School/Paket B | 66.09 | 69.88 | 3.79 | + |

Table 3. Development of various happiness indices in Bandung City
### Variable/Level

|                      | 2014 | 2015 | GAP | Progress |
|----------------------|------|------|-----|----------|
| High School/Paket C  | 9.20 | 7.097| 1.77| +        |
| Diploma I/II/III     | 73.06| 72.87| (0.19)| -        |
| Diploma IV/Bachelor Degree | 4.11 | 73.57| (0.54)| -        |
| Master Degree, Doctoral | 77.50| 77.45| (0.05)| -        |

#### Household Income

|                          | 2014   | 2015   | GAP   | Progress |
|--------------------------|--------|--------|-------|----------|
| Up to Rp. 1.800,000,-    | 62.77  | 69.04  | 6.27  | +        |
| Rp. 1.800,001 – Rp. 3,000,000 | 66.93 | 70.76  | 3.83  | +        |
| Rp. 3.000,001 – Rp. 4,800,000 | 71.27 | 72.67  | 1.40  | +        |
| Rp. 4,800,001 – Rp. 7,200,000 | 72.44 | 74.19  | 1.75  | +        |
| More than Rp. 7,200,000   | 77.88  | 70.13  | (7.75)| -        |

#### Physical Health:

|               | 2014 | 2015 | GAP   | Progress |
|---------------|------|------|-------|----------|
| Health Complaints Male | 65.99 | 69.91 | 3.92  | +        |
| Health Complaints Female | 67.47 | 69.42 | 1.95  | +        |
| No Health Complaints Male | 69.75  | 71.30 | 1.55  | +        |
| No Health Complaints Female | 68.89  | 70.23 | 1.34  | +        |

#### Sports Habit:

|               | 2014 | 2015 | GAP   | Progress |
|---------------|------|------|-------|----------|
| Exercise Male | 71.22 | 71.14 | (0.08)| -        |
| Exercise Female | 70.17 | 71.31 | 1.14  | +        |
| No Exercise Male | 65.48 | 70.13 | 4.65  | +        |
| No Exercise Female | 67.25  | 67.24 | (0.01)| -        |

#### Mental Health:

|                     | 2014 | 2015 | GAP   | Progress |
|---------------------|------|------|-------|----------|
| Restless IK of Male | 70.77| 67.00| (3.77)| -        |
| IK of Female        | 71.20| 69.94| (1.26)| -        |
| Restless IK of Male | 72.99| 71.03| (1.96)| -        |
| Restless IK of Female | 73.51| 69.79| (3.72)| -        |

#### Sociality Health:

|               | 2014 | 2015 | GAP   | Progress |
|---------------|------|------|-------|----------|
| Never Socialize | 67.97| 68.42| 0.45  | +        |
| Rarely Socialize | 67.98| 69.51| 1.53  | +        |
| Often Socialize | 68.09| 70.39| 2.30  | +        |
| Always Socialize | 70.63| 74.19| 3.56  | +        |

### Table 4. Happiness Index Value and Weight of Contribution (BK) to the Happiness Index (IK) of Bandung City in 2014-2015

| No. | Aspect of IK                  | IK Value | BK to IK Value | IK Value | BK to IK Value | GAP IK | GAP BK | Progress IK | Progress BK |
|-----|-------------------------------|----------|----------------|----------|----------------|-------|-------|-------------|-------------|
| 1.  | Family Harmonie               | 76.45    | 7.47           | 78.34    | 11.28          | 1.9   | 3.8   | +           | +           |
| 2.  | Social Relations              | 70.69    | 7.88           | 74.2     | 11.39          | 3.5   | 3.5   | +           | +           |
| 3.  | Security Conditions           | 71.69    | 7.18           | 73.56    | 10.91          | 1.9   | 3.7   | +           | +           |
| 4.  | Health                        | 69.82    | 10.24          | 73.55    | 11.05          | 3.7   | 0.8   | +           | +           |
| 5.  | Environmental Conditions      | 69.16    | 6.84           | 71.94    | 7.54           | 2.8   | 0.7   | +           | +           |
| 6.  | Availability of Free Time     | 70.17    | 7.88           | 71.79    | 8.97           | 1.6   | 1.1   | +           | +           |
| 7.  | House Conditions and Asset    | 67.36    | 12.91          | 69       | 10.02          | 1.6   | (2.9) | +           | -           |
| No. | Aspect of IK                  | 2014     | 2015     | GAP IK | GAP BK | Progress IK | Progress BK |
|-----|------------------------------|----------|----------|--------|--------|-------------|-------------|
|     |                              | Value    | Value    | to     |        |             |             |
| 8.  | Job                          | 68.36    | 12.68    | 66.91  | 11.91  | (1.4)       | (0.8)       |
| 9.  | Education                    | 61.95    | 12.66    | 65.09  | 9.14   | 3.1         | (3.5)       |
| 10. | Household Income             | 64.25    | 14.28    | 63.72  | 7.8    | (0.5)       | (6.5)       |

Based on the table above it can be concluded that 72% of various happiness indices experienced positive progress.

4. Conclusion and Recommendation

Based on the results of the analysis of structural models (Hybrid models) shows that the direct influence of Self Function on happiness is the highest than other factors. Indicators of self-measured function are **efficacy, feeling of being valued, autonomy, social networking, and secure feeling** directly giving a very significant influence on happiness.

The direct effect of self-function on happiness is very significant at 0.6462. This means that each increase (decrease) in the self-function score is 1, then the satisfaction score will rise (decrease) by 0.6462.

The following are recommendations for improving the happiness index of Bandung residents:

**Stage 1 Evaluation:**
1. Evaluation of happiness index based on components of life satisfaction and affective components
2. Evaluate the effectiveness of 18 government programs in increasing the happiness index of Bandung City

**Stage 2 Repair and Design:**
1. Improvements to the program increase life satisfaction with aspects of Employment, Housing & Assets and Education.
2. Designing programs to improve the hedonic level of affect (example: Mindfulness Training)
3. Self-improvement program

**Stage 3 Implementation:**
1. Application of 4 main programs:
   1. Employment program & entrepreneurship
   2. Housing facilities program
   3. Educational programs
   4. Hedonic improvement program level of affect
   5. Self-improvement program

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