FACTORS AFFECTING THE HAPPINESS: DO HIGHER TERTIARY SCHOOL ENROLLMENT AND URBANIZATION LEVEL DEGRADE HAPPINESS?

By

KIM, Donghwan

THESIS

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Committee in charge:

Professor Yu Sang CHANG, Supervisor

Professor Jin Soo LEE

Professor Shun WANG

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Abstract

FACTORS AFFECTING THE HAPPINESS: DO HIGHER TERTIARY SCHOOL ENROLLMENT AND URBANIZATION LEVEL DEGRADE HAPPINESS?

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Donghwan Kim

Traditionally, happiness used to be recognized as having a positive relationship with the income level. However, the income level may not be the only factor which affects one's happiness. The survey conducted by World Values Survey (WVS) asks two questions related to happiness and the results are converted into index by Inglehart. This paper adopts the index to research the linkage between happiness and other variables: GDP per capita, tertiary school enrollment ratio, urbanization level and car ownership rate. The results show that GDP per capita and urbanization level has a positive relationship with happiness states. On the other hand, tertiary school enrollment ratio negatively affects happiness. In the case of 16 countries in OECD, car ownership rate and urbanization level negatively affect happiness. Koreans have relatively a low level of happiness than other OECD countries do. This paper suggests the evidences that high tertiary school enrollment ratio and high urbanization level may be the causes of it.

Dedicated to my wife and daughter

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1. INTRODUCTION

According to the data from the World Bank (2015), Republic of Korea ranked in 13th place in the gross domestic product (GDP) ranking. United States ranked in first, followed by China, Japan, and Germany. In the case of Korea, the level of economic conditions has improved remarkably. However, many people in Korea may not be satisfied with their own life. For example, Organization for Economic Co-operation and Development (OECD) provides the Better Life Index (BLI) which is a measurement for the quality of life since 2011. In terms of life satisfaction, Korea was ranked in 29th place in 36 OECD-level countries. The top-ranked was Denmark followed by Iceland, Switzerland, and Norway. Japan stayed at one step above Korea. The bottom country was Greece while near bottom countries were Hungary, Portugal, and Estonia. Koreans appear to be less satisfied with their life than people in other countries which have a similar economic level of Korea.

Recently, quality of life is getting more important. Quality of life may be interchangeable with happiness, subjective well-being (SWB), and life satisfaction. There are many factors affecting the level of happiness (Easterlin, 2003). Most of the previous researches on happiness have been focused on the relationship between happiness and economic level. However, in order to reveal the gap between economic level and happiness index ranking, some other variables should be analyzed.

A general question for this study is why Koreans feel less happy in spite of their economic well-being. More specifically, this paper asserts that the level of happiness is a function of GDP per capita (positive effect), tertiary school enrollment ratio (negative effect), urbanization level (positive or negative effect), and car ownership rate (negative

effect). Seo (2011) published a book: “Infinite competition is encroaching Korea.” He explains the motivation for the book: 1) Why are many Korean fathers choose to be *Kirogi Fathers*? 2) What is a reason for a steep growth rate of suicide in Korea despite their economic well-being? 3) Why does Korea’s fertility rate remain severely low as compared to that of the world? He attributed those phenomena to Koreans’ excessive and abnormal competition. He also pointed out that an extremely competitive entrance examination for universities is one of worst competitions in Korea (Seo, 2011). This paper focuses on estimated bad examples of competition: tertiary school enrollment ratio and urbanization level. And income and expenditure factors (GDP per capita and car ownership rate) are also adopted for measuring happiness. Schifferes (2008) investigates a change of family spending from 1957 to 2008 in the U.K. According to the analysis, distinguishing growth of expenditure on leisure and travel emerges due to the rising of car ownership rate. On the other hand, Van Dender and Clever (2013) claims that car ownership rate has declined in the young generation in several countries, Norway, the U.K., and the U.S. With such consideration, car ownership rate may positively or negatively affect happiness.

In this paper, independent variables were adopted: GDP per capita, urbanization level, tertiary school enrollment, and car ownership rate. And, WVS data were used for happiness index (dependent variable) in this research. WVS started in 1981. The recent one includes about 258 questions and surveyed across about 90 countries which hold almost 90% of the world population. Among the questions, there are two kinds of questions related to happiness. Those were quantified to subjective well-being (SWB) index (WVS, 2015).

Following this introduction, this paper will cover the background of happiness and the basic research in Chapter 2. Chapter 3 deals with data and methodology. Results and analysis will be discussed in Chapter 4. Lastly, Chapter 5 will present the conclusions and recommendations.

2. Literature Review and Basic Research

2.1 Happiness

Csikszentmihalyi (1991) refined Aristotle's speaking that the first priority of human beings' activities is to pursue happiness. Also, he explained that people used to think that other values, such as health, money, and power could make them happy. He coined the term, *optimal experience, flow*, in the 1970s. He explained that many experiences occurred in the present cannot be controlled by ourselves. But we can only control our mind and feel deep satisfaction which is called optimal experience or flow.

Easterlin (2003) explained that there are several exchangeable terms: happiness, utility, well-being, life satisfaction, and welfare. He described that two perspectives of happiness exist: one is psychologists' view and the other is economists' generally accepted view. Psychologists put a great emphasis on a noneconomic field but economists suggest that "more is better". However, he concluded that the level of happiness depends on his or her gap of satisfaction between desire and present status of fulfillment in terms of two fields, noneconomic and economic. He claimed that general people have unbalanced prioritized living purposes in terms of individual happiness setting. Most people focus on working which is closely related to making money but they relatively do not have an attention to family life and health which are long lasting factors affecting one's happiness.

Easterlin (2004) investigated sources of happiness in his paper. Those could be the followings: level of living, family, health, job, and personal character. The sources could surely vary with respect to each person: however, most people think that their daily lives are important and affected by their job, marriage, health, and family. He revealed the relationship between happiness and other factors, such as health, marriage,

and money. According to psychologists' theory, people have their own *setpoint* of happiness. Therefore, people are not affected by their health condition. In other words, people can recover their happiness states after experiencing health problems. However, his research found that health problems affect a lasting effect throughout the whole life. Second, the married man and woman have a tendency that they are happier than the unmarried. Third, educated people (more income) are happier than the less-educated (less income). However, more income does not give more happiness. In other words, two groups (educated and less-educated) had been investigated: if more income leads to more happiness, two groups' happiness differentials should be widened. But the gap stayed at a constant level.

Easterlin and Sawangfa (2007) investigated the relationship between happiness and four domains satisfaction: socio-economic status (years of schooling), time, age, and cohort. The results represented that years of schooling is positively affecting happiness, and happiness is virtually irrelevant to time. One of the unexpected results was that happiness slightly goes up in midlife and moderately declines after that point. In terms of the fourth factor, the level of younger cohorts is generally less than that of older cohorts, but the recent cohorts have a modest recovery compared with the average younger cohorts.

Stevenson and Wolfers (2008) claimed that they found a clear evidence for weakening *Easterlin paradox* – an income is not a significant factor for the level of happiness when people are satisfied with their basic needs and earn a decent level of salaries. They asserted that more income leads to more happiness for both within-country and cross-country analysis. And the income effects were similar in both

conditions. In other words, Easterlin showed that the income difference within a society exerted a stronger effect than that across countries. However, their results were also contested in that such effects were similar in two environments.

Sacks *et al*. (2010) asserted that the relationship between subjective well-being and income was positive in both cases, individuals within a country and across countries. In addition, in the case of economic growth in a country over time, they found that economic affluence had a positive relationship with the level of happiness. It contradicted the *Easterlin Paradox*: absolute GDP increases of all countries do not result in any increase in happiness. Sacks *et al*. (2010) mentioned it as "*when everyone grows richer, no one becomes happier*."

2.2 Basic Research

Easterlin (2005) published a journal article: "Diminishing Marginal Utility of Income? Caveat Emptor." The title is very similar to well-known "law of diminishing marginal utility." In his paper, the utility is the level of happiness, and he investigated 14 countries with respect to Gross National Product (GNP) or GDP per capita. Among countries, Japan had great development in GDP per capita recording about 3.5 times increase between 1962 and 1987, but the level of happiness is relatively steady. In the case of the U.S., within-country analysis, happiness has a positive relationship with income level but the utility curve is similar to the one of diminishing marginal utility. In other words, the incremental size of happiness is smaller when income is increasing by $1,000.

World Values Survey started in 1981, and currently, there are six Wave data available: Wave 1 (1981-1984), Wave 2 (1990-1994), Wave 3 (1995-1998), Wave 4

(1999-2004), Wave 5 (2005-2009), and Wave 6 (2010-2014). Unlike other happiness indices, such as BLI and Bhutan's Gross National Happiness (GNH), the SWB index from WVS is not affected by other dimensions (economic, health, education, and so on). Some hundreds of questions are used in the common questionnaire conducted in all of the survey countries. Among survey questions, there are two questions about happiness. The results of the answer about happiness could be a good indicator for measuring people's happiness.

Inglehart *et al.* (2008) investigated WVS data from 1981 to 2007, and he revealed that economic development is a contributing factor affecting the level of happiness. Moreover, he claimed that tolerance of religion and ethnic outgroups, and a degree of society's democracy could be forecasting variables for the level of SWB. And he found that happier people have more free choices. Figure 2.3 shows distinguished two groups: ex-communist and Latin America countries. Generally, the latter were happier than the former even though their GDP per capita levels were similar (Inglehart *et al*., 2008).

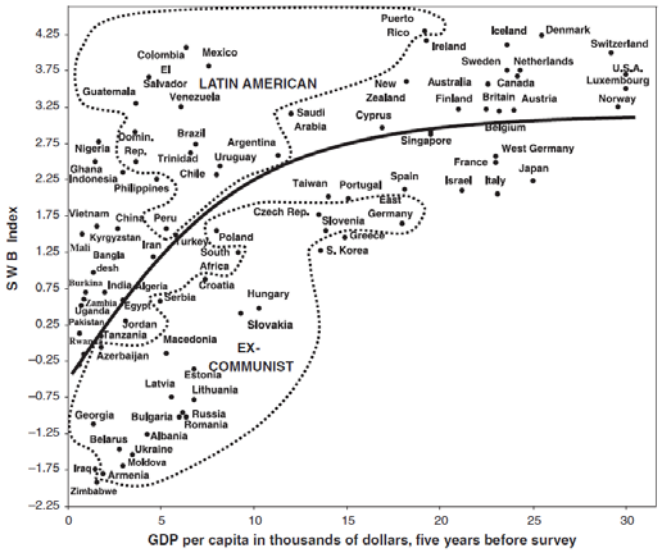

Figure 2.1. SWB (1995-2007), GDP per capita, and Different Type of Societies.
Source: Inglehart *et al*, 2008.

In this basic research, the relationship between SWB and GDP per capita will be visualized and conceptually analyzed with respect to country's GDP per capita level and region. Kim (2015) suggested that Tableau Public, which is a visualization software program, could be used for analyzing social and scientific information data. Figure 2.4, 2.5, 2.6, and 2.7 were created by using Tableau Public. Figure 2.4 and 2.5 represent the relationship SWB - GDP per capita by income level and region, respectively. Figure 2.4 is sub-divided by two groups: high and middle & low income countries. Figure 2.6 illustrates the distinctive two groups. In the case of middle & low income countries, the SWB index had a weak correlation with GDP per capita. However, the SWB index had a strong and positive correlation with GDP per capita in the high income countries. These results were supported by Inglehart's claim that there has a societal shift from economic-driven society to life-style-driven one (Inglehart *et al*., 2008). Figure 2.5 could be divided by four groups: 1) Middle East & North Africa, South Asia, Sub-Saharan Africa 2) Latin America & Caribbean 3) Europe & Central Asia, North

America 4) East Asia & Pacific. As pointed out earlier, Inglehart *et al*. (2008) asserted that there is happiness-friendly society beyond the economic level. Figure 2.3 shows that the Latin American was happier than the ex-communist society. However, Figure 2.7 illustrates that there are four kinds of societies. Countries included in Group 1 usually had a low income level except Saudi Arabia and Israel but the range of SWB index was from -1.36 (Iraq) to 2.82 (Nigeria). Group 2 countries had a relatively high level of SWB compared with other Groups. The range was from 1.24 (Peru) to Puerto Rico (4.21). The graph of Group 3 represents that there is a strong positive correlation between income and SWB. The range of two variables, income and SWB, was relatively very large. More income might lead more happiness states. The last, Group 4 countries had an income variation, but the range of SWB was from 1.23 (Korea) to New Zealand (3.57), which was relatively small rather than other groups.

According to the simple analysis from the above visualization data, SWB index is not only affected by the income factor but also influenced by other factors. However, the European & Central Asia and North America countries had an economic-friendly happiness trend which means that the relation between the income level and the SWB is a positive correlation. Then, what are other factors affecting happiness beyond the income level? It will be discussed in Chapter 3.

Table 2.1. Income and SWB by Region, Data from Figure 2.5

Group	Region	Income	SWB	Obs.
Group 1	Middle East North Africa South Asia Sub-Saharan Africa	Max: $2,657 (Algeria) Min: $146 (Ethiopia)	Max: 2.82 (Nigeria) Min: -1.36 (Iraq)	*17
Group 2	Latin America Caribbean	Max: $19,838 (Puerto Rico) Min: $2,089 (Guatemala)	Max: 4.21 (Puerto Rico) Min: 1.24 (Peru)	11
Group 3	Europe Central Asia North America	Max: $52,372 (Switzerland) Min: $1,159 (Armenia)	Max: 4.24 (Denmark) Min: -1.80 (Armenia)	27
Group 4	East Asia Pacific	Max: $34,507 (Japan) Min: $576 (Vietnam)	Max: 3.57 (New Zealand) Min: 1.23 (Korea)	10

Notes: *Except Saudi Arabia and Israel

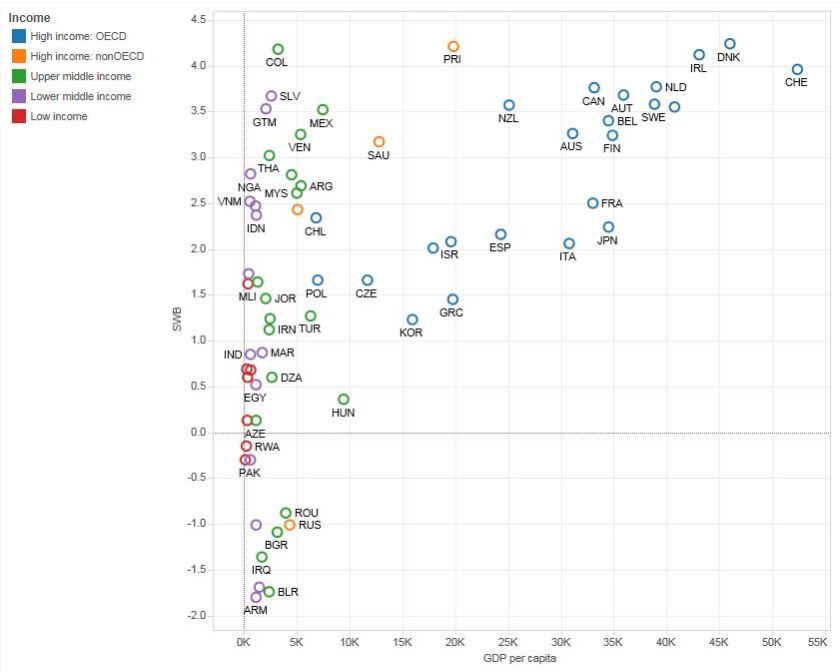

Figure 2.2. SWB (1995-2007) and GDP per capita (Income Grouping – Overall)

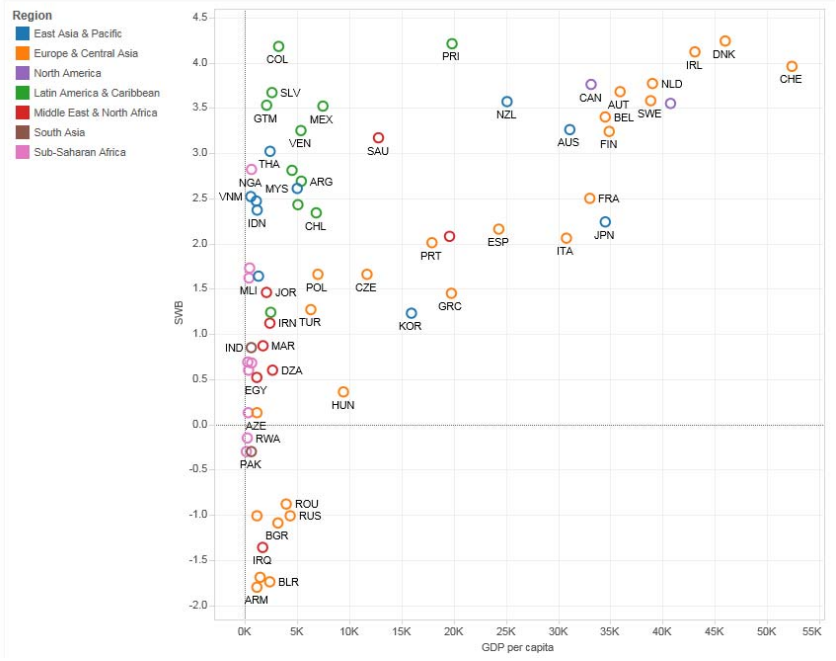

Figure 2.3. SWB (1995-2007) and GDP per capita (Region Grouping – Overall)

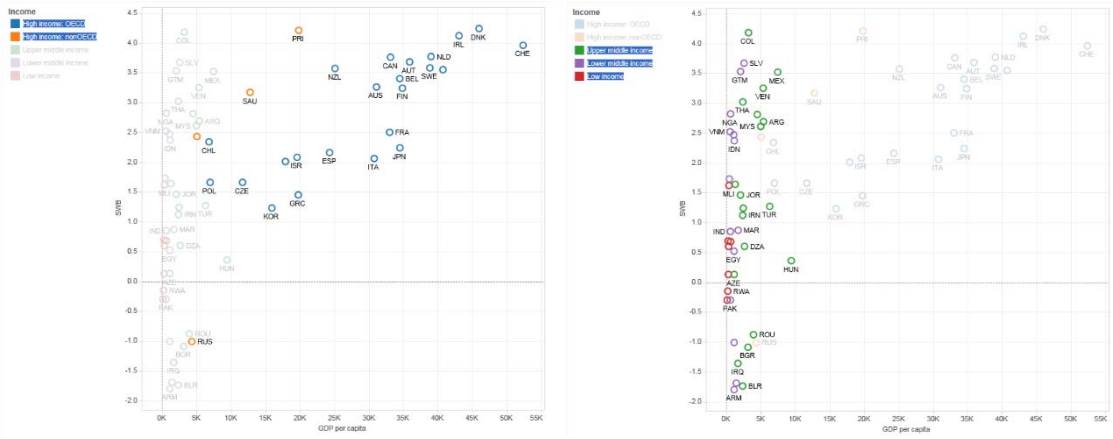

Figure 2.4. SWB (1995-2007) and GDP per capita (Income Grouping):
High Income (left), Middle and Low Income (right)

Figure 2.5. SWB (1995-2007) and GDP per capita (Region Grouping):
Middle East & North Africa / South Asia / Sub-Saharan Africa (upper left)
Latin America & Caribbean (upper right), Europe & Central Asia (lower left)
East Asia & Pacific (lower right)

3. Data and Methodology

3.1 Overview

In order to analyze the relationship between happiness and other factors, two kinds of data are needed: dependent variable and independent variable. In this paper, a happiness index was adopted as a dependent variable, and independent variables were chosen as follows: GDP per capita, tertiary school enrollment ratio, urbanization level, and car ownership rate. The key questions will be: 1) Does higher tertiary school enrollment make people unhappy? 2) What is the effect of the urbanization level on people's happiness? 3) What is the reason that the happiness index of Korea is significantly low among OECD countries?

3.2 Data

In this paper, a happiness index was adopted as a dependent variable. As shown the chapter 2, there are several available happiness indices for the research. Most of the indices are composites of several data such as income, health, housing and other values. The indices are already affected by them, so those are not effective for this research. But WVS data is not contaminated by other factors. The survey has two questions related to happiness. One (V10) is "Taking all things together, would you say you are: 1.very happy, 2.rather happy, 3.not very happy, or 4.not at all happy." The other (V23) is "All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole? (Code one number). " The survey has been conducted six times: the first wave (1981 - 1984), a second wave (1990 - 1994), a third wave (1995 - 1998), a fourth wave (1999 –

2004), a fifth wave (2005 - 2009), and a sixth wave (2010 - 2014). According to National Science Foundation (NSF) funding research (2008) using WVS data investigated by Ronald Inglehart, Professor of University of Michigan, the happiest country was Denmark and the least happiest country was Zimbabwe. Most European countries were top-ranked such as Switzerland (7), Austria (9), and Sweden (13). The U.S. ranked in 16th place. Japan and Korea ranked in 42nd and 62nd place, respectively. Inglehart quantified the V10 and V23, and equally weighted two factors. He expressed the happiness index as the level of subjective well-being (SWB) which is the composite of happiness (V10) and life satisfaction (V23). In this paper, the SWB index is used for the level of happiness.

In this paper, independent variables are chosen as follows: GDP per capita, tertiary school enrollment ratio, urbanization level, and car ownership rate. Those data are obtained from World Bank Indicators. Table 3.1 describes the definitions of the terms: GDP per capita (constant 2005 US$), school enrollment-tertiary (% gross), population in urban agglomerations of more than 1 million (% of total population), and passenger cars (per 1,000 people). From now, GDP per capita, tertiary school enrollment ratio, urbanization level, and car ownership rate will be recognized as the following four variables.

In terms of a scale issue, some people assert that a log scale of income should be adopted to an income-happiness analysis within countries or across countries. In the case of the Stevenson and Wolfers (2008), the log of GDP was used for their analysis. They asserted that it should be adopted in a cross-country analysis if it is used in a within-country analysis. However, in this paper, an absolute income (not the log of

GDP) was adopted for the experiments. Especially, in the second experiment, the sample countries were the OECD-level ones, so the amount of income differences was not big. Therefore, the absolute GDP was more appropriate than the log of GDP. In order to maintain consistency, the absolute GDP was adopted for the experiment I and II.

Unemployment rate or other variables might be good variables for this paper, but unemployment rate was not considered. Usually, a government wants to keep a low unemployment rate in the public. And Berkowitz (2015) pointed out that an official unemployment rate does not include marginally attached workers or part-time workers, so the real unemployment rate of the U.S. was considerably higher than the official rate. Therefore, an unemployment rate might not be an exact indicator for real job conditions in a country.

Table 3.1. Definitions of the Terms (World Bank, 2014 and 2015)

Independent Variables	Explanation
GDP per capita (Constant 2005 US$)	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 U.S. dollars.
School Enrollment, tertiary (% gross)	Gross enrolment ratio. Tertiary (ISCED 5 and 6). Total is the total enrollment in tertiary education (ISCED 5 and 6), regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving.
Population in Urban Agglomerations of More than 1 Million (% of total population)	Population in urban agglomerations of more than one million is the percentage of a country's population living in metropolitan areas that in 2000 had a population of more than one million people.
Passenger cars (per 1,000 people)	Passenger cars refer to road motor vehicles, other than two-wheelers, intended for the carriage of passengers and designed to seat no more than nine people (including the driver).

3.3 Methodology

WVS data were adopted in this research. But, there are two problems with WVS data: 1) how to quantify the happiness related questions in WVS data, 2) WVS data are periodic data, which do not give annual-based numbers. In order to solve the first problem, the adjusted WVS data were used. Inglehart *et al.* (2008) explained the processes of SWB index creation. As shown Chapter 3.2, there are two questions related to happiness, V10 and V23. V10 is "Taking all things together, would you say you are: 1.very happy, 2.rather happy, 3.not very happy, or 4.not at all happy." V23 is "All things considered, how satisfied are you with your life as a whole these days? 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied." In the case of V10, 1 means very happy, but 1 means completely dissatisfied in V23. Therefore, Inglehart *et al.* (2008) suggested the SWB index equation:

$$\text{SWB} = (\text{life satisfaction}, \text{V23}) - 2.5 \times (\text{happiness}, \text{V10}) \qquad (1)$$

From the analysis of the above equation, if every person has an extremely happy and satisfied mind, the number of V23 and V10 will be 10 and 1, respectively. Thus, the resulting SWB will be 7.5. Conversely, if every person is pessimistic about his or her happiness and life satisfaction, the numbers will be 1 and 4, respectively. Thus, the resulting SWB will be a negative number, - 9. If SWB number is zero, it means that the results of V10 and V23 are evenly distributed through the survey (Inglehart *et al.*, 2008).

In order to solve the problem two, this paper adopted the University of Michigan's Institute for Social Research (ISR) SWB results. WVS data were collected periodically so the data do not give a specific year's value. However, ISR's SWB index

gives a single number for each country so it is appropriate to use in this research. National Science Foundation (NSF, 2008) explained that the results were calculated from WVS data, happiness and life satisfaction from 1995 to 2007. According to NSF and ISR, the SWB index was calculated from Wave 3, 4, and 5, and those data were combined in order to improve the reliability (NSF, 2008). In the SWB index ranking, the top 3 were Denmark, Puerto Rico, and Colombia. The least happy country was Zimbabwe, followed by Armenia and Moldova. South Korea ranked in 62nd, and Japan stayed in 42nd. The U.S. only ranked in 16th.

Table 3.2. Subjective Well-being Index (NSF, 2008)

Country	Mean	Country	Mean	Country	Mean
Denmark	4.24	Malaysia	2.61	Croatia	0.87
Puerto Rico	4.21	W. Germany	2.60	Morocco	0.87
Colombia	4.18	Vietnam	2.52	India	0.85
Iceland	4.15	France	2.50	Uganda	0.69
N Ireland	4.13	Philippines	2.47	Zambia	0.68
Ireland	4.12	Uruguay	2.43	Algeria	0.60
Switzerland	3.96	Indonesia	2.37	Burkina Faso	0.60
Netherlands	3.77	Chile	2.34	Egypt	0.52
Canada	3.76	Dominican Rep	2.29	Slovakia	0.41
Austria	3.68	Japan	2.24	Hungary	0.36
El Salvador	3.67	Spain	2.16	Montenegro	0.19
Malta	3.61	Israel	2.08	Tanzania	0.13
Luxemburg	3.61	Italy	2.06	Azerbaijan	0.13
Sweden	3.58	Portugal	2.01	Macedonia	- 0.06
New Zealand	3.57	Taiwan	1.83	Rwanda	- 0.15
U.S.A	3.55	E. Germany	1.78	Pakistan	- 0.30
Guatemala	3.53	Slovenia	1.77	Ethiopia	- 0.30
Mexico	3.52	Ghana	1.73	Estonia	- 0.36
Norway	3.50	Poland	1.66	Serbian Bosnia	- 0.45
Belgium	3.40	Czech Rep	1.66	Lithuania	- 0.70
Britain	3.39	China	1.64	Latvia	- 0.75
Australia	3.26	Mali	1.62	Romania	- 0.88
Venezuela	3.25	Kyrgyzstan	1.59	Russia	- 1.01
Trinidad	3.25	Jordan	1.46	Georgia	- 1.01
Finland	3.24	Greece	1.45	Bulgaria	- 1.09
Saudi Arabia	3.17	S Africa	1.39	Iraq	- 1.36
Thailand	3.02	Turkey	1.27	Albania	- 1.44
Cyprus	2.96	Peru	1.24	Ukraine	- 1.69
Nigeria	2.82	S Korea	1.23	Belarus	- 1.74
Brazil	2.81	Hong Kong	1.16	Moldova	- 1.74
Singapore	2.72	Iran	1.12	Armenia	- 1.80
Argentina	2.69	Bangladesh	1.00	Zimbabwe	- 1.92
Andorra	2.64	Bosnia	0.94	Mean	1.57

Ordinary least squares (OLS) multiple linear regression analysis was adopted for this experiment. Generally, Y could be explained linearly by X_1, X_2, ⋯, X_k. The multiple linear regression model could be as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k + \varepsilon \qquad (2)$$

where Y is a dependent variable, X_j is the j^{th} independent variable, β_0 is Y intercept, β_j is the j^{th} parameter, and ε is a residual.

Estimated multiple linear regression equation could be as follows:

$$\hat{y}_i = b_0 + b_1 x_{1i} + b_2 x_{2i} + \cdots + b_k x_{ki}, \quad i = 1, \cdots, n \qquad (3)$$

where, b_0, b_1, ⋯, b_k are estimated values of parameters, β_0, β_1, ⋯, β_k and those are estimated by the OLS method.

Estimated coefficients b_0, b_1, ⋯, b_k could be interpreted as follows: we assume that all conditions are fixed except the j^{th} independent variable, and b_j is the amount of change when x_j is increasing one unit (Kang *et al*., 2014).

In the first experiment, the dependent variable is SWB index and the independent variables are GDP per capita, tertiary enrollment ratio and urbanization level. And the estimated multiple linear regression equation could be as follows:

$$\hat{y}_i = b_0 + b_1 x_1 + b_2 x_2 + b_3 x_3 \qquad (4)$$

where $\hat{y}_i$ is a dependent variable, each country's SWB index, x_1 is GDP per capita, x_2 is tertiary school enrollment ratio, x_3 is urbanization level, b_0 is y-intercept, and b_1, b_2, and b_3 are coefficients of estimated x_1, x_2, and x_3.

In the case of the model 1, the SWB index was averaged value of 1995-2007, so the numbers of GDP per capita, tertiary school enrollment ratio, and urbanization level were also calculated as mean value of 1995-2007. Limitation of the available data from independent variables only allowed 67 countries to be considered. Due to the limitation of WVS data's periodical character, other models which considered a specific year's SWB index and the corresponding year's independent variables – GDP per capita, tertiary school enrollment ratio, and urbanization level – were experimented. For example, if France's SWB index year was 1999, the corresponding numbers of GDP per capita, tertiary school enrollment ratio, and urbanization level were used as the numbers for the year 1999. In the model 2, 3 and 4, Wave 3, 4, and 5 data were used, respectively. However, NSF's SWB index does not give the specific year's number. The research data of Inglehart *et al.* (2008) paper provides SWB indices in 52 countries from 1981 to 2007. In this paper, the target year's (1995-2007) data were adopted for the experiments. Table 3.3, 3.4, and 3.5 represents used data for the model 2, 3, and 4, respectively.

Table 3.3. Wave 3 Variables, 20 Countries (Inglehart *et al.* 2008 and World Bank, 2015)

Country	SWB Year	SWB Index	GDP per capita (US$)	Tertiary Enrollment Ratio (%)	Urbanization Level (%)
Australia	1995	3.26	31,112	70.59	61.32
Bulgaria	1997	-1.09	3,171	43.12	14.39
Belarus	1996	-1.74	2,395	56.31	17.39
Switzerland	1996	3.96	52,372	40.23	15.06
Chile	1996	2.34	6,836	39.45	36.47
China	1995	1.64	1,313	11.36	15.69
Colombia	1998	4.18	3,242	24.66	35.93
Czech Republic	1998	1.66	11,697	34.16	11.63
Spain	1995	2.16	24,313	59.29	22.99
Finland	1996	3.24	34,879	83.07	19.68
Hungary	1998	0.36	9,444	43.72	17.64
India	1995	0.85	622	9.68	12.14
Japan	1995	2.24	34,507	50.57	60.01
Mexico	1996	3.52	7,479	19.69	35.32
Poland	1997	1.66	6,997	51.69	4.35
Romania	1998	-0.88	3,966	31.46	8.87
Russian Federation	1995	-1.01	4,347	59.69	18.27
Sweden	1996	3.58	38,854	66.76	13.56
Ukraine	1996	-1.69	1,467	56.36	10.56
United States	1995	3.55	40,754	76.60	43.67

Table 3.4. Wave 4 Variables, 28 Countries (Inglehart *et al.* 2008 and World Bank, 2015)

Country	SWB Year	SWB Index	GDP per capita (US$)	Tertiary Enrollment Ratio (%)	Urbanization Level (%)
Argentina	1999	2.69	5,414	59.55	40.58
Austria	1999	3.68	35,921	50.08	19.59
Belgium	1999	3.40	34,495	59.12	17.52
Bulgaria	1999	-1.09	3,171	43.12	14.39
Belarus	2000	-1.74	2,395	56.31	17.39
Canada	2000	3.76	33,149	71.37	42.15
Chile	2000	2.34	6,836	39.45	36.47
China	2001	1.64	1,313	11.36	15.69
Czech Republic	1999	1.66	11,697	34.16	11.63
Denmark	1999	4.24	45,988	63.54	20.39
Spain	2000	2.16	24,313	59.29	22.99
Finland	2000	3.24	34,879	83.07	19.68
France	1999	2.50	33,027	54.19	22.39
Hungary	1999	0.36	9,444	43.72	17.64
Ireland	1999	4.12	43,083	50.08	25.58
Italy	1999	2.06	30,786	53.35	18.08
Japan	2000	2.24	34,507	50.57	60.01
Korea, Rep.	2001	1.23	15,951	79.08	48.49
Mexico	2000	3.52	7,479	19.69	35.32
Netherlands	1999	3.77	39,025	53.17	6.32
Poland	1999	1.66	6,997	51.69	4.35
Portugal	1999	2.01	17,917	49.44	38.15
Romania	1999	-0.88	3,966	31.46	8.87
Russian Federation	1999	-1.01	4,347	59.69	18.27
Sweden	1999	3.58	38,854	66.76	13.56
Turkey	2001	1.27	6,321	28.18	30.37
Ukraine	1999	-1.69	1,467	56.36	10.56
United States	1999	3.55	40,754	76.60	43.67

Table 3.5. Wave 5 Variables, 22 Countries (Inglehart *et al.* 2008 and World Bank, 2015)

Country	SWB Year	SWB Index	GDP per capita (US$)	Tertiary Enrollment Ratio (%)	Urbanization Level (%)
Bulgaria	2006	-1.09	3,171	43.12	14.39
Switzerland	2007	3.96	52,372	40.23	15.06
Chile	2005	2.34	6,836	39.45	36.47
China	2007	1.64	1,313	11.36	15.69
Colombia	2005	4.18	3,242	24.66	35.93
Spain	2007	2.16	24,313	59.29	22.99
Finland	2005	3.24	34,879	83.07	19.68
France	2006	2.50	33,027	54.19	22.39
India	2006	0.85	622	9.68	12.14
Italy	2005	2.06	30,786	53.35	18.08
Japan	2005	2.24	34,507	50.57	60.01
Korea, Rep.	2005	1.23	15,951	79.08	48.49
Mexico	2005	3.52	7,479	19.69	35.32
Netherlands	2006	3.77	39,025	53.17	6.32
Poland	2005	1.66	6,997	51.69	4.35
Romania	2005	-0.88	3,966	31.46	8.87
Russian Federation	2006	-1.01	4,347	59.69	18.27
Sweden	2006	3.58	38,854	66.76	13.56
Turkey	2007	1.27	6,321	28.18	30.37
Ukraine	2006	-1.69	1,467	56.36	10.56
Uruguay	2006	2.43	5,085	40.67	48.56
United States	2006	3.55	40,754	76.60	43.67

In the second experiment, a dependent variable is the SWB index, and independent variables are GDP per capita, urbanization level and car ownership rate. And the estimated multiple linear regression equation could be as follows:

$$\widehat{y_i}' = b_0' + b_1'x_1' + b_2'x_2' + b_3'x_3' \qquad (5)$$

where $\widehat{y_i}'$ is a dependent variable, each country's SWB index, x_1' is GDP per capita, x_2' is urbanization level, x_3' is car ownership rate, b_0' is Y-intercept, and b_1', b_2', and b_3' are coefficients of estimated x_1', x_2', and x_3'.

The SWB index was averaged value of 1995-2007, so the numbers of GDP per capita, urbanization level and car ownership rate were also calculated as mean values of 1995-2007. Limitation of the available data from independent variables only allowed 67 countries to be considered in a model 5 of the second experiment. 16 OECD countries were used for model 6 and 7.

Table 3.6. Second Experiment Variables I, 16 Countries (NSF, 2008 and World Bank, 2015)

Country	SWB Index	GDP per capita (US$)	Urbanization Level (%)	Car Ownership Rate
Austria	3.68	35921	19.59	511.78
Belgium	3.40	34495	17.52	473.02
Switzerland	3.96	52372	15.06	515.13
Czech Republic	1.66	11697	11.63	390.48
Denmark	4.24	45988	20.39	368.10
Spain	2.16	24313	22.99	465.73
Finland	3.24	34879	19.68	454.78
France	2.50	33027	22.39	475.67
Greece	1.45	19776	28.84	391.74
Ireland	4.12	43083	25.58	403.72
Italy	2.06	30786	18.08	589.29
Japan	2.24	34507	60.01	437.07
Korea, Rep.	1.23	15951	48.49	233.31
Netherlands	3.77	39025	6.32	441.06
Poland	1.66	6997	4.35	355.31
Sweden	3.58	38854	13.56	459.22

Table 3.7. Second Experiment Variables II, 16 Countries (NSF, 2008 and World Bank, 2015)

Country	SWB Index	GDP per capita (US$)	Urbanization Level (%)	Car Ownership Rate
Austria	3.68	35,921	19.59	505.13
Belgium	3.40	34,495	17.52	466.75
Switzerland	3.96	52,372	15.06	511.88
Czech Republic	1.66	11,697	11.63	371.82
Denmark	4.24	45,988	20.39	358.33
Spain	2.16	24,313	22.99	457.58
Finland	3.24	34,879	19.68	440.49
France	2.50	33,027	22.39	473.24
Greece	1.45	19,776	28.84	359.68
Ireland	4.12	43,083	25.58	390.97
Italy	2.06	30,786	18.08	583.78
Japan	2.24	34,507	60.01	429.09
Korea, Rep.	1.23	15,951	48.49	215.00
Netherlands	3.77	39,025	6.32	429.58
Poland	1.66	6,997	4.35	310.97
Sweden	3.58	38,854	13.56	457.00

4. Results and Analysis

4.1 GDP per capita, Tertiary School Enrollment Ratio, and Urbanization Level

In the model 1, the averaged data (1995-2007) of dependent and independent variables were used. In the model 2, 3, and 4, the specific year's data of Wave 3 (1995-1998), 4 (1999-2004), and 5 (2005-2007) were used.

Table 4.1. OLS Multiple Linear Regression Results I

Model Variable	Model 1	Model 2	Model 3	Model 4
Dependent Variable	SWB Index (1995-2007)	SWB Index Wave 3	SWB Index Wave 4	SWB Index Wave 5
GDP per capita	0.00008597*** (0.00001536)	0.0001064*** (0.00002971)	0.0001109*** (0.00001777)	0.00005516*** (0.00001598)
Tertiary Enrollment Ratio	- 0.02413** (0.01065)	- 0.04089* (0.02174)	- 0.03300** (0.01584)	- 0.02219* (0.01311)
Urbanization Level	0.02875** (0.01240)	0.04158* (0.02415)	0.0277* (0.01662)	0.02788* (0.01648)
Observation Number	67	20	28	22
R^2 Adjusted	0.39	0.48	0.62	0.36

Notes: Standard errors in parentheses. Significance levels: * $p < .10$; ** $p < .05$; *** $p < .01$

4.2 GDP per capita, Urbanization Level, and Car Ownership Rate

The second experiment, the independent variables were GDP per capita, urbanization level, and car ownership rate. 67 countries were used for the model 5, and 16 OECD countries were used for the model 6 and 7. The averaged data (1995-2007) of dependent variable was used in the model 5. In the case of car ownership rate, due to the limitation of the data from World Bank, the data was only available from 2000 to 2011. Thus, the averaged data for the year 2000-2011 and the year 2000-2007 of car ownership rate were adopted in the model 6 and 7, respectively.

Table 4.2. OLS Multiple Linear Regression Results II

Model Variable	Model 5	Model 6	Model 7
GDP per capita	0.00008492*** (0.00002219)	0.00008225*** (0.000008133)	0.00008360*** (0.000008467)
Urbanization Level	0.02092* (0.01204)	- 0.02680*** (0.006639)	- 0.02616*** (0.006562)
Car Ownership Rate (2000-2011)	- 0.002038 (0.001718)	- 0.003073** (0.001336)	-
Car Ownership Rate (2000-2007)	-	-	- 0.002885** (0.001262)
Observation Number	67	16	16
R^2 Adjusted	0.35	0.89	0.89

Notes: Standard errors in parentheses. Significance levels: * $p < .10$; ** $p < .05$; *** $p < .01$

4.3 Analysis and Implications

In the first experiment as shown in the Table 4.1, the SWB index had a positive relationship with GDP per capita and urbanization level. In other words, people are happier when they earn more income. And, a man who lives in a country which has a higher urbanization level is happier than other people who live in other ones which have a lower urbanization level. However, the relationship between the SWB index and tertiary school enrollment ratio had a negative correlation, which means that more people enrolled in tertiary schools might lead to less happiness in a country. All variables, which were mean data of 1995-2007, were adopted in the Model 1 (67 countries). In order to verify the reliability of the data, the short period data (Wave 3, 4, and 5) were used in Model 2, 3, and 4. The results had the similar trend with Model 1.

In the second experiment as shown in the Table 4.2, GDP per capita and urbanization level were only satisfied with the significance level below 0.10 in the Model 5 (67 countries – Group A). And, all independent variables were significant in Model 6 and 7 which experimented 16 OECD countries (Group B). The coefficients show contradicted signs with the first experiment. The large number of densely populated areas in a country might lead to less happiness. In terms of GDP per capita, it remained a key positive factor for SWB. And, car ownership rate had also a negative correlation with SWB.

To sum up the results, generally, GDP per capita had a positive relation with SWB. The tertiary school enrollment ratio had a negative relationship with SWB in Group A. The urbanization level had a positive relationship in Group A, but negative in Group B. Car ownership rate had a negative relationship with SWB. In Chapter 2,

Easterlin (2004 and 2007) revealed that the number of years of schooling positively affects the happiness states. At a first glance, the results seem to contradict the results of the Model 6 and 7 in this paper. But the answer is no. The survey achieved by Easterlin was conducted by individual surveys and analysis. But the Model 6 and 7 were conducted by aggregated surveys and analysis. In other words, the variables of Model 6 and 7 were sample countries' representative data, mean data. Easterlin (2004) already mentioned about the importance of representative trend; "*What is true on average is not necessarily true for each individual; but it is important to be clear on what is typical*." In this paper, the relationship between tertiary school enrollment ratio and SWB represented a negative correlation. Even though, higher number of years of schooling might lead to happier states individually, but more educated people might be the cause of less happiness in a country. Higher tertiary school enrollment ratio means that there are many people who enroll in colleges and universities for Bachelor's, Master's, or Ph.D. degrees. In the case of Korea, the ratio was almost close to 80%, which means that 80% of the students who graduated from high schools enter colleges and universities. The higher ratio could represent the competitive education and employment conditions. It could also reflect the condition where a country invests more on tertiary education. In other words, there is more fiscal expenditure on tertiary education in a country.

In terms of urbanization level, there was a positive relationship with SWB in Group A representing 67 countries. However, there was a negative relationship with SWB in Group B representing OECD 16 countries. It might imply that catalyzed urbanization might be a good remedy for happiness states generally, but it does not have an effect on high-income OECD countries which belong to Europe and East Asia.

Highly populated urbanization may lead to unbalanced development in a country. Consecutively, it may generates income inequality and environment problems. Therefore, a high level of urbanization might be the cause of impediment to social integration and national health. Inglehart *et al*. (2008) claimed that there were different trends between two groups: high and low-income countries. And, in Chapter 2, Figure 2.7 has shown that the income-SWB relations differed by region. According to Table 3.6, East Asia countries had a relatively high ratio about 45-60% as compared to European countries which had below 30%. Therefore, Korea's and Japan's especially low SWB index relative to Europe might have been resulted from regional characteristics; East Asian countries have developed extremely rapidly than others did.

5. Conclusions and Recommendations

What are other factors affecting happiness beyond the income level? What is the reason that Korean SWB index is relatively lower than that of other OECD countries? Does higher tertiary school enrollment make people unhappy? These three key questions and answers are core part of this paper. Happiness is a very subjective concept, but there are several indices related to happiness. In the meantime, it is necessary to caution against using those indices as they are usually composites of data such as income, education, health, and so on. In order to overcome the limitation, WVS data were used in this paper. And OLS multiple linear regression analysis was conducted for two experiments. In the first experiment, the dependent variable was SWB index and independent variables were GDP per capita, tertiary school enrollment ratio, and urbanization level. In the second experiment, the dependent variable was the same as the prior experiment, and independent variables were GDP per capita, urbanization level, and car ownership rate. Most of the previous researches focused on the linkage between the income level and happiness states. However, in this paper, some other variables were considered for analyzing the gap; for example, Korea's income level is relatively high in OECD countries, but the level of SWB is significantly low in the group. In other words, Koreans are less happy than Western Europeans (high-income, developed countries). To sum up the results, generally, GDP per capita had a positive relationship with SWB. The tertiary enrollment ratio had a negative relationship with SWB. The urbanization level had a positive linkage with SWB in 67 countries but negative in OECD 16 countries (Europe & East Asia countries). Car ownership rate had a negative relationship with SWB.

The above results may imply that in order to catch up with the high SWB states of European countries, the Korea government should focus on the tertiary school enrollment ratio and urbanization level. A high tertiary school enrollment ratio does not lead to a happier country. An abnormal high tertiary school enrollment ratio may lead to discrepancies between labor supply and demand. Jin (2003) pointed out that there was a weak linkage between tertiary education (especially Ph.D.) and job market. And, she claimed that considerable portions of graduates had not been employed. A high unemployment ratio among highly educated Koreans might be a big problem for the prosperity of Korea, and its SWB might become worse. Therefore, inducing an appropriate tertiary school enrollment ratio might be a solution for building a happy country.

Second, an urbanization level negatively affects the SWB in 16 countries. A high urbanization level does not always lead to happier states. A high urbanization level implies that there are several or many highly populated areas with more than 1 million people. Capitals and materials concentrated in urban areas could catalyze social and economic inequality. Therefore, the Korean government should consider the optimum level of urbanization equally developing urban and rural areas and well-distributing wealth.

Are Koreans happy? Yes and no. Happiness is a subjective concept dependent on the surrounded people and groups. The fact is that Koreans are less happy compared to other OECD countries' people. What is the reason for its relatively low level of happiness? Can Koreans attribute it to other OECD countries' people? No. Koreans are not directly affected by them. Perhaps, this paper provides the reason why Koreans are less happy. Do you pursue higher degree? Or do you live in an urban area for your job

or children’s better education conditions? Happiness is not an objective and measurable index, but it is an autotelic journey for your life. Be happy, no matter what you have.

6. List of Acronyms

BLI	Better Life Index
GDP	Gross Domestic Product
GNH	Gross National Happiness
GNP	Gross National Product
ISCED	International Standard Classification of Education
ISR	Institute for Social Research
NSF	National Science Foundation
OECD	Organization for Economic Co-operation and Development
SWB	Subjective Well-being
WVS	World Values Survey

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