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# Sociological studies on happiness in cross-national contexts: effects of economic inequality and marriage

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*University of Iowa*

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SOCIOLOGICAL STUDIES ON HAPPINESS IN CROSS-NATIONAL CONTEXTS:  
EFFECTS OF ECONOMIC INEQUALITY AND MARRIAGE

by  
Sanghag Kim

An Abstract

Of a thesis submitted in partial fulfillment  
of the requirements for the Doctor of  
Philosophy degree in Sociology  
in the Graduate College of  
The University of Iowa

July 2011

Thesis Supervisor: Professor Jae-On Kim

## ABSTRACT

The main purpose of this dissertation is to establish happiness as a sociological research topic and examine the effects of economic inequality and marriage on happiness in cross-national contexts. Following a critical review on previous happiness studies, two cross-national studies and one longitudinal study focusing on Korean data are conducted for this purpose. In the first study, I examine the effects of objective and subjective inequality on happiness across 26 countries. Data from the International Social Survey Program 1999 and the World Values Surveys 1994-1999 are used for analyses. The results indicate that subjective inequality, not objective inequality, has a strong negative influence on happiness. In the second study, I examine the relationship between marriage and happiness across 72 countries, focusing on a comparison of marrieds, cohabitators, and never-married singles. Data from the World Value Surveys 1999-2008 are used for analyses. The results indicate that the relationship between marriage and happiness varies across nations. In the majority of countries, marriage is positively associated with happiness, but there are many countries where the relationship is non-existent or negative. Cohabitators are happier than never-married singles, but only in countries where marrieds are also happier than the never-married singles. Multi-level analyses show that the positive relationship between marriage and happiness is stronger in countries characterized by economic development and secular-rational culture. In the third study, I examine the continuation of the marriage effect on life satisfaction in Korea. Longitudinal data from the Korean Labor and Income Panel Study 1998-2008 are used for analyses. The results indicate that the selection effect (i.e., People with greater life satisfaction are more likely to get married.) exists in general but is moderated by the age effect. The increase of life satisfaction caused by marriage is maintained at least for 6 years or more. Thus, the positive relationship between marriage and life satisfaction in Korea is explained by both of the selection effect and the causal effect of marriage.

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Graduate College  
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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph.D. thesis of

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has been approved by the Examining Committee  
for the thesis requirement for the Doctor of Philosophy  
degree in Sociology at the July 2011 graduation.

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To My Parents



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The main purpose of this dissertation is to establish happiness as a sociological research topic and examine the effects of economic inequality and marriage on happiness in cross-national contexts. Following a critical review on previous happiness studies, two cross-national studies and one longitudinal study focusing on Korean data are conducted for this purpose. In the first study, I examine the effects of objective and subjective inequality on happiness across 26 countries. Data from the International Social Survey Program 1999 and the World Values Surveys 1994-1999 are used for analyses. The results indicate that subjective inequality, not objective inequality, has a strong negative influence on happiness. In the second study, I examine the relationship between marriage and happiness across 72 countries, focusing on a comparison of marrieds, cohabitators, and never-married singles. Data from the World Value Surveys 1999-2008 are used for analyses. The results indicate that the relationship between marriage and happiness varies across nations. In the majority of countries, marriage is positively associated with happiness, but there are many countries where the relationship is non-existent or negative. Cohabitators are happier than never-married singles, but only in countries where marrieds are also happier than the never-married singles. Multi-level analyses show that the positive relationship between marriage and happiness is stronger in countries characterized by economic development and secular-rational culture. In the third study, I examine the continuation of the marriage effect on life satisfaction in Korea. Longitudinal data from the Korean Labor and Income Panel Study 1998-2008 are used for analyses. The results indicate that the selection effect (i.e., People with greater life satisfaction are more likely to get married.) exists in general but is moderated by the age effect. The increase of life satisfaction caused by marriage is maintained at least for 6 years or more. Thus, the positive relationship between marriage and life satisfaction in Korea is explained by both of the selection effect and the causal effect of marriage.

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## CHAPTER I. SOCIOLOGY OF HAPPINESS

### Happiness as a Subject for Sociology

Until a recent date, happiness has not been considered as an appropriate topic for rigorous empirical analysis in sociology<sup>1</sup>. In my opinion, there are two reasons for this. First, sociologists tended to regard happiness as an outcome of the operation of the human mind, which was believed not to be a subject of a scientific study. Second, particularly in terms of measurement, they were skeptical of using the answers to a question like “Are you happy?” for their statistical investigation. However, recent studies performed by many social scientists with diverse academic backgrounds have resolved such conceptual and methodological issues in a successful way.

If happiness is randomly distributed dependent solely upon the human mind regardless of external conditions, we may not find any common factor that contributes to the enhancement of happiness. However, in most countries, the older people reported higher happiness than the middle aged (e.g., Blanchflower and Oswald. 2008) and the married tended to be happier than the single (e.g., Stack and Eshleman 1998). Religious people were generally happier than the non-religious (e.g., Ferriss 2002). Physical health, stable employment status, and necessary material standards were referred to as fundamental conditions for happiness in many empirical studies across countries (e.g., Diener, Suh, Lucas, and Smith 1999; Di Tella and MacCulloch 2006). Not to mention, these studies did not simply mean that happiness was mechanically determined by one’s socio-demographic positions or economic conditions. Rather, these revealed that we could investigate common correlates on happiness outside of the human mind, as

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<sup>1</sup> A few articles including “happiness” in their titles started to appear in major sociology journals such as *American Sociological Review* (e.g., Yang 2008) and *American Journal of Sociology* (e.g., Firebaugh and Schroeder 2009) only recently (see Phillips (1967) as an exception).



sociologists generally did for their research to try to find out social conditions explaining human behaviors, perceptions, and emotional responses.

The results of cross-national comparisons on happiness (e.g., Diener and Lucas 2000; Inglehart et al. 2008; Veenhoven 1995) provided strong evidence to dispute the notion that happiness is a mere product of human mind. The main finding of these studies was that the average level of happiness substantially varies from country to country and the difference can be mainly attributable to economic, social, and cultural factors of each country. Since the seminal work of Easterlin (1974), economic development of a nation has been regarded as a key factor of happiness. The economic factor drew the most attention of academia and the public because of the mixed answers to the question, “Can money buy happiness?” (Easterlin 1995, 2005; Frey and Stutzer 2002; Stevenson and Wolfers 2008). Even though these studies provided somewhat different conclusions for advanced industrial countries, they at least brought a general consensus that the economic development of a country plays a crucial role in increasing happiness up to the point in which survival begins to be taken for granted in a country.

Besides the economic factor, cultural and historical factors were also deemed to lead to different levels of happiness across countries. For example, the U.S. indicated lower levels of happiness than Denmark in spite of higher economic development. Ex-communist countries tended to reveal lower levels of happiness than historically protestant countries (Inglehart and Klingemann 2000). For this cross-nation difference, Veenhoven (1996, 2000a) proposed the concept of “livability” of a nation. Livability refers to the degree to which a nation’s provisions fit with the needs and capacity of its citizens which is necessary for their happiness. Also, it means characteristics of the environment that governs the life chances of the citizen, not being limited to material conditions. With this concept, Veenhoven (1996, 2000a) argued that the different levels of happiness across countries reflect differences of the livability of the countries, and

therefore what sociologists should do for happiness research is to look for various social conditions comprising the livability of each country.

Another major concern on happiness research came from the worry about the quality of happiness data, typically obtained by self-report survey. Because the empirical studies on happiness presupposed that people's responses to the question about their happiness are valid and reliable data, scholars have paid much attention to measurement issues from the early stage of happiness research (e.g., Andrews 1974; Andrews and Robinson 1991; Diener 1994). A large body of research focusing on the quality of self-report data provided good reasons to believe that the data should not be dismissed and retained enough validity and reliability to perform further empirical analyses. For example, different instruments contrived to measure happiness correlated well with one another (Fordyce 1988). Those who responded as very happy tended to smile more (Ekman, Davidson, and Friesen 1990). Heart rate and blood pressure as the responses to stress were negatively correlated with happiness data (Shedler, Mayman, and Manis 1993). Excellent internal consistency and test-retest reliability were observed between the self-report happiness data and electroencephalogram measures of prefrontal brain activity, which reveal different patterns corresponding to positive and negative affect (Sutton and Davidson 1997).

A related measurement issue was the possibility of social desirability bias. If people conceived being happy as a cultural norm or as a symbol of successful self-management, survey results might be biased by over-reporting of happiness. Argyle (1987) and Veenhoven (1991), however, did not find any problem of social desirability bias in their literature reviews on happiness measures. Diener, Sandvik, Pavot, and Gallagher (1991), in contrast, did find a significant correlation between social desirability and happiness. But they argued that social desirability in happiness measures could not be regarded as a response artifact because it was a substantive personality characteristic which contributed to the enhancement of happiness. Konow and Earley (2008) presented

experimental evidence which showed overall happiness measures were not significantly correlated with the score of the Marlowe-Crowne scale (Crowne and Marlowe 1960), which is a commonly used measure for social desirability.

In the cross-national comparison about happiness, an important issue was the conceptual equivalence of the term, “happiness”. This implies that “happiness” may not have identical meanings across languages. Therefore, the different levels of happiness across countries might be attributable to the linguistic difference in the interpretation of the questions about happiness. The language problem is inherent in all types of cross-national studies targeting different language populations. However several empirical studies showed that the cross-national difference could not be explained by the language difference. Flemish or French speaking Belgians as a whole revealed higher happiness than the French (Inglehart and Rabier 1986). The German, French, and Italian speaking regions indicated significantly different happiness levels within country comparisons in Switzerland (Stutzer and Frey 2003). However the results of World Value Survey since 1981 stated that the happiness level of the Swiss has been consistently much higher than that of the Germans, French and Italians (Inglehart et al. 2008).

As shown above, many previous studies have provided a solid foundation for happiness as an appropriate topic of sociology in spite of the enduring neglect of sociologists. Happiness represents an individual’s state of mind, but this does not mean that it is simply determined by one’s own mental attitude regardless of the social conditions in which she/he is embedded. In a sense that Durkheim’s concept of anomie and Marx’s concept of alienation basically referred to an individual’s state of mind corresponding to the change of social conditions, the sociological interest on the association between one’s internal state and external surroundings is not strange. Happiness is merely differentiated from alienation or anomie in that it denotes a positive internal state of the human, not a negative one.

As Smelser (1967) argued for the definition of sociology, sociologists opt for social-structural conditions and organize them to explain a given dependent variable even though the number of conditions that potentially affect its variations is, at first glance, discouragingly great. Happiness, indeed, seems to be affected by numerous conditions. However, previous happiness literature has shown that sociological variables can effectively explain the variation of the level of happiness. Happiness as in itself is socially grounded and the enhanced happiness of the people can be regarded as an ultimate indicator of a good society. This strongly asserts that happiness is a subject for sociology.

#### Literature on Happiness: Three Theoretical Perspectives

A large body of literature on happiness has been accumulated mainly by psychologists and economists, and it is still growing with surging interests of other social scientists such as sociologists and political scientists. Several popular books (e.g., Gilbert 2006; Layard 2005) and review papers (e.g, Diener et al. 1999; Di Tella and MacCulloch 2006) are already available. It may be unnecessary to review all of the previous empirical studies on happiness. However, it is needed to examine their different theoretical perspectives on the determinants of happiness for a more comprehensive future study. I discuss three broad theoretical approaches in happiness research, i.e., the needs approach, the relative standards approach, and the cultural approach, focusing on each approach's strong and weak points. Each approach is not so much an established, distinctive theory, but a broad perspective characterized by different focal points.

Before reviewing the literature, two things should be addressed. First, the three approaches listed above do not cover all the happiness studies. For example, some scholars emphasized inborn predispositions as determinants of happiness (e.g., Lykken and Tellegen 1996). Their research design to compare twins with different social backgrounds provided strong empirical findings to support their genetic explanation. As

another inborn trait, Headey and Wearing (1992) emphasized individuals' personality that determined a baseline level of happiness. According to their argument, people characterized by different personalities had different baseline levels of happiness. I do not argue that those theories emphasizing one's inborn nature should be dismissed. Rather, I believe that the interdisciplinary approach to jointly consider human natures and social conditions may be a future stage of the happiness research, in light of the recently burgeoning academic interest on gene-environment interactions (e.g., Caspi et al. 2003). However, in this review, I only focus on the three perspectives which put more weight on social conditions and individuals' responses to them, obviously because the nature-oriented approaches have limitations in explaining cross-national differences of happiness.

Second, in previous literature, happiness has been largely regarded as a major component of subjective well-being (SWB). SWB is a broader category of phenomena including pleasant and unpleasant emotional responses as well as global and domain-specific satisfactions. Specifically, happiness is an aspect of pleasant emotional responses (Diener et al. 1999). As a related concept, life satisfaction is also considered as a major component of SWB. Although some scholars emphasized conceptual differences between happiness and life satisfaction (e.g., Gundelach and Kreiner 2004), the two concepts have been generally used as a proxy of SWB in many studies. In the current literature review, therefore, I include previous studies addressing life satisfaction as well as happiness. Also, happiness, life satisfaction and SWB will be interchangeably used in all chapters.

### Human Needs

The needs approach is based on the assumption that there are basic human needs and satisfying the needs is necessary to enhance happiness. According to the needs approach, the happiness difference between two persons reflects differences of objective conditions that determine the extent to which the needs of the two persons are satisfied.

Thus, the important task of the needs approach is to investigate what essential needs exist for the enhancement of happiness and what conditions can satisfy the needs.

Although the needs approach seems self-evident in the study of happiness, it cannot be as clear as it looks due to the fact that human needs are not simply homeostatic in nature (Diener and Lucas 2000). Therefore a more complex task is required to identify needs beyond basic biological imperatives for the survival of a human being. Several empirical studies have been attempted to handle this issue, but the results of these studies revealed that it may be a perplexing work to build up a theory of needs determining happiness. For example, Campbell, Converse, and Willard (1976) showed that the patterns of satisfaction of the American people did not follow the prediction of Maslow's (1954) theory of needs hierarchy. Hagerty (1999) also tested Maslow's predictions across time and nations but only obtains partially supportive results. Diener and Diener (1995) found that the correlation of life satisfaction and self-esteem was much stronger in the individualist culture than the collectivist culture. This implies that a combination of needs and happiness may be a culture-specific phenomenon.

Given that the connection between objective conditions and needs fulfillment is ambiguous, it seems difficult to make an exhaustive list of universal needs which are necessary for the enhancement of happiness. Such difficulty is also reflected in the notion that objective well-being should be distinguished from subjective well being, or happiness. By putting more emphasis on improving living conditions in a practical way, the objective well-being approach (Erikson 1993; Vogel 2002) eschews the puzzling problem that happiness is not determined by external circumstances. The subjective well-being approach (Allardt 1993), on the contrary, underlines people's own evaluation of their life to consider the fulfillment of needs beyond material standards. The two approaches are conceptually distinguished from each other but have a common interest in building up the inventory of the crucial domains which are vital to happiness. Those include health, labor market, education, income, security, housing, family, social

relationships, and environment (Böhnke and Kohler 2008). Even though there is disagreement about what domains should be included or excluded, many empirical studies focusing on the effects of these domains shed light on what needs are more important for happiness in a given situation (e.g., Alber, Fahey, and Saraceno 2008).

A strong support for the needs approach is obtained from large-scale cross-national comparison studies. Veenhoven (1993) indicated that 77 percent of the variance in national-level happiness could be explained by income, nutrition, equality, freedom and education factors. If happiness was determined by an individual's relative standards, regardless of objective conditions, the average level of happiness across nations must be similar to one another around a neutral point. But data did not support this prediction (Veenhoven 1995). A series of studies using World Value Surveys also showed that national-level happiness was strongly related to the level of economic development and democracy as well as other cultural factors (Inglehart 1990; Inglehart and Klingemann 2000; Inglehart et al. 2008). A key argument of these studies was that the different levels of material and non-material resources which were crucial for the fulfillment of needs mainly led to different levels of happiness across countries.

In spite of a large accumulation of empirical studies based on the needs approach, it has a critical limitation to develop as an elaborated sociological theory. Although need fulfillment is presupposed as a cause of the enhanced happiness, the only way to evaluate whether the independent variable works or not, i.e., whether the need is fulfilled or not, is to examine the change of the dependent variable, i.e., change of happiness. In other words, researchers have no choice but to infer, *ex post facto*, the need-satisfaction, only after seeing that the level of happiness has increased. This is a typical case of the *post hoc* explanation. Without direct measures of needs and need-fulfillment, the needs approach cannot be rigorously tested. As pointed out by Diener and Lucas (2000), empirical studies simply relying on self-report happiness data cannot easily overcome this limitation.

## Relative Standards

The relative standards approach is based on the assumption that happiness is determined through the process of comparisons between given conditions and reference standards. If people use a higher reference standard than a given condition, they may feel less satisfaction or lower happiness. Likewise, a lower reference standard may lead to more satisfaction or higher happiness. Therefore, external circumstances at most indirectly affect happiness. Depending on situations, people can use various reference standards which include relevant others, their past standing, and their aspirations and expectations (Michalos 1985).

The relative standards approach is largely supported by psychological theories which emphasize the relative nature of judgments (Helson 1964; Parducci 1995) and focus on change, not absolute level, as a key factor for evaluation. For example, the prospect theory (Kahneman and Tversky 1979) states that value is assigned to gains and losses rather than to the absolute level of final assets. Thus, happiness is considered as an outcome of the relative change in life conditions, not merely reflecting the absolute conditions. Several laboratory experiments provided support for the predictions of these psychological theories (Dermer, Cohen, Jacobsen, and Anderson 1979; Smith, Diener, and Wedell 1989; Strack, Schwarz, and Gschneidinger 1985). For example Strack et al. (1985) showed that the current level of happiness was affected by whether happy or unhappy past events were recalled; happy past events positively affected current happiness. However the direction of the relationship was reversed when people perceived the past events as being distant from their current life.

The relative standards approach also has a long tradition in sociology and economics. More than a century ago, Veblen (1899) had already clarified the relative nature of the satisfaction mechanism of humans. He mentioned that a general increase of the community's wealth could not satisfy one's desire for material goods because the basis of the desire is to exceed everyone else in the accumulation of goods. This



perspective resonates with the classic sociological argument about the effect of reference groups (Merton and Rossi 1950; Stouffer et al. 1949). Adam Smith (1776) had also acknowledged that people are motivated by the concern about their relative positions; in a passage in *The Wealth of Nation*, he noted that an English man had to wear a linen shirt to appear in public without shame at that time, but this was not so in other societies. Particularly in economics, relative income comparison has been a key topic of happiness research. With the empirical evidence called “Easterlin Paradox”<sup>2</sup>, Easterlin (1974) argued that individuals assessed their material well-being by reference to a social norm of what goods they should have, not by the absolute amount of goods they have.

Many empirical studies from various academic areas provided support for the relative standards approach. Firebaugh and Tach (Forthcoming) found that one’s happiness was negatively affected by the increase of the average income of one’s age group, controlling one’s absolute income. This implies that one’s happiness tends to decrease unless one’s income keeps pace with the income of one’s age cohort group. Luttmer (2005) highlighted neighbors as a reference group and found that higher earnings of neighbors were negatively related with one’s happiness. Clark (2003a) found that life satisfaction of unemployed people who lived in an area with a high unemployment rate was higher than that of unemployed people who lived in an area with a low unemployment rate. All of these studies pointed out the importance of the relative standards approach to the prediction of happiness. Also, they revealed that the relative standards could vary such as the same age group, co-workers, expectation level, and neighbors.

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<sup>2</sup> “Easterlin Paradox” means that there is no relationship between national-level average income and national-level average happiness in spite of the robust positive relationship between individual-level income and happiness within a nation. Several recent studies (Inglehart et al. 2008; Stevenson and Wolfers 2008), however, provide a contrary view against the Easterlin Paradox.

The idea of “hedonic treadmill” (Brickman and Campbell 1971) is a variant of the relative standards approach. People have a tendency to adjust themselves to present circumstances and the outcome of the adjustment serves as a new reference for the evaluation of their life. Therefore, for example, if an increase of income entails enhanced happiness at a certain point, people should keep increasing their income for positive hedonic experiences to maintain the inflated level of happiness. In an early study on this topic, Brickman, Coates, and Janoff-Bulman (1978) indicated that people who won a lottery experienced a hike in happiness but adapted back to normal level of happiness over time. Similarly, Van Boven and Gilovich (2003) found that the positive emotional effect caused by purchasing new items was at most short-lived. Economists often mentioned the mechanism of the hedonic treadmill as a major reason why the average level of happiness remained constant in many countries in spite of their substantial economic development (Frank 2005; Frey and Stutzer 2002; McBride 2001).

Despite the large support for the relative standards approach, it has some limitations. First of all, an obvious criticism is raised from the argument that all conditions are not appraised relatively. For this argument, Frank (2007) provided a useful conceptual distinction between positional good (Hirsch 1976) and non-positional good. For instance, when people choose a positional good like a house, a relative advantage (i.e., bigger house than others’) is considered more importantly. However, when people choose a non-positional good like vacation, an absolute advantage (i.e., vacation as long as possible regardless of others’) is preferred. Therefore, the relative standards approach cannot be applied unconditionally, specifically for a non-positional good. Second the approach is not sustained in the context of cross-national comparison. For example, as Veehoven (1995) argued, if all people are trapped in the hedonic treadmill, the national-level happiness difference should disappear because the average happiness in each nation may converge into the neutral point, but this is not the case. Third, the relative standards approach has a difficulty in explaining under what conditions which reference standard is

activated for comparison. For example, Diener, Diener, and Diener (1995) found that a nation's level of happiness was not influenced by the level of average income of neighboring nations. This indicates that the average income of neighboring nations is not a relevant reference standard. Indeed, specifying a reference standard is always accompanied with a formidable challenge because numerous conditions are simultaneously involved in the context of comparison. This limitation asserts that much more empirical studies are usually required to identify relevant reference standards for a specific comparison context.

### Culture

The main argument of the cultural approach is that people's happiness is determined by collective norms and traditions. Therefore, sizable differences of happiness between groups are not assumed to be associated with the present conditions of their lives or relative standards. According to Inkeles (1997), cross-national differences of happiness represent the fact that each nation state has its own unique cultural characteristics, which are often referred to as enduring "national creeds" or "national character traits". Inglehart (1990) also argued that these cross-national differences were attributable to the differences of cognitive cultural norms, not individuals' grief and joy. Although nation state is still a relevant criterion to demarcate cultural boundaries, cultures are not always differentiated by the geographic distinction of nations. There are subcultures within nations, and a culture exists beyond national borders. For instance, in Switzerland, the German, French and Italian speaking regions revealed significantly different levels of happiness (Stutzer and Frey 2003). Nations whose cultures are more individualist than collectivist tended to show higher level of happiness (Diener et al. 1995).

There are several empirical findings to support the cultural approach. According to Inglehart (1990), if a pessimistic outlook on life obtained by the historical hardship of

earlier generations is persistent for quite some time, it oppresses later generations' positive attitudes on life. This might be the case of Italy which showed lower levels of happiness than France. In contrast, a culture of optimism was regarded to lead to the enhancement of happiness. The U.S. was often mentioned as the example of this case (Ostroot and Snyder 1985). Rice and Steele (2004) examined the happiness rank order of 20 groups of people in the U.S. who identify their ancestors' national origins differently. Their findings indicated that the happiness rank order of the 20 groups was similar with the happiness rank order of the nations that were identified as their ancestors' national origins. This result implied that the influence of culture on happiness could pass down over generations even beyond geographic boundaries. Diener et al. (2000) showed that the ideal amount of satisfaction was different across cultures even if it was generally assumed that pleasure is good and displeasure is bad. Also, the ideal level of life satisfaction was significantly related to the current level of life satisfaction. These findings suggested that the actual life satisfaction, or happiness, could vary depending on the cultural norms that control pleasant and unpleasant emotional responses. Dorn et al. (2007) indicated that the national-level happiness was substantially explained by the language variable. In their study, the language difference was considered as a criterion to demarcate cultural differences.

The results of these studies suggest that culture can be an independent factor that may systematically increase or decrease happiness of people. However, we should be careful not to exaggerate the effect of culture by ignoring the role of fundamental human needs and relative standards in examining the change of the level of happiness. If we rely solely on the cultural approach, it may be assumed that the average level of happiness in nations is not related to the variation of their actual quality of life, but it is not the case. Also, the cultural approach has difficulty in examining individual-level variation of happiness because it presupposes that a group of people share a culture, and the culture affects happiness collectively, not individually.

In spite of the limitations of the cultural approach, in my opinion, cultural factors can offer much room for development to the current happiness research. Particularly, this is possible when the effects of cultural factors are considered together with the effects of human needs and relative standards. Given that the three perspectives are complementary to one another, it is crucial to jointly consider them in actual analyses. Indeed, both of the needs approach and the relative standards approach contribute together to explaining, for example, the relationship between income and happiness. In the U.S, individuals' happiness is affected not only by their own income but also by their neighbor's income (Firebaugh and Schroeder 2009). The effects of cultural factors, however, have not been incorporated with other perspectives. This is problematic because culture can affect both of the formation of relative standards and the means for need-satisfaction.

For instance, the cultural tradition of ex-communist countries let the people of the countries believe that the economic inequality of their country is worse than that of other countries (Lübker 2004). This means that they commonly have a higher reference standard in terms of the economic equality. Therefore, if we examine the relationship between economic inequality and happiness, the ex-communist countries may reveal a different pattern from other capitalist countries mainly due to the higher reference standard of equality<sup>3</sup>. For another example, if the need for emotional security and attachment is universal, and the need is satisfied by the marriage institution, the relationship between marriage and happiness may be identical across nations regardless of cultural differences. However, this anticipation should be investigated in an empirical study because we do not know yet the effects of cultural norms regulating the

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<sup>3</sup> The relationship between economic inequality and happiness will be dealt with in detail in chapter II.

institutional means which are supposed to satisfy the need of emotional security and attachment<sup>4</sup>.

### Lessons from Cross-National Happiness Studies

In happiness literature, cross-national comparison studies attract special attention of sociologists because they directly focus on the social conditions associated with the variation of individual happiness. Particularly, the cross-national approach provides two important lessons for those who study happiness. First, given the consensus that one of the ultimate goals of sociology is to contribute to designing a better society, the cross-national happiness research provides rich clues for a better society. Of course, the answer to the question, “What is a better society?” is not easily obtainable and may include massive philosophical debate and ideological conflicts. However, instead of relying on speculative grand theories or ideological prepossessions, we can start from an evident statement that happiness is the main, if not only, life goal of many people. In other words, by paying attention to social conditions conducive to maximizing each person’s happiness, scholars can provide pragmatic message for policymakers to move toward a better society. Such a practical demand of cross-national happiness research may be more notable in cotemporary societies where the great ideologies have lost appeal.

Second, in a related vein, the cross-national happiness research provides valuable opportunities to think over the functions of social institutions and the future of them. Given that everyone wants to be happy, we can expect that a social institution would be reinforced continuously as long as the social institution contributes to the enhancement of happiness. On the contrary, if a social institution or a social practice in a certain society hinders one’s pursuit of happiness, the people in the society may try to change the institution or practice as long as the change is not harmful to the survival of the whole

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<sup>4</sup> The relationship between marriage and happiness will be dealt with in detail in chapter III.

society. For example, some sociologists have been interested in the future of marriage as a primary social institution, responding to the increase of cohabitation and divorce in modern societies. The study of the relationship between marriage and happiness across nations may provide an insight about the persistence of the marriage institution. In terms of the education system, as another primary social institution, Böhnke and Kohler (2008) found that educational attainment positively affected happiness even after controlling other socio-economic factors in many European countries. However, in Korea, the intensive competition for educational attainment is usually referred to as a main cause of lower happiness of adolescents (e.g., Park et al. 2010). Such a cross-national difference raises a question about the function of social institutions, particularly when they suppress individuals' happiness.

Recently, cross-national happiness research is burgeoning and providing a host of empirical findings about the social conditions associated with happiness. One type of research is to examine the effects of individual level independent variables on happiness across nations. In this case, nation is dealt with as a background variable which confers a different context to the relationship of interest (e.g., relationship between age and happiness in 72 nations, see Blanchflower and Oswald 2008). The other type of research is to examine the effects of national-level independent variables on happiness (e.g., effect of national economic growth on happiness, see Stevenson and Wolfers 2008).

In the previous studies where nation was dealt with a background variable, consistency of the relationship across nations was highlighted. The emphasis on consistency is conceivable because those studies have presupposed the needs approach to happiness, even if they have not explicitly addressed it. According to the needs approach, happiness is determined by satisfying necessary human needs. Therefore, as long as we accept that the necessary human needs are universal, we cannot expect much variation in the correlates of happiness across nations. Indeed, there are several common factors such as income and health (Deaton 2008; Diener and Oishi 2000) that reveal consistently

significant influence on happiness regardless of national backgrounds. Also, in terms of the relationship between marital status and happiness, it was argued that the married were generally happier than the single, divorced, and widowed across nations (Diener et al. 2000; Stack and Eshleman 1998). However, the cross-national consistency has not always been supported (e.g, Eggers et al. 2006). A certain relationship that was believed to be established often faced a challenge with new findings (e.g., Glenn 2009). In spite of the recent accumulation of happiness literature, there are very rare studies that appropriately handle the issue of inconsistent findings in cross-national comparisons.

Most of the previous cross-national studies focused on the effects of the national-level factors on the individual-level happiness. With the early contribution of economists, macroscopic economic factors such as national wealth, recession, unemployment rate, and inflation were paid initial attention. Gross domestic product (GDP) and happiness were positively related to each other even after controlling individuals' characteristics, country fixed effects and year dummy variables; recession had a negative influence on happiness after controlling the effect of GDP (Di Tella, MacCulloch, and Oswald 2003). Inflation and unemployment rate across 12 European nations and the U.S. also negatively affected people's happiness (Di Tella et al. 2001). The effects of these macro-economic factors were also significant in Latin American nations in spite of their different cultural backgrounds and lower level of economic development compared with the European nations and the U.S. (Graham and Pettinatio 2001).

Beyond the primary interest in economic aspects, recent cross-national studies have expanded to cover diverse social conditions. This is a progressive shift in accordance with the Easterlin's (2005) suggestion to incorporate non-economic factors for happiness research. Politics and democracy was one of these factors leading to several recent cross-national studies. Dorn et al. (2007) found that national-level democracy positively affected individual-level happiness, holding the effects of one's absolute and relative income. The significant effect was maintained even when additionally controlling



macro-economic factors such as GDP, inflation, and unemployment rate and the national culture variables measured by language and religion. The positive effect of political freedom as one aspect of democracy was also supported by other studies (Haller and Hadler 2006), particularly for economically developed countries (Veenhoven 2000b). In addition, people tended to report higher happiness when the government of the day had the same ideological inclination as themselves (Di Tella and MacCulloch 2005); this tendency was also supported by the evidence that those who were better represented politically by having their party of choice in government reported higher happiness (Tavits 2008). Other studies have focused on the results of ideological competition as another national-level factor on happiness. Radcliff (2001) indicated that left-wing governments adopting a social democratic welfare regime positively affected individuals' happiness; particularly the positive effect was heightened when the government reduced market dependency. Haller and Hadler (2006) also showed a positive relationship between welfare expenditure and happiness. In terms of government performance, corruption was a key national-level factor which was negatively related with happiness in Tavits's (2008) study. Importantly, the negative effect of corruption was so strong as to overshadow the effects of macro-economic factors such as GDP, inflation and unemployment rate.

There have been several studies focusing on other societal-level aspects other than economic and political factors. For example, Radcliff (2005) concentrated on class structure across nations and investigated the potential effect of national-level union density on individuals' happiness. The results showed that the effect of unions was positively significant for not only union-members but also people in general even after controlling fixed national characteristics and welfare expenditure. In terms of social capital, Hudson (2006) reported a positive relationship between trust in institutions and people's happiness in 15 European nations; particularly important was trust toward the national government and the legal system in their country. As another aspect of social

capital, Veenhoven (2004) also showed that dense network of voluntary associations was positively related with people's happiness.

### Limitations of Cross-National Happiness Studies

#### Inconsistent Findings and Data Problems

The large accumulation of cross-national studies has provided substantial knowledge about the social conditions associated with happiness. However, those studies have also revealed some controversies and limitations. Typically, the problems are observed from contradictory empirical findings. Such inconsistent findings usually lead to conflicting theoretical claims. First of all, scholars have provided different answers to the basic question of whether the growth of national income accompanies greater happiness (Easterlin 1995, 2005; Hagerty and Veenhoven 2003; Inglehart et al. 2008; Stevenson and Wolfers 2008; Veenhoven and Hagerty 2006). The answers on this issue have been directed by Easterlin's (1974) early finding which highlighted no relationship between income and happiness at the aggregated level. This finding was paid much attention for its far-reaching policy implication, which asserts that economic growth cannot be a primary goal of government policy unless it brings happiness to all. However, Hagerty and Veenhoven (2003) presented counter-evidence indicating the positive relationship between national income and happiness by including longer time series data and more cases. This finding was also accompanied by the updated evidence of Veenhoven and Hagerty's (2006), which showed a slight increase of happiness in rich nations and a noticeable increase in poor nations. Against these results, Easterlin (2005) criticized their methodological problem of combining incompatible survey data and took an example of Japan as a typical case of stagnating happiness despite its economic development. Easterlin's argument, however, was also subjected to methodological criticism because he did not consider the correct functional form of the logarithm when he dealt with the national income variable (Stevenson and Wolfers 2008). After solving

this problem, according to Stevenson and Wolfers' (2008) argument, national income and happiness revealed positive relationship over time.

Second, several national-level factors that had been deemed to foster happiness did not always obtain empirical support. For example, with regard to the welfare regime, it was assumed that the expansion of welfare benefits might contribute to the increase of the individuals' average level of happiness, particularly for socially vulnerable people. In contrast with positive evidence for this assumption (Haller and Hadler 2006; Radcliff 2001), Veenhoven and Ouweneel (1995) reported that the relationship between welfare state and happiness disappeared after controlling the level of economic development of the nation. Even in the study targeting unemployed persons, national-level welfare expenditure did not affect their happiness (Ouweneel 2002). Democracy was another factor that had been often referred to as an essential institution leading to greater happiness, and there were several studies to support it (Dorn et al. 2007; Frey and Stutzer 2000a). However in other studies, the effect of democracy was overshadowed by economic factors (Schyns 1998) and significant only in the economically developed nations with a longer democratic tradition (Veenhoven 200b). Inglehart and Klingemann (2000) also suggested that the evidence of ex-communist nations and China made it difficult to accept the claim of the casual relationship between democracy and happiness; ex-communist countries revealed declining happiness in the 1990s despite democratization, but China indicated relatively higher happiness without substantial democratic progress.

These inconsistent findings might be partly attributable to the limitation of data availability which is a problem inherent in most cross-national studies. Depending on from which nations data were collected, the analyses produced different conclusions. Typically, these inconsistent findings have occurred when an established relationship across developed nations was tested for under-developed or developing nations. In addition, researchers would provide different findings depending on which specific

indicator was used for a theoretical concept in their statistical analysis. For example, democracy, as a theoretical concept, includes diverse aspects of a political system in a society and cannot be measured by a single indicator. Indeed, several available indicators<sup>5</sup> to measure democracy are composed of different sub-components with different measurement scales. Since most researchers had no choice but to rely on the available indicators for their cross-national studies, their conclusion about democracy might be at least partly contingent on which indicator was included in their analysis. As the last methodological issue, it is worth noting that a small manipulation of existing indicators might lead to substantial differences in the consequences of statistical analyses. For example, as Stevenson and Wolfers (2008, p. 6) mentioned, using the log-transformed GDP, instead of the raw GDP, was “surprisingly enough a departure from much of literature”, and this was a key manipulation to support their claim that the Easterlin Paradox should be reassessed. Given that national income was regarded as a fundamental macro-economic factor associated with individuals’ happiness, the validity of such manipulation should be discussed rigorously in future studies.

#### Theoretical Limitations

The contradictory findings, however, cannot be fully explained by the data problems. More importantly, previous cross-national happiness studies had a theoretical limitation to simplify the relationship between social conditions and happiness. Specifically, there are two kinds of problems. First, some of those studies unreasonably assumed that the same social position always led to the same influence on happiness across nations. Second, they did not consider the fact that the effects of objective social conditions on happiness could be changed by people’s subjective evaluations on the

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<sup>5</sup> For example, democracy indicators used in recent cross-national studies are Freedom House political freedom index (e.g., Haller and Hadler 2006; Inglehart and Klingemann 2000), Polity Score of the Polity IV project (e.g., Inglehart et al 2008), Governance Indicators of World Bank (e.g., Helliwell and Huang 2008).

conditions. Both of the two problems are related with the lack of attempts to combine the three theoretical perspectives of the needs, relative standards, and culture.

Even though it was not clearly stated by researchers, most cross-national studies were based on the needs approach. The central assumption of the needs approach is that there are basic human needs and satisfying the needs is crucial for greater happiness. Therefore, if a certain social position is favorable to satisfy the needs in a society, the positive effect of the position is also deemed to be maintained in another society, as long as it is not assumed that the basic human needs are different from society to society. When a focus was put on macro-level factors measured at the national level, the needs approach emphasized the concept of livability (Veenhoven 1996, 2000a). This concept is based on the argument that individuals' happiness is largely dependent upon the objective conditions of their life and therefore better living conditions provide greater happiness for them. However, it is too simplistic to suppose a direct causal relationship between macro-social conditions and individuals' internal states.

Such simplicity is revealed explicitly when the need approach and the livability concept are compared with the social structure and personality (SSP) approach (House 1977, 1981; Kohn 1989). In his strong argument for the SSP approach, Kohn (1989) criticized sociological social psychology of his days in that much of the work simply treated macro-structural conditions as an immediately impinging environment. This criticism could be also applied to much of current happiness studies. The SSP approach has a basic similarity with the cross-national happiness research in that the key research interest lies on the relationship between individuals' structural positions and their internal states. However, the SSP approach did not assume a direct relationship between the macro and micro phenomena, but analytically differentiated proximate conditions that mediate between the two different level phenomena. In other words, macro structures impinge on the individuals via the smaller structures that constitute proximate social experiences and stimuli in individuals' lives (House 1981). Therefore, an immediate

causal relationship was assumed between the proximate conditions and individuals' responses. This implies that the macro-structural factors may or may not reveal the relationship with the individual-level phenomena depending on the effect of the proximate conditions.

Kohn et al. (1990) showed a typical example in which the effect of a structural factor (e.g., class) on one's internal state (e.g., distress) was not identical across nations. In this study, it was assumed that individuals' class position was experienced through their working conditions as proximate context, and the working conditions affected their sense of distress. Managers and manual workers represented different class positions and they were characterized by different working conditions. But the effects of the different working conditions on the level of distress were different from nation to nation. Particularly, manual workers were more distressed than managers in the U.S., but the opposite was true in Poland. In Japan, managers indicated higher level of well-being, but non-manual workers were more distressed than the manual workers. This was a distinct pattern that did not appear in the U.S. and Poland. A general lesson we can learn from such a cross-national inconsistency is that cultural uniqueness in each country intervenes in the relationship between macro-social factor and one's internal state. In the recent happiness literature, we can find an example to highlight the effect of the cultural difference. Soons and Kalmijin (2009) showed that cohabitants were less happy than the married in the nations in which cohabitation was less institutionalized. In other word, cohabitants living in a nation where they often experienced cultural disapproval in their everyday life tended to be less happy than the married people. This finding implies that cross-national happiness studies need to incorporate a variety of cultural factor that can potentially moderate the effect of need-satisfaction.

We can find another problem in the different type of cross-national studies in which national level livability was assumed to be an independent variable of individuals' happiness. In these studies, livability was usually represented by an index of objective

social conditions. Therefore, there was no room to consider how people personally experienced and evaluated them. For example, in terms of the relationship between unemployment rate and happiness, it was assumed that high unemployment rate in a nation or a region had a negative influence on individuals' happiness because it discouraged economic activities and generated fear of losing their jobs. Indeed, this hypothesis was empirically supported in some cross-national studies (Di Tella et al. 2001; Frey and Stutzer 2002). However Eggers et al. (2006) reported an opposite finding in which regional unemployment rates in Russia were positively related to the level of individuals' life satisfaction. According to their explanation, high unemployment rate induced negative psychological consequences as long as the economic situation of a nation was stable or even moderately recessed. In contrast, under the situation of the extraordinary economic turmoil like Russia in the 1990s, frequently experienced unemployment in one's interpersonal relations have changed one's evaluation on unemployment and, as a result, decreased its negative influence on life satisfaction. Regardless of the validity of their explanation, one important lesson that we could learn from this study was that the effect of a social condition which was usually measured as an objective index did not always work as expected. This is because people's subjective evaluation does not squarely reflect the objective condition per se.

In happiness research, considering people's subjective evaluation is necessary because it reflects their collective reference standards. For example, even if an actual employment rate in a certain area is very high, the employment rate can be subjectively evaluated as acceptable by the people of that area, simply because the people have a different relative standard in judging "high" unemployment rate. In many cases, the subjective evaluation can be more important than the objective condition itself in explaining the variation of happiness, as assert by the relative standards approach.

The relative standards approach, however, have not been applied to previous cross-national studies, because most studies have mainly focused on the difference of

objective conditions. Not to mention that objective social conditions are essential to determine individuals' happiness. However, if we rely only on them, we cannot explain the sizable difference of happiness in two nations with similar social circumstances. Likewise, if an anticipated relationship between a social condition and happiness is not supported by empirical data, we can reasonably assume that people use different reference standards when they evaluate the social condition. For example, Ouwenel (2002) assumed that the unemployed people in welfare states were relatively happier than those of non-welfare nations, because of the well-established social security system. The reality, however, was not line with his anticipation. This is probably because the welfare nations included in his study have quite long historical tradition of social welfare. In other words, the social welfare tradition had already changed the relative standards of the unemployed people, and therefore its actual influence on happiness could not be significant. The result of such a study suggests that happiness researchers need to incorporate the relative standards approach to the cross-national study by paying attention to people's subjective evaluations on objective conditions.

#### New Cross-National Happiness Studies

In the review of cross-national happiness studies, I have introduced two different types of research. Some studies intended to examine the effects of individual-level independent variables on happiness in various national backgrounds. Other studies directly focused on the effects of national-level independent variables on individual happiness. Besides the weakness inherent in most cross-national data, I have pointed out two theoretical problems of previous studies. First, it was unreasonably assumed that the same social position always has the same influence on happiness regardless of different national backgrounds. Second, it was not considered that the effects of objective social conditions on happiness can be changed by people's subjective evaluations on the objective conditions. Largely, the first problem appeared in the studies where cross-



national replication of an individual-level relationship was intended. The second problem appeared when researchers were interested in the effect of national-level index, which was supposed to objectively measure a social condition.

As an attempt to overcome these problems, I conduct two cross-national studies in following chapters. The first topic is the relationship between economic inequality and happiness. The increase of economic inequality has been often pointed out as the main cause of the stagnation of the average happiness in many industrialized nations. For example, according to Frank (2007), the rising inequality entails a sense of relative deprivation to many people and inflates reference standards of a society as a whole. Therefore, the small increase in absolute income is overshadowed by the large decrease in relative income, and the average level of happiness is stagnated or even decreased, specifically for the middle class. However, in empirical studies, the level of happiness was not significantly associated with the income inequality indices (e.g., Senik 2004). To resolve this puzzle, I conceptually differentiate subjective inequality and objective inequality. Then, I examine and compare their influences on individuals' happiness.

The second topic is the relationship between marriage and happiness. In previous studies, it was commonly argued that the married are happier than the single across nations (e.g., Diener et al. 2000; Stack and Eshleman 1998). However, these studies overlooked that the strength of the relationship between marriage and happiness substantially varies from nation to nation. To tackle this issue more seriously, I perform an extensive cross-national study, specifically including under-developed and developing nations. In this study, I try to show how the marriage effect on happiness is different depending on nation's cultural characteristics accompanied by economic development. Additionally, considering the recent trend of the increase of premarital living arrangement in some societies, I also compare the happiness of cohabiting individuals with those of the married and the single. Finally, I analyze a longitudinal data set collected from Korea to show the long-term effect of marriage on happiness. Particularly,

the results are compared with other longitudinal studies conducted in European nations. The longitudinal data analysis provides much richer findings that cannot be obtainable by the conventional cross-sectional approach.

## CHAPTER II. ECONOMIC INEQUALITY AND HAPPINESS

### Introduction

One of the long lasting questions in happiness literature is whether the economic growth of a nation can lead to an overall enhancement of individuals' happiness. Since the seminal work of Easterlin (1974), it has been generally believed that there is no positive relationship between national income growth and individuals' average happiness. Specifically, the non-relationship was notable among economically advanced nations. For example, GDP per capita of the U.S. and Japan has been increasing since the Second World War, but people's average happiness has remained at the same level during that period (Easterlin 1995, 2005). This situation has been conceived as a paradoxical phenomenon because there is a robust positive relationship between individual-level income and happiness.

The so-called "Easterlin's paradox" has often been a topic of empirical tests because of its pivotal implication on economic policies. Their findings were not always consistent, particularly in the analysis focusing on economically advanced nations<sup>6</sup>. However, more extensive cross-national studies including both developed and under-developed nations (e.g., Inglehart and Klingemann 2000; Inglehart et al. 2008) reached the general conclusion that the effect of economic development on happiness appeared in a non-linear fashion. This means that people's average level of happiness did not sensitively respond to the increase of national income, once the national income exceeded a certain level.

The stagnation of the average happiness in developed nation is often attributed to the aggravation of income inequality (Frank 2005; Layard 2005). According to the

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<sup>6</sup> For example, opposed to Easterlin's paradox, Hagerty and Veenhoven (2003) and Veenhoven and Hagerty(2006) argued that national-level income was positively associated with people's average happiness. See Stevenson and Wolfers (2008) for the comprehensive re-assessment of Easterlin's paradox.

inequality-based explanation, the rising inequality entails a sense of relative deprivation to many people and inflates reference standards of a society as a whole. Therefore, the small increase in absolute income is overshadowed by the large decrease in relative income, and the average level of happiness is stagnated or even decreased. Frank (2007) asserted that this situation has been notable since the 1980s when the U.S. and other advanced nations started to experience the increase of income inequality.

However, interestingly enough, there were rare empirical studies to demonstrate a significant relationship between income inequality and happiness. In spite of the persuasive theoretical foundation, income inequality data like the Gini index often failed to show a significant influence on people's average happiness. The main goal of this research is to explain this puzzling phenomenon by focusing on the problem of happiness research that macro-social factors were simply assumed to directly affect individual's happiness. Specifically, in this research, I emphasize the fact that objective inequality indices are not accordance with people's subjective evaluation on inequality. Then I investigate the different effects of the objective and subjective inequality on happiness with the multi-level modeling approach.

### Background

#### Economic development, Income inequality, and Happiness

The relationship among economic development, income inequality, and happiness can be explained by the combination of the two distinct perspectives in happiness studies: the needs approach and the relative standards approach (Diener and Lucas 2000). The needs approach assumes that humans have some fundamental needs and satisfying the needs are necessary for their happiness. Therefore, the approach tends to highlight the external conditions that are conducive to the needs-fulfillment. In general, economic development of a nation can be thought as a favorable change for satisfying people's material needs. Thus, the positive relationship between economic development and

happiness is conceivable, specifically up to the point where survival is started to be taken for granted.

In contrast, the relative standards approach assumes that individuals' happiness is determined by the result of comparisons between given conditions and their reference standards. This approach puts more weight on the change of reference standards rather than the external conditions per se. The weakened relationship between national income and happiness in advanced nations can be accounted for, at least partially, by the difference of reference standards. Because people in rich nations already have relatively higher referenced standards regarding material conditions than people in poor nations, national-level economic advantage does not bring much happiness.

The increase of income inequality is another important mechanism to change people's reference standards (Frank 2005; Layard 2005). As Michalos (1985) addressed, reference standards can be generated from various sources such as past standings, relevant others, expectations, and so on. Whereas continuous economic development leads to greater expectations, the exacerbation of inequality may make a small group of the richest people the relevant others as reference standards. Therefore, a majority of people in a society comes to feel a great sense of relative deprivation, and this can be a casus of decreasing the overall level of happiness. Specifically, the negative influence of the change in reference standards is substantial to the middle class (Frank 2007).

This reasoning about the relationship between inequality and happiness led to cross-national studies to test the hypothesis that the national-level income inequality negatively affects individual-level happiness. As a representative study regarding this hypothesis, Alesina, Di Tella, and MacCulloch (2004) indeed found that that inequality had a negative influence on happiness, based on the U.S. General Social Survey and the Euro-barometer Survey data. Specifically, their study showed that the effect of inequality on happiness was stronger in Europe than in the U.S, and the effect was moderated by individuals' ideological orientations and positions of the income ranking. In spite of the

obvious merit of their study showing the empirical relationship between inequality and happiness, it should be also noted that their samples were restricted only to the U.S. and 12 European nations. These nations were relatively homogeneous in both of economical and cultural senses. Therefore, it was still questionable whether the significantly negative effect of inequality on happiness is persistent in a larger cross-national study where economically and culturally diverse nations are included together.

In fact, other cross-national studies involving more diverse nations failed to show the negative relationship between inequality and happiness. This was conceived as a puzzling phenomenon as Veenhoven (2008, p. 55) quoted, “Another surprise is that there is no correlation between the degree of income inequality in nations and average subjective well-being.” For example, as the representative income inequality measure, the Gini index could not explain any cross-national difference in individuals’ happiness (Senik 2004). Even in some other studies, an opposite result against what was initially hypothesized was reported; higher income inequality was positively associated with higher happiness (Haller and Hadler 2006). For these inconsistent findings, someone may argue the limitations of the Gini index as an inequality measure (e.g., Atkinson 1970). Or, it can be also argued that inequality indeed has a positive effect on happiness for some people as long as it is perceived as a sign of opportunity (e.g., Clark 2003b). However there have been rare empirical studies to support such an alternative explanation on the relationship between inequality and happiness.

#### Objective Inequality, Subjective Inequality, and Happiness

In this research, I attempt to resolve the puzzling non-relationship between inequality and happiness by differentiating subjective inequality from actual inequality measures such as the Gini index and the income share held by lowest 20%. These existing measures are called as objective inequality measures in this research to be conceptually distinguished from subjective inequality. Subjective inequality indicates

people's subjective evaluation on the level of inequality in their nation. As expected, such a subjective evaluation does not always squarely reflect an objective situation.

In the study of inequality and happiness, however, it has been simply assumed that objective inequality as a national-level factor directly affects individuals' happiness without any consideration of their subjective evaluation on inequality. As stated already, the inequality-based explanation (e.g., Frank 2005; Layard 2005) argued that the increase of inequality leads to the change of reference standards and the heightened relative deprivation. However, this causal process is not automatically activated. As Sen (2000) explained, people's perception on equality is a function of both their ideas about what is morally right and of the reality with which they compare their norms. In other words, people's responses to unequal situations can be different depending on their moral standard on equality, even if the same situation is given. Therefore if people in a nation have a relatively low standard regarding economic inequality, the negative influences of objective inequality in their nation may not be as substantial as expected.

People's reference standards on economic inequality are generally shaped by shared cultural values and norms. Therefore, different cultural norms lead to different evaluations on economic inequality. For example, Suhrcke (2001) and Redmond et al. (2002) found that people in Eastern European nations revealed stronger egalitarian attitudes than the Western Europeans, even though more than a decade had passed since the economic adjustment to the market economy. In addition, the Eastern Europeans tended to express stronger aversion against economic inequality in their nations than the Western Europeans did. Lübker (2004) also found that the tolerance of income inequality was substantially different across nations, and the gap of the tolerance was specifically large in between Anglo-Saxon and post-communist nations.

In happiness studies, considering people's subjective evaluation and cultural norms are helpful to understand seemingly counter-intuitive findings. For example, Eggers et al. (2006) reported that regional unemployment rate in Russia in the 1990s was

positively associated with people's life satisfaction. To explain the unusual finding, they suggested the importance of psychological and contextual factors that might change people's subjective evaluation on employment in the period of crisis. In Ouweneel's (2002) study, it was hypothesized that the unemployed people in welfare states might be happier than those of non-welfare nations due to the benefits of the social security system. However the hypothesis was not supported by empirical data. One of the possible explanations for this finding could be obtained from the influence of different normative expectations for the social security system. The unemployed people living in the welfare states might already have a higher reference standard regarding the social security benefits. In Alesina et al.'s (2004) study, the poor people were more strongly affected by economic inequality than the rich people in European nations, as expected. However, in the U.S., the rich people were more strongly affected by the economic inequality than the poor people. For this inconsistent finding, the authors highlighted the effect of people's subjective beliefs on social mobility in the U.S.

As shown above, considering people's subjective evaluation can be helpful to explain the effect of macro-social factors on happiness. However, at many cases, such a non-objective factor was simply extrapolated rather than directly included as an independent variable to explain individual's happiness. In this research, I differentiate objective inequality and subjective inequality at the national-level and then compare their relative effects on individual-level happiness with multi-level analyses.

## Method

### Data and Measures

The data of this research came from several different sources. The national-level subjective inequality scores were obtained from International Social Survey Program (ISSP) 1999 data. The ISSP has developed topical modules dealing with important areas of social science and conducted annual surveys by periodically using a same module.



Social inequality was the topical module for the 1999 data set. The data set was composed of 25 nations: Australia, Austria, Bulgaria, Canada, Chile, Cyprus, Czech Republic, France, Germany<sup>7</sup>, Great Britain, Hungary, Israel, Japan, Latvia, New Zealand, Northern Ireland, Norway, Philippines, Poland, Portugal, Russian Federation, Slovakia, Slovenia, Spain, Sweden, United Kingdom<sup>8</sup>, and the United States. Although not belonging to the original 1999 ISSP data set, the data of South Korea could be added for analysis because the 2003 Korean General Social Survey included the same social inequality module. The sample size of each nation varied from 974 (Canada) to 1,889 (France).

The individual-level happiness, life satisfaction, and other control variable data were obtained from World Values Survey (WVS) (2009). The WVS data contained all the nations included in the 1999 ISSP data except Austria and Portugal. Considering the time range in which the 1999 ISSP data were collected, I primarily used the 3<sup>rd</sup> wave WVS data which ranged from 1994 to 1999. For the nations whose data were not available in the 3<sup>rd</sup> wave data (Canada, Israel, South Korea), I used the 4<sup>th</sup> wave WVS data which ranged from 1999 to 2004. I also used 5<sup>th</sup> wave WVS data ranging from 2005 to 2008 for Cyprus and France because the two nations were not available in the 3<sup>rd</sup> and 4<sup>th</sup> wave data. The sample size of each nation varied from 647 (Hungary) to 2,039 (Australia), but most of the nations had more than 1,000 cases except Hungary.

The objective inequality measures came from two different sources. The first one is the Standardized World Income Inequality Database (SWIID) (Solt 2009). The Gini

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<sup>7</sup> In the original 1999 data set, the Germany data were divided into the Eastern and Western Germany data for the consistency with the previous ISSP data that were collected before the German unification. I combined the two Germany data for the comparability with other data sources.

<sup>8</sup> In the original 1999 data set, the data of Great Britain and Northern Ireland were collected separately. I combined them into the United Kingdom data for the comparability with other data sources.

indices provided by the SWIID were standardized scores of the United Nations University's World Income Inequality Database on the basis of the Luxembourg Income Study (See Solt 2009 for more detailed explanation for SWIID). Considering the time range in which the ISSP and WVS data were collected, I calculated the average Gini index from 1998 to 2003 for analysis. The second inequality measure was the income share held by lowest 20% in each nation, which was obtainable from the World Bank homepage. Likewise, I calculated the average score from 1998 to 2003 as long as the annual income share data were available. For a few nations in which no data were available in that time range, I used data in adjacent years.

The national-level subjective inequality scores were measured with the responses to two statements: "Differences in income in [country] are too large." and "It is the responsibility of the government to reduce the difference in income between people with high incomes and those with low incomes." For the 5-scale answers from "Strongly agree" to "Strongly disagree", I gave +2, +1, 0, -1, and -2, respectively. Then, I summed up the scores by nations to calculate each nation's mean score for the two statements. Finally, the national mean scores of the two statements were standardized and, then, averaged into a single national-level subjective inequality score. The answers for the two statements were highly correlated to each other (at the national-level,  $r = .883$ ; at the individual-level,  $r = .531$ ). The high correlation is conceivable because people may not take the inequality seriously as long as they believe that economic inequality is a natural outcome, and the role of government is not related with the inequality.

The level of happiness was measured with the response to the question, "Taking all things together, would you say you are: very happy, rather happy, not very happy, or not at all happy?" In the analysis, "very happy" was re-coded into 2, "rather happy" into 1, "not very happy" and "not at all happy" into 0. As a related concept, the level of life

satisfaction<sup>9</sup> was also considered as another dependent variable. This was measured with the response to the question, “All things considered, how satisfied are you with your life as a whole these days?” The response ranged from 1 (completely dissatisfied) to 10 (completely satisfied) and was coded as such. When the life satisfaction was used as a national-level variable, the mean life satisfaction score was calculated for each nation.

Other control variables were gender (female=1, male=0), age (in years), age-squared, marital status, education, religion, health, and income ranking. Marital status were included in the analysis as four dummy variables (married, cohabiting, separated/divorced, and widowed) with the reference category of being unmarried single. Education was measured by the highest educational level that a respondent attained. Specifically, the lowest number (1) represented “inadequately completed elementary education” and the highest number (8) represented “university with degree / upper-level higher education”. The level of religiosity was measured by asking how often one attends religious services. The answers were re-coded into 1 (never) to 8 (more than once a week). If a respondent did not answer to this question, but identified her/himself as an atheist in a separate question, her/his religiosity was coded as 1. The self-assessed health was measured with the response to the question, “All in all, how would you describe your state of health these days?” The answers were re-coded into five values, ranging from 1 (very poor) to 5 (very good).

In light of the strong relationship between income and happiness, individuals’ real income should have been included in the analysis as a control variable. However, there were no available actual income data. Therefore, respondents’ subjective income ranking was included as alternative measure. The income ranking variable was re-coded into 1 to 10, in which 10 represented the highest ranking. Finally, as a national-level control

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<sup>9</sup> In previous empirical studies, happiness and life satisfaction have been interchangeably used as variables to represent individuals’ overall subjective well-being (e.g., Inglehart et al. 2008, also see Gundelach and Kreiner 2004 as an exception).

variable, the average of Gross National Income per capita (GNIpc) from 1998 to 2003 was included in the analysis. Due to the skewness of data, the average GNIpc values were used after the log-transformation.

### Analytical Strategy

The data of this research were composed of two different levels: national-level and individual-level. In the initial analysis, I relied only on national-level data and used ordinary least-squares (OLS) regressions for them. Next, I estimated hierarchical generalized linear models (HGLM) to predict individual-level happiness as a function of both national- and individual-level factors. In light of the categorical measure of the happiness variable, it would be inappropriate to use the standard level-1 (i.e., individual-level) model where level-1 residuals are assumed to be normally distributed and have constant variance. HGLM provides a coherent modeling framework to handle multilevel data with non-linear structural models and non-normally distributed errors (Raudenbush and Bryk 2002). The ordinal HGLM with three categories are expressed as two sets of equations. The individual-level models are:

$$\begin{aligned} \eta_{ij(1)} = \log (\varphi_{ij(1)} / (1 - \varphi_{ij(1)})) = & \beta_{0j} + \beta_{1j}(\text{female})_{ij} + \beta_{2j}(\text{age})_{ij} + \beta_{3j}(\text{age}^2)_{ij} \\ & + \beta_{4j}(\text{married})_{ij} + \beta_{5j}(\text{cohabiting})_{ij} + \beta_{6j}(\text{separated or divorced})_{ij} \\ & + \beta_{7j}(\text{widowed})_{ij} + \beta_{8j}(\text{education})_{ij} + \beta_{9j}(\text{religion})_{ij} + \beta_{10j}(\text{health})_{ij} \\ & + \beta_{11j}(\text{income ranking})_{ij} \end{aligned}$$

$$\begin{aligned} \eta_{ij(2)} = \log (\varphi_{ij(2)} / (1 - \varphi_{ij(2)})) = & \beta_{0j} + \beta_{1j}(\text{female})_{ij} + \beta_{2j}(\text{age})_{ij} + \beta_{3j}(\text{age}^2)_{ij} \\ & + \beta_{4j}(\text{married})_{ij} + \beta_{5j}(\text{cohabiting})_{ij} + \beta_{6j}(\text{separated or divorced})_{ij} \\ & + \beta_{7j}(\text{widowed})_{ij} + \beta_{8j}(\text{education})_{ij} + \beta_{9j}(\text{religion})_{ij} + \beta_{10j}(\text{health})_{ij} \\ & + \beta_{11j}(\text{income ranking})_{ij} + \delta_{(2)} \end{aligned}$$

where  $\eta_{ij}$  is the cumulative log odds of person  $i$  in nation  $j$  reporting happiness;  $\beta_{0j}$  is the individual-level intercept;  $\beta_{1j}$  to  $\beta_{11j}$  are the slopes of each individual-level factor;  $\delta_{(2)}$  is the threshold to separate the two cumulative logits.

The national-level models are:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Gini Index})_{ij} + \gamma_{02}(\text{Subjective Inequality Score})_{ij} + \gamma_{03}(\text{GNIpc})_{ij} + u_{0j}$$

$$\beta_{kj} = \gamma_{k0}$$

where  $\gamma_{00}$  is the national-level intercept;  $\gamma_{01}$  is the effect of objective inequality measured by the Gini index on  $\beta_{0j}$  which is the intercept of the individual-level models.  $\gamma_{02}$  is the effect of subjective inequality on  $\beta_{0j}$ ;  $\gamma_{03}$  is the effect of GNIpc as a control variable on  $\beta_{0j}$ ;  $\gamma_{k0}$  is the set of coefficients for the 11 individual-level variables, where the slopes of the individual-level variables are fixed.

## Results

### Inequality and Life Satisfaction: National-Level Analysis

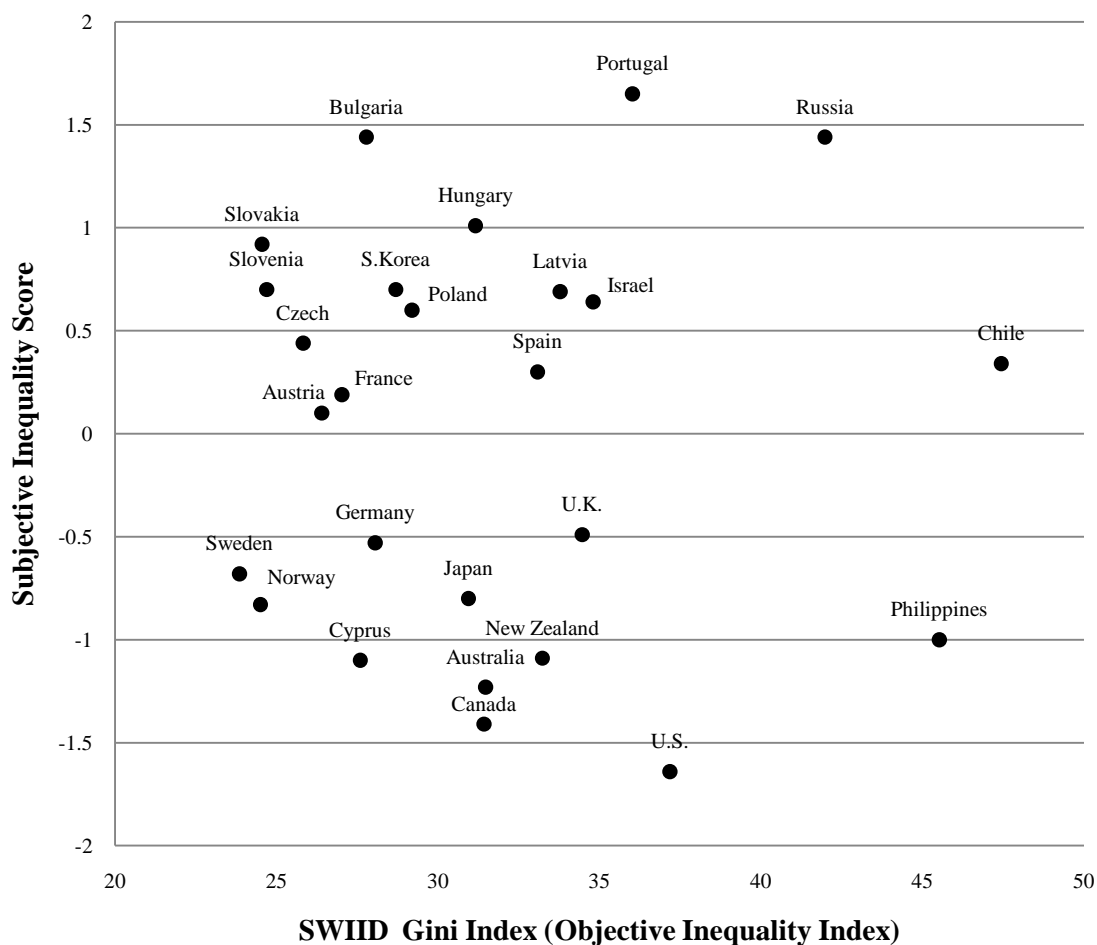
Table 2-1 represented two objective inequality indices (the Gini index of SWIID and the income share held by lowest 20%) and subjective inequality scores of 26 nations with their rankings. As expected, the two objective measures were highly correlated ( $r = -.811$ ), and the rankings within each measure were largely similar to each other, except a few cases such as Japan and Hungary. However, the objective measures and the subjective measure were substantially different. For example, Chile indicated the highest SWIID Gini index, which means the most unequal nation among the 26 nations. However Chile's subjective inequality score, which was ranked in 12<sup>th</sup>, was not as extreme as her objective inequality index. On the contrast, Sweden indicated the lowest SWIID Gini index as the most economically equal nation. However, the subjective inequality measure of Sweden, which was ranked in 18<sup>th</sup>, did not exactly reflect her objective inequality measure.

Figure 2-1 is a graphical representation for the relationship between the SWIID Gini index and the subjective inequality score. In general, the scatter plot of the 26 nations did not reveal a noticeable pattern between the objective and subjective measures. For instances, the two different kinds of inequality measure in Cyprus and Russia were in

**Table 2-1. Objective and Subjective Inequality in 26 Nations (Ranking)**

Nation	Objective Inequality		Subjective Inequality
	Gini Index of SWIID	Shared by Lowest 20%	
Australia	31.473 (11)	5.900 (6)	-1.232 (24)
Austria	26.398 (21)	8.561 (18)	.105 (15)
Bulgaria	27.780 (18)	8.255 (16)	1.438 (3)
Canada	31.425 (12)	7.205 (12)	-1.412 (25)
Chile	47.441 (1)	3.340 (1)	.336 (12)
Cyprus	27.594 (19)	-	-1.095 (23)
Czech	25.821 (22)	10.220 (24)	.445 (11)
France	27.022 (20)	7.180 (11)	.189 (14)
Germany	28.047 (17)	8.521 (17)	-.527 (17)
Hungary	31.160 (13)	9.700 (23)	1.010 (4)
Israel	34.799 (6)	5.707 (4)	.635 (9)
Japan	30.942 (14)	10.580 (25)	-.800 (19)
Latvia	33.777 (8)	7.330 (13)	.692 (8)
New Zealand	33.229 (9)	6.449 (9)	-1.089 (22)
Norway	24.495 (25)	9.591 (22)	-.834 (20)
Philippines	45.524 (2)	5.365 (2)	-1.004 (21)
Poland	29.191 (15)	8.045 (15)	.601 (10)
Portugal	36.024 (5)	5.755 (5)	1.649 (1)
Russia	41.977 (3)	6.170 (8)	1.444 (2)
S.Korea	28.686 (16)	7.905 (14)	.701 (6)
Slovakia	24.550 (24)	8.810 (19)	.918 (5)
Slovenia	24.693 (23)	8.960 (20)	.700 (7)
Spain	33.079 (10)	6.970 (10)	.295 (13)
Sweden	23.854 (26)	9.119 (21)	-.681 (18)
U.K.	34.457 (7)	6.141 (7)	-.490 (16)
U.S.	37.177 (4)	5.436 (3)	-1.641 (26)

**Figure 2-1. Scatter Plot of SWIID Gini Index and Subjective Inequality Score**



accordance with each other; in other words, a low objective measure was linked to a low subjective measure and a high objective measure was linked to a high subjective measure. However, in Bulgaria and the Philippines, the pattern was almost reversed; one measure indicated a relatively low score, but the other measure denoted a high score. Interestingly, Portugal and the United States indicated a very similar score in the SWIID Gini index, but they were located in the very top and the bottom, respectively, in the subjective inequality ranking. In addition, as suggested by Suhrcke (2001) and Redmond et al. (2002), post-communist nations, except Russia, tended to reveal high subjective

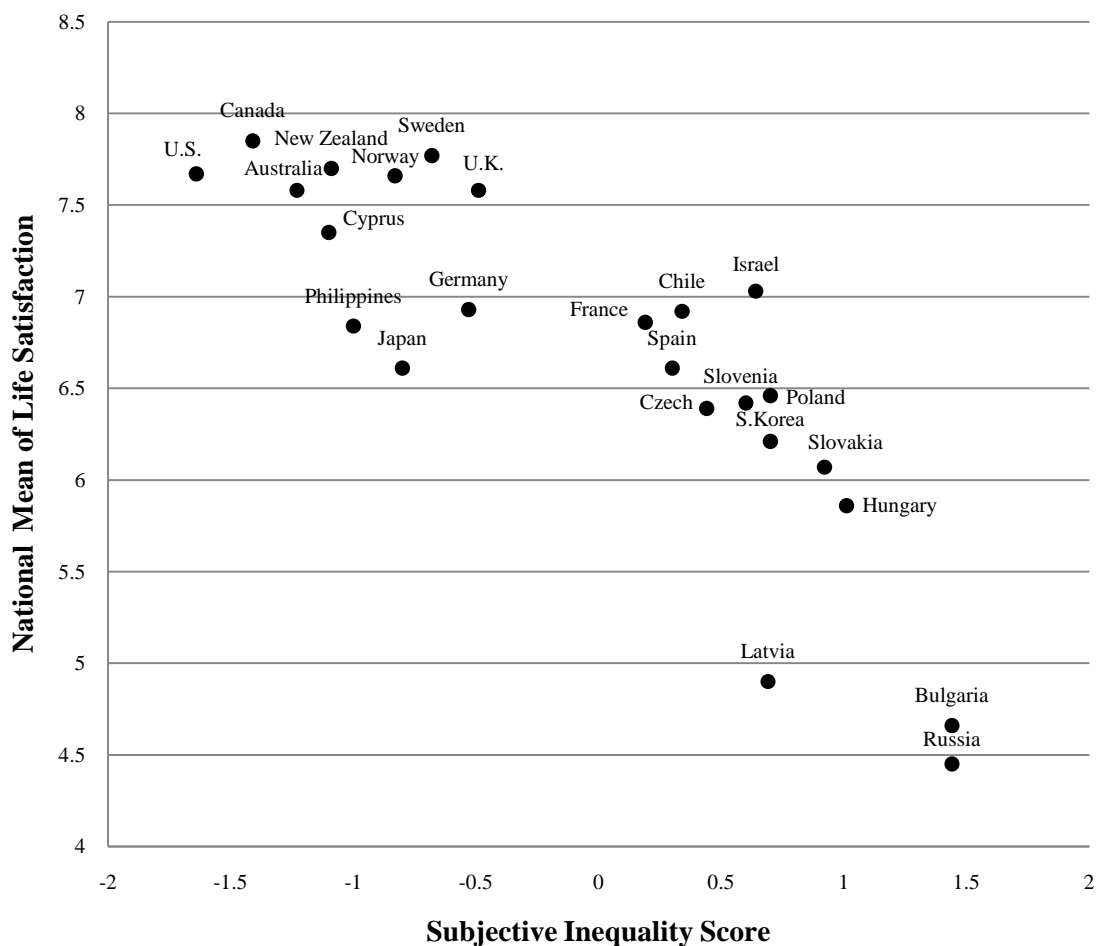
inequality scores in spite of their relatively low objective inequality index. This implies that the egalitarian culture which was originated from shared historical experiences changed individual's reference standard regarding economic inequality in their nation. As demonstrated by many happiness studies, the shifted reference standard may affect the influence of economic inequality on happiness.

Figure 2-2 is a scatter plot to show the relationship between the subjective inequality score and the national mean of life satisfaction. Since the happiness variable was measured as a categorical variable, the life satisfaction variable, alternatively, was used to calculate the national-level subjective well-being. As indicated by the scatter plot, the nations whose subjective inequality score was relatively high tended to show a low level of life satisfaction. In light of the weak overall association between the objective and subjective measures, the scatter plot depicted in Figure 2-2 was clear enough to be suspicious of the effect of objective inequality on life satisfaction.

Table 2-2 represented the results of OLS regressions to investigate the effects of the objective and subjective inequality on life satisfaction. Model 1 and 2 were only differentiated by the different objective inequality measure, the SWIID Gini index and the income share held by lowest 20%, respectively. The variable of GNI per capita was included as a control variable for the strong association between national-level economic development and life satisfaction (e.g., Inglehart et al. 2008). In both of Model 1 and 2, the objective inequality measure did not have any significant influence on life satisfaction, but the effect of the subjective inequality score was strongly persistent. In addition, the coefficient of determination ( $R^2$ ) suggested that about 80 percent of the variance in the life satisfaction variable could mainly be explained by only two factors, GNI per capita and the subjective inequality score. This is a very strong association in social science research. Although not described in Table 2-2, when each independent variable was entered into the model separately,  $R^2$  of the model only including subjective inequality score (.704) was larger than that of the model only including GNI per capita



**Figure 2-2. Scatter Plot of Subjective Inequality Score and National Mean of Life Satisfaction**



(.537). This implies that the individuals' subjective evaluation on economic inequality is a more powerful factor than economic development in assessing the national-level life satisfaction.

#### Inequality and Happiness: Multi-Level Analysis

Table 2-3 represented the results of HGLM predicting individual-level happiness. In these modes, I considered both individual- and national-level factors. Model 1 only

**Table 2-2. Ordinary Least-Squares Regressions Predicting National Mean of Life Satisfaction (N=24)**

DV: Life Satisfaction	Model 1		Model 2	
	b (SE)	Beta	b (SE)	Beta
Log (GNIpc)	.354* (.139)	.380	.389** (.125)	.422
Gini index of SWIID	.004 (.018)	.024		
Income Share Held by Lowest 20%			-.075 (.060)	-.138
Subjective Inequality Score	-.628*** (.142)	-.613	-.584** (.142)	-.559
R <sup>2</sup>		.790		.802

Note: \*\* p < .01; \*\*\* p < .001

included individual-level variables. The effects of these variables generally coincided with the findings of previous happiness literature. The age factor revealed the U-shape influence on happiness (e.g., Blanchflower and Oswald 2008); the married and the cohabiting individuals were happier than the single (e.g., Diener et al. 2000); religious people tended to report greater happiness (e.g., Ferriss 2002). Healthy physical condition and the higher income ranking were two most notable individual-level factors for the enhancement of happiness. In Model 2, log GNI per capita was added as a national-level factor. It had a strong positive effect on happiness when the influences of the individual-level factors were controlled.

In Model 3, the SWIID Gini index was added, but the objective inequality index did not have a significant influence on happiness. In Model 4, as already suggested by the national-level analysis, the subjective inequality score was highlighted as a substantially significant factor to affect individual-level happiness. Specifically, the parameter estimate

**Table 2-3. Hierarchical Generalized Linear Models Predicting Individual-Level Happiness as a Function of National-Level Objective and Subjective Inequality (N=21,142)**

	Model1	Model2	Model3	Model4
Intercept	-2.017*** (.260)	-2.032*** (.175)	-2.015*** (.160)	-2.032*** (.132)
<b>Country Level</b>				
Log (GNI pc)		.901*** (.120)	.951*** (.107)	.383* (.178)
Gini Index of SWIID			.027 (.015)	.010 (.014)
Subjective Inequality Score				-.638*** (.141)
<b>Individual Level</b>				
Female	.178*** (.038)	.178*** (.038)	.178*** (.038)	.178*** (.038)
Age	-.061*** (.008)	-.061*** (.008)	-.061*** (.008)	-.061*** (.008)
Age <sup>2</sup>	.001*** (.0001)	.001*** (.0001)	.001*** (.0001)	.001*** (.0001)
Marital Status	Married	.733*** (.071)	.733*** (.071)	.733*** (.071)
	Cohabiting	.608*** (.095)	.606*** (.095)	.607*** (.095)
	Separated or Divorced	-.264*** (.065)	-.264*** (.065)	-.264*** (.065)
	Widowed	-.272*** (.061)	-.271*** (.062)	-.271*** (.061)
Education	.009 (.014)	.009 (.014)	.009 (.014)	.009 (.014)
Religion	.058*** (.011)	.058*** (.011)	.058*** (.011)	.058*** (.011)
Health	.746*** (.041)	.746*** (.041)	.746*** (.041)	.746*** (.041)
Subjective Income Ranking	.065*** (.016)	.065*** (.016)	.065*** (.016)	.065*** (.016)

Note: Values shown are logit coefficient and standard error.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

of the subjective inequality score was  $-.638$ . This indicates that, when we compare two nations indicating 1 unit difference in the subjective inequality score (e.g., the U.S. and Poland), the odds of being happy (either “very happy” or “rather happy”) versus not happy (either “not very happy” or “not at all happy”) are  $1.893$  ( $1/e^{-.638} = 1.893$ ) greater in the U.S., after controlling for the effects of all the individual-level factors and the two other national-level factors.

To check any possible difference in the result of analysis in which life satisfaction is considered as a dependent variable instead of happiness, I tested four more models with the life satisfaction variable. In this analysis, hierarchical linear models, instead of HGLM, were used. As expected, the results of those models in Table 2-4 were very similar with the results of Table 2-3; the subjective inequality score, not the objective inequality index, revealed a significant negative effect on individual-level life satisfaction. If we compare, again, the U.S. and Poland in which the subjective inequality score of the U.S. was lower than that of Poland by 1 unit, the average life satisfaction advantage in the U.S. over Poland was even greater than the average life satisfaction advantage of the married over the single.

In the explanation about the relationship between inequality and happiness, the key mechanism is that the increase of economic inequality induces the change of individuals’ reference standard on their material condition. Usually, this change leads to a tendency of upward comparison with a higher standard. The upward comparison makes people depreciate their income level or economic status. As indicated by Table 2-3 and 2-4, subjective inequality not objective inequality per se played a key role in this process.

As a supplementary test, I performed additional multi-level analysis directly focusing on the effect of inequality on individuals’ perception of their economic status. If the perception was indeed affected by the macro-level inequality, the explanation for the effect of inequality on happiness can obtain more empirical support, given the strong association between one’s economic status and happiness. The key dependent variable of

**Table 2-4. Hierarchical Linear Models Predicting Individual-Level Life Satisfaction as a Function of National-Level Objective and Subjective Inequality (N=21,183)**

	Model1	Model2	Model3	Model4	
Intercept	6.328*** (.226)	6.312*** (.127)	6.322*** (.130)	6.305*** (.109)	
<b>Country Level</b>					
Log (GNI pc)		.981*** (.117)	1.009*** (.109)	.461** (.122)	
Gini Index of SWIID			.015 (.024)	-.002 (.026)	
Subjective Inequality Score				-.615*** (.078)	
<b>Individual Level</b>					
Female	.084** (.030)	.084** (.030)	.084** (.030)	.084** (.030)	
Age	-.070*** (.008)	-.070*** (.008)	-.070*** (.008)	-.070*** (.008)	
Age <sup>2</sup>	.001*** (.0001)	.001*** (.0001)	.001*** (.0001)	.001*** (.0001)	
Marital Status	Married	.480*** (.066)	.480*** (.066)	.480*** (.066)	
	Cohabiting	.425*** (.110)	.423*** (.111)	.424*** (.111)	
	Separated or Divorced	-.256** (.073)	-.256** (.073)	-.256** (.073)	-.257** (.073)
	Widowed	-.106 (.075)	-.105 (.075)	-.105 (.075)	-.106 (.074)
Education	.036* (.014)	.036* (.014)	.036* (.014)	.036* (.014)	
Religion	.063*** (.010)	.063*** (.010)	.063*** (.010)	.063*** (.010)	
Health	.675*** (.030)	.675*** (.030)	.675*** (.030)	.675*** (.030)	
Subjective Income Ranking	.117*** (.019)	.117*** (.019)	.117*** (.019)	.117*** (.019)	

Note: Values shown are regression coefficient and standard error.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

this analysis was the subjective income ranking, which was one of the control variables in the analysis of Table 2-3 and 2-4. In the original WVS data, individuals' income was not measured by actual income data. Instead, respondents were asked to indicate their perceived income ranking on the ordinal scale ranging from 1 to 10. Therefore, if there was no methodological artifact to bring systematic cross-national variation to one's perceived income ranking, it could be reasonably assumed that the distribution of the perceived income ranking in each nation would be similar across nations. In other words, if the income was measured by actual income data, we could expect the effect of national-level variable like GNI per capita, simply because people in rich nations were more likely to report higher absolute income. In contrast, the income ranking variable could not be expected to be influenced by national-level factors because the variable was based on each person's relative ranking within a nation. Importantly, however, the explanation on the relationship between inequality and happiness enabled to hypothesize that individual-level income ranking perception would be affected by the national-level inequality, specifically by the subjective inequality.

Table 2-5 represented the result of hierarchical linear models where the dependent variable was the subjective income ranking. Model 1 was composed of only individual-level variables. In Model 2, log GNI per capita was added as a national-level factor, but did not reveal any significant effect on the perceived income ranking. This result was as expected because the income ranking was based on the relative ranking within a nation. Consistent with the results of previous analysis, the results of Model 3 and 4 indicated that only the subjective inequality score, not the SWIID Gini index, was substantially significant for the subjective income ranking. In other words, people tended to more depreciate their income ranking in a nation where the subjective inequality score was higher. Without actual income data, it was impossible to compare people's real income and their subjective perception on it. However the fact that each person's income ranking perception was significantly affected by people's collective inequality perception

**Table 2-5. Hierarchical Linear Models Predicting Individual-Level Subjective Income Ranking as a Function of National-Level Objective and Subjective Inequality (N=21,314)**

	Model1	Model2	Model3	Model4
Intercept	4.601*** (.172)	4.597*** (.172)	4.620*** (.165)	4.596*** (.139)
<b>Country Level</b>				
Log (GNI pc)		.197 (.160)	.264 (.182)	-.537 (.253)
Gini Index of SWIID			.036 (.023)	.011 (.018)
Subjective Inequality Score				-.899** (.220)
<b>Individual Level</b>				
Female	-.218*** (.054)	-.218*** (.054)	-.218*** (.054)	-.218*** (.054)
Age	.036* (.017)	.036* (.017)	.036* (.017)	.036* (.017)
Age <sup>2</sup>	-.001** (.0002)	-.001** (.0002)	-.001** (.0002)	-.001** (.0002)
Marital Status	Married	.909*** (.165)	.909*** (.165)	.909*** (.165)
	Cohabiting	.488*** (.124)	.488*** (.124)	.488*** (.125)
	Separated or Divorced	-.680*** (.126)	-.680*** (.126)	-.680*** (.126)
	Widowed	-.190 (.121)	-.190 (.121)	-.189 (.121)
Education	.293*** (.039)	.293*** (.039)	.293*** (.039)	.293*** (.039)
Religion	.008 (.011)	.008 (.011)	.008 (.011)	.008 (.011)
Health	.315*** (.033)	.315*** (.033)	.315*** (.033)	.315*** (.033)

Note: Values shown are regression coefficient and standard error.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

provides additional information to explain how subjective inequality has a negative influence on happiness.

### Conclusion

In this research, I differentiated objective inequality and subjective inequality and investigated their effects on happiness. First of all, people's subjective evaluation on inequality of their nation did not squarely reflect the unequal situation measured by objective indices. Second, the national-level subjective inequality score revealed a strong negative effect on individual-level happiness and life satisfaction even in controlling the effects of national economy and other relevant individual-level factors. However, the objective inequality index was not associated with happiness and life satisfaction. Third, those who live in a nation where the subjective inequality score was high tended to depreciate their income ranking within their nation. The depreciation tendency indirectly reflects that people use relatively higher reference standards when they assess their economic status.

Sociologists are well aware of the possible discrepancy between objective reality and subjective reality (e.g., Berger and Luckmann 1966). The subjective reality is socially constructed by the process in which individuals interpret and define a given situation. Therefore, as implied by this research, an objective phenomenon does not always bring an identical response from individuals who may have different value systems. The findings of this research emphasized that the influence of the subjective reality should be taken into account in the study of happiness.

It is also important to note that this research does not intend to argue the objective inequality per se is nothing to do with happiness. Rather, this research highlights the fact that the subjective inequality reflects peoples' reference standards regarding inequality. As well-documented in numerous individual-level happiness studies, the role of reference standards is crucial in the determination of happiness. Much of previous cross-national



happiness studies, however, did not consider possible national-level differences in reference standards, mainly because they presupposed a simple causal relationship between social conditions and happiness. The findings of this research suggest that cross-national happiness difference can be more effectively explained with the consideration of people's collective reference standards.

## CHAPTER III. MARRIAGE AND SUBJECTIVE WELL-BEING<sup>10</sup>: CROSS-SECTIONAL APPROACH

### Introduction

The positive relationship between marriage and subjective well-being (SWB) has been well documented. Ever since Wilson's (1967) initial study, this finding has been emphasized in sociological and psychological research (e.g., Argyle 2001; Myers 1992; Seligman 2002; Waite and Gallagher 2000) and replicated in a large body of studies using data from the United States (e.g., Glenn 1975; Glenn and Weaver 1979; Gove and Shin 1989; Ross 1995; Weerasinghe and Tepperman 1994; Williams 1988), Canada (White 1992), Norway (Mastekaasa 1995), Germany (Stutzer and Frey 2006; Zimmermann and Easterlin 2006), and cross-national surveys (Diener, Gohm, Suh, and Oishi 2000; Stack and Eshleman 1998). They generally reported that the married reveal greater SWB than the single<sup>11</sup>, divorced, separated or widowed. The initial goal of this research is to investigate whether the positive relationship between marriage and SWB is persistent even in a more extended cross-national context. Although the positive relationship has been generally accepted, some international comparisons (e.g., Gundelach and Kreiner 2004; Lucas and Dyrenforth 2005) alluded that the strength of the relationship might vary from nation to nation when specifically focusing on the comparison between the married and the single (DePaulo and Morris 2005).

If the strength of the relationship is not uniform, the next task will be to attempt to find potential national-level factors to explain the cross-national differences. In this research, I focus on the effects of two major macro factors: economic development and

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<sup>10</sup> In the research regarding marriage (Chapter III and IV), both of happiness and life satisfaction are used as main dependent variables. Therefore, I use the term subjective well-being to encompass the two concepts.

<sup>11</sup> In this research, the single indicate the never-married single if not specified otherwise.

cultural difference. The economic condition of a society has been regarded as a fundamental factor to affect individuals' SWB in many happiness studies (e.g., Easterlin 1974; Inglehart and Klingemann 2000; Inglehart et al. 2008; Schyns 2002). One of their findings is that the relative importance of material or non-material factors on happiness can be different depending on the level of economic development in the society. In light of the fact that marriage is conceived as one of the key non-material factors to affect SWB, we can suspect an interaction effect of the societal-level economic condition and the individual-level marital status on SWB. Cultural difference also impinges on the relationship between marriage and SWB. As a fundamental social institution, marriage plays a necessary role to maintain a social system in all societies. However, the meaning of marriage is not identical across nations and across time, as marriage in the American society has changed from a social responsibility to an emotional coupling based on individual choice over past decades (Burgess and Locke 1945; Cherlin 2004). Distinct cultural characteristics across societies produce different marriage norms, and they provide different meanings and consequences of marriage to the married as well as people remaining being single. Therefore, the cultural factor should also be considered as a potential macro-level factor to affect the relationship between marriage and SWB.

Another related but distinct topic is the effect of cohabitation on SWB. As cohabitation has been often regarded as a form of alternative to marriage (e.g., Cherlin 2004; Coontz 2005), several studies has been conducted to compare the SWBs of the married and the cohabitants (e.g., Horwitz and White 1998; Ross 1995). However, little research has examined whether cohabitation can provide greater SWB to cohabitants compared with the single, particularly where marriage does not contribute to the enhancement of SWB. In addition, past studies on cohabitation has a limitation that they only covered relatively similar European countries (e.g., Soons and Kalmijn 2009) or a single country like the U.S. (e.g., Oppenheimer 2003; Smock, Manning, and Porter 2005). All of the problems and the new research questions aforementioned require a more

extended cross-national study about the relationship between marriage and SWB as intended in this research.

### Background

#### Positive Relationship between Marriage and SWB

The two major explanations for the association between marriage and SWB are that (1) marriage “causes” these differences and (2) different kinds of people are “selected” into marriage in the first place. The causal explanation argues that marriage generates psychological and emotional benefits which directly contribute to the enhancement of SWB for the married (Glenn 1975; Ross and Mirowsky 1989; Ross, Mirowsky, and Goldsteen 1990). This argument is supported by attachment theory, which suggests that in order to obtain emotional security individuals need to form secure attachments with others – caregivers in childhood and romantic partners in adulthood (Bowlby 1979; Hazan and Shaver 1987). Marriage-like arrangements based on sexual pair bonds are emphasized as the only qualified source of adult attachment (Hazan and Zeifman 1999). This implies that other types of social relations in adulthood, such as bonds with friends, siblings or parents, cannot replace the conjugal bond in promoting individuals’ SWB.

In addition, marriage can provide greater SWB to the married by conferring other substantial benefits such as healthy behaviors, a longer lifespan, higher earnings, greater wealth and assets, and better social and educational outcomes for children (e.g., Burman and Margolin 1992; Waite 1995; Waite and Gallagher 2000; Williams and Umberson 2004). Good physical health and favorable financial circumstances have been emphasized as key mechanisms that mediate marriage and SWB (Kiecolt-Glaser and Newton 2001; Ross et al. 1990; Stack and Eshleman 1998), and these two factors are often referenced as the most immediate causes of SWB in much of happiness literature (e.g., Diener et al. 1999; Di Tella and MacCulloch 2006; Smith, Langa, Kabeto, and Ubel 2005).

The positive relationship between marriage and SWB, however, may be explained by social selection as well. The social selection hypothesis (Joung et al. 1997; Mastekaasa 1992, 1994; Rushing 1979; White 1992) posits that happy people generally have more favorable psychological characteristics such as being pleasant and outgoing, and these characteristics make them more likely to marry and remain married. The possibility of selection has been examined in detail with the use of longitudinal data sets (Stutzer and Frey 2006). Empirical findings, however, provide mixed support for the direction of the causal relationship (John and Wu 2002; Stutzer and Frey 2006).

Although there is disagreement concerning which explanation is more valid, the positive relationship between marriage and SWB has been generally reproduced even in cross-national studies (Diener et al. 2000; Gundelach and Kreiner 2004; Inglehart 1990; Lucas and Dyrenforth 2005; Soons and Kalmijn 2009; Stack and Eshleman 1988). These studies used World Values Survey or European Values Survey and found that being married is positively related to SWB in nearly every country in their respective samples. Although these studies were thorough and informative, they suffered from limitations. For instance, Stack and Eshleman (1998) restricted their sample to a relatively small set ( $n=17$ ) of developed countries. Gundelach and Kreiner (2004) also only focused on advanced European countries. Diener et al. (2000) included a larger and more economically and geographically diverse set of nations in their study, but they did not consider never-married singles; comparisons were conducted between cohabiting, married and divorced respondents only.

In general, previous studies concerning the relationship between marital status and SWB concentrated on whether there is a spouse living together. Therefore they tended to highlight a higher SWB of married people compared with the other marital status groups: the single, separated, divorced, and widowed. However, if we are interested in potential benefits of marriage, the single need to be distinguished from the other groups. Divorced and widowed individuals do not simply mean those who lack the

bond of marriage. They experienced a painful termination of their devoted relationships and, thus, are more likely to suffer from mental stresses. Therefore if we simply compare the SWB of the married with that of all the other groups, the possible advantage of marriage in SWB can be exaggerated by the negative effect of divorce or bereavement. Indeed, several studies have revealed that the benefits of married people in SWB and health status are mainly pronounced in the comparisons with divorced or widowed people, not single people (Gove and Shin 1989; Haring-Hidore et al. 1985; Umberson 1992; Williams and Umberson 2004). In addition, recent demographic trends such as the increase of single population and the increase of age at first marriage (Goodwin, McGill, and Chandra 2009) make it more intriguing to compare SWBs of the married and the single because these demographic trends are expected to bring attitude changes toward singlehood.

In this research, I extend past cross-national research on the relationship between marriage and SWB, specifically focusing on the comparison between the married and the single. Considering that past cross-national studies are based on data from the 1980s and 1990s, I use recent World Values Survey (1999-2008) including a diverse set of 72 countries. Changes in union formation and dissolution and the increase of single population that continued over the 1990s and into the 21<sup>st</sup> century –at least in some countries- make a more updated analysis necessary. The key variable, SWB, is analyzed as two different but closely related variables: happiness and life satisfaction. In previous studies, either one or a combination of both has been used as an overall measure of SWB (e.g., Inglehart et al. 2008). In the present study, however, given the difference of measurement scales and the possible conceptual differences of the two variables (Gundelach and Kreiner 2004) happiness and life satisfaction are analyzed separately.

## National-Level Factors on the Relationship between Marriage and SWB

Although it was not explicitly addressed and systematically analyzed, the results of past cross-national studies revealed that the strength of the relationship between marriage and SWB varies substantially across nations. For instance, in Stack and Eshleman's (1998) study, the relative effect of marriage on happiness in Sweden, which was indicated by the beta of a regression, was more than two times greater than that in the United States. This difference was not highlighted in their paper, probably because there was at least a similarity that marriage is associated with happiness in a significantly positive manner across nations. However, in an updated meta-analysis using the same World Values Survey, Lucas and Dyrenforth (2005) reported that the positive relationship did not always hold in some countries (e.g., Latvia), and the heterogeneity of the relationship mainly came from between-nation difference rather than within-nation difference. In other words, the strength and/or direction of the relationship between marriage and happiness were different across nations but relatively stable within a nation. These conclusions request to examine what societal level factors affect the strength of the relationship.

In this research, I pay attention to two major national-level factors, economic development and cultural difference because (1) societal-level economic development has been regarded as one of the key factors that has strong implication on individuals' SWB in many aspects, and (2) cultural difference across nations shapes distinctive marriage norm in a society, and the marriage norm provides different meanings of marriage to individuals in different societies.

Much of happiness literature has been primarily interested in how economic development in a nation affects individuals' SWB (e.g., Easterlin 1974; Frey and Stutzer 2002; Inglehart et al. 2008). One conclusion they generally agree with is that the influence of the economic factor is crucial in increasing SWB until a society reaches at a

certain point of economic development, and non-economic factors become more important once the society goes beyond the certain point. Also, there is a multi-level interaction effect of the economic factor on SWB (Schyns 2002), which means that an income increase in a poor nation more strongly affects on SWB than that in a rich nation.

This finding suggests that the strength of the relationship between marriage and SWB may be stronger in underdeveloped nations than developed nations, as long as marriage confers financial benefits to the married in the underdeveloped nations. Although past studies asserted that marriage brings economic benefits to the married (e.g., Waite 1995; Waite and Gallagher 2000), this finding is largely based on studies performed in the U.S. Thus, it is not certain that this finding would be reproduced in non-U.S. context. Again, this hypothesis is based on two assumptions: (1) marriage improves economic status, and (2) good economic circumstances are a crucial ingredient for happiness. If these two assumptions hold, the influence of marriage on happiness will be more pronounced in less developed countries.

Conversely, it is also plausible that the relationship between marriage and SWB is stronger in economically advanced countries than in underdeveloped ones. This is because the major benefits of marriage are not limited to an economic advantage and the non-economic factors are more highly appreciated in the developed countries in fostering SWB. As mentioned earlier, it has been consistently reported that marriage is positively associated with higher SWB in the developed countries of North American and Western Europe. The mechanism of the positive relationship was argued as the function of marriage securing emotional attachment and intimacy (Bowlby 1979; Glenn 1975; Hazan and Shaver 1987). The non-economic factors become more pronounced for greater SWB, specifically in the countries where economic requirements for survival are taken for granted. In underdeveloped countries, the non-economic factors of marriage can also be relevant in promoting SWB, but their consequence would be less notable than in



developed countries because SWB of the underdeveloped countries is mainly driven by the economic factor.

Cultural differences are another potential factor to affect the relationship between marriage and SWB across nations. An initial support for this speculation came from Gundelach and Kreiner's (2004) study in which they showed that the strength of the marriage-SWB relationship was different across 9 countries, even though these countries were economically similar. This study revealed the importance of culture beyond the influence of economic development. Culture shapes marriage norms. Marriage norms may matter when it comes to the relationship between marital status and SWB because the norms change the social meanings attached to marriage and the benefits of getting married or the stigma to remaining single.

As a simple but still useful approach to cultural difference, I assume that societal culture varies on a continuum from traditional to secular-rational (Inglehart 1997; Inglehart and Baker 2000). The change of marriage norms along with the cultural shift is well summarized by the phrases such as "from an institution to a companionship" (Burgess and Locke 1945) and "deinstitutionalization of marriage" (Cherlin 2004). They mean that marriage has changed from an institution for economic survival and reproduction to an intensive coupling based on companionship; eventually, marriage becomes a matter of individual choice, not a social responsibility any more.

In terms of the effect of culture on the relationship between marriage and SWB, it is possible to set up two opposite hypotheses. On the one hand, it can be expected that the relationship between marriage and SWB is stronger under the traditional culture because singlehood is more of a deviant social status in the traditional culture. This may lead to more depression and unhappiness among single people. In these societies, never-married individuals are subjected to negative stereotypes and social stigma because marriage is regarded as a religious duty and social responsibility. Singles are viewed as deviant because they do not conform to social expectations. Some empirical studies concerning

the relationship between marital status and mental stress or suicide rate indirectly support such a possibility (Gibbs 1969; Martin 1976; Stack 1980, 1990). In less traditional societies, the proportion of singles and divorcees are higher than in traditional societies, and the mental stress associated with not being married is likely much lower (Glenn and Weaver 1988; Lee et al. 1991).

On the other hand, the relationship between marriage and SWB may be stronger in societies with a secular-rational culture. If marriage contributes to greater happiness by conferring secure emotional bonds and companionship to the married, these consequences can be maximized when marriage is accomplished by one's own choice rather than given by a taken-for-granted life course event. This explanation is in line with Cherlin's (2004) argument that marriage is considered as a marker of prestige, not a marker of conformity in the current American culture. Although people living in a secular-rational culture are less likely to live in conventional marital relationships, more people live by a conjugal ideal instilled from childhood (Gillis 2004). Therefore, "achieving" marriage and the accompanying emotional bond and companionship may be even more tightly related to SWB than it is in traditional cultures.

Previous cross-national studies support this hypothesis. Veenhoven (1984) found that happiness difference between the married and the unmarried is much larger in Western European countries than others even in controlling the effect of economic factors. Gundelach and Kreiner (2004) showed that married people living in countries with low stigmatization of single people are more likely to report higher levels of happiness than couples in countries with high stigmatization of single people. They speculate that since the couple relationship is viewed as a choice, it is more appreciated in the countries with low stigmatization of single people.

In the second part of the analysis in this research, I focus on the level of economic development and the cultural difference as two major national-level factors to affect the marriage-SWB relationship. The difference in marriage norm can be revealed by various

aspects such as people's attitude on divorce, trends of marriage and divorce rates, the increase of cohabitation and so forth. These aspects are common reflections of cultural shift rather than independent phenomena. Therefore, instead of treating each one as a separate factor, given that these factors tend to move toward in the same direction in many countries, this research uses the traditional versus secular-rational index (World Values Survey 2009) as a comprehensive measure for the cultural difference. In this index, the traditional culture is characterized by many similarities such as strong emphasis on religion, deference to parental authority, and low levels of tolerance for divorce. The secular-rational culture, however, tend to have the opposite characteristics (Inglehart and Baker 2000). In the traditional culture, marriage is described as a social responsibility, but in the secular-rational culture, marriage is close to an individual choice.

### Cohabitation and SWB

Cohabitation is characterized by similar living situations with marriage such as sharing a household and maintaining a committed relationship. However, previous studies have reported several disadvantages of cohabitation: lower relationship quality, more conflicts, and less commitment than marriage (Brown and Booth 1996; Nock 1995). Also, educational and economic disadvantages of cohabitants have been addressed as the main causes of entering and staying in cohabitation rather than moving to marriage (Oppenheimer 2003; Smock, Manning, and Porter 2005). These differences between cohabitants and married people support the finding that cohabitants were less happy than married people (Horwitz and White 1998), even though the finding was not reproduced in all empirical investigations (e.g., Kurdek 1991; Ross 1995). In the context of cross-national comparison, Stack and Eshleman (1998) and Diener et al. (2000) showed that the SWB difference between the married and the cohabitants substantially varied across

nations. In the study of 30 European countries, Soons and Kalmijn (2009) found that the difference was larger in countries where cohabitation was less institutionalized.

Given that cohabitation is increasing as an alternative to marriage in some societies (Cherlin 2004; Coontz 2005), the effect of cohabitation should be discussed as well when addressing the relationship between marriage and SWB. In the third part of the analysis, I extend past cross-national studies in several points. First, I include more countries in this research, specifically non-European countries that are usually not covered by previous studies. By including diverse countries, I can expect more cross-national variation in the prevalence of cohabitation and in the cultural acceptance for non-traditional marriage-like relationships

Second, I examine whether cohabitants can enjoy higher SWB than single people, particularly in countries where the married indicate small or no gains of SWB when compared with single people. In previous studies, the SWB of cohabitants was usually compared with that of the married, not single people. This is mainly because any couple relationship, regardless of marriage or cohabitation, was assumed to have a greater SWB than single people. Therefore, the main research question was whether the cohabitants can catch up with the married in terms of SWB or what kinds of individual- and societal-level factors can explain the SWB difference between the married and the cohabitants. However, if there is any society where marriage provides little benefit of SWB to the married, it becomes questionable whether the cohabitation can confer greater SWB to the people who choose cohabitation instead of remaining single. For example, in a traditional society, since marriage is not so much an individual-oriented relationship as a family-oriented relationship, marriage requires more responsibilities. In contrast, cohabitation is characterized by lack of institutional constraints, less responsibility and flexibility to end the relationship when they want to (Rindfuss and VandenHeuvel 1990). Therefore, if I obtain a result that the cohabitants are happier than the single in a society where the married are not, it can be concluded that marriage in a traditional society generates

institutional disadvantage which override a possibility of happy married-life in the society.

Third, I expect the cultural difference, namely the traditional and the secular-rational culture, can explain the SWB difference between the married and cohabitants; under the secular-rational culture, the SWB of the cohabitants may be not much different from that of the married. I also consider, as did Soons and Kalmijn (2009), the extent of institutionalization of cohabitation as an important factor to explain the SWB difference between the married and the cohabitants. However, in this research I differentiate the two aspects, prevalence of cohabitation and people's attitude toward cohabitation, which Soons and Kalmijn (2009) combined to measure the extent of institutionalization of cohabitation in a country. The attitude difference of their research is in accordance with the cultural difference in this research since the permissive attitude toward cohabitation is one of the key aspects of the secular-rational culture. The prevalence of cohabitation indicates how common cohabitation is in a society aside from whether cohabitation is culturally accepted or not. Indeed, a society where cohabitation is relatively common is more likely to be characterized by the secular-rational culture, but this is not always true. In general, culture has an enduring continuity and tends to move slowly following the change of social structure (Schooler 1996). Considering the fact the increase of cohabitation is a recent social phenomenon, at least in some countries, the cultural climate regarding a new marriage-like relationship may not keep up with the actual increase of cohabitation. Therefore it is needed to distinguish the structural and the cultural aspect of institutionalization of cohabitation.

## Method

### Data and Measures

Data were obtained from the World Values Survey (2009). The World Values Survey is a study designed to assess values and norms in many societies around the

world. The survey has been administered five times, from 1981 to 2008. These data are ideal for this research because they provide representative national surveys in a wide-range of societies, and they include a host of demographic and attitudinal variables.

Because I wanted to include as many countries as possible in this study and to use the most recent data possible, I selected respondents from all countries represented in the most recent 5<sup>th</sup> wave (2005-2008). I also included respondents living in the countries that were not represented in the 5<sup>th</sup> wave, but were represented in the 4<sup>th</sup> wave (1999-2004). Data from three countries, Colombia, Israel, and Singapore, were not included in the final analytic sample because data on marital status, happiness, and financial satisfaction were missing or incomplete. Individuals who identified their marital status as separated, divorced, or widowed were also excluded because the focus of this research was on comparisons among the SWBs of married, cohabitating, and single persons. Overall, 63.2% were married, 7.3% were cohabiting, and 29.5% were single. The number of cases in each country ranged from 536 (Puerto Rico) to 2,683 (South Africa). The final analytic sample included 89,369 cases from 72 countries. The whole list of those countries and the information about samples in each country are available in Table A1 of Appendix.

The dependent variable, SWB was represented by happiness and life satisfaction. Happiness was measured with responses to the question, "Taking all things together, would you say you are: very happy, rather happy, not very happy, or not at all happy?" In the analysis, "very happy" and "rather happy" were coded as 2 and 1, respectively; "not very happy" and "not at all happy" were combined into one category and coded as 0. Life satisfaction was measured with responses to the question, "All things considered, how satisfied are you with your life as a whole these days?" Respondents were asked to select their answer from a scale ranging from 1 (complete dissatisfied) to 10 (completely satisfied). In general, happiness and life satisfaction have been used interchangeably in the SWB literature depending on data availability or statistical method. In this research, I

performed separate analysis for the happiness and life satisfaction variable to examine any possible difference between the two concepts in the association with marriage.

The main independent variable was marital status. I created dummy variables indicating whether a respondent is married, cohabiting, or single. Unfortunately, WVS did not provide any information about the duration and the quality of the relationship for the married and the cohabitants. Also, it was unable to know whether singles were in a romantic relationship or not. Thus, these factors could not be considered in the analysis in spite of their potential to affect one's happiness and life satisfaction.

It was important to decide which variables to include as control variables in the analysis. The reason is that marriage is regarded as both a cause and an effect of one's economic and social resources, which are strongly associated with their SWB. Two important control variables were health and financial satisfaction. Both were potential benefits of marriage and so were important to include in the models. The self-assessed health variable was measure with responses to the question, "All in all, how would you describe your state of health these days?" Respondents' answers were recoded into four values, ranging from 1 (poor) to 4 (very good). Financial satisfaction was measured with responses to a question that asks about level of satisfaction with one's household financial situation. Answers ranged from 1 (completely dissatisfied) to 10 (completely satisfied).

Other control variables were gender (female=1), age (in years), age squared, religion, education and household income. The strength of religiosity was measured by asking how often one attends religious services. The answers were recoded into 1 (never) to 7 (more than once a week). If a respondent was missing data on this question, but identifies her/himself as an atheist in a separate question, her/his religiosity was recoded as 1. Education was measured by the highest educational level a respondent attained in which the lowest number (1) represents "inadequately completed elementary education" and the highest number (8) represents "university with degree / upper-level higher

education". Household income was measured by respondents' subjective assessment of their household income ranking within their country. In this assessment scale, the lowest number (1) represented the lowest income decile and the highest number (10) represented the highest decile. Ideally, I would like to include an objective measure of individuals' real income. However, objective income data were available for a very limited number of countries, and in these countries, the proportion of missing data is relatively large.

Therefore the subjective income ranking was the best alternative measure.

All of these control variables have been mentioned as potential correlates of SWB in many previous studies. The effect of gender on SWB was not consistent in prior literature; for example Inglehart (1992) reported that women indicated marginally higher life satisfaction than men, however Böhnke and Kohler (2008) found mixed results with respect to the gender effect. In terms of age and happiness, many studies have found a support for the U-shape hypothesis, which indicates the lowest SWB in one's middle age (e.g., Blanchflower and Oswald 2008), but the issue remains controversial (see Blanchflower and Oswald 2009; Glenn 2009). Religious people generally indicated higher levels of SWB than the non-religious (e.g., Ferriss 2002). Higher educational attainment was expected to bring greater happiness (Böhnke and Kohler 2008; Easterlin 2001). Some research found that the education effect becomes non-significant when controlling for other correlated variables (Yang 2008). Income was expected to have a positive effect on happiness and was the most important predictor variable in many happiness studies (e.g., Easterlin 1995; Stevenson and Wolfers 2008).

The two major national-level variables included in the models were the level of economic development and traditional versus secular-rational culture. The economic development variable was measured by averaging the Gross Domestic Product (GDP) per capita from 1999 to 2008 in each country. I used the log of GDP in the regression analysis because the variable distribution was highly skewed. The traditional versus secular-rational culture variable was measured as factor scores based on 10 items, five of



which emphasized “traditional” values and the other five of which emphasized “secular/rational” values (for a more detailed description of this measure, see Inglehart and Baker 2000). In Inglehart and Baker’s study (2000), the traditional versus secular-rational dimension explained 44 percent of all the cross-national cultural variation<sup>12</sup>. Finally, I included one additional national-level variable, prevalence of cohabitation, in the analysis regarding cohabitation. This variable measured the percentage of couples who were living together but not legally married in a country. Among the 72 countries in the main analytic sample, 16 were excluded in the cohabitation analysis because less than 1 percent of couples were cohabiting within the country or the country-specific survey did not collect data on cohabitation<sup>13</sup>. Descriptive statistics of the whole individual- and national-level variables are available in Table A2 of Appendix.

### Analytical Strategy

The goal of this study was to examine the relationship between marriage and SWB in a cross-country context. The SWB concept was represented by two related measures with different measurement scales; happiness was a categorical variable and life satisfaction was a continuous variable. Additionally, the data were hierarchically structured with two levels: the individual-level and the country-level. Given the measurement of the dependent variables and the structure of the data, I utilized several different analytic methods to address the research questions. First, I conducted a meta-

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<sup>12</sup> As a sensitivity analysis, I analyzed the correlations between the traditional versus secular-rational culture variable and other marriage norm-relevant variables that are provided in the World Value Surveys. For instance, the country-level mean score of “how justifiable divorce is” is highly correlated with the traditional versus secular-rational variable ( $r = .847$ ).

<sup>13</sup> Excluded countries are Bangladesh, Bosnia and Herzegovina, Egypt, Georgia, Indonesia, Iraq, Jordan, Mali, Morocco, Pakistan, Saudi Arabia, Singapore, South Korea, Taiwan, Turkey, and United States. In particular, the U.S. is excluded because the cohabitation category is not provided in the marital status question. Also, Indonesia is excluded because the reported percentage of cohabitation in Indonesia (68%) is unreasonably high.

analysis (Hunter and Schmidt 2004), in which the simple correlation between marriage and life satisfaction in each country was considered as a sample to calculate the true mean correlation of all countries. I did not estimate the correlation between marriage and happiness, because I was interested in directly comparing the result of this meta-analysis to two previous studies on the same topic, and these studies only explored life satisfaction, not happiness (Haring-Hidore et al. 1985; Lucas and Dyrenforth 2005).

Second, I performed separate regression analyses for each country with the individual-level variables as predictors. Ordered logistic regressions and ordinary least-squares (OLS) regressions were used for the two outcomes: happiness and life satisfaction, respectively. This analysis told us whether the bi-variate association observed in the meta-analysis held when controlling for other variables expected to be related to both marital status and SWB.

Third, I estimated hierarchical generalized linear models (HGLM) to predict happiness as a function of both individual- and country-level factors. The ordinal HGLM (Raudenbush and Bryk 2002) with three categories are expressed as two sets of equations. Below I represented an exemplary situation in which happiness of the married is compared with that of the single, and the effect of marriage on happiness is moderated by a country's level of economic development. The individual-level models are:

$$\eta_{ij(1)} = \log (\varphi_{ij(1)} / (1 - \varphi_{ij(1)})) = \beta_{0j} + \beta_{1j}(\text{Marriage})_{ij} + \sum \beta_{kj} X_{ikj}$$

$$\eta_{ij(2)} = \log (\varphi_{ij(2)} / (1 - \varphi_{ij(2)})) = \beta_{0j} + \beta_{1j}(\text{Marriage})_{ij} + \sum \beta_{kj} X_{ikj} + \delta_{(2)}$$

where  $\eta_{ij}$  is the cumulative log odds of person  $i$  in country  $j$  reporting happiness;  $\beta_{0j}$  is the individual-level intercept;  $\beta_{1j}$  is the slope of marriage;  $\beta_{kj}$  is the set of slopes for  $k$  individual-level control variables  $X_{ikj}$ ;  $\delta_{(2)}$  is the threshold to separate the two cumulative logits. The country-level models are:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{GDPpc}_j) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{GDPpc}_j) + u_{1j}$$

$$\beta_{kj} = \gamma_{k0}$$

where  $\gamma_{00}$  is the country-level intercept;  $\gamma_{01}$  is the effect of GDP per capita on  $\beta_{0j}$  which is the intercept of the individual-level models;  $\gamma_{11}$  is the effect of GDP per capita on the slope of marriage;  $\gamma_{k0}$  is the set of coefficients for the  $k$  control variables, where the slopes of the control variables are fixed; and  $u_{0j}$  and  $u_{1j}$  are the country-level error terms.

## Results

### Meta-Analysis: Correlation between Marriage and Life

#### Satisfaction

The first part of the analysis was a meta-analysis to examine an overall relationship between marriage and SWB. For this analysis, I estimated the simple correlation between marriage and life satisfaction without control variables in each country and then meta-analytically combine the data using the Hunter-Schmidt meta-analysis program (Schmidt and Le 2004). Table 2-1 presented the summary of the meta-analysis.

The result of the meta-analysis revealed that the estimated true-correlation between marriage and life satisfaction was quite small ( $\bar{\rho} = .021$ ). In addition, since the 80% credibility interval did include zero [-.086, .128], I could not reject the hypothesis that the married have equal levels of life satisfaction compared to the single, at least based on this result. The small difference between the married and the single was not a new finding. In a meta-analysis using the World Values Survey data from 1981 to 1998, Lucas and Dyrenforth (2005) reported .06 as the average correlation of marriage and life satisfaction. In Haring-Hidore et al.'s (1985) meta-analysis, the average correlation was .09.

However, these findings do not directly mean that the life satisfaction of the married was not much better than that of the single in all countries or that the relationship between marriage and life satisfaction has decreased since the 1980s. Rather, it was more

**Table 3-1. Meta-Analysis of the Relationship between Marriage and Life Satisfaction**

Relationship	(1)	(2)	(3)	(4)	(5)	(6)
	$k$	$N$	$\bar{\rho}$	$SD_{\rho}$	80% CrI $_{\rho}$	% Var
Marriage vs. Single	72	81,725	.021	.084	-.086 .128	11.143%

Note: (1)  $k$  = number of correlation coefficients

(2)  $N$  = total sample size

(3)  $\bar{\rho}$  = estimated mean true-score correlation

(4)  $SD_{\rho}$  = estimated standard deviation of the true correlation

(5) 80% CrI $_{\rho}$  = lower and upper bounds of the credibility interval

(6) % Var = percent of observed variance accounted for by statistical artifacts

possible that, as more diverse nations are included in the meta-analyses, the relationship between marriage and life satisfaction became substantially varied across nations. In addition, the decreasing pattern of the average effect implied that more nations characterized by relatively low positive relationship between marriage and life satisfaction were added to this updated meta-analyses. Although Haring-Hidore et al. (1985) did not clearly mention the nationality of the samples they used, I could assume that they mainly relied on the studies using the samples of the U.S. or Western European countries because there were pretty rare available studies outside the regions when they conducted their meta-analysis. In Table 2-1, the variance attributable to the statistical artifact, sample error in this research, was only 11%. This also implied that the cross-national difference in the relationship was not merely due to sampling error, and there would be some potential moderators that affect the strength of the relationship.

In Table 2-2, I listed the five nations with the largest and smallest correlations, respectively. The list of countries and the correlation coefficients presented showed how

**Table 3-2. List of five Countries Indicating the Largest or the Smallest Correlation Coefficients of the Relationship between Marriage and Life Satisfaction**

Nation	Correlation	Nation	Correlation
Sweden	.344	Ghana	-.127
Canada	.217	Serbia	-.119
New Zealand	.202	Russia	-.117
Australia	.199	Moldova	-.103
Norway	.196	Macedonia	-.101

different the relationship between marriage and life satisfaction was across nations. The strongest positive and negative relationship were for Sweden ( $r = .344$ ) and Ghana ( $r = -.127$ ), respectively. While not depicted in the table, there were 28 countries which indicate negative correlations, meaning that married people expressed a lower level of life satisfaction than single people. These results were contradictory to previous cross-national studies which generally found a positive association between marriage and SWB (e.g., Diener et al. 2000; Stack and Eshleman 1998). These contradictory findings made it necessary to investigate each country separately with consideration of the effects of control variables.

#### Regressions Predicting SWB: Individual-level Variables

##### Only

Before I present the result of each nation, it is worthwhile to briefly discuss the selection of control variables. In the examination of the relationship between marriage and SWB, it is important to decide which control variables are included in a model. The reason is that several control variables associated with SWB are also often covaried with the change of one's marital status. For instance, when I just added age as a control

variable, the negative relationship initially appeared in 28 countries above disappeared in 12 countries. It did make sense in light of the fact that the single were generally younger than the married, and the middle-aged people tended to show the lowest level of SWB in their life course (Blanchflower and Oswald 2008, 2009).

In this research, I specifically focused on the effect of health and financial satisfaction because these two variables were not only considered as the most immediate causes of individuals' SWB, but also often regarded as direct positive outcomes of marriage (Waite 1995; Waite and Gallagher 2000). In other words, if the effect of marriage on happiness was largely mediated by the two factors in many countries, the regression result to test the effect of marriage on SWB would be different depending on whether the health and financial satisfaction variables were included or not as control variables. Therefore, I examined the potential mediation effects of the two factors by a series of regression analyses<sup>14</sup>. While not presented in detail, the results indicated that the full mediation effect of health between marriage and happiness was observed only in 1 country (Ethiopia), and the full mediation effect of financial satisfaction was observed in 6 countries (Bulgaria, Hong Kong, Malaysia, Morocco, South Africa, and Great Britain). This means that the effect of marriage on happiness went beyond the economic advantage as well as the health benefit in many countries. Therefore, I included the two factors as control variables in all analyses.

Table 2-3 is a summary of ordered logistic regression results predicting happiness in the 72 countries. For the purpose of brevity, I presented only the estimated coefficients

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<sup>14</sup> In the regressions to test the mediation effect of financial satisfaction, I found that the positive effect of marriage on financial satisfaction revealed only in 26 countries. This finding shows that the economic advantage of the married over the single is not uniformly addressed across nations, even though it has been largely replicated in the studies based on the context of the U.S. (e.g., Seligman 2002; Waite 1995; Waite and Gallagher 2000). Importantly, the majority of the 26 countries were economically advanced countries in a relative sense, i.e., 21 out of the 26 countries belong to the top half of the GDP per capita ranking scale.

**Table 3-3. Results of Ordered Logistic Regression Predicting Happiness as a Function of Being Married versus Single in 72 Nations**

Nation	Estimate	SE	Wald	Nation	Estimate	SE	Wald
Albania	.574*	.252	5.194	Argentina	.372+	.215	2.998
Algeria	.802***	.211	14.419	Bangladesh	-.011	.190	.004
Andorra	.713**	.238	9.012	Bosnia and Herzegovina	.400+	.211	3.599
Australia	1.023***	.226	20.460	Bulgaria	-.009	.280	.001
Brazil	.653***	.167	15.237	Cyprus	.215	.210	1.043
Burkina Faso	.353*	.174	4.096	Ethiopia	.173	.146	1.410
Canada	1.043***	.175	35.581	Ghana	-.114	.161	.500
Chile	.681**	.207	10.796	Great Britain	.298	.252	1.396
China	.781**	.238	10.808	Hong Kong	.265	.232	1.306
Egypt	.447**	.160	7.778	India	.153	.168	.824
Finland	1.393***	.281	24.501	Iraq	.020	.131	.023
France	.579*	.249	5.418	Kyrgyzstan	.122	.227	.292
Georgia	1.203***	.172	48.729	Macedonia	.352	.226	.419
Germany	.426*	.192	4.917	Malaysia	-.010	.189	.003
Guatemala	.511**	.182	7.866	Mali	.192	.197	.950
Indonesia	.661**	.227	8.498	Moldova	.128	.226	.321
Iran	.540***	.120	20.276	Morocco	-.112	.190	.347
Italy	.983**	.293	11.279	Nigeria	.226	.158	2.037
Japan	1.467***	.283	26.936	Pakistan	-.324*	.153	4.456
Jordan	.694***	.188	13.576	Puerto Rico	.282	.278	1.032
Mexico	.364*	.170	4.593	Rwanda	-.037	.198	.034
Netherlands	1.138***	.267	18.109	Saudi Arabia	.294	.163	3.252
New Zealand	.939**	.295	10.146	South Africa	.040+	.120	.113
Norway	1.501***	.287	27.373	South Korea	.159	.247	.411
Peru	.526**	.179	8.589	Taiwan	-.082	.215	.146

**Table 3-3. Continued**

Nation	Estimate	SE	Wald	Nation	Estimate	SE	Wald
Philippines	.453*	.184	6.061	Tanzania	-.048	.199	.058
Poland	1.108***	.249	19.779	Thailand	.062	.168	.138
Romania	.553*	.216	6.535	Uganda	-.076	.280	.074
Russia	.530*	.209	6.459	Uruguay	.408+	.213	3.661
Serbia	.641**	.213	9.063	Venezuela	.171	.184	.866
Singapore	.809***	.188	18.559	Zambia	.239	.168	2.018
Slovenia	.761**	.259	8.620	Zimbabwe	.236	.211	1.257
Spain	.558*	.248	5.087				
Sweden	.759**	.275	7.637				
Switzerland	.917***	.205	20.061				
Trinidad and Tobago	.409*	.177	5.342				
Turkey	.371*	.169	4.790				
Ukraine	.547*	.243	5.087				
United States	.559**	.183	9.303				
Viet Nam	.736***	.210	12.281				

Notes: Coefficients for Marriage Dummy shown. Cohabitants not included in samples.

+  $p < .1$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

for marriage in each nation, controlling for gender, age, age-squared, religion, education, subjective income ranking, health, and financial satisfaction. In the left-hand column, I listed the 40 countries in which the effect of marriage was significant and positive. In Norway, for instance, the parameter estimate of marriage was 1.501, meaning that, compared to singles, married individuals reported 1.501 higher log odds of happiness controlling for all other variables in the model. In other words, the odds of being happy



(either “very happy” or “rather happy”) versus not happy (either “not very happy” or “not at all happy”) were 4.486 ( $e^{1.501} = 4.486$ ) greater among the married compared to the singles.

In the right-hand column, I listed the 32 countries in which the marriage effect was not significant, marginally significantly positive, or significantly negative. In Bulgaria, for instance, the parameter estimate of marriage was not significantly different from 0. Thus, the odds of being happy among the married was statistically similar compared with the single. Pakistan is an exceptional case. The parameter estimate of marriage was negative and significant (-.324), implying that the odds of being happy among the married Pakistanis were 28 percent points lower than for the single Pakistanis. All in all, the main message from Table 2-3 was that the strength of the relationship between marriage and happiness is substantially different across the nations in this study, and it was not always positive as generally argued by previous studies.

Table 2-4 is a summary of the OLS regression results predicting life satisfaction in the 72 countries. As was done in Table 2-3, I presented only the estimated marriage coefficient, controlling for the same set of variables as in the happiness models. In the left-hand column, I listed the 29 countries in which the effect of marriage was positive and significant. In the right-hand column, I listed the 43 countries in which the effect of marriage was marginally significantly positive, not significant, or negative and significant.

According to the Beta coefficients of each country, the relative effect of marriage on life satisfaction was largest and positive in Norway (Beta = .255) and largest and negative in Nigeria (Beta = -.056). As found in the investigation with marriage and happiness in Table 2-3, the strength of the relationship between marriage and life satisfaction showed substantial cross-national variation. Marriage was positively associated with life satisfaction in a smaller number of countries compared to happiness.

**Table 3-4. Results of Ordinary Least-Squares Regression Predicting Life Satisfaction as a Function of Being Married versus Single in 72 Nations**

Nation	b	SE	Beta	Nation	b	SE	Beta
Algeria	.514**	.183	.093	Albania	.131	.198	.024
Andorra	.506**	.155	.156	Argentina	.210	.166	.058
Australia	.685***	.156	.160	Bangladesh	.092	.101	.017
Canada	.594***	.119	.158	Bosnia and Herzegovina	.278	.179	.053
Chile	.636***	.181	.151	Brazil	.253+	.153	.062
China	.818***	.211	.102	Bulgaria	-.065	.265	-.011
Egypt	.434**	.147	.054	Burkina Faso	.099	.165	.021
Finland	.600**	.185	.158	Cyprus	.318+	.193	.071
Georgia	.307*	.147	.056	Ethiopia	.114	.109	.028
Germany	.477**	.145	.106	France	.331+	.178	.078
Iran	.619***	.115	.125	Ghana	-.097	.169	-.019
Italy	.424*	.189	.114	Great Britain	.074	.166	.021
Japan	.668***	.174	.141	Guatemala	.244	.170	.062
Malaysia	.363*	.151	.101	Hong Kong	.153	.104	.037
Mali	.434*	.205	.074	India	.016	.158	.002
Netherlands	.570***	.139	.202	Indonesia	-.198	.207	-.045
New Zealand	.670***	.182	.153	Iraq	-.047	.125	-.008
Norway	.737***	.143	.255	Jordan	.065	.222	.011
Poland	.712***	.187	.161	Kyrgyzstan	.340+	.194	.063
Puerto Rico	.676**	.220	.149	Macedonia	.140	.226	.021
Serbia	.449**	.155	.097	Mexico	.208	.142	.050
Singapore	.505***	.133	.143	Moldova	-.065	.177	-.012
Spain	.289*	.120	.092	Morocco	-.106	.108	-.029
Sweden	.511**	.173	.140	Nigeria	-.259*	.120	-.056

**Table 3-4. Continued**

Nation	b	SE	Beta	Nation	b	SE	Beta
Taiwan	.517**	.167	.116	Pakistan	-.074	.106	-.023
Tanzania	.510*	.255	.076	Peru	.312	.190	.071
Trinidad and Tobago	.721***	.164	.168	Philippines	.080	.195	.013
Turkey	.490**	.170	.102	Romania	.269	.189	.042
Viet Nam	.397**	.142	.088	Russia	.098	.190	.018
				Rwanda	.108	.136	.025
				Saudi Arabia	.087	.139	.019
				Slovenia	.376+	.196	.091
				South Africa	.118	.117	.025
				South Korea	.121	.164	.029
				Switzerland	.238+	.130	.067
				Thailand	.165	.131	.037
				Uganda	-.409	.270	-.084
				Ukraine	.262	.189	.052
				United States	.234+	.124	.058
				Uruguay	.248	.170	.067
				Venezuela	-.118	.198	-.024
				Zambia	.162	.186	.032
				Zimbabwe	.091	.256	.015

Notes: Coefficients for Marriage Dummy shown. Cohabitants not included in samples.

+  $p < .1$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

This implied that happiness and life satisfaction might not be identical concepts (Campbell, Converse, and Rodgers 1976; Lane 2000), even though both are regarded as components of SWB (Diener et al. 1999). Also this difference partially supported the argument that the significance of a stable relationship was more emphasized in the assessment of happiness rather than that of life satisfaction (Gundelach and Kreiner 2004).

## Economic Development, Cultural Difference, and the Effect of Marriage

Table 2-5 represented the results of the ordinal HGLM models predicting happiness. In these models, I included both individual-level and country-level factors. I paid particular attention to the interactions between the country-level variables and marital status. These interactions indicate whether and how country-level factors influence the relationship between marriage and happiness.

Model 1 did not include any control variables and showed that married people were happier than single people across nations. The married had a 1.12 times greater odds of being happy versus not compared to singles ( $e^{0.109}=1.12$ ). In Model 2, the positive effect of marriage became stronger after including the control variables. The coefficient for married increased to 0.38, meaning that the odds of being happy versus not were 1.46 times greater among the married compared to the single. All of the control variables, except education, were significantly related to happiness and were in the expected direction. Being female, religious, wealthy, healthy, and financially satisfied contributed to greater happiness. As expected, age indicated a U-shape effect on happiness; one's level of happiness decreased until reaching a certain point in middle age, and then began increasing.

Model 3 included the economic development measure (country GDP) and its interaction with the marriage variable. Results indicated that a country's level of economic development was positively associated with individuals' happiness. The interaction of economic development and marriage was significant and positive, meaning that the positive effect of marriage on happiness was larger as the economic development of a country increased.

In the initial analysis to examine the effect of marriage on financial satisfaction, I have already mentioned that the economic benefits of marriage were notable in developed countries (recall that 21 out of the 26 countries where marriage had a positive influence

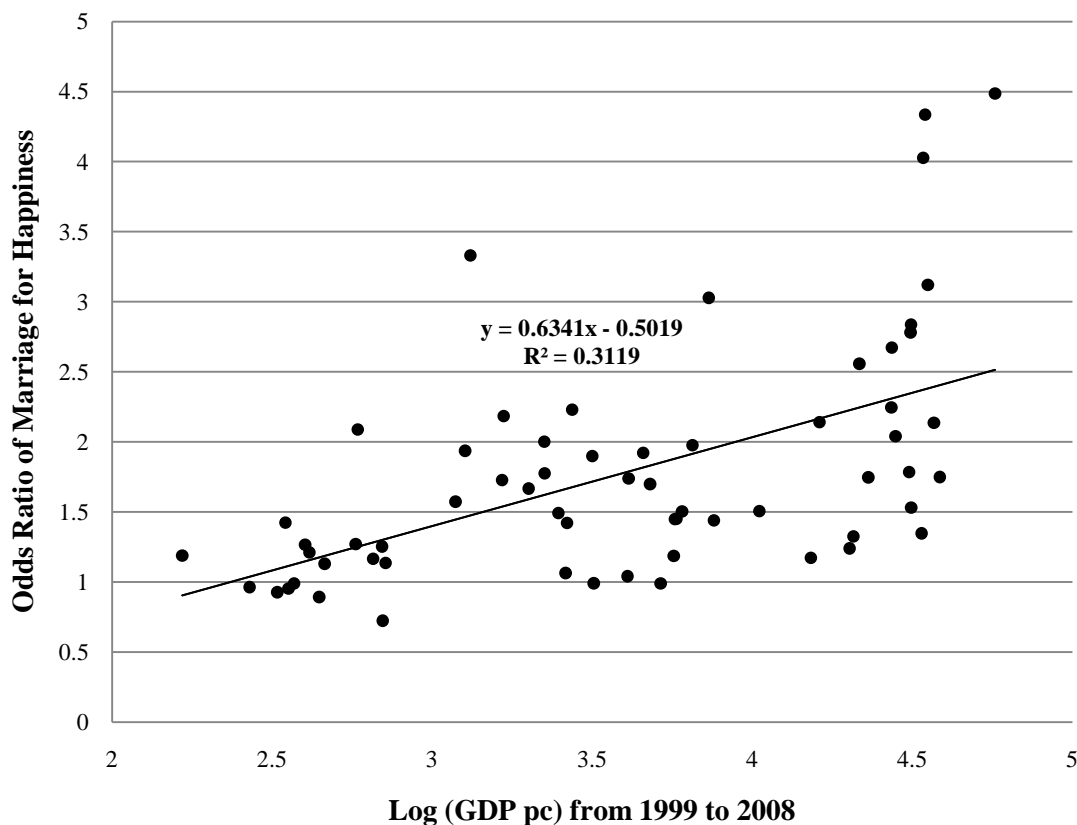
**Table 3-5. Hierarchical Generalized Linear Models Predicting Happiness as a Function of Being Married versus Single in 72 Nations**

	Model1	Model2	Model3	Model4
Intercept	-.858*** (.100)	-1.053*** (.123)	-1.046*** (.121)	-1.060*** (.117)
<b>Country Level</b>				
Log (GDP pc)			.427** (.122)	
Log (GDP pc) x Marriage			.202*** (.047)	
Traditional vs. Secular-Rational				.708*** (.131)
Traditional vs. Secular-Rational x Marriage				.207** (.073)
<b>Individual Level</b>				
Marriage (vs. Single)	.109* (.051)	.381*** (.052)	.399*** (.043)	.390*** (.045)
Female		.107*** (.025)	.109*** (.025)	.109*** (.024)
Age		-.037*** (.004)	-.036*** (.004)	-.036*** (.004)
Age <sup>2</sup>		.0004*** (.00004)	.0004*** (.00004)	.0004*** (.00004)
Education		.012 (.009)	.011 (.009)	.011 (.009)
Religiosity		.040*** (.007)	.039*** (.007)	.040*** (.007)
Subjective Income Rank		.040*** (.010)	.037*** (.010)	.037*** (.010)
Health		.419*** (.020)	.420*** (.020)	.419*** (.020)
Financial Satisfaction		.183*** (.015)	.182*** (.015)	.183*** (.015)

Notes: Values shown are logit coefficients and standard error. Cohabitants not included in samples

\* p < .05; \*\* p < .01; \*\*\* p < .001

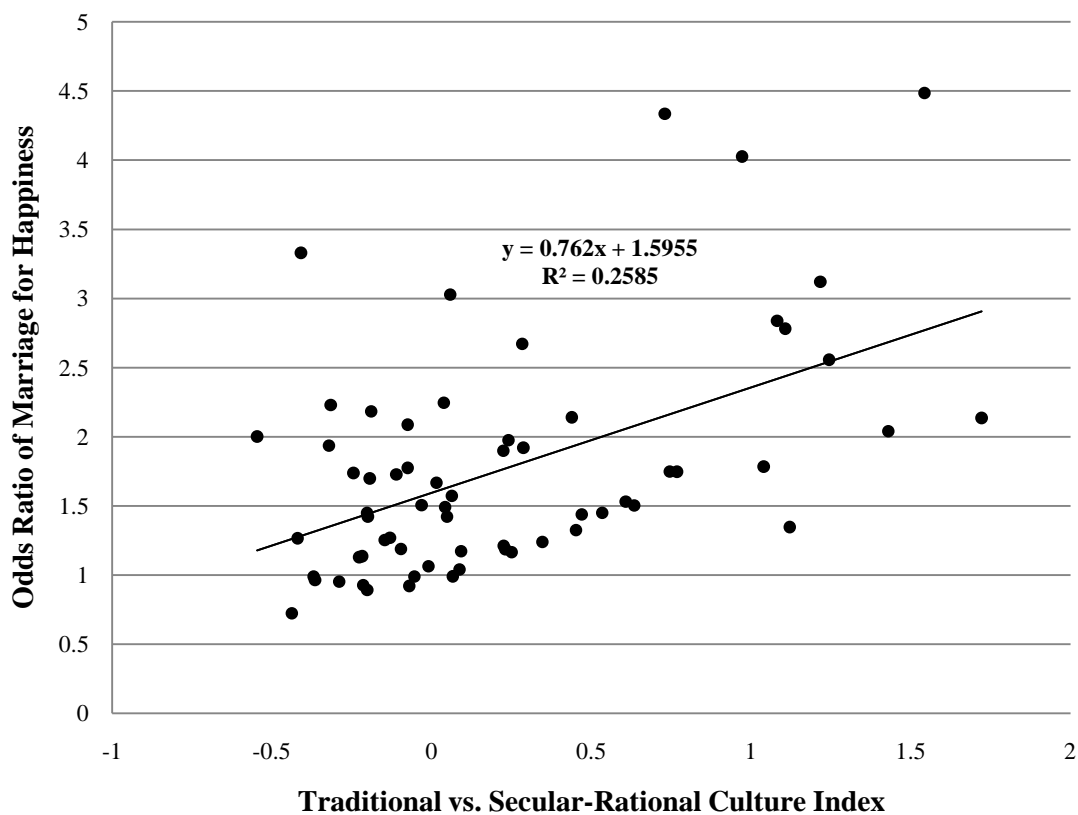
**Figure 3-1. Economic Development and the Effect of Marriage**



on financial satisfaction belonged to the top half of the GDP per capita ranking scale). Also the positive effect of marriage on happiness was persistent in the countries listed in the left-hand column of Table 2-3, even after controlling the effect of financial satisfaction. These findings and the result of Model 3 confirmed that the major benefits of marriage for happiness could go beyond economic advantages, and the non-economic benefits, such as intimacy and companionship were more highly appreciated in economically developed countries.

In Model 4, I included the traditional versus secular-rational culture variable and examined its interaction effect with marriage. The interaction effect was positive and

**Figure 3-2. Traditional versus Secular-Rational Culture and the Effect of Marriage**



significant, meaning that the positive effect of marriage on happiness was stronger under the secular-rational culture compared to more traditional cultures.

Due to the lack of previous empirical studies, I had not initially excluded a possibility that the relationship between marriage and happiness might be stronger in the traditional culture because the singlehood as a deviant social status in the traditional culture could provide a mental pressure to the single people. However, the findings said that the reality is close to the opposite. In the secular-rational culture, being single was not a deviant situation anymore, and marriage was regarded as an individual choice, not a responsibility. Considering the fact that marriage contributed to greater happiness by

conferring secured emotional bonds and companionship to the married, these consequences could be maximized when marriage was accomplished by one's own choice rather than given by a taken-for-granted life course event.

The influences of the economic and cultural factors on the marriage-happiness relationship also appeared in Figure 3-1 and 3-2. In these figures, the strength of the relationship between marriage and happiness was indicated by the regression coefficient of the marriage variable in the logistic regression in each country (see Table 3-3). In Figure 3-1, the coefficient of marriage tended to increase as the average of Log (GDP pc) increases. This meant that the importance of marriage in increasing happiness was larger among more developed countries. In Figure 3-2, the coefficient of marriage also tended to increase as the culture index became more secular-rational, meaning that the importance of marriage in increasing happiness became larger under the secular-rational culture rather than the traditional culture.

### Cohabitation and Happiness

Table 3-6 is the summary of ordered logistic regression predicting happiness in 56 countries. I presented only the cohabitation effect (versus being single) in each nation, controlling for the same set of control variables used in the prior analyses. In order to facilitate a comparison with the married versus single results (see Table 3-3), I listed the 33 countries in the left column where the married were significantly happier than the single. I listed the 23 countries in the right column where the married were not significantly happier than the single.

First of all, 14 countries (out of a total of 33) in the left column revealed that the cohabitants are significantly happier than the single ( $\alpha = .05$ ), and 2 countries did at the marginal level ( $\alpha = .10$ ). Vietnam was an exceptional case; the cohabitation effect was negative and significant, meaning that the cohabitants reported less happiness, on average, than the singles. The relative happiness advantage of cohabitation tended to be



**Table 3-6. Results of Ordered Logistic Regression Predicting Happiness as a Function of Cohabiting versus Single in 56 Nations**

Nation	Estimate	SE	Wald	Nation	Estimate	SE	Wald
Albania	.928	.645	2.072	Argentina	.138	.221	.388
Algeria	.462	.288	2.575	Bulgaria	-.516	.376	1.889
Andorra	.413+	.225	3.385	Cyprus	.251	.508	.243
Australia	.676*	.266	6.434	Ethiopia	.048	.332	.020
Brazil	.091	.178	.263	Ghana	-.088	.283	.096
Burkina Faso	.324	.223	2.110	Great Britain	.530+	.310	2.923
Canada	.596**	.186	10.320	Hong Kong	-.749	.885	.717
Chile	.062	.255	.059	India	.096	.282	.117
China	.790	.552	2.047	Kyrgyzstan	.020	.508	.001
Finland	1.099***	.269	16.667	Macedonia	-.114	.465	.060
France	.574*	.247	5.372	Malaysia	-.021	.188	.012
Germany	.567*	.232	5.986	Moldova	.098	.457	.046
Guatemala	-.069	.210	.108	Nigeria	-.275	.288	.914
Iran	.960***	.273	12.334	Puerto Rico	-.306	.386	.631
Italy	.419**	.460	.831	Rwanda	-.474	.365	1.684
Japan	1.162+	.598	3.776	South Africa	.096	.139	.483
Mexico	.156	.217	.517	Tanzania	.051	.258	.038
Netherlands	.956**	.276	12.001	Thailand	-.434+	.255	2.901
New Zealand	.848*	.341	6.190	Uganda	-.178	.292	.371
Norway	1.121***	.261	18.399	Uruguay	.077	.227	.115
Peru	.153	.154	.991	Venezuela	.169	.207	.662
Philippines	1.207**	.423	8.134	Zambia	-.158	.240	.432
Poland	.642	.503	1.630	Zimbabwe	-.536	.421	1.623
Romania	-.118	.372	.101				

**Table 3-6. Continued**

Nation	Estimate	SE	Wald	Nation	Estimate	SE	Wald
Russia	.023	.262	.008				
Serbia	.406	.343	1.401				
Slovenia	.511*	.253	4.084				
Spain	.608	.399	2.323				
Sweden	.997***	.258	14.961				
Switzerland	1.091**	.372	8.590				
Trinidad and Tobago	.134	.232	.335				
Ukraine	.685	.421	2.656				
Viet Nam	-.068***	.684	.010				

Notes: Coefficients for Cohabitation Dummy shown. Marrieds not included in samples.

+  $p < .1$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

smaller than that of the marriage in each country. These findings were largely comparable with the general belief that couple relationship, regardless of marriage or cohabitation, is better than being single for one's happiness, and the married are happier than the cohabitants (e.g., Soons and Kalmijn 2009).

Second, in the right column, there was no county where the cohabitants were significantly happier than the single except only one case (Great Britain) that revealed a marginally positive effect of cohabitation. Given that the countries in the right column initially showed no positive effect of marriage on happiness, these results indicated that the cohabitation could not contribute to the enhancement of happiness in a society where marriage had also no positive effect on happiness.

Overall, these results suggested that in societies where the married reported higher levels of happiness than singles, the cohabitants also had a possibility to report higher levels of happiness than singles; if marriage enhanced happiness, it is likely that cohabitation will as well. In contrast, in societies where the married were equally happy as singles, the cohabitants were also equally happy as singles. In other words, cohabitation did not provide extra happiness benefits distinguished from that of marriage.

Next, I examined whether societal-level factors affect the happiness gap between the married and the cohabitants. Table 3-7 presented the results of ordinal HGLM for happiness. Model 1 indicated that the cohabitants were less happy than the married across nations. This pattern was persistent in Model 2 with the same set of control variables I used for prior analyses. One notable thing was that the estimated coefficient of cohabitation in Model 1 and 2 (-0.212 and -0.225) are not much different from each other. In general, previous studies argued that the cohabitants were less happy than the married partly because they were relatively disadvantaged in their educational and economic resources. The result of Model 2, however, showed that the happiness gap was persistent even after controlling for these factors.

In Model 3, the country-level culture variable and the cross-level interaction between the traditional versus secular-rational culture index and cohabitation were included. The interaction coefficient was 0.165 and positively significant, suggesting that the happiness gap between the married and the cohabitant decreased as the culture become more secular and less traditional. Considering the fact that the secular-rational culture was more permissive to alternative marriage-like arrangements, the cohabitants were less likely to be exposed to stressful situations caused by social disapproval.

In Model 4, another cross-level interaction effect between cohabitation and the extent of its prevalence was examined. The result, however, did not reveal any significant interaction effect, which meant that the increase of cohabitation did not contribute to moderating the happiness gap between the married and the cohabitants. These findings

**Table 3-7. Hierarchical General Linear Models Predicting Happiness as a Function of Cohabiting versus Married in 56 Nations**

	Model1	Model2	Model3	Model4
Intercept	-.812*** (.119)	-.993*** (.141)	-.991*** (.131)	-.993*** (.141)
<b>Country Level</b>				
Traditional vs. Secular-Rational			.842*** (.157)	
Traditional vs. Secular-Rational x Cohabitation			.165** (.053)	
Prevalence of Cohabitation x Cohabitation				-.001 (.005)
<b>Individual Level</b>				
Cohabitation (vs. Marriage)	-.212*** (.044)	-.225*** (.042)	-.250*** (.045)	-.220*** (.045)
Female		.113*** (.030)	.113*** (.030)	.113*** (.030)
Age		-.035*** (.006)	-.035*** (.006)	-.035*** (.006)
Age <sup>2</sup>		.0004*** (.00005)	.0004*** (.00005)	.0004*** (.00005)
Education		.015 (.010)	.015 (.010)	.015 (.010)
Religiosity		.039*** (.007)	.039*** (.007)	.039*** (.007)
Subjective Income Rank		.033** (.012)	.033** (.012)	.033** (.012)
Health		.408*** (.019)	.408*** (.019)	.408*** (.019)
Financial Satisfaction		.191*** (.017)	.191*** (.017)	.191*** (.017)

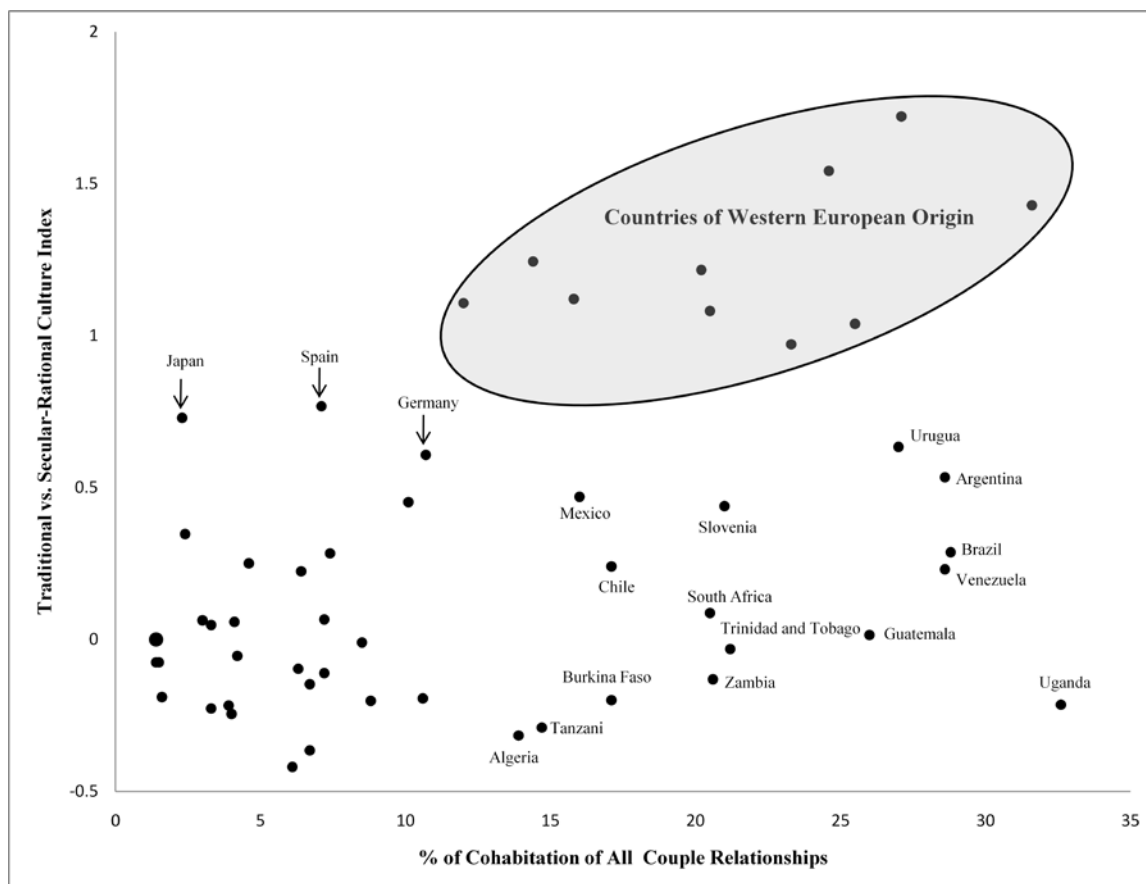
Notes: Values shown are logit coefficients and standard error. Marrieds not included in samples

\* p < .05; \*\* p < .01; \*\*\* p < .001

were somewhat different from the conclusions of Soons and Kalmijn (2009). In their study, the degree of institutionalization of cohabitation was measured by combining people's permissive attitude toward cohabitation and the proportion of cohabiting couples. Their measure of institutionalization revealed a significant interaction effect with the cohabitation status so that the happiness gap between the married and the cohabitants decreased in the countries with higher levels of institutionalization. When comparing their findings with the results of Model 3 and 4, the effect of permissive attitude in decreasing happiness gap was generally re-addressed in the result of Model 3 because the permissive attitude was dominant in secular/rational culture. However, the effect of the proportion of cohabiting couples was not observed in the result of Model 4. This inconsistency might seem unreasonable because, in general, people's attitude toward a new social phenomenon get changed depending on how many people are indeed involved in the phenomenon. However, considering that the current study included more countries than Soons and Kalmijn's (2009) study, it was possible that there were some countries in which the cultural acceptance of cohabitation has not caught up with the pace of the actual increase of cohabitation.

Figure 3-3 is a scatter plot of the two country-level factors in Table 3-7: percentage of cohabitation of all couple relationships and the traditional versus secular-rational culture index. First, a group of countries sharing Western-European origin in the shaded area were characterized by their secular-rational culture and relatively high percentage of cohabitation (e.g., Australia, Canada, France, New Zealand, Norway, Sweden, etc). Germany and Spain were exceptional cases by these standards. Second, another group of countries located in the bottom-left area were characterized by the opposite: a traditional culture and a lack of cohabitation; these include several Asian (e.g., China, India, Vietnam), African (e.g., Ethiopia, Nigeria, Zimbabwe) and Eastern-European (e.g., Bulgaria, Poland, Romania) countries.

**Figure 3-3. Prevalence of Cohabitation and Traditional versus Secular-Rational Culture**



Third, some countries revealed a notable pattern in the bottom-right area in which the percentage of cohabitation was relatively high, but the traditional culture was dominant. All Latin American countries in the sample and several African countries were included in this group. If I included only European countries, as did Soons and Kalmijn's (2009) study, the proportion of cohabitation would be squarely associated with the culture index. However, the results of Table 3-7 and Figure 3-3 implied that there were some countries in which the rapid increase of cohabitation was not yet supported by

their cultural surroundings, and the cultural factor was more strongly related with the happiness of cohabiting couples.

### Conclusion

In this research, I examined the relationship between marriage and SWB across 72 countries, focusing on the comparison with the married and the never-married single. In addition, SWB of cohabiting couples were compared with that of the single and the married in turn. The results of the analyses provide new findings and implications for the future research. First, the strength of the relationship between marriage and SWB substantially varies across nations and the SWB advantage of the married over the single is not as pronounced as expected in many countries. Although the actual numbers of countries are a little various depending on which control variables are included in models, 40 countries among 72 indicate that the married are happier than the single at the conventional statistical level. When life satisfaction is used as a dependent variable, instead of happiness, the positive effect of marriage is revealed in only 29 countries. Second, the effects of marriage are different depending on a country's economic and cultural conditions. While the married have been generally believed to enjoy more favorable financial circumstances than the single, the positive consequence is rarely reproduced in under-developed countries. More importantly, the positive effect of marriage on SWB tends to be stronger in the countries characterized by the advanced economy and the secular-rational culture. Third, the cohabitants are happier than the single only in some of the countries where the married are also happier than the single. In other words, cohabitation does not provide greater happiness to the cohabitants over the single in a country where marriage does not provide greater happiness to the married over the single. The happiness gap between the married and the cohabitants tends to decrease in the secular-rational culture. However, the prevalence of cohabitation is not significantly associated with the happiness gap across nations.

The findings of this research are contrasted with previous studies in that the positive effect of marriage on SWB is not uniformly reproduced in cross-national contexts. This difference is partially because the married are only compared with the single, not the divorced or widowed. However, it should be noted more importantly that the SWB advantage of the married over the single cannot be generalized to all societies. Such cross-national differences are not unusual in cross-national studies, specifically in the study of the relationship between individual's structural positions and their internal states such as personality, well-being, and distress (e.g., Kohn et al. 1990). As Kohn (1987) addressed earlier, interpreting cross-national differences is not easy because, when a postulated consequences of different structural positions (here, SWB difference depending on married versus single) is not replicated cross-nationally, the interpretation should also consider distinct characteristics of the economic and cultural systems in a country. In this research, I found that the positive effect of marriage on SWB is different depending on a country's economic and cultural situations. However, specific interpretations on how economic development and the secular-rational culture can bring greater SWB to the married are open to further research.

For the explanation of the country-level effect of economic development, it is important to point out that marriage provides greater financial satisfaction to the married in rich countries, not poor ones. Since the level of SWB is initially affected by economic conditions until to some point, a significant relationship between marriage and SWB is expected to come from the economic benefits of marriage, specifically in poor countries. However, marriage in poor countries cannot bring the economic benefits to the married, and therefore, it is difficult to expect that some probable non-economic benefits of marriage are strong enough to override the lack of economic benefits in poor countries.

In terms of the effect of culture, it may seem ironic at first glance that the positive effect of marriage on SWB is stronger in the secular-rational culture because the culture is usually characterized by the symptoms of the collapse of the marriage institution such



as the increases of divorce rate<sup>15</sup> and alternative marriage arrangement. However, it is important that marriage is considered as a choice, or even an achievement (Cherlin 2004), not a responsibility or a taken-for-granted event in that culture. As shown by Lucas et al. (2003), the overall level of happiness of the married is mainly affected by the initial boost of happiness in the moment when they got married. It seems reasonable to expect that the positive effect of marriage, at least in the moment of marriage, would be stronger when it is achieved rather than being given.

Finally, it should be noted that cohabitation rarely provides additional happiness beyond the effect of marriage even where marriage is not promising for happiness. This finding implies that the couple relationship cannot be a sufficient condition as itself and institutional supports are necessary for greater happiness.

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<sup>15</sup> It is questionable whether the SWB difference between the married and the single can be explained by divorce rates because unhappy marriages were already terminated by divorces. However, according to the data of crude divorce rates from 1999-2008 in 42 countries that I have collected from the United Nations Statistic Division homepage (<http://unstats.un.org/unsd/demographic/products/dyb/dybcens.htm>), the correlation between divorce rate and the strength of the relationship between marriage and SWB was -.043 and not significant.

## CHAPTER IV. MARRIAGE AND SUBJECTIVE WELL-BEING: LONGITUDINAL APPROACH

### Introduction

In recent years, there has been a surge of interest in the study of subjective well-being (SWB). Social scientists have paid much attention to specific conditions under which individuals express more happiness and life satisfaction (e.g., Diener et al. 1999; Frey and Stutzer 2000b; Yang 2008). Particularly, marriage has been regarded as one of the key conditions for greater SWB because it is generally accepted as the most important lifetime event. Many empirical studies, indeed, reported that the married people indicated a high level of SWB than the never-married singles. However, there is disagreement about the mechanism by which marriage is positively associated with greater SWB. First, some scholars argue that marriage can directly cause greater SWB for the married people (e.g., Waite and Gallagher 2000). Second, it is also argued that the positive association is spurious, at least partially, because of the selection effect (e.g., Mastekaasa 1992). Third, other scholars argue that the causal effect on SWB is true but transient as addressed by the set-point theory (e.g., Lucas et al. 2003).

The main goal of this research is to investigate those three arguments using a longitudinal panel data set collected in Korea from 1998 to 2008. Since the relationship between marriage and SWB cannot be totally explained by a single theory, it is needed to examine different theories together in a comprehensive manner. Given that previous longitudinal studies have usually used the samples from Western countries, the current research can provide important information for solid cross-national comparisons based on longitudinal data. Particularly, this research tries to extend previous research on selection by investigating whether the selection effect in marriage formation is maintained regardless of the age effect of the single people. In addition, in terms of the causal effect

of marriage on SWB, this research focuses on whether the positive effect indeed exists and how long the effect is maintained after marriage.

### Background

There is a general consensus on the positive relationship between marriage and SWB. Much literature has addressed that the married tend to be happier and/or more satisfied with their life than the single, separated, and divorced (e.g., Myers 1992; Ross 1995; Waite and Gallagher 2000; Wilson 1967). This tendency has been reproduced not only in the United States (e.g., Glenn 1975; Gove and Shin 1989; Williams 1988) but also in several different countries (e.g., Graham and Pettinato 2002; Mastekaasa 1995; White 1992), and even in cross-national comparisons (Diener et al. 2000; Gundelach and Kreiner 2004; Stack and Eshleman 1998).

The positive relationship has been explained by two different perspectives characterized by opposite causal directions. First, some scholars argue that marriage causes greater happiness for the married over the other marital status groups. By providing emotional security and attachment (Hazan and Zeifman 1999) and several practical benefits such as more earnings, healthy behaviors, longer lifespan, child well-being and extended social supports (Burman and Margolin 1992; Kiecolt-Glaser and Newton 2001; Ross, Mirowsky and Goldsteen 1990; Williams and Umberson 2004, for a review see Waite 1995; Waite and Gallagher 2000), marriage has been regarded to contribute to the enhancement of SWB. Second, in contrast, other scholars put more emphasis on the possibility of social selection. They argue that happier people are more likely to get and stay married, and therefore the positive association of marriage and SWB revealed in cross-sectional comparison can be, at least partially, attributable to the selection effect. Several empirical studies have successfully shown the existence of the selection effect (Hope, Rodgers, and Power 1999; Joung et al. 1997; Mastekaasa 1992, 1994). However, the selection effect was not strong enough to explain much of the

positive relationship between marriage and SWB (e.g., Johnson and Wu 2002). All in all, most of previous studies have relied on cross-sectional or limited longitudinal data with short measurement periods (e.g, Johnson and Wu 2002; Menaghan and Lieberman 1986). Therefore the causal direction between marriage and SWB could not be fully explained by either of the two perspectives and the positive relationship was supported by mixed findings.

#### Adaptation or Continuation of Marriage Effect

As a pivotal development, Lucas et al. (2003) suggested an innovative research method to study the selection effect and the (dis)continuation of the marriage effect. Following their work, several other studies (Lucas and Clark 2006; Soons, Liefbroer, and Kalmijn 2009; Stutzer and Frey 2006; Zimmermann and Esterlin 2006) directly or indirectly utilized the same method and provided intriguing research findings about the effect of marriage on SWB. Since the analytic strategy of the current research is also based on but extends their original approach, it would be helpful to introduce their data and method briefly. They used the 15 year old German Socio-Economic Panel Study data, and specifically targeted the sub-sample who entered the survey as never-married single status but got married and stayed in the first marriage during the respondents participated in the survey. The long-term panel data allowed them to separate the respondents' participation years into the three distinct periods: premarital, reaction, and adaptation periods. The premarital period was set to cover the respondents' single years, and the mean life satisfaction of the years was called as baseline. Based on the marriage year ( $t$ ), the reaction period was set to range from 1 year before marriage ( $t-1$ ) to 1 year after marriage ( $t+1$ ). The adaptation period was set to cover the married years from 2 years after marriage ( $t+2 \sim$ ). Adaptation means the process in which the married individuals' life satisfaction comes back to the baseline level after an instant reaction on the moment of marriage. The three distinct periods were coded as two dummy variables

(Reaction and Adaptation) with the reference category of the baseline. These specifications made it possible to investigate whether there was a substantial increase of life satisfaction in the reaction period when compared with the baseline level of the premarital years. More importantly, such research design also enabled to test the hypothesis of the set-point theory (Headey and Wearing 1989; Kammann 1983; Myer 2000; Suh, Diener, and Fujita 1996).

The set-point theory posits that individuals adapt to any changes in surroundings and restore their initial level of SWB regardless of what they have been through. Therefore one's level of SWB comes back to a set-point after a short term increase or decrease by a favorable or unfavorable event. Brickman, Coates, and Janoff-Bulman's (1978) study is usually referred to as a traditional example of the set-point theory. In their study, the levels of happiness of lottery winners and people with spinal-cord injuries were not much higher or lower than what were generally expected. In the context of marriage, the set-point theory suggests that the level of married people's SWB would be back to their baseline level even though the level was increased to some extent in the reaction period. Lucas et al. (2003) indeed showed that the life satisfaction of the married people was not significantly different from their baseline level once two years have passed since their marriage.

The strong support for the set-point theory provided a more important implication with SWB research in general, not limited to the topic of marriage and SWB. Once the hypothesis of the set point theory is accepted, much of variance in individual-level happiness is deemed to be explained by one's personality and genetic predisposition rather than by external circumstances (Lykken and Tellegen 1996). No positive effect of marriage on SWB except the transient reaction, which is one of the main findings of Lucas et al. (2003), does not merely mean that the effect of marriage on SWB is very restricted. Rather, it can imply that individuals' level of SWB is really stable and the change of external circumstances has little possibility to enhance their SWB, considering

that marriage is generally regarded as the utmost lifetime event in a positive sense. Just as there have been many controversies in terms of the determinants of happiness, for example, gene, environment, culture, and so on (e.g., Diener and Lucas 2000; Lykken and Tellegen 1996; Veenhoven 2000a), the finding in favor of the set-point theory have elicited several attempts to re-test the hypothesis of the theory.

Zimmermann and Easterlin (2006) criticized the conclusions of Lucas et al. (2003) mainly for the two reasons: lack of considering the possibility of cohabitation in the premarital period, and omission of time-variant control variables. Given that many couples in the German society experience cohabitation before getting into marriage, according to Zimmermann and Easterlin (2006), no consideration of the cohabitation experience might result in an inflated estimation on the baseline level of life satisfaction in the premarital period. This would make it difficult to detect a significant difference between the levels of life satisfaction in the baseline period and the adaptation period. In addition, they argued that control variables should have been included in the within-person level, not in the between-person level as Lucas et al. (2003) did, because the change of life satisfaction was traced over 15 years in the original German data. By correcting the two potential problems, Zimmermann and Easterlin (2006) obtained the result which was against the set-point theory, i.e., the life satisfaction in the adaptation period was significantly higher than the baseline level. Using a different data set collected in the Netherlands, Soons et al. (2009) also reached the same conclusion that did not support the argument of the set-point theory. Their findings indicated that the level of SWB of the married people eventually came back to the baseline level of their premarital period, but it took almost 10 years for the full restoration. Given that the adaptation period was set to start from 2 years after marriage in Lucas et al.'s (2003) study, they concluded that their findings is more close to supporting the causal effect of marriage on SWB, i.e., marriage indeed contributed to the enhancement of SWB of the married people.

In response to the criticisms of Easterlin (2003) and Zimmermann and Easterlin (2006), Lucas and Clark (2006) showed that separating the cohabitation period from the premarital period did not change their support for the set-point theory. In other words, even though it was true that many couples started from cohabitation before marriage, and their level of life satisfaction in the cohabitation period was higher than their level of pre-cohabitation period, the life satisfaction level of the adaptation period was not significantly different from the level of their pre-cohabitation period once two years had passed since their marriage. This was, again, a robust evidence to support the set-point theory.

However, Lucas and Clark (2006) could not appropriately handle the issue of control variables. As pointed out by Zimmermann and Easterlin (2006), including time-variant control variables into within-person level, not between-person level, would be a crucial point in the test of the set-point theory, even though they did not provide explicit explanation about how each control variable worked in their multi-level analysis. In this research, I specifically focus on the effect of age and income as within-person level control variables. As a well-known association in SWB literature, the effect of age on SWB appears as U-shape<sup>16</sup>, which means that one's level of SWB goes down from early twenties, reaches at the lowest point in sometime middle forties, and goes up again after that point (e.g., Blanchflower and Oswald 2008, 2009). Considering the fact that a majority of people experience their first marriage in their twenties or thirties, the whole years from the premarital to adaptation period in previous studies was largely overlapped with the range where age has a negative influence on SWB. Therefore, we can suspect a strong possibility that the SWB of the adaptation period would be declining due to the

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<sup>16</sup> Glenn (2009) did not agree with the U-shape age effect. Particularly, he pointed out complexity of intercorrelation among age, marriage, and SWB and argued that marital status should not be controlled in the study of the relationship between age and SWB. Considering the issue of control variables, the current research provides separate analysis results with and without control variables.

age effect, not the adaptation effect itself. This possibility can make it difficult to detect a difference of SWB between premarital and adaptation period. Meanwhile, considering income as a covariate may lead to an opposite outcome because age and income are positively associated to each other in the young adult age, and income has a positive influence on SWB.

In constructing multi-level models for the study of SWB, it is important to distinguish time-variant and time-invariant control variables. Such variables as age and income indeed change over one's life course and have substantial effects on SWB. Therefore they should be included in within-person level. However, time-invariant variables, for instance gender, can be considered in between-person level. In the current research, I analyze several different models according to whether control variables are considered or not because this research utilize a Korean panel data and thus can be compared with previous studies which have used a similar research method with different data.

### Marriage and the Selection Effect

The selection effect is another crucial issue in the relationship between Marriage and SWB. In spite of the potential to explain the positive association of marriage and SWB, the selection effect has not been easily examined in previous studies, mainly because a test of the selection effect requires substantial repetitive measures for SWB before and after marriage. However, the aforementioned longitudinal studies based on the extensive German panel survey (Lucas et al. 2003; Lucas and Clark 2006; Zimmermann and Easterlin 2006), indeed, satisfied the conditions and succeeded in providing important clues for the study of the selection effect. In these studies, selection was examined by estimating the baseline life satisfaction, i.e., the mean life satisfaction in the premarital years of those who got married later. Then, the estimated baseline level was compared with the mean life satisfaction of the whole population in the sample. If the



baseline level was higher than the mean of the whole population, the selection effect was accepted. Particularly, in the studies supporting the hypothesis of the set-point theory (Lucas et al. 2003; Lucas and Clark 2006), the selection effect was addressed as the key mechanism to explain the positive relationship between marriage and SWB, since the set-point theory does not accept the continuation of the causal effect of marriage on SWB. Although Zimmermann and Easterlin (2006) did not find an empirical support for the selection effect, they used the same research method to investigate the selection effect.

However, in spite of the obvious merit to isolate the baseline level of life satisfaction, there was a common problem in these studies. They did not specify a boundary of a group that was supposed to be compared with their target population (initially being single, but getting married later). In a strict sense, the selection effect should be examined by the comparison between the SWB in the premarital period of those who get married later and the SWB of individuals who remained unmarried single until they exited the survey. However the previous studies roughly compared the baseline SWB of their target group with the average SWB of the general population. No wonder that the general population included inadequate groups for the study of selection such as those who were already married from the beginning when they entered the survey, the widowed people and so on. This problem can cause an over- or under-estimation for the selection effect.

Stutzer and Frey (2006) recognized this problem, and tried to set up a specific comparison group. By virtue of that, they could represent a more concrete finding that was favor of the selection effect. Their research, however, did not go further to investigate how the SWB gap between those who got married and did not can be explained by different characteristics of the two group members. If there is a substantial SWB difference between any two groups, we can reasonably expect that the groups would be differentiated from each other in several aspects that have been dealt with as correlates of SWB in previous studies. In general, many studies concerning the selection

effect have been just interested in whether the selection effect exists or not, but they did not pay much attention to the possibility that the selection effect itself can be associated with other socio-demographic factors.

Aside from the divorced and widowed people, the selection effect focuses on the two groups: those who get and stay married and those who remain as unmarried single. There would be several reasons that someone is not able to find a potential spouse in the marriage market. Being unhappy can be conceived as one of the reasons but it is inappropriate to treat it as a mere personality characteristic independent of her/his demographic and social position. However, it has been generally overlooked under what conditions the selection effect is prominent. This negligence may be attributable to the fact that the selection effect has been usually studied in the context of opposing the causal effect of marriage on SWB. Generally, such a causal explanation tends to highlight external circumstances (e.g., married life) for individuals' SWB, rather than their personality or genetic predisposition. In contrast, selection has been generally regarded as evidence to weaken the logic of the causal explanation and therefore underestimate the influence of external factors in determining one's level of SWB. However, in view of numerous findings that show substantial associations of SWB and one's socio-demographic factors (e.g., Diener et al. 1999; Frey and Stutzer 2000b; Veenhove 2008; Yang 2008), we can expect that the strength of the selection effect is different depending on the characteristics of the groups compared with each other.

In addition, the selection effect can appear in a complex way due to the recent demographic trends such as the increase of single population and the increase of age at first marriage (Goodwin, McGill, and Chandra 2009). In spite of the current trend of the delayed marriage, it is still true that most people experience marriage at least once in their life. Therefore, an actual empirical study on selection turns into a comparison between those who got already married and those who delayed marriage. In the current society, the delayed marriage is associated with several socio-economic factors (Goldstein and

Kenney 2001), which are also likely to be related with one's level of SWB. This complexity requires an additional consideration for the age structure of comparison groups.

This research is initially interested in the test of the selection effect. However it extends to investigate whether the SWB difference between those who get married and not is persistent regardless of their socio-economic conditions captured by their income, education, and family backgrounds. Those variables are generally accepted as significant correlates of SWB as well as the formation of marriage. Also this investigation specifically considers the age structure of the two groups.

As an auxiliary analysis, I also test possibilities of interactions between those socio-economic variables and the marriage effect in the reaction and adaptation period. For example, we can expect that high income leads to higher SWB in one's premarital years. However, we cannot be sure that the positive reaction caused by marriage is stronger for the rich people, because they already have a higher level of SWB in their premarital years. Similar questions about the interaction effect can be asked for other socio-economic variables. These exploratory empirical tests may provide some clues for future studies regarding married people's SWB.

#### Current Research: A Cross-National Comparison Using Longitudinal Data

As shown above, recent empirical studies based on extensive longitudinal data (Lucas and Clark 2006; Soons, Liefbroer, and Kalmijn 2009; Stutzer and Frey 2006; Zimmermann and Esterlin 2006) have provided a host of findings that would not be obtainable with cross-sectional or limited longitudinal research design. Even though these studies, sometimes, indicated conflicting conclusions about the relationship between marriage and SWB, these do not reveal a fundamental problem of those studies. Rather, such inconsistency implies room for improvement by additional studies with comparable research design and data. The current research aims to elaborate previous longitudinal

studies by utilizing another extensive longitudinal data collected in Korea. Given that previous studies have mainly used the panel data collected in Germany and the Netherlands, this study which is based on the non-Western country is expected to contribute to strengthening generalizability or revealing some limitations of the existing studies. In particular, the Korean data may reflect distinct cultural backgrounds and marriage norms when compared with other studies based on the Western culture. Therefore, it would be interesting to examine whether there is any difference between Korea and the Western countries in terms of the pattern of the relationship between marriage and SWB.

In this research, first, I perform a series of cross-sectional analyses to provide basic information for the following longitudinal analyses. The goal of these analyses is to show a cross-sectional relationship between marriage and SWB in Korea. Second, I investigate three longitudinal research questions using the same method that Lucas et al. (2003) adopted: (1) Does the selection effect exist? (2) Does the instant positive reaction appear right before and after the marriage year? (3) Does the level of SWB come back to the baseline level in 2 years after marriage? On the basis of the findings of the three questions, third, I conducted a further analysis to examine different selection effects depending on the age structure of comparison groups. In this analysis, the association of selection and other social-economic factors such as family background and one's own economic capability is importantly considered. Fourth, more analyses are performed to examine when the positive effect of marriage is started and how long the effect is continued. Finally, as an exploratory analysis, I test possibilities of interactions between the positive effect of marriage and the effects of other socio-economic factors that are already considered for selection.

## Method

### Data and Measures

The data for this research come from the Korean Labor and Income Panel Study (KLIPS) (Korea Labor Institute 2010) accumulated for 11 years from 1998 to 2008. The longitudinal data are based on a representative sample of Korean household and individuals living in urban areas. The sample was selected by two-stage stratified clustering sample method in which the enumeration districts were initially selected and then the households were selected. All data were collected by face-to-face interview. In the first year, 13,321 respondents from 5,000 households were participated in the survey, and 74% of the original households were remaining in the last year. In each year, some new households were added to maintain the initial level of the sample size.

The key population of this study is a group of respondents who experienced their first marriage and stayed in the marriage for the years they participated in the survey. To select this group, those who remained as unmarried single for all survey years and those who got married before they entered into the survey were excluded. Respondents who have experienced a divorce or bereavement were also excluded regardless of whether they got re-married or not. In addition, to capture substantial longitudinal variation in life satisfaction, respondents who participated in the survey at least more than 5 times were included in the sample for the analysis. The final sample size of the group was 788.

The main dependent variable, SWB, is represented by the overall level of life satisfaction, which was measured by asking “how satisfied are you with your life as a whole?” The answers to the questions were recoded into 1 (very dissatisfied) to 5 (very satisfied). To control a possible yearly variation of life satisfaction, all life satisfaction scores were centered on the mean of the life satisfaction score in each year. Included other socio-demographic variables were gender (female: 1, male: 0), age (in years), religion (yes:1, no: 0), respondent’s income and education, father’s education, and the

family's economic status when a respondent was 14 years old. Income was measured by the average monthly income, and the level of education was measured by education years. The family's economic status at age 14 was measured by a respondent's subjective evaluation of the financial situation, ranging from 1 (very below the average) to 5 (very above the average). Descriptive statistics of these variables are available in Table A3 of Appendix.

### Analytic Strategy

First of all, it is needed to explain the coding strategy to capture respondent's marital status change. As mentioned earlier, the final sample selected for analysis is composed of those who entered into the survey as single status, got married, and stayed in the first marriage. Therefore, the years they participated in the survey are classified into three categories: premarital, reaction, and adaptation periods. Two dummy variables were needed for the three categories. The Reaction variable was coded as 1 for the year of marriage ( $t$ ), 1 year before marriage ( $t-1$ ), and 1 year after marriage ( $t+1$ ). All other years except the reaction period were coded as 0 in the Reaction variable. The Adaptation variable was coded as 1 for the years from 2 year after marriage ( $t+2 \sim$ ). All other years except the adaptation period were coded as 0 in the Adaptation variable. By doing this, the coefficients of the Reaction and Adaptation variables can be interpreted as relative increase of life satisfaction in the reaction and adaptation periods with the reference category of the premarital period. Of course, there is no theoretical criterion to tell when the reaction periods begin and end. However, in the initial analysis, the reaction period was set up to range from  $t-1$  to  $t+1$  in order to test whether the level of life satisfaction is quickly restored to the baseline level of the premarital period in 2 years after marriage.

The key interest of the current research is to examine within-person variations in life satisfaction depending on the marital status change. This research interest can be appropriately studied by using hierarchical linear modeling (HLM) approach. In the

HLM, the within-person model consists of an intercept, two dummy variables of interest (Reacting and Adaptation), and two control variables (Age and Income).

The within-person model is

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Reaction}_{ij}) + \beta_{2j}(\text{Adaptation}_{ij}) + \beta_{3j}(\text{Age}_{ij}) + \beta_{4j}(\text{Income}_{ij}) + R_i \quad (1)$$

where  $Y_{ij}$  is life satisfaction of observation time  $i$  in person  $j$ .  $\beta_{0j}$  is within-person level intercept. The intercept is specifically noteworthy because it represents the baseline life satisfaction, i.e., the mean life satisfaction of the premarital years of the selected group. The significance test of the intercept provides an important clue for the selection effect. As stated earlier, all life satisfaction scores are centered on the mean life satisfaction score of the whole population in each year. Therefore if the baseline life satisfaction of the selected respondents is equal to the mean life satisfaction of the whole population, the intercept should be 0. Likewise, if the intercept is significantly higher than 0, this indicates that the baseline life satisfaction of the selected respondents is higher than the mean life satisfaction of the whole population. In this case, we can suspect the existence of the selection effect. In the within-person model, age and income are grand-mean centered so that the intercept can represent the baseline life satisfaction of a person with the mean age and income in the selected sample.

In the initial multi-level analysis, gender is only considered as a between-person level control variable affecting the baseline life satisfaction. Therefore, the between-person model is:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Female}_j) + U_{0j} \quad (2)$$

$$\beta_{kj} = \gamma_{k0} \quad (3)$$

where  $\gamma_{00}$  indicates the between-person level intercept.  $\gamma_{01}$  is the effect of gender (being female) on  $\beta_{0j}$  which is the intercept of the equation (1). The slopes of the variables included in the within-person model are fixed. Additionally, in the analyses allowing interactions between a set of socio-economic factors and the reaction, adaptation variables, a more complicated between-person level model is constructed as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{Female}_j) + \gamma_{02}(\text{Religion}_j) + \gamma_{03}(\text{Education}_j) + \gamma_{04}(\text{Average Income}_j) \\ + \gamma_{05}(\text{Father's Education}_j) + \gamma_{06}(\text{Family's Economic Status at Age 14}_j) + U_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{Female}_j) + \gamma_{12}(\text{Religion}_j) + \gamma_{13}(\text{Education}_j) + \gamma_{14}(\text{Average Income}_j) \\ + \gamma_{15}(\text{Father's Education}_j) + \gamma_{16}(\text{Family's Economic Status at Age 14}_j) + U_{1j}$$

$$\beta_{2j} = \gamma_{20} + \gamma_{21}(\text{Female}_j) + \gamma_{22}(\text{Religion}_j) + \gamma_{23}(\text{Education}_j) + \gamma_{24}(\text{Average Income}_j) \\ + \gamma_{25}(\text{Father's Education}_j) + \gamma_{26}(\text{Family's Economic Status at Age 14}_j) + U_{2j}$$

$$\beta_{3j} = \gamma_{30}$$

$$\beta_{4j} = \gamma_{40}$$

Along with the HLM approach, ordinary least-squares (OLS) regression is used for cross-sectional analysis where the dependent variable is life satisfaction and the key independent variable is one's marital status (married versus single) at a specific time point. Binomial logistic regression is also used for the investigation of the selection effect. In the analysis, the dependent variable is one's final marital status (whether getting married eventually or remaining unmarried single). Detailed explanations about the logistic regression are provided in the following Result section.

## Results

### Marriage and Life Satisfaction: Cross-Sectional Analysis

First of all, I conducted a series of OLS regressions to show the cross-sectional relationship between marriage and life satisfaction in Korea. In these regressions, the longitudinal attributes of the data were not considered and the results simply captured differences of life satisfaction between the married and the single at a certain time point. The cross-sectional analysis provides preliminary information for the following longitudinal analysis because the detailed investigations on the effect of selection, reaction and adaptation are based on the initial positive association of marriage and life satisfaction in the cross-sectional comparison.



Table 4-1 represented the partial results of regressions in the middle year (2003) and the most recent year (2008) of the whole data set. The main independent variable was the dummy-coded marriage variable in which the reference category was the never-married single people. In 2003, marriage was not significantly related with life satisfaction when other control variables were not included in Model 1 ( $b = -.007$ ,  $SE = .015$ , n.s.). However, the relationship became significantly positive by adding the age variable in Model 2 ( $b = .193$ ,  $SE = .023$ ,  $p < .001$ ).

If we merely compare the never-married single and the married without consideration of their age, it easily turns into a comparison between older married group and younger single group in a relative sense. Previous empirical findings about the age effect on SWB generally indicate that the forties and the late thirties tend to be less happy than the twenties and the early thirties (e.g., Blanchflower and Oswald 2008, 2009; see Glenn 2090 for a criticism). In light of the age effect, the result of Model 2 is understandable and also asserts that the age factor should be counted together in any investigation on the relationship between marriage and SWB. In Model 3, adding more control variables did not change the significance level of the marriage variable ( $b = .177$ ,  $SE = .022$ ,  $p < .001$ ).

Although the results of every single year were not represented in Table 4-1, the same pattern appeared in each year's regressions among Model 1, 2, and 3; the weak or non-significant association of marriage and life-satisfaction turned into a strong positive association by including the age factor, and the significant association was maintained in the model with more control variables such as religion, education, and income. In 2008 of Table 4-1, it was also observed that the association of marriage and life satisfaction became much stronger in Model 2 and 3. Overall, the cross sectional regression analyses confirmed that marriage is positively associated with life satisfaction in Korea, as usually indicated by previous studies performed in other countries (e.g., Mastekaasa 1995; White 1992; Williams 1988).

**Table 4-1. Ordinary Least-Squares Regressions Predicting Life Satisfaction as a Function of Being Married versus Single in Year 2003 and 2008**

Year 2003 (N=9,733)	Model 1	Model 2	Model 3
Married (versus Single)	-.007 (.015)	.193*** (.023)	.177*** (.022)
Female		-.019 (.023)	.084*** (.014)
Age ( $\geq 18$ years old)		-.019*** (.003)	-.023*** (.003)
Age <sup>2</sup>		.0001*** (.00003)	.0003*** (.00003)
Religion			.037** (.013)
Education			.041*** (.002)
Log (Income)			.028*** (.003)
Father's Education			.005** (.002)
R <sup>2</sup>	.00002	.017	.072
Year 2008 (N=7,898)	Model 1	Model 2	Model 3
Married (versus. Single)	.043* (.017)	.288*** (.025)	.259*** (.024)
Female		-.009 (.014)	.092*** (.015)
Age ( $\geq 18$ years old)		-.023*** (.003)	-.026*** (.003)
Age <sup>2</sup>		.0001*** (.00003)	-.0002*** (.00003)
Religion			.017 (.014)
Education			.036*** (.002)
Log (Income)			.028*** (.003)
Father's Education			-.001 (.002)
Family's Economic Status at age 14 <sup>a</sup>			.043*** (.008)
R <sup>2</sup>	.001	.032	.085

Note: Values shown are regression coefficient and standard error.

<sup>a</sup> Family's Economic Status at age 14 was measured only in 2005. Thus, the result in 2008 only included the individuals who were also participated in 2005 survey.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

In terms of the effects of other control variables except the age effect, respondent's gender (being female), education and income indicated consistently positive relationship with life satisfaction in Model 3 in each year. In addition, father's education (see Model 3 in 2003 data) and family economic status when a respondent was 14 years old (see Model 3 in 2008 data) were also positively associated with higher level of satisfaction. Depending on the variability in one's life course after someone has grown up, the control variables are divided into two kinds: (1) time-variant variables such as age and income, (2) time-invariant variable such as gender, education and family background. The time-variant variables are associated with marriage in a way that people are more likely to get married and to earn more income with aging. Also, as described already, marriage and the time-variant variables are strongly correlated to life satisfaction. The time-invariant variables affect one's life satisfaction regardless of whether they get married or not. Complicated associations among marriage, life satisfaction and the time-variant and -invariant control variables, however, cannot be fully investigated by cross-sectional analyses. Following analyses, therefore, adopt multi-level approaches to utilize longitudinal attributes of the data set.

#### Marriage and the Selection Effect

As a first step of longitudinal data analysis, I constructed a simple multi-level model in which only gender was considered as a between-person level control variable. Model 1 in Table 4-2 was composed of intercept and the two main variables, reaction and adaptation. Two time-variant control variables, age and income, were added in Model 2. For the purpose of comparison, the initial models followed the same method that had been used in previous studies (e.g., Lucas et al. 2003; Zimmermann and Easterlin 2006) to construct the reaction and the adaptation variables; if someone gets married in a certain year ( $t$ ), the reaction period covers from  $t-1$  to  $t+1$  year, and the adaptation period starts from  $t+2$  year.

**Table 4-2. Hierarchical Linear Models Predicting Change of Life Satisfaction in Reaction and Adaptation Period**

	Model 1		Model 2	
	Coefficient (SE)	t-ratio (d.f.)	Coefficient (SE)	t-ratio (d.f.)
<b>Within-Person Level</b>				
Intercept	.103*** (.023)	4.380 (786)	.069** (.024)	2.845 (786)
Reaction	.086*** (.020)	4.319 (7,427)	.099*** (.022)	4.485 (7,425)
Adaptation	.078** (.022)	3.564 (7,427)	.116*** (.030)	3.825 (7,425)
Age			-.008** (.003)	-2.619 (7,425)
Log (Income)			.032*** (.004)	7.647 (7,425)
<b>Between-Person Level (for Intercept)</b>				
Female	.013 (.025)	.529 (786)	.046 (.028)	1.671 (786)

Note: \*\*  $p < .01$ ; \*\*\*  $p < .001$

In terms of the selection effect, intercept of the multi level models provides pivotal information. As described in the Method section, all life satisfaction scores were centered on each year's mean life satisfaction. Therefore, if the mean life satisfaction of the group selected for the multi-level models is equal to the mean life satisfaction of the whole population participated in KLIPS surveys, the intercept should be equal to 0. In fact, Table 4-2 showed that the interception was significantly higher than 0 in both of Model 1 ( $\beta_0 = .103$ ,  $SE = .023$ ,  $p < .001$ ) and Model 2 ( $\beta_0 = .069$ ,  $SE = .024$ ,  $p < .01$ ). Such a positive significance was mentioned as an evidence of the selection effect in previous studies (Lucas et al. 2003; Lucas and Clark 2006). However, as Stutzer and Frey

(2006) pointed out correctly, this approach is too general to confirm the existence of the selection effect because no group was specified for the comparison.

For a more concrete comparison to capture the selection effect, I selected another group from the whole KLIPS data set. The group was composed of those who were more than 20 years old and never-married single in the first year when they entered into the data, and maintained the single status until their last year data were available. By sorting out this group from the data set, it became possible to directly compare the two groups. One is those who were initially single but got and stayed married (SM group), and the other is those who remained single (SS group). To perform binomial logistic regressions, the former group (SM) was coded into 1 and the latter group (SS) was coded into 0. In the logistic regressions, the key independent variable was the average life satisfaction for the years when the respondents were single. Therefore, the SM group's life satisfactions measured for the years after they got married were not considered in the calculation of the average life satisfaction. There were 715 and 1,702 persons in the SM and SS group, respectively. The mean age of the SM and SS group in the period when they were single was 25.70 and 27.63, respectively.

Table 4-3 is the summary of the logistic regression for all individuals belonging to SM and SS group. Model 1 indicated that the higher level of life satisfaction was a significant predictor for someone to belong to the SM group. In other words, those who were more satisfied with their life were more likely to get married in the end. This is a strong support for the selection hypothesis in terms of the relationship between marriage and SWB. The selection effect was persistent in Model 2 after considering the effects of control variables. Among the control variables, income and family's economic status at age 14 were positively significant. This means that those who earned more money and grew up in financially favorable surroundings were more likely to get married rather than remained being single for the years the KLIPS data were collected. These results are generally in line with the notion of marriage gap (e.g., Hymowitz 2006). Importantly in

**Table 4-3. Logistic Regressions Predicting Whether Getting Married or Remaining Single as a Function of Life Satisfaction (All Age Categories, N=2,417)**

	Model 1		Model 2	
	b (SE)	Exp(b)	b (SE)	Exp(b)
Average Life Satisfaction	.791*** (.113)	2.205	.636*** (.125)	1.890
Religion			.125 (.113)	1.133
Education			.016 (.024)	1.016
Log (Income)			.267*** (.039)	1.307
Father's Education			-.018 (.015)	.982
Family's Economic Status at 14 years old			.217** (.070)	1.242

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Table 4-3, the difference in life satisfaction was not totally washed out by the economic factor.

Although Table 4-3 provides a robust finding in accordance with the selection hypothesis, it merely implies an overall difference of life satisfaction over the years when the SM and SS groups of people were being single. It did not consider a possibility that the difference of life satisfaction can vary depending the age of their single years. There are two reasons to raise this possibility. First, as revealed by the cross-sectional analysis in Table 4-1, age itself is a strong correlate with life satisfaction independent upon marriage. For example, young people in their early twenties are characterized by relatively higher levels of life satisfaction. Given the age effect, we can wonder whether there had been a life satisfaction difference between SM and SS group even when they were quite young. Second, an increase of age at first marriage is a recent demographic trend in many societies (e.g., Goodwin, McGill, and Chandra 2009). With regard to the

delayed marriage, the influence of economic resources on formation of marriage has been well reported (e.g., Oppenheimer 2000). Table 4-3 also indicated that one's own level of income and family background were significant predictor for whether someone ends up at SM or SS group. Given the associations among delayed marriage, income, and SWB, it would also be an interesting question to ask whether the selection effect is still sustained in relatively old single people.

To investigate a possible difference of the selection effect depending on age, I classified the individuals of the SM and SS group into three categories by their mean age at which they participated in the KLIPS survey as single. Then, I conducted the same logistic regressions for the SM and SS group individuals in each category. First to third age category ranges from 20 to less than 25, from 25 to less than 30, and 30 and more, respectively. The maximum years for which the SM group individuals participated in the survey as single were 7 years. The average age at first marriage is 26.96, 29.14, and 34.36 in each category. Among the individuals of the SM group, 19.72% was classified into the youngest age category, 55.25% was into the second, and 25.03% was into the third category. Table 4-4, 4-5, and 4-6 are the results of the logistic regressions.

Table 4-4, in contrast with Table 4-3, showed that the life satisfaction difference in the youngest age category was not a significant predictor for who get married or not. The non-significance of life satisfaction was persistent regardless of the inclusion of control variables across Model 1 and 2. The result for the second age category, however, was different from that of Table 4-4. In Table 4-5, the difference of life satisfaction was a substantially significant factor for marriage formation; higher life satisfaction in one's single years was more likely to lead her/his marriage in the long run. The significance of life satisfaction was not changed even with the effects of control variables in Model 2. Among the control variables, the level of one's own income in her/his single years and family's economic status were still significant factors for marriage formation in both of the first and second age categories. Given that more than half of the individuals belong to

**Table 4-4. Logistic Regressions Predicting Whether Getting Married or Remaining Single as a Function of Life Satisfaction ( $20 \leq$  Average Age  $< 25$ ,  $N=714$ )**

	Model 1		Model 2	
	b (SE)	Exp(b)	b (SE)	Exp(b)
Average Life Satisfaction	.388 (.249)	1.475	.368 (.286)	1.445
Religion			.199 (.241)	1.220
Education			-.164* (.066)	.849
Log (Income)			.303*** (.082)	1.354
Father's Education			-.031 (.036)	.970
Family's Economic Status at 14 years old			.347* (.163)	1.415

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

**Table 4-5. Logistic Regressions Predicting Whether Getting Married or Remaining Single as a Function of Life Satisfaction ( $25 \leq$  Average Age  $< 30$ ,  $N=1,107$ )**

	Model 1		Model 2	
	b (SE)	Exp(b)	b (SE)	Exp(b)
Average Life Satisfaction	.917*** (.168)	2.502	.837*** (.180)	2.309
Religion			.250 (.161)	1.284
Education			-.014 (.037)	.987
Log (Income)			.176** (.058)	1.192
Father's Education			-.025 (.022)	.975
Family's Economic Status at 14 years old			.258* (.101)	1.297

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$



**Table 4-6. Logistic Regressions Predicting Whether Getting Married or Remaining Single as a Function of Life Satisfaction ( $30 \leq$  Average Age,  $N=596$ )**

	Model 1		Model 2	
	b (SE)	Exp(b)	b (SE)	Exp(b)
Average Life Satisfaction	.907*** (.212)	2.477	.307 (.245)	1.359
Religion			-.074 (.222)	.929
Education			.105* (.042)	1.110
Income (Log Transformation)			.338*** (.091)	1.402
Father's Education			-.002 (.027)	.998
Family's Economic Status at 14 years old			.133 (.107)	1.142

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

the second age category, it is imaginable that the result of Table 4-5 is similar with that of Table 4-3. The result of the oldest age category was somewhat different from those of previous tables. In Model 1 of Table 4-6, life satisfaction was as a strong predictor for marriage formation as in Model 1 of Table 4-5. However, the significant effect of life satisfaction disappeared in Model 2 by including control variables. In particular, when I tried to add each control variable one by one, the significance of life satisfaction was nullified with the inclusion of the income variable. In Table 4-6, it is also notable that the effect of family's economic status was not significant any more. This implies that one's own economic resources, not family background, become more important for marriage formation, as she/he gets old.

In terms of the relationship between marriage and SWB in Korea, Table 4-3 to 4-6 provide several important findings. First, the selection effect indeed exists. Therefore the positive association of marriage and SWB in a cross-sectional comparison cannot be

totally attributable to the causal effect of marriage on SWB. Second, however, the selection effect is not homogeneous across age. In a relatively younger age group, a difference of SWB cannot be a predictor for who is going to get married or not. This can, at least partially, be explained by the age effect that characterizes the young adult population as a higher level of SWB. Third, in a relatively older age group, a difference of SWB can be a predictor for marriage formation in their later life. However, the SWB difference between those who get married or not is fully explained away by a disparity of economic resources between the two groups. Therefore, the SWB difference in the selection effect cannot be regarded as a matter of individual characteristic or personality.

### Marriage and Reaction

Along with the selection effect, the initial multi level analysis in Table 4-2 also provided important information for the causal effect of marriage on SWB. In the table, both of the reaction and adaptation variables revealed significantly positive effects on life satisfaction. This means that individuals reported a higher life satisfaction in the period from  $t-1$  to  $t+1$  year ( $t$  indicates the marriage year.) than their baseline life satisfaction in their premarital years; even after the reaction period, their level of life satisfaction was higher than their baseline level. The causal effect of marriage on life satisfaction became stronger when the effects of age and income were considered as within-person level control variables in Model 2. As expected, age was negatively and income was positively associated with life satisfaction. These results are contrasted with Lucas et al.'s (2003) finding in their German data which represented the full adaptation, i.e., restoration of life satisfaction from  $t+2$  year to the baseline level. In conclusion, the Korean longitudinal data of this research did not support the hypothesis of the set-point theory.

The effects of reaction and adaptation in Table 4-2, however, still have a room for further examination. In Model 2, it was observed that the coefficient of adaptation was greater than that of reaction. This might capture a real benefit of the adaptation period

beyond the positive effect of marriage in the reaction period. However, this possibility is rare in light of the common previous findings emphasizing a strong and prompt boost of life satisfaction in the moment of marriage. Rather, it is suspected that the relatively low level of the reaction effect is attributable to the problem of the initial setup of the reaction period. The reaction period, in this research, was initially set up to range from  $t-1$  to  $t+1$  year, following the conventional way of the previous studies (e.g., Lucas and Clark 2006). Besides the empirical evidence that the life satisfaction in  $t-1$  year was higher than the baseline level (Lucas et al. 2003), there is legitimate reason to include  $t-1$  year to the reaction period in the studies using the German panel surveys. In the current German society, premarital cohabitation is pretty common and an increase of life satisfaction in the cohabitation period was demonstrated in previous studies (Lucas and Clark 2006; Zimmermann and Easterlin 2006). In Korea, the situation can be different mainly due to differences in marriage norms and culture from the Westerns society. Ideally, much information about premarital dating period was needed to decide the range of the reaction period, but the lack of cohabitation in the Korean society led to reconsideration of the reaction period.

Table 4-7 is the same multi-level analysis with Table 4-2 except the split of the initial reaction variable in which  $reaction_{t-1}$  indicates one year before the marriage and  $reaction_{t, t+1}$  indicates the marriage year and one year after the marriage. In this Table, the  $reaction_{t-1}$  variable did not show any significant influence on life satisfaction regardless of the inclusion of the control variables in Model 1 and 2. As expected, the effects of the  $reaction_{t, t+1}$  variable became stronger and the effect of adaptation variable remain positively significant in line with Table 4-2. Although the prevalence of premarital cohabitation in Germany can be regarded as a solid reason for the increase of life satisfaction in  $reaction_{t-1}$ , this does not directly mean that the non-significance of  $reaction_{t-1}$  in the Korean data is totally attributable to the lack of cohabitation. This cross-national discrepancy virtually requires future studies.

**Table 4-7. Hierarchical Linear Models Predicting Change of Life Satisfaction in Reaction<sub>t-1</sub>, Reaction<sub>t~t+1</sub>, and Adaptation Period**

	Model 1		Model 2	
	b (SE)	t-ratio (d.f.)	b (SE)	t-ratio (d.f.)
<b>Within-Person Level</b>				
Intercept	.102*** (.023)	4.374 (786)	.056** (.021)	2.634 (786)
Reaction <sub>t-1</sub>	-.008 (.024)	-.318 (7426)	-.001 (.024)	-.049 (7424)
Reaction <sub>t~t+1</sub>	.133*** (.023)	5.852 (7426)	.178*** (.023)	7.798 (7424)
Adaptation	.078** (.022)	3.572 (7426)	.154*** (.028)	5.587 (7424)
Age			-.013*** (.003)	-4.615 (7424)
Log (Income)			.033*** (.003)	9.571 (7424)
<b>Between-Person Level (for Intercept)</b>				
Female	.013 (.025)	.532 (786)	.033 (.026)	1.272 (786)

Note: \*\* p < .01; \*\*\* p < .001

### Marriage and Adaptation

The main argument of the set point theory about the relationship between marriage and SWB is that the increase of SWB of the married is temporary and their SWB level is restored to an initial level after a transient boost. In Table 4-2, I showed that such a quick restoration of the married people's life satisfaction did not occur within 2 years since their marriage. However, it did not mean that the level of life satisfaction in their married years was always higher than that of their premarital years. The decrease of life satisfaction in the adaptation period when compared with the reaction period

indicated that the restoration of life satisfaction started right after the instant reaction. Subsequently, this led to an empirical question when the full adaptation is completed, i.e., how long it takes that the life satisfaction of the married is restored to the level of their premarital period. To answer this question, I adopted a strategy to run a series of multi-level analyses in which the reaction period is set to increase by 1 year and the adaptation period is set to start from the year after the extended reaction period. As mentioned earlier, I obtained a finding that the full adaptation is not occurred when assuming the adaptation period is started from two years after the marriage ( $\text{Adaptation}_{t+2}$ ) in Table 4-2. Therefore, in a subsequent model, I assumed the adaptation period starts from three years after the marriage ( $\text{Adaptation}_{t+3}$ ) and, logically, the reaction period is set to cover from the marriage year to two years after the marriage ( $\text{Reaction}_{t-t+2}$ ).<sup>17</sup> By delaying the starting year of the adaption period by one year in each model, it is possible to detect when the full adaptation occurs on average.

Table 4-8 is a summary of four different models of multi-level analysis. In Model 1, the adaption period was assumed to start from  $\text{Adaptation}_{t+3}$ , in Model 2, from  $\text{Adaptation}_{t+4}$ , in Model 3, from  $\text{Adaptation}_{t+5}$ , and in Model 4, from  $\text{Adaptation}_{t+6}$ . The reaction period of each model was also arranged, corresponding to the adaptation period of each model. The result of the four different models revealed that the coefficients of  $\text{Adaptation}$  decreased from Model 1 to 4. As expected, this pattern means that the life satisfaction of the married individuals tends to decrease as their married life is extended. Specifically, in Model 3, the coefficient of  $\text{Adaptation}$  was close to the critical level for statistical significance ( $b = .059$ ,  $SE = .029$ ,  $p = .044$ ), and in Model 4, this was not significant ( $b = .046$ ,  $SE = .037$ , n.s.). These results led to a tentative conclusion that the

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<sup>17</sup> One year before the marriage ( $\text{Reaction}_{t-1}$ ) is not included in the reaction period, because it is already found in Table 4-7 that there is no increase of life satisfaction in that year.

**Table 4-8. Hierarchical Linear Models Predicting Change of Life Satisfaction in Reaction, and Adaptation Period: Starting Point of Adaptation Period Being Delayed by 1 Year (Without Age and Income Effects)**

	Model 1	Model 2	Model 3	Model 4
<b>Within-Person Level</b>				
Intercept	.101*** (.022)	.100*** (.022)	.100*** (.022)	.100*** (.022)
Reaction <sub><i>t</i>~<i>t</i>+2</sub>	.123*** (.019)			
Adaptation <sub><i>t</i>+3~</sub>	.073** (.022)			
Reaction <sub><i>t</i>~<i>t</i>+3</sub>		.116*** (.019)		
Adaptation <sub><i>t</i>+4~</sub>		.065** (.025)		
Reaction <sub><i>t</i>~<i>t</i>+4</sub>			.110*** (.018)	
Adaptation <sub><i>t</i>+5~</sub>			.059* (.029)	
Reaction <sub><i>t</i>~<i>t</i>+5</sub>				.107*** (.018)
Adaptation <sub><i>t</i>+6~</sub>				.046 (.038)
<b>Between-Person Level</b> (for Intercept)				
Female	.013 (.025)	.014 (.025)	.014 (.025)	.013 (.025)

Note: Values shown are regression coefficient and standard error.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

**Table 4-9. Hierarchical Linear Models Predicting Change of Life Satisfaction in Reaction and Adaptation Period: Starting Point of Adaptation Period Being Delayed by 1 Year (With Age and Income Effects)**

	Model 1	Model 2	Model 3	Model 4
<b>Within-Person Level</b>				
Intercept	.055* (.022)	.054* (.022)	.054* (.022)	.054* (.022)
Reaction <sub><i>t</i>~<i>t</i>+2</sub>	.173*** (.023)			
Adaptation <sub><i>t</i>+3~</sub>	.157*** (.032)			
Reaction <sub><i>t</i>~<i>t</i>+3</sub>		.171*** (.023)		
Adaptation <sub><i>t</i>+4~</sub>		.160*** (.034)		
Reaction <sub><i>t</i>~<i>t</i>+4</sub>			.171*** (.023)	
Adaptation <sub><i>t</i>+5~</sub>			.161*** (.037)	
Reaction <sub><i>t</i>~<i>t</i>+5</sub>				.171*** (.023)
Adaptation <sub><i>t</i>+6~</sub>				.150** (.044)
Age	-.014*** (.003)	-.014*** (.003)	-.014*** (.003)	-.014*** (.003)
Log (Income)	.033*** (.004)	.033*** (.004)	.033*** (.004)	.033*** (.004)
<b>Between-Person Level</b> (for Intercept)				
Female	.032 (.027)	.031 (.027)	.031 (.027)	.031 (.027)

Note: Values shown are regression coefficient and standard error.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

life satisfaction of the married comes back to their baseline level of the premarital period, on average, after six years from their marriage.

However, the tentative conclusion needs further investigation because it was already found in Table 4-2 that the life satisfaction of the adaptation period increases when the two within-person level control variables, age and income, are considered together in the analysis. Table 4-9 is the summary of the analyses in which the period of reaction and adaptation are arranged by the same manner with Table 4-8 and additionally, age and income are considered as control variables. In contrast with Table 4-8, the coefficient of Adaptation in Model 4 was significantly positive ( $b = .150$ ,  $SE = .044$ ,  $p < .01$ ), even though the coefficient was smaller than that of any other model. Particularly, the age effect was the key factor to explain away the seeming full adaptation in Table 4-8. Therefore, in order to answer the original question, when the positive reaction period is ended, it was needed to construct more models in which the starting year of the adaptation period was delayed by one year, subsequently (e.g.,  $Adaptation_{t+7}$ ,  $Adaptation_{t+8}$ , ...  $Adaptation_{t+n}$ ). Unfortunately, it was impossible due to the lack of the sample size. Since the KLIPS data of this research are collected over 11 years, there were not enough cases who were satisfied with the requirements (premarital period and at least more than seven years of married life) for the further analysis. However, in light of the current result that the married people indicate a higher level of life satisfaction for more than six years on average than their premarital level, it is hard to say that the life satisfaction is quickly restored to the baseline level. In conclusion, this result supports the idea of the causal effect of marriage on SWB rather than the set-point theory. This conclusion is in line with Soons et al.'s (2009) conclusion that was drawn from a panel data collected in the Netherlands.



### Additional Analysis for Reaction and Adaptation

As an auxiliary analysis, I tested possible interactions of the reaction effect and the between-person level control variables. The test was also performed for the adaptation effect. The between-person level control variables were respondent's gender, religion, education, average income, father's education and family's economic status at age 14. As found by many previous studies as well as the cross-sectional analysis of this research, one's socio-economic resources and favorable family background are positively associated with life satisfaction. However, there were rare empirical studies to examine how the positive effect of marriage in the reaction and the adaptation period is moderated by the effects of one's socio-economic conditions. This question is differentiated from a simple interaction inquiry in a cross-sectional analysis because a cross-sectional approach is not able to consider one's initial level of life satisfaction in the premarital period. If taking an example of the income effect, the interaction question of this research is to examine whether the relative increase of life satisfaction from premarital to post-marital period is accelerated by the income effect. In fact, the number of possible interactions is substantial because the current research has two post-marital variables and several between-person level control variables. Investigation each interaction effect in detail requires additional empirical studies, and thus I simply represent results of a multi-level analysis allowing the interactions for future research.

Table 4-10 is the summary of the multi-level analysis. First of all, the effect on intercepts indicated that average income, education, father's education, family's economic status were positively associated with life satisfaction. However, the increase of life satisfaction in the reaction period ( $b = .118$ ,  $SE = .041$ ,  $p < .01$ ) was not positively moderated by the between-person level control variables. For instance, in terms of the effect of average income, these results mean that the relative increase of life satisfaction caused by marriage is not affected by one's level of average income, even if the average income contributed to greater life satisfaction in ones' premarital period. For the

**Table 4-10. Hierarchical Linear Models Predicting Change of Life Satisfaction in Reaction and Adaptation Period (Allowing Interactions with Between-Person Level Control Variables)**

	b	SE	t-ratio	d.f.
<b>Intercept</b>				
Intercept	.045	.029	1.520	669
Female	.116**	.042	2.748	669
Religion	-.024	.033	-.723	669
Education	.036***	.009	4.130	669
Log (Average Income)	.158**	.047	3.356	669
Father's Education	.014**	.005	3.012	669
Family's Economic Status at 14 years old	.096***	.022	4.391	669
<b>Reaction<sub>t,t+1</sub></b>				
Intercept	.118**	.041	2.916	6,483
Female	.080	.060	1.329	6,483
Religion	.017	.045	.380	6,483
Education	-.003	.011	-.296	6,483
Log (Average Income)	.049	.061	.798	6,483
Father's Education	-.016**	.006	-2.741	6,483
Family's Economic Status at 14 years old	-.029	.030	-.968	6,483
<b>Adaptation<sub>t+2~</sub></b>				
Intercept	.139**	.043	3.229	6,483
Female	-.010	.052	-.197	6,483
Religion	.023	.041	.567	6,483
Education	-.003	.011	-.252	6,483
Log (Average Income)	.037	.058	.636	6,483
Father's Education	-.016**	.006	-2.833	6,483
Family's Economic Status at 14 years old	-.057*	.028	-2.065	6,483
<b>Age</b>				
Intercept	-.013***	.003	-4.286	6,483
<b>Log (Income)</b>				
Intercept	.029***	.005	6.288	6,483

Note: \* p < .05; \*\* p < .01; \*\*\* p < .001

adaptation variable, no positive interaction effects were observed. Rather, family background variables (father's education and family's economic status) indicated negative interaction effects on the reaction and adaptation variables. The negative interactions were at least partially understandable in light of their positive influence on life satisfaction in the premarital period. In other words, someone who was raised in affluent conditions tends to reveal a higher level of life satisfaction before marriage, but their relative increase of life satisfaction caused by marriage is lower than that of those who have poor family background.

### Conclusion

In this research, I analyzed an extensive longitudinal data set collected in Korea from 1998 to 2008 to examine the relationship between marriage and SWB. The results revealed some similarities and differences at the same time when compared with the findings of previous longitudinal studies. First, in the cross-sectional analysis, it was confirmed that marriage was positively associated with greater life satisfaction in Korea. From this initial finding, further analyses to test the selection effect, the causal effect, and the set-point theory became meaningful. Second, the selection effect exists. Indeed, a person who indicated a higher level of life satisfaction was more likely to get and stay married in general. The finding about selection was based on more systematic investigation than previous studies in that this research specified a comparison group. However, the selection effect varied depending on the age of group members. Particularly, when focusing on the group whose mean age of their single years was below 25, the selection effect did not appear. In another group whose mean age of their single years was above 30, there was the selection effect, but the effect disappeared when controlling income difference. Third, marriage provided a significant increase of life satisfaction for the married people in the moment of marriage. In contrast with other studies based on the German survey in which the positive influence of marriage started

from 1 year before marriage, the current study found that the positive influence started just from the marriage year in Korea. Further studies are needed to explain this discrepancy, but the cultural difference regarding cohabitation can be suspected as a reason. Fourth, the hypothesis of the set-point theory was not supported. The increase of life satisfaction caused by marriage did not disappear in the first 2 years after marriage. Due to the lack of available data, it was not allowed to investigate when the full adaptation is completed. However, it was found that the positive effect of marriage on life satisfaction is significant at least for 6 years or more. Fifth, even though it was an exploratory analysis for future study, the last additional analysis indicated that the positive marriage effect in the react and adaptation period was not accelerated by the income or education effect.

In view of these findings, I can make a conclusion that the positive relationship between marriage and SWB in Korea is explained by both of the selection effect and the causal effect of marriage. Specifically, given the fact that most single people in Korea experience their first marriage between 25 and 30, and the selection effect of the age range is robust regardless of control variables, the final conclusion can receive more supports. Finally, it should be also noted that the SWB difference between those who are going to marry and stay single cannot be totally attributable to the matter of personality or characteristic. As one's level of SWB is affected by the important external condition, i.e., marriage, the SWB difference in single years is also determined at least partially by differences of one's socio-economic resources.

## CHAPTER V. CONCLUSION

### Summary of Findings

The main goal of this dissertation is to establish happiness as a sociological research topic and examine the effects of economic inequality and marriage on happiness in cross-national contexts. For this goal, first of all, I introduced three theoretical perspectives of the happiness research and critically reviewed previous empirical studies. Then, I conducted two cross-national studies, focusing on the effect of economic inequality and marital status on happiness, respectively. In these studies, national-level and individual-level factors were jointly considered. In addition, I performed a longitudinal data analysis to examine the relationship between marriage and life satisfaction in Korea. The longitudinal approach provided several significant findings that would not be obtainable with cross-sectional data.

In the first chapter, I pointed out two different types of approach in cross-national happiness studies. One type of research was to directly test the effect of national-level conditions on individual-level happiness. The other type of research was to try to reproduce a postulated relationship between a certain factor and happiness in diverse national contexts. Previous studies tended to neglect the fact that the effects of the national-level conditions on happiness could be changed by people's subjective evaluation on the conditions. They also did not pay much attention to the possibility that the pattern of the postulated relationship was not uniform across nations. The two cross-national studies of this dissertation were conducted to overcome these problems.

In the second chapter, I investigated the puzzling issue of the relationship between economic inequality and happiness. The main point was to differentiate objective inequality and subjective inequality and compare their influences on happiness. Data from the International Social Survey Program 1999 and the World Values Surveys from 1994 to 1999 were used for analyses. First, the findings indicated that people's subjective

evaluation of economic inequality of their nation did not squarely reflect the unequal situation measured by objective inequality indices. Second, the national-level subjective inequality score revealed a strong negative influence on individual-level happiness and life satisfaction even controlling the effects of national economy and individual-level socio-demographic factors such as age, marital status, and perceived income ranking. The objective inequality index, however, was not associated with happiness and life satisfaction. Third, those who live in a nation where the subjective inequality score was high tended to depreciate their income ranking within their country. The depreciation tendency reflects the fact that people use relatively higher reference standards when they assess their economic status.

In the third chapter, I examined the relationship between marriage and SWB across 72 countries, focusing on a comparison of marrieds, cohabitators, and never-married singles. Data from the World Value Surveys collected from 1999 to 2008 were used for analyses. First, the findings indicated that the strength of the relationship between marriage and SWB substantially varied across nations, and the happiness advantage of the married was not as pronounced as expected in many countries. Among the 72 countries, the significantly positive effect of marriage on happiness appeared in 40 countries when happiness was used as the dependent variable. When life satisfaction is used instead of happiness, the positive effect of marriage was revealed only in 29 countries. Second, the effects of marriage were different depending on countries' economic and cultural conditions. The positive influence of marriage on SWB was stronger in economically advanced countries. Also, the positive influence was stronger in the countries characterized by the secular-rational culture, rather than the traditional culture. While the married have been generally believed to enjoy more favorable financial circumstances than the single, the financial advantage of the married over the single was rarely reproduced in under-developed countries. Third, the cohabitators were happier than the single only in some of the countries where the married were also happier

than the single. In other words, cohabitation did not provide greater happiness to the cohabitators over the single in the countries where marriage did not provide greater happiness to the married over the single. Fourth, the married were generally happier than the cohabitators. The happiness gap between the married and the cohabitators tended to decrease in the countries of the secular-rational culture. However, the prevalence of cohabitation was not significantly associated with the happiness gap.

In the fourth chapter, I examined the selection effect and the continuation of the marriage effect on life satisfaction in Korea. Longitudinal data from the Korean Labor and Income Panel Study from 1998 to 2008 were used for analyses. First, the findings indicated that the positive relationship between marriage and life satisfaction in Korea was, at least partially, attributable to the selection effect. Individuals who reported a higher level of life satisfaction in their single years were more likely to get and stay married in general. However the selection effect revealed different patterns depending on the age of respondents. In the group of people whose mean age of their single years was below 25, the selection effect did not appear. In another group of people whose mean age of their single years was in between 25 and 30, the selection effect was robust. In the last group whose mean age of their single years was above 30, there was the selection effect in the initial model, but the effect disappeared when their income was included as a control variable. Second, marriage provided a significant increase of life satisfaction for the married people in the moment of marriage. In contrast with other studies based on the German panel survey in which the positive influence of marriage started from 1 year before marriage, the positive influence started just from the marriage year in Korea. More studies about the premarital relationship are needed to explain this discrepancy, however the cultural difference regarding cohabitation can be suspected as a reason. Third, the hypothesis of the set-point theory was not supported. The increased level of life satisfaction caused by marriage was not quickly restored to the baseline level. Due to the lack of available data, I could not examine when the full adaptation was completed.

However, I found that the positive effect of marriage on life satisfaction was significant at least for 6 years or more. On the basis of those results, the positive relationship between marriage and life satisfaction in Korea was explained by both of the selection effect and the causal effect of marriage.

### Significance, Limitations, and Future Considerations

Happiness studies have been mainly driven by three theoretical perspectives: the needs approach, the relative standards approach, and the cultural approach. They focus on external conditions, internal standards, and enduring cultures, respectively. Depending on the different focal points, each approach has its own strength and weakness at the same time in explaining the variation of happiness. Therefore, it easily reveals limitations in happiness research to rely solely on a single perspective. This is the reason that changes of social conditions, shifts of individuals' internal standards accompanied by the condition changes, and the effects of cultural norms and interpretations should be jointly consider to explain a social phenomena regarding happiness. The main significance of this dissertation lies in the attempts to combine the different perspectives.

The positive relationship between economic development and happiness can be understood as a typical example of the needs approach in that economic development of a nation can generally be conceived as a favorable change for satisfying people's material needs. The expected relationship between economic inequality and happiness is based on the relative standards approach, specifically in a situation when a small increase of absolute income is overshadowed by a large decrease of relative income. What is argued is that the rising inequality entails a sense of relative deprivation to many people, even if the national economy keeps growing. In contrast with the initial expectation, the findings of the second chapter indicate that subjective inequality, not objective inequality, has a significant influence on happiness. These findings can be understood from the cultural approach. Individuals' reference standards for economic inequality indeed matter for



their happiness, but the reference standards are largely shaped by their cultural norms and subjective interpretations, not directly determined by the objective inequality itself.

As a future research question, a possible change of the relationship between objective and subjective inequality and their relative influences on happiness require more studies. Although culture has an enduring continuity and tends to move slowly following the change of social structure, it may be unreasonable to assume that people's perceptions and attitudes toward inequality do not change over time, specifically in light of today's exacerbated economic polarization across the world<sup>18</sup>.

The relationship between marriage and happiness can be initially understood from the perspective of needs satisfaction. As long as it is accepted that emotional security and attachment are basic human needs and satisfying the needs are necessary for happiness, the positive relationship between marriage and happiness might be seem self-evident, because marriage-like arrangement is regarded as the only qualified source of adult attachment. However the findings of the third chapter indicate the relationship between marriage and happiness is not always positive and substantially varies across nations. In addition, the variation, at least partially, is explained by the effect of the national culture variable. These findings indicate that, even if we can assume a universal human need, the consequence of the need satisfaction would be different depending on the effect of cultural norms that regulate an institutional means for the need satisfaction. In future studies, it is required to examine how the cultural norms particularly shape individuals' reference standards regarding marriage life.

Due to the lack of available data, I could not include some important factors in the study of marriage, cohabitation, and happiness. For instance, I could not consider whether

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<sup>18</sup> The data I used for the study of economic inequality and happiness came from the social inequality module of 1999 International Social Survey Program. 2009 data adopting the same module, not available yet, will be useful to examine a recent pattern of the relationship between objective and subjective inequality.

the cohabiting couples were planning to married, or whether they thought of their relationship as a substitute for marriage. There were no available data about the quality of the relationship for marrieds and cohabitators, and the duration of the relationship. I also could not tell whether singles were in a romantic relationship. Collecting information on these factors can lead to more elaborated analyses in future studies.

Finally, the significance of the longitudinal study in the fourth chapter lies in the fact that the continuation of the marriage effect on happiness was directly examined. The findings in favor of the causal effect of marriage can be regarded as strong empirical evidence to refute the argument that the change of external circumstances has little possibility to enhance one's happiness. In addition, as the first longitudinal study analyzing the relationship between marriage and life satisfaction in Korea, as far as I am aware, this research can provide a solid foundation for the comparison with previous research findings mainly based on the Western-European culture.

In spite of the advantages of the longitudinal data, I could not fully test when the marriage effect on happiness was completed due to the data restriction. However, this limitation can be resolved in future studies as more long-term data are accumulated in Korea.

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## APPENDIX

**Table A1. Proportion of Singles, Cohabitators, and Marrieds, World Values Survey, 72 Nations**

Nation	Single (%)	Cohabitor (%)	Married (%)	N
Albania	22.4	1.2	76.4	936
Algeria	45.1	7.6	47.3	1,182
Andorra	30.3	22.0	47.7	859
Argentina	32.6	19.2	48.1	821
Australia	19.1	9.7	71.1	1,181
Bangladesh <sup>b</sup>	19.6	0.5	79.9	1,468
Bosnia and Herzegovina <sup>b</sup>	29.9	0.7	69.5	1,064
Brazil	31.3	19.8	48.9	1,265
Bulgaria	15.6	6.1	78.2	818
Burkina Faso	31.3	11.7	56.9	1,440
Canada	24.4	15.5	60.1	1,764
Chile	33.6	11.3	55.0	856
China	9.3	1.5	89.2	1,887
Cyprus	28.2	1.7	70.1	973
Egypt <sup>a</sup>	12.6	NA	87.4	2,654
Ethiopia	54.0	2.9	43.2	1,388
Finland	23.6	17.8	58.6	804
France	23.0	19.6	57.4	821
Georgia <sup>b</sup>	22.2	0.5	77.3	1,300
Germany	21.1	8.5	70.5	1,666
Ghana	45.1	4.8	50.1	1,391
Great Britain	29.8	11.1	59.1	841
Guatemala	35.5	16.7	47.8	938
Hong Kong <sup>b</sup>	31.2	0.7	68.1	1,140
India	11.3	4.1	84.6	1,904
Indonesia	36.0	43.6	20.4	1,888
Iran	35.3	2.7	62.0	2,593
Iraq <sup>a</sup>	22.7	NA	77.3	2,520
Italy	31.3	5.1	63.6	903
Japan	18.7	1.9	79.4	1,000
Jordan <sup>b</sup>	27.9	0.1	72.0	1,145
Kyrgyzstan	29.0	2.3	68.6	902
Macedonia	20.0	2.6	77.4	955
Malaysia	46.1	2.2	51.6	1,160
Mali <sup>b</sup>	23.9	0.7	75.4	1,435
Mexico	26.2	11.8	61.9	1,377
Moldova	21.5	3.1	75.4	874
Morocco <sup>b</sup>	40.7	0.1	59.2	1,095
Netherlands	27.8	14.6	57.6	889



**Table A1. Continued**

Nation	Single (%)	Cohabitor (%)	Married (%)	N
New Zealand	17.7	11.8	70.4	795
Nigeria	48.2	3.5	48.4	1,940
Norway	24.9	18.5	56.6	903
Pakistan <sup>a</sup>	32.9	NA	67.1	1,968
Peru	35.0	26.3	38.7	1386
Philippines	21.0	2.4	76.6	1,137
Poland	29.8	2.9	67.3	863
Puerto Rico	22.4	7.8	69.8	536
Romania	16.1	3.4	80.6	1,489
Russia	26.1	7.8	66.1	1,640
Rwanda	35.8	4.3	59.9	1,320
Saudi Arabia <sup>a</sup>	39.2	NA	60.8	1,433
Serbia	25.6	4.8	69.6	1,044
Singapore <sup>b</sup>	48.8	0.1	51.1	1,437
Slovenia	24.8	15.8	59.4	886
South Africa	44.9	11.3	43.8	2,683
South Korea <sup>b</sup>	30.5	0.6	68.8	1,123
Spain	28.9	5.1	66.0	1,063
Sweden	22.8	20.9	56.3	823
Switzerland	24.1	4.8	71.1	941
Taiwan <sup>b</sup>	28.6	0.4	70.9	1,114
Tanzania	33.8	9.7	56.4	1,037
Thailand	19.5	6.9	73.7	1,444
Trinidad and Tobago	41.1	12.5	46.4	832
Turkey <sup>b</sup>	30.8	0.1	69.1	1,290
Uganda	44.1	18.2	37.7	932
Ukraine	24.5	5.5	70.1	788
United States <sup>a</sup>	27.5	NA	72.5	999
Uruguay	28.5	19.3	52.2	799
Venezuela	36.4	18.2	45.4	1,063
Viet Nam	22.0	1.1	76.9	1,406
Zambia	54.6	9.3	36.0	1,274
Zimbabwe	31.9	4.2	63.9	884

Notes: Total – Single (29.5%), Cohabitor (7.3%), Married (63.2%), N: 89,369

<sup>a</sup>: Cohabitation data are not available.

<sup>b</sup>: Countries with less than 1% cohabitators. These countries are not included in cohabitation part of analysis

**Table A2. Descriptive Statistics of Individual- and National-Level Variables, World Values Survey**

Individual-Level	Single	Cohabitor	Married	Mean
<b>Dependent Variable</b>				
Very Happy	29.8%	32.9%	29.1%	29.6%
Rather Happy	53.5%	52.5%	54.1%	53.8%
Not Very Happy / Not At All Happy	16.7%	14.5%	16.8%	16.6%
<b>Controls</b>				
Female	.444	.518	.512	.493
Age	26.726	37.056	44.482	38.702
Education	4.996	4.411	4.128	4.405
Religiosity	4.607	4.312	4.721	4.658
Subjective Income Rank	4.708	4.687	4.675	4.685
Health	4.065	3.948	3.814	3.897
Financial Satisfaction	5.814	5.906	5.729	5.767
National-Level	Mean	SD	Min	Max
Log (GDP pc) (N=63)	3.597	.719	2.220	4.760
Traditional versus Secular-Rational Culture Index (N=64)	.223	.545	-.546	1.721
Prevalence of Cohabitation (N=56)	13.393	10.050	1.000	40.400

**Table A3. Descriptive Statistics of the Analytic Sample, Korean Labor and Income Panel Study (N=788)**

	Mean	SD	Min	Max
Life Satisfaction	.167	.646	-2.300	2.110
Female	.520	.500	.000	1.000
Age (Average)	29.301	5.080	19.430	52.000
Religion	.440	.497	.000	1.000
Education Years	14.335	2.182	6.000	21.000
Log Income (Average)	4.820	.496	2.800	7.076
Father's Education Years	9.592	3.983	.000	21.000
Family's Economic Status at Age 14	2.816	.840	1.000	5.000