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사회학 석사학위논문

**Cultural divergence in relation with
the effect of income and social indicators
on the subjective well-being**

소득 및 사회지표가 주관적 행복도에 미치는
영향력의 문화적 상이성

2012 년 8 월

서울대학교 대학원

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이 논문을 사회학석사 학위논문으로 제출함
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Abstract

This study took cross-cultural approach on the effect of income and social progress indicators on subjective well-being (SWB). The subjects were 138 countries in 2005, 2008 and 2010. The independent variables were logged national income and Social Quality factors of the previous year, whereas civilization and Hofstede factors were deployed as instrumental variables. For dependent variable, Gallup World Poll life satisfaction score was used. For all the countries and those of higher income, analysis was done separately. The main findings are as follows. First, robust fixed effect model showed the *negative* relationship between income growth and SWB. Additionally, even in random models with time-invariant Hofstede factors, income effect and Lastly Second, SQ factors effect pattern showed a sharp contrast between Western and non-Western group. Third, among non-Western civilizations, Islamic and Orthodox showed the most similar tendency. Fourth, in, among the three Hofstede factors, horizontal individualism strongly instrumented income effect, while among the SQ factors safety net was the most affected by all the three factors. To sum up, the present study supports Easterlin Paradox for corresponding period and suggests that income effect diminishes when cultural value does not change. Above all, it is suggested that social progress factors, as well as income, have diverse relationship with SWB, depending on cultural idiosyncrasy.

Keywords: Social Quality, Subjective Well-Being, Easterlin Paradox, Panel Data Methodology, Civilization, Hofstede Value Dimension

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INTRODUCTION

Since Easterlin Paradox came into light, numerous literatures have addressed the relationship between income growth and subjective well-being (SWB), and the alternative social and cultural factors boosting SWB. During the late half of 20th century, the academic endeavors for social progress have mainly regarded on developing social and environmental indicators, as will be shown in methodological design chapter below. In converse, in the current century the leading international organizations give a priority to the subjective well-being. In overall, the concern for SWB has sharply increased in recent years in different fields of social science.

Notwithstanding, most existing studies on the relationship between SWB and social/economic factors have been weighted into cross-sectional studies. On the other hand, little has been discussed about cross-cultural difference in how the change in macro-social factors affects SWB. As Haber et al argue (2007:134), perceptions of social support are varied by the cultural context. That is, due to the cultural difference in value judgment, the individual may perceive the seemingly same social supports in different ways. For instance, Taylor et al (2007) found that people under Asian culture valued less the explicit social support (advice and emotional comfort) than European Americans. However, whereas social supports in micro-world seem to be addressed enough by cross-cultural psychology, the relationship between SWB and macro-level societal factors has been little studied from cross-cultural approach. Such scarcity of studies is more obvious when it comes to worldwide comparison addressing other societal factors than income and individual life domains. Social progress factors based on the value of Western civil society, as well as income, might have different effects in different cultures.

In the nexus with such background, this paper primarily focuses on cross-cultural divergence in SWB determinants, with the data of 138 countries with three waves during the period 2004-2010. For that, civilizational category and Hofstede factors are used as a parameter of culture and as instrumental variables. Additionally, separate analysis will be done for the whole countries sample and higher income group.

As a secondary aim, this study also looks at the overall pattern in worldwide relationship between SWB and income change, and that between SWB and social factors. That is, controlling for each other, income and social factors effect will be examined for the covered period.

REVIEW OF LITERATURES ON SWB DETERMINANTS: INCOME, SOCIETAL FACTORS AND CULTURE

Previous literatures have shown some agreements on SWB factors. First, at the lower level of national income, income has a significantly positive relationship with the SWB. Second, however, income effect is weakened among wealthier countries when social well-being indicators are controlled. Third, cross-cultural approach shows that Latin America enjoys higher SWB than predicted by its national income, while Confucian capitalist countries (Japan, South Korea, Singapore and so on) are on the contrary. Lastly, such cultural diversity is not directly attributable to cultural artifacts.

SWB Determinants: Income

In the set of reviewed studies, there seem to be a consensus that income is related with SWB *in low-income countries*. On the existence of set point, the income level where marginal increase in income stops contributing to increase in SWB in the

statistical view, there is no certain agreement (2010. p.20). Clark and Senik (2010:73-75) sum up relevant literatures so far on the income-happiness relationship. According to them, the three types of income-SWB relationship have been recognized with consensus of existing literatures. They are: (1) individual-level cross-sectional relationship (2) individual-level relationship over time (3) country-level cross-sectional relationship. Conversely, they find that the country-level relationship over time is still an area in dispute and the results are varied by studied countries and time.

Among them, however, some studies do not actually measure panel effect. Deaton (2008) and Blanchflower (2008) address cross-sectional relation, while Inglehart et al (2008) use pooled-OLS model instead of panel model. Meanwhile, the other reviewed studies have small N problems, since they are based on World Value Survey (WVS) and only 54 countries have been repeatedly observed in WVS. For instance, Easterlin and Angelescu (2007) dealt with only seven countries, whereas Hagerty and Veenhoven (2003) with 21 countries, Brockmann et al (2008) with a single country (China).

Currently, unlike when Clark and Senik reviewed previous studies, there is more chance to conduct country-level large N panel analysis, owing to beginning of Gallup World Poll Survey in 2005. The survey began with 134 countries in 2005, and in all the subsequent waves (2006-2007, 2008-2009, 2010, 2011) have always covered over 130 -countries. Roca (2011:11-13) took advantage of Gallup data and finds significantly positive relationship in the both fixed and random effects model. In his study, the positive relationship was also maintained when controlling for variables of health satisfaction, job satisfaction and educational level. However, those controlled

variables regard quality of life, rather than societal factors that influence among the 'social' factors that he used, only education level is genuinely societal factor. The other two are individual's perception of his quality of life, rather than societal factors that influence the pattern of social relationships.

SWB Determinants: Income

Helliwell (2002) finds that income effects disappear in the full model including social connection indicators including trust, governance, accountability and religiosity. Likewise, Bjornskov (2007) finds the dominant effect of social capital on national happiness. Tov and Diener (2007), as well as Helliwell et al (2010), draw the same conclusion regarding trust, governance and perceived support. As such, there exist overwhelming evidences that social empowerment attributes like transparency, gender equality, size and frequency of social participation are paramount and make a larger effect than income growth, on SWB (Helliwell et al, 2012). However, all the studies stated in Helliwell et al are based on cross-sectional relationship.

SWB Determinants: Culture

Latin America: Latin American paradox, the finding that the high SWB in Latin American countries despite relatively low income and underdevelopment, was observed in the following studies. They are: (1) Cross-sectional graph of World Value Survey SWB and GDP per capita, charted by Inglehart et al (2008: 269, see Figure 1); (2) World Value Survey Wave 2 (1990-1993) countries study (Diener, 2000); (3) Delhey (2009)'s study of World Value Survey Wave 5, which also stated the lesser degree of the income effect for SWB among Latin American people than among other regions people.

(Figure 1 Here)

However, the reason remains unclarified. Graham and Felton (2005) suggest that the negative effect by unemployment and inequality on SWB is reduced through relative comparison in Latin America, but such buffering effect alone cannot fully explain why they are even happier than others who live in societies of less inequality and less unemployment.. On the other hand, Inglehart et al (2008:270) suggest that Latin American people report higher religiosity in World Value Survey panel data 1981-2007, leading to achievement of greater SWB. However, I found that Latin American people's religiosity is not significantly stronger than African and Islamic people who achieve substantially lower SWB, as can be seen in ANOVA test.

(Table 1 here)

East Asia: East Asian is on the contrary. Especially, capitalism countries (Japan, Singapore, South Korea) are focused for having lower SWB than predicted by income and social development (Diener et al, 2000). Likewise, the relatively lower SWB of East Asian countries, especially Japan that have been studied.

Ahuvia (2002:31) contended that in Asian countries, the self's happiness is of less priority. In the same context, unlike American student sample, almost 10 percent of Chinese students in American college responded that they had never thought about whether they were happy with their lives (Suh, 1994). Yet neither of the two studies represents all the country of culture. Typically, Chinese students studying United States are likely to be of upper class within Chinese society, while Ahuvia's argument is based on his few personal experiences.

Other studies have addressed the cross-cultural difference in the way of seeking happiness. According to Kitayama and Markus (2000), while Americans seek happiness encouraging personal achievement, East-Asian value makes individual seek

happiness through mutual sympathy amid exposure to self-criticism. Meanwhile, Lu and Gilmour (2001) suggest that whereas Western countries pursue happiness as maximization of positive feelings, Asians tend to seek dialectical equilibrium tends to be dominant.

While the way of seeking happiness is likely to differ, however, this does not mean that Asians devalue happiness. When examined with countrywide samples, Veenhoven (1991:21)'s study about six parts of the world in 1975 shows that there is no significant difference across cultures in non-response rate when asked about respondent's happiness. Regarding the result, Veenhoven objects the arguments of cultural bias in the measurement of commonly mentioned claims of cultural measurement distortion were checked empirically: 1) language, 2) desirability distortion, 3) response style, and 4) familiarity with the concept. None of these distortions appeared to be involved". Another work of Veenhoven with assistance of Erhardt (1995) also defied the folklore theory through empirical examination of 39 countries in 1985 and 28 countries in 1980.

Likewise, Diener et al (1995) find three counter-arguing aspects. First, artifacts were not causing the lower reported SWB, and neither is general suppression of mood in the Pacific Rim likely to cause SWB differences. Secondly, SWB was less of central concern in China, but no less important and salient in Japan and S. Korea. Such idiosyncrasy of China suggests that what has been considered as a trait of East Asian culture is actually due to their economic underdevelopment. In line with Inglehart's scarcity hypothesis that poorer nation's people cannot give priority to non-materialistic needs, such doubt should not be excluded.

Even if Asian people do care less of happiness, it does not automatically mean the degradation in SWB by itself. Even within Asia, China and Vietnam and Thailand have performed better than predicted by income, alike Latin American countries and contrary to South Korea and Japan. In sum, although Latin Americans, East Asians and the rest of the world may differ in the way of seeking subjective well-being, there is little evidence that such difference causes the SWB.

Studies Addressing Both Culture and Social Indicator

Veenhoven (1993) analyzed the relationship between subjective well-being and quality of life in 23 countries around 1980 with three cultural clusters: Latin, Germanic and Anglo. He found that there is no cultural heterogeneity. However, such result may alter when expanding the number of countries or analyzing with time-series.

Let me turn to the studies embrace culture, societal indicators and wealth. In my understanding, Helliwell et al (2009:20-23) is the only literature hitherto that. They conduct two analysis that are based on data of Gallup World Poll life satisfaction Wave 1-3 (2005, 2006-2007, and 2008-2009) and World Value Survey wave five (2005-2008). Both are multi-level analysis (country-level and individual-level) for 10 independent variables regarding respondents' perception of religion, altruistic behaviors, corruption, freedom and sufficiency of basic needs. The first model includes cultural zone dummy variables and replicates Latin American paradox, as Latin American dummy is the only dummy with statistically significant effect. Meanwhile, the second model has separate results for each cultural zone and therefore each regressor coefficient differs depending on cultures. Notwithstanding, most patterns vary little by culture. Having not enough money and counted friends,

freedom to choose have significant effects in all cultural zones and thus their contribution to SWB is universal. Meanwhile, Persian and Mid-east area differs from the others in the effect of religion, altruistic behavior in both level of individual and country. Nevertheless, the research has three following limitations. First, two out of seven culture groups is limited because the group has only four countries. Second, Helliwell et al's research addressed exclusively respondent's subjective values. It is obvious that social value is linked with societal condition, but it is not all of it.

Above all, in the discussed studies combining culture with income or social indicators, cultural classification is done without firm ground. For instance, Bonikowski (2010) indicates the arbitrariness of Inglehart's cultural classification, since "*this classification is based on a seemingly arbitrary mix of religious, philosophical, geographic, linguistic and political criteria*" (p.318). For Helliwell et al (2009), the Asian culture dummy includes historically unrelated countries like Japan, Afghanistan and Indonesia - Japan has been merely connected with the other two throughout its history and entirely differs in civilizational category and value dimensions.

Need for Dynamic and Cross-Cultural Approach on Income and Societal factors

Impact on SWB

As discussed above, the limitation of national-level SWB studies are summarized as follows. First, few time-series studies have been done regarding non-economic societal factors rather than individual life domains like job and education. Second, studies handling collectivism have focused on Latin America and Confucian East Asia, but not the rest of the world. Thirdly, in other social science fields than psychology, some studies have attempted to include more category of

cultural zone, but the cultural category criterion lacks a firm ground. In sum, the large N cross-national analysis, with sufficient samples to represent the whole world, involving the cultural heterogeneity in the effect of both income and social well-being on subjective well-being, and with consistency in cultural classification, is needed. That is the aim of the present research.

RESEARCH DESIGN - VARIABLE SELECTION AND RELEVANT ARGUMENTS

Culture Variables: Strong Program and Weak Program

The concepts of culture are various and disciplinary fields diverge in the way of operationalizing culture. While political scientists and sociology often discusses culture in terms of civilization (e.g. Huntington, 1998; Esmer, 2002; Inglehart and Norris, 2008), Taras et al (2009) state three different other types. They are: (1) work-related cultural values in management studies, like Hofstede value dimension (2) attitudes on social and political issues, in sociology and social psychology literatures, and (3) self-perception respectively for psychology approach.

By Jeffrey Alexander and Philip Smith (2003), according to Arnason (2010)'s interpretation, these various types of culture are classified as two types. One is the culture as strong program referring to the autonomous, unified way of interpreting and articulating the world, and the other is the culture as weak program as the place for the reproduction of social relation amid economic and political dynamics. The three types of cultures stated by Taras et al (2009), in my view, correspond to weak program culture, while Arnason (2010) takes civilization as the strongest version of strong culture. In my analysis, as explained in the next section, strong program culture

will be included in analysis 2, while analysis 4 will address weak program culture. Meanwhile, culture as "attitudes on social and political issues" is excluded because it is often correlated with social well-being, as exemplified by Putnam (1994) associating social trust with sound development of civil society.

Culture as strong program- Marsh's civilization: Based on Huntington's definition of civilization as "the broadest level of cultural identity people have" (1996:43), Marsh (2009) classifies the world in eight civilization categories. They are: Western, Latin American, Eastern Orthodox, Islamic, Sub-Saharan, Hindu, Japanese and Sino-Confucian. In my analysis, the classification is partially modified for the following reasons:

First, the Buddhist, Sino-Confucian and Japanese culture are united under name of East Asian civilization. The primary reason is the difference between data for my analysis and that for Marsh's study. Marsh focuses on World Value Survey including individual-level observations; my analysis data address only country-level. Thus, for the civilizations in East Asia I cannot make any generalized inference unless the three groups are merged, because of too small N. On the other hand, the three groups have maintained relatively strong relationships throughout world history.

Second, Marsh classifies Philippines as 'Latin American civilization', because the country suffered Spanish colonial rule alike Latin American countries resulting in cronyism of powerful political families that caused poor economic performance in the twentieth century (p. 288). In the same context, formerly British or French colonial countries in Central America and Caribbean, with African descendant population rate over 50 percent, are included in the category of Sub-Saharan African countries. Although they are geographically distant from Sub-Saharan countries, they seem to

maintain the cultural homogeneity with Sub-Saharan countries, as exemplified by Rastafarian Movement. Table 2 shows the modified version of Marsh's civilization for my analysis.

(Table 2 here)

Culture as weak program - Hofstede factors: Since 1980 when Hofstede released his four dimensional model of country-level cultural value, after cross-national survey of IBM local branch companies, his model has been the predominant tool for quantitative cross-cultural research. By 2011, more than twenty thousand citations had been counted for all the versions of "Culture's Consequences", his book based on that research, while even in the latest years thousands of researches had been done based on his culture model (Taras et al, 2011). Beside its prevailing use for cross-cultural research, it is advantageous for superiority in terms of country sample size. Table 3 illustrates all the reviewed cultural dimension models including Hofstede and their valid N. In the next section, I would review critical contentions against Hofstede model and explain that they are not sufficient as a rationale to discard Hofstede model.

Criticism and advocates of Hofstede value: Hofstede dimension scores are cross-sectional, and do not reflect country's posterior value change after the survey. However, any other value dimension model has repeated observation and thus there is no alternative for Hofstede model. Therefore, not being the longitudinal data cannot be the reason to replace it with other model. When it comes to theoretical critiques, Baskerville and McSweeney are the representative researchers.

Baskerville (2003) points out that Hofstede's definition of culture is never compatible with holistic and descriptive viewpoint that hold in major anthropology.

She argues three points. First, to her, culture is a changeable and qualitative thing, not quantitative one (Baskerville, 2003:11). Secondly, she points out that Hofstede indices are strongly correlated with GNP, economic growth, population size, etc., and thus it is not culture but merely are social indicators (Baskerville, 2003:9-10). Lastly, a nation may be consisted of multiple cultures and thus it is not accurate to treat each nation as the unit of culture (Baskerville, 2003:11).

(Table 3 Here)

To Baskerville's pungent criticism, Hofstede (2003) briefly replies, contending that there is no reason for accounting researchers to follow anthropological definition of culture (Hofstede, 2003:811). In addition, regarding criticism against using nation as the unit of culture, he adds that "*Nations are not the best units for studying cultures, to which my answer was: True, but they are usually the only kind of units available for comparison and better than nothing* (p.812)".

The second main criticism against Hofstede was voiced by McSweeney (2009). Unlike Baskerville, he emphasizes more the hazard of ecological fallacy - conflation between national-level and lower levels, and treating a mere national score mean as the unchangeable substance. However, McSweeney's ecological fallacy criticism is counter-evidenced by Fischer et al (2010) and Minkov & Hofstede (2011), the studies showing the convergence between nation-level, region-level and individual-level value dimensions. Fischer et al (2010) examined the association between Schwartz individual-level dimensions and Hofstede national-level dimensions, finding certain congruity between two level scores. Meanwhile, in Minkov and Hofstede (2011)'s research, 28 countries from diverse cultural zone were selected but this time sub-national regions, instead of nations, became subject units for cluster analysis. The

result showed a predominant tendency that sub-regions within a country were clustered together. Meanwhile, when it comes to McSweeney's criticism against essentialism of national culture, it is objected by Hofstede and McCrae (2004:64), which points out that the relative scores are maintained along six major replications, as an evidence of national culture's relative stability over time. Furthermore, McSweeney's criticism lacks alternative, same as Baskerville.

With discussions above, the use of Hofstede value dimensions for the present research is justified.

Imputing Hofstede values, prior to creating factors: In the present analysis, Hofstede values are used as factors, instead of variables. That is because the N of countries is limited and inputting all the six variables increases hazard of overfitting problem. Meanwhile, the value scores will be imputed prior to creating factors, through the Akaike information criterion method based on the other value dimensions that are strongly correlated with Hofstede values.

In regard of handling multilevel data with missing values, Buuren (2010) suggests that multiple imputation outperforms complete data analysis (listwise deletion) while there is no strict rule for the way of multiple imputation. In line with the argument, in the present study, Hofstede indices go through multiple imputation based on a prediction model using the other four national value measurements - Schwartz (1994), Trompenaars(2008), GLOBE(2004) and Inglehart(2009). The idea of imputation through prediction by other value indices comes from two facts. First, these indices are commonly related with global concern of social relationship in cultural context (Kashima and Kashima,1998,pp.463), while Schwartz and Trompenaars are analogous to Hofstede in defining culture as a shared set of core

values and norms guiding their member's behavior (Magnuson et al, 2008; pp.185). Secondly, Magnuson et al. (2008) show that Hofstede indices are highly correlated with more recent operationalizations of culture (Magnuson et al, 2008; pp.196).

According to Wood et al(2008:3230), there are two main types of multiple imputation model-building procedure - classical approach based on hypothesis tests between nested models, and likelihood optimization model that is penalized for model complexity through Akaike information criterion or Bayesian information criterion. Wood et al. suggest that the classical approach is preferred for a large dataset of variables, which is not the case in the present analysis. Here, Akaike information criterion method is used for predictive variables selection. The selected variables are shown below.

(1) Imputed variable: individualism (valid N increased from 69 to 109)

GLOBE value: power distance and gender egalitarianism; Inglehart: self-expression, secularism; Trompenaars- internal versus external control

(2) Imputed variable: indulgence versus restraint (valid N increased from 92 to 109): Inglehart: self-expression, secularism; post-materialism; GLOBE practice: future orientation, performance orientation; GLOBE value: assertiveness; Trompenaars: universalism, achievement versus ascription; Schwartz: egalitarianism

(3) Imputed variable: long-term orientation (valid N increased from 92 to 104) Inglehart: self-expression; GLOBE practice: humane-orientedness, assertiveness; GLOBE value: performance-orientedness, in-group collectivism

(4) Imputed variable: masculinity vs. femininity (valid N increased from 69 to 108)

Inglehart: self-expression, post-materialism 12-item, secularism; GLOBE practice: power distance, in-group collectivism; GLOBE value: assertiveness, in-group collectivism; Schwartz: affective autonomy; Trompenaars: achievement versus ascription

(5) Imputed variable: power distance index (valid N increased from 69 to 109)

Inglehart: autonomy index; Trompenaars internal versus external control; GLOBE practice: in-group collectivism; GLOBE value: future-orientedness, assertiveness

(6) Imputed variable: uncertainty avoidance index (valid N increased from 69 to 111)

Inglehart post-materialism 12-items; GLOBE practice: performance-orientedness, uncertainty avoidance; GLOBE value: assertiveness; Trompenaars: achievement versus ascription; Neutral versus affective; Schwartz: affective autonomy

After imputing Hofstede variables, factor analysis was done. For rotation method, varimax was chosen. The six variables are clearly split in three factors, each two of them paired. In the present study, the factors are named, respectively:

Horizontal Individualism (HIND), short-term hedonism(STH), adventure versus harmony(AVH).

(Table 4 here)

Social Indicator

Comparison among societal well-being indices: Among the existing social indicators, the following indicators comprehend the concept of social wellbeing- Happy Planet Index (HPI), Genuine Progress Index (GPI), OECD Better Life Index,

Social Quality (hereafter SQ) and Weighted Index of Social Progress (WISP).

Notwithstanding, GPI and OECD Better Life are excluded first, since the former is being surveyed only in North America and Australia (Sharpe, 1999:15), and the latter has only 10 out of 19 indicators that are available for non-OECD countries

(Table 5 Here)

And then, HPI was excluded for two reasons. It is not certain that HPI actually does not capture 'the social', since it is calculated based on ecological footprint, life expectancy and life satisfaction (Daly, 2009:14). Secondly, even in terms of environment, it is not certain that ecological footprint, the primary parameter used in HPI score calculation, represents the environment as the whole (Fiala, 2008). For instance, ecological footprint used in HPI version 2.0 is *negatively* correlated (coefficient -0.559, p-value<0.001) with air pollution degree published by WHO in 2007.

Social Quality and WISP: Hence, SQ and WISP were the final candidates, and finally Social Quality was chosen for the following reasons. The first reason was parsimony - Social Quality has only 19 indicators, while WISP has 40. Secondly, it embraces both objective and subjective indicator, allowing viewing both what the society is and how it is perceived within different values. According to Veenhoven (2001), there are social goals, including material ones, that cannot be measured objectively, and because mentality is also important for social policy, combining subjective indicators with objective ones is needed. Thirdly, WISP includes more areas that are not identical with 'the social', such as national defense effort, health, GDP PPP, whereas SQ does not. Fourthly, while WISP all of 10 sub-dimensions have mutually and strongly significant correlations (see Table 6), correlations among

Social Quality dimensions are less strong, which means Social Quality captures broader aspects of social life. This means that the former has fewer problems with orthogonality and captures more multifaceted aspects of the social.

(Table 6 Here)

Lastly, SQ is more inclusive of social participation variables than WISP. For instance, while corruption and right variables are included in both indices, trust and organizational participation appear only in SQ. For all those reasons, SQ was finally chosen. Table 7 shows its variables and sources.

(Table 7 Here)

Other Variables

SWB (Subjective Well-being): The Gallup World Poll Life Satisfaction (GWP LS) scores for the year 2005, 2008-2009 and 2010 are used.

logged GDP PPP per capita: As shown in the following descriptive statistics table in the next section, the distribution of worldwide GDP PPP per capita is non-normal as measured by Skewness and Kurtosis.

Other Considerations

Civilization main effect is excluded from regressors: Main effect of civilization dummy is excluded from the analysis, for the following reasons. First, it is time-invariant and thus rules out feasibility of fixed effect method. In addition, when its effect turns out to be significant, it is hard to judge whether the effect is of culture itself or of common economic, social or political circumstances that its belonging countries face during the periods covered by the panel data.

SQ and income are included together: Previous SQ studies show that the meaning of SQ is not separable from economic development. Post-materialism theory

suggested by Inglehart (1990). The need to take together social progress indicators with wealth is connected with Inglehart's post-materialism theory.

Meanwhile, Chang's research (2009), analyzing 33 societies' social quality with 19 out of them as non-OECD members, shows quantitative association between SQ and survival/self-expression value. Yee and Chang (2009) acknowledge the contextual heterogeneity in the meaning of social quality by economic development, as well as by cultural and geographical diversity.

The cross-sectional correlation in the panel data shows results that are even more striking. Three out of four SQ factors, except political empowerment, have their time-series mean with extremely strong significance with that of logged income, for 125 subject countries. Respectively, the coefficient is safety net: 0.4333, social empowerment 0.8463, and socioeconomic participation -0.4080, all with $p\text{-value} < 0.0001$. Putting the result with previous studies, aforementioned literatures regarding SQ association with post-materialism/self-expression and economic status, reveal the need to address together the SQ and income variable. When only SQ or income is included as independent variable, part of the observed relationship may be spurious.

All the countries versus countries with average PPP over 8000 Dollars: One of the important issues regarding Easterlin Paradox has been to which degree the income effect is altered in wealthier countries, in respect to all the countries case. As well, the SQ literatures have recognized that the priority and meaning people give to the social quality may be varied by the level of income, as like Inglehart's post-materialism becomes societally more accepted after national economic accomplishment.

In the present study, the criterion for higher income group is 8000 international dollars, for the country's GDP PPP per capita average across periods. The reason to set 8000 was that it is close to the average PPP (not logged) of non-Western countries in the panel data (8117.089, N=282, Std Deviation 10303.46). If the criterion is too high, some civilization groups like Sub-Saharan African will have no subject country left. Since the present analysis counts also cultural variables, such situation should be eschewed.

Finally, four types of analysis are designed. The followings are input variables, always for GWP LS as dependent variable.

Analysis 1: logged PPP and Social Quality (SQ), without cultural mediation

Analysis 2: logged PPP* civilization dummy interaction, controlling for SQ

Analysis 3: SQ* civilization dummy interaction, controlling for income

Analysis 4: Hofstede factors instrumental effect on Income-SWB and SQ-SWB

SELECTION OF METHODOLOGY

Generally, researchers tend to choose either standard Random Effects or Fixed Effects, after conducting Hausman test to see whether unit effect is uncorrelated with regressors. If uncorrelated RE is preferred and if not FE. However, when heteroscedasticity, cross-sectional dependence or serial correlation occurs, choosing methods becomes more complicated. RE/FE Robust SE (standard errors) methods can correct serial correlation and heteroscedasticity, but not contemporaneous correlation (cross-sectional dependence). Meanwhile, Panel Corrected Standard Errors (PCSE) methods are robust to heteroscedasticity and contemporaneous correlation.

Conversely, it is invalid with serial correlation and researchers tend to deal with it by

adding lagged dependent variable to regressors (Kristensen & Wawro, 2003).

According to Kristensen and Wawro, however, even if so it is inferior to robust fixed effects in presence of the strong unit-specific effect, which is also a criterion to compare RE against FE.

On the other hand, Hausman test is not valid when data suffers heteroscedasticity or serial correlation (Kristensen & Wawro, 2003), and it should be replaced by Hansen's J statistics test serves as suggested by Schaffer and Stillman (2010).

Other panel data methods than those stated above are not suitable for the present study's data structure. The first-difference method is possible only for balanced data, and dynamic panel methods are valid only under strict exogeneity assumption (Bond, 2002). Any of those assumptions are satisfied in the present analysis.

All things taken together, selecting method for the present data can be systemized as shown in Table 8. Method choice depends on whether unit-specific effect, heteroscedasticity, serial correlation and/or contemporaneous correlation are present.

The steps, to test those four problems, are as follows. First, Wooldridge-Drucker test is conducted for the null of serial correlation. Second, to examine the heteroscedasticity for standard RE and that for standard FE, Breusch and Pagan Lagrangian multiplier test and modified Wald statistic for groupwise heteroskedasticity are employed. Third, if any of those two tests reports heteroscedasticity, Hansen J-statistics examines the presence of unit effect. Conversely, if both standard RE and FE turn out to be homoscedastic, Hausman test is

employed. Lastly, contemporaneous correlation (cross-sectional dependence) is tested by Seemingly Unrelated Regression (SUR) method, as suggested by Moon (2006).

(Table 8 Here)

As described above, specification tests were conducted. For all the models using civilization as cultural variable, serial correlation, heteroscedasticity and contemporaneous correlation reported p-value below 0.01. Meanwhile, Hofstede Models reported heteroscedasticity and serial correlation. Thus, for civilizational approach robust fixed effects model was selected. For Hofstede analysis, robust random effects were chosen.

RESULTS

Descriptive Statistics

Table 9 presents descriptive statistics of variables for the present analysis.

(Table 9 Here)

Meanwhile, the higher income group, or "over 8000 group", is significantly superior, when compared with the all countries in the following respects:

(1) In regard of socio-economic participation factor, its representative values are reduced notably when compared to the all countries analysis, except for Kurtosis and minimum value.

(2) Conversely, the mean and minimum values are remarkably higher than all countries group, in Safety Net factor.

(3) Belonging to the higher income group is associated with higher average score in social empowerment and lower skewness.

(4) The mean of horizontal individualism is significantly higher in higher income group.

Meanwhile, the kurtosis values over +2 show that all the four SQ factors as well as national income suffer non-normal distribution. Thus, those variables are logged prior to panel analysis. Unlike GDP PPP per capita that is log-transformed directly, SQ factors are transformed like:

$$x' = \ln(x - \min(x) + 1),$$

so that the minimum value become +1 and its logged value be zero.

In addition to standard descriptive statistics, I add a table showing fixed effects of time dummy. The descriptive statistics table is not enough to see the exact trend change over time, since the observed N varies and thus the comparison between the waves does not reflect precisely the exact difference over time. Additionally, the fixed effect of time dummy enables to see the significance of timely variation as well as its size. It is illustrated in Table 10.

(Table 10 Here)

Analysis 1: Logged PPP and Social Quality (SQ), without Cultural Mediation

In regard of the all countries trend, the SWB has been decreased serially over time, while the logged PPP rose significantly between Wave 1 - Wave 2. Such contrast between trend of income and that of SWB suggests a need to see both model with time effect control and model without it. In the former model the relationship between income and SWB may be biased to negative direction, while in the latter the relationship size may be deflated. Given that the worldwide tendency is the decline of SWB amid the increase of national income, some parts of time effect, but not all of them, may be due to unobserved other factors than income growth.

Table 11 shows the model without time effect controlled. Regardless of which SQ factor the model controlled, the effect of logged income on SWB was *strongly negative*. Furthermore, there was little difference between higher income group and the whole countries group. In regard of SQ effects, the socio-economic participation rendered a significantly positive coefficient and the social empowerment showed a negative relationship with SWB. Although not statistically significant, the coefficient of political empowerment is not meaningless, since the present analysis analyze covers all the main worldwide countries and more than a half of all the countries. That is, statistical insignificance here does not mean absence of relationship, since the subject countries sample is close to population. In any case, the income coefficient was more negative in the higher income group. Therefore, previous researchers' claim that income effect is varied by national wealth level is observed here. Besides, the SQ effect, except social empowerment, was considerably more positive in higher income group. Comparing model 1-4 and model 5, controlling for other SQ factors affected little on the effect of each SQ factor, except that of safety net in higher income group.

(Table 11 here)

Meanwhile, Table 12 presents models controlling for time effect. Here, income effect is no longer statistically significant. Among the Social Quality factors, besides, only social empowerment was negatively related with life satisfaction. The effect size was substantial in all models but model 1.7 and 1.10 for higher income group, in which time effect and income effect were controlled. Additionally, it had little difference in effect size for the whole group and higher income group. In overall, its effect pattern is analogous to income effect. That is, they are not only

cross-sectionally linked as seen above, but also have a strong dynamic nexus over time.

(Table 12 here)

In reverse, socio-economic participation was the major catalyst for raising SWB when time dummies were not added, and its effect was close to twice in the higher income group as that in the whole group. When time effect was controlled, its statistical significance disappeared, but the coefficient size could not be ignored.

Meanwhile, political empowerment and safety net took weaker effects. In regard of safety net, it was bounded with SWB only for higher income group without time effect control. Neither in this case, it was not statistically significant, but the extent was noticeable. Despite that, it remained as the least influential factor among the four factors, on balance. Political empowerment was not statistically significant in any model. Nonetheless, the scale of coefficient was far from being negligible.

As well as for income effect, time dummy inclusion also shrank the extent and significance of SQ factors association with SWB. Even so, socio-economic participation and political empowerment noticeably influenced national SWB. In particular, socio-economic participation took a dominant effect in higher-income group, while social empowerment yielded little difference in effect between whole group and higher income group.

In general, whether the other SQ factors were controlled had little influence on each SQ factor's effect. Safety net effect for higher income group was the only one that considerably varied by whether other SQ factors were controlled or not, both when time dummies were included and excluded. Otherwise, including rest SQ factors changed little on each SQ factor's relationship with SWB. Meanwhile, the

R-square values were always much higher in higher income group than in the whole group, when time dummies were included. However, excluding time dummies, the gap sharply declined.

As stated, whether time effect was controlled altered substantially the effect size and significance of income and SQ factors both in the whole group and in higher income group. Nonetheless, it should be noted that controlling time effect makes dependent variable (SWB) nearly constant over time, as can be seen by comparing Table 10 and Table 12 differing very little to each other in time dummies coefficient. There is no reason to assume that worldwide SWB is indeed time-invariant. The effect of income and SQ factors would be, for the present data period and countries, between the point of their coefficients excluding time dummies and the point including time dummies. This implies that income indeed had a negative relationship with SWB, though the effect size would be more moderate than the coefficient in the models without time dummies. The same, except for the effect direction, applies to the effect of socio-economic participation and social empowerment.

Lastly, it should be noted, when time dummy variables are included, the mean residual of time dummies varies little over time. Comparing Table 10 with Table 12, we see that the coefficient of time dummies is almost same. This implies the SWB variation over time was almost fully absorbed by time dummies and the inter-temporal relationship SWB and the other regressors could be deflated, since the residual of time dummy-SWB was near to flat. Thus, although coefficient significance of the other regressors disappeared, we should not rule out entirely the presence of effects.

Analysis 2: Logged PPP* Civilization Dummy Interaction, Controlling for SQ

Table 13 present the cultural heterogeneity in income effect, controlling for SQ factor. In all the models including all the countries (N=138), Islamic and Orthodox are homogeneous, alike in the SQ- civilization interaction model. Conversely, the African group shows clearly more preference of income increase. When contrasted with Western group's pattern showing a strong negative coefficient, it seems that the less wealthy countries are, the more positive effects the income has on the SWB. However, the other four groups - Latin American, East Asian, Islamic and Orthodox provide evidences that the pattern is not so simple. They are homogeneous in terms of average logged income, but Latin American and East Asian diverge from Islamic and Orthodox. Meanwhile, within the same civilization, the change of included SQ factor as regressors did not change.

(Table 13-1 here)

Now let me turn to the analysis of higher income group - countries of GDP PPP per capita over 8000\$. Unlike the whole countries study, the effect of income in East Asian and African group is substantially varied by SQ factor that was included as regressors. The comparison result between whole countries analysis and higher income group also varies by civilization. In the latter, the effect of income in East Asian, African and Orthodox goes downward, on the contrary to that in Latin American countries. Islamic countries show little difference between whole countries group and higher income group, whereas all the Western countries belong to higher income group and thus it is pointless to discuss them here.

(Table 13-2 here)

Analysis 3: SQ* Civilization Dummy Interaction, Controlling for Income

Table 14 charts the SE robust fixed effect models including SQ factor interaction with civilization dummy variable.

(Table 14-1 here)

Comparison among civilizations: When observing all the countries, Orthodox, African and Islamic groups are homogeneous in all the four factors. Among them, the first two groups are closer to each other. When comparing them with the rest three civilizations, Latin American group is closer to Orthodox. While Western and East Asian show unique aspects, there exists a similarity among the rest four cultures though the degree varies.

Within higher income group, African and Islamic group are still analogous in all the SQ factors but in political empowerment. Meanwhile, this time it is not Orthodox but East Asian group that has the closest tendency to them, again excepting political empowerment model.

(Table 14-2 here)

All by all, it is shown that the effect of social quality on life satisfaction is far from being homogenized by modernization. That is, economic development does not standardize people's preference regarding social well-being. This is shown by two aspects. Firstly, cultural divergence gets even more obvious in higher income group analysis. Western remains clearly distinguished from the non-Westerns, while Latin America is more separated from the other non-Western groups. Also, more SQ factors have East Asian dummy interactions are significant, suggesting that East Asian group is far from being homogenized with other culture groups. Secondly, it is worth to note the mean and standard deviation of logged GDP PPP per capita for civilizations. If the

economic level is the primary cause for heterogeneity in the effect of social quality on SWB, African case would have been the most distinguished from all the other civilizations, and likewise Latin America and East Asia would have shown a similar pattern. According to the analysis result, that was not the case. That is, the heterogeneity among cultural groups is beyond the instrumental effect of income difference.

Comparison between the whole countries and higher income group within civilization cluster: Whereas Islamic group remain relatively stable in all the four factors, East Asia, Orthodox and African countries have strong dependence of social empowerment on people's SWB. The higher income group in Latin American shows moderate but significant difference from the whole in socio-economic participation and safety net factor.

Comparison among the factors: For the all countries sample, safety net and social empowerment were similar to each other and so were socio-economic participation and political empowerment to each other. Conversely, such similarity disappeared when it comes to the higher income group. As can be seen, the altered relationship between SQ dimensions and SWB, when logged income was controlled, still allowed the civilizational diversity. In the higher income group, East Asian and African group became even more apart from the Western, while they also differed from lower income countries within the same civilization group. The result implies that prior conditions for SWB altered as the country got wealthier but it was far from convergence to the Western.

Analysis 4: Hofstede Factors Instrumental Effect on Income-SWB and SQ-SWB

Here I discuss the table 15-18 at once, since comparing tables show more clearly the dynamics. The instrumental effect of horizontal individualism centered on the income effect in the whole group. In any case, the coefficient for horizontal individualism was not significant, but when it was controlled the income effect size considerably declined. On the other hand, its effect clearly differs in higher income group. The effect of political empowerment was suppressed and safety net and social empowerment were strongly instrumented.

In regard of short-term hedonism, for socio-economic participation and political empowerment, it had a direct effect on SWB in the whole sample and partially instrumental effect in the higher income group. For safety net and social empowerment, it plainly instrumented the former and partially the latter in the whole group, but for the higher income group partially instrumented both. On the contrary, it did not affect income effect in any case.

Unlike those two Hofstede factors, adventure/harmony effect was limited in safety net-income and social empowerment-income model, and only in the whole group. In both models income was partially instrumented, while social empowerment and safety net were partially but largely suppressed.

On the other hand, the influence of income in random effect model, unlike that in fixed effect, reversed to positivity in the whole group. Nonetheless, the coefficient sign returned to negativity in higher income group, except for safety net with short-term hedonism, and except for political empowerment with short-term hedonism or no Hofstede factor. While previous chapter's fixed effect did not find a difference between the whole group and higher income group, the gap is clear in the random

effects. This result supports the previous arguments that in higher income level, the cross-sectional effect of wealth diminishes.

(Table 15-1~18-2 here)

DISCUSSION AND CONCLUSION

Broader Divergence in the Income Effect on SWB

My analysis showed the significantly negative relationship between income and SWB, controlling for SQ factors and not including time dummy variable. Here Roca (2011) is worthy to be mentioned again. My data covers 2004-2010 and Roca (2011)'s time span is similar to mine, but his fixed effect analysis shows the positive effect of income, contrary to mine. Unlike him I could not use annual data, since my research used survey sources that had gap of more than two or three years.

In fact, my finding broadens the degree of such divergence. That is, I found *significantly negative* coefficient of income, while previous studies supporting or refuting Easterlin Paradox have found no significant relation or significantly positive relation. Thus, the range of latent variation in income effect on SWB is now even broader. Not only zero and positive, but also negativity may be possible, depending on time. The only certain thing is, during the studied period, the world experienced income growth but became unhappier.

Civilizational Heterogeneity

Regarding civilizational diversity, two findings are noteworthy. First, heterogeneity between Western and non-Western was confirmed and more remarkable in SQ effect. Regarding income effect controlling for SQ, two out of five non-Western civilizations - East Asian and Latin American - shown negative

coefficient of logged income for the whole sample, same as Western. Conversely, however, the contrast between Western and non-Western is more obvious in SQ effect. While the Western has positive effect in socio-economic participation and political empowerment and negative effect in safety net and social empowerment, the trend in the non-Westerns always showed contrariwise trend, with the single exception of Latin American safety net effect. Furthermore, such contrast entirely persists for the higher income group. That is, even when non-Westerns get wealthy as Westerns, the civilizational divergence is still obvious. The diversity in modernization applies to, according to my analysis, the preference of people for societal conditions even when their society develops.

Second, among the non-Western civilizations, the strongest homogeneity appeared between Islamic and Eastern Orthodox group, both in income and SQ effect. One possible explanation is historical approach, as suggested by Thoma (2009). She points out, for its sharp rivalry with the Western since the Great Schism; Eastern Orthodox has maintained close relationship with the Islamic. Both cultures were far from being active in participating Western modernization and development of individualism, and believers of two religions kept coexistence within Ottoman Empire. Furthermore, the unity of church and state was legitimized throughout history of both cultures. Although little addressed by existing empirical studies, since culture is the product of history, such historical affinity would have influenced on people's value. I do not suppose that such analogy was directly caused by interaction, as exemplified by Bonikowski (2010). Rather, there might have been sufficient homogeneity in their religious society structure that helped the amity, and such commonness partially persists and affects people's value regarding social environment perception.

Apart from cultural perspective, in the all countries sample, safety net and social empowerment are similar in overall civilizational divergence pattern, whereas so are socio-economic participation and political empowerment to each other. In converse, all of them are heterogeneous to each other in higher income group.

All by all, we see that the altered relationship between SQ dimensions and SWB, when logged income is controlled, the civilizational diversity keeps thriving. If cultural diversity for SQ preference diminishes along with non-Western economic development, the absolute value of dummy interaction coefficient should be decreased in overall. However, that is not the case. Especially, East Asian and African group become more apart from the Western, while they also differ from the same civilization's poorer countries as stated above. Priority alters as wealth increases, but the altered pattern is far from convergence among diverse cultures.

Hofstede factors: income and safety net are the most sensitive

While income was mainly instrumented by horizontal individualism, it also had a central role in mediating political empowerment and SWB. Among the four social quality factors, safety net had the most frequency in interacting with Hofstede factors. However, HI and the rest showed the contrary direction. While horizontal individualism showed an instrumental effect, short-term hedonism and adventure-harmony functioned as suppressors. Among the SQ factors, socio-economic participation was the least interacting with Hofstede, while it rendered certain divergence in civilizational analysis.

Future Research

For the extension of the present study, further studies are needed about the following issues. First, the finding that Hofstede factors relation with SQ factor and

its particularity in higher income group, needs further studies for interpretation. At the same time, when longitudinal data of Hofstede dimension is available, studies addressing dynamic relationship among societal conditions, value dimensions and SWB. Since Inglehart's post-materialism is longitudinally positive in relationship with income growth (Inglehart and Baker, 2000) and is positively correlated with horizontal individualism, I expect that horizontal individualism also would have the same relationship with income, social empowerment and safety net. However, regarding the other two factors - short-term hedonism and adventure-orientation, any argument needs empirical research.

Secondly, cultural heterogeneity exists not only among countries, but also among individuals depending on their social status, gender and other individual attributes (Triandis, 1990:512). Further researches on multi-level analysis, including value dimensions and income of both national and individual level in addition to the societal conditions will clarify the rich dynamics between individual and national level produced by the change in societal conditions and national wealth. In that way, we can understand how the combination of national culture and individual attribute varies the way by which an individual promotes or degrades his/her SWB by the societal change and income growth.

Although those needed further studies suggest my research's limitation, the present study has the following meanings. First, it provides additional evidence to the divergence in income effect. Second, unlike the existing studies, the study highlights on the cultural influence on the way the social domains and income determine SWB, augmenting narratives of cultural diversity and divergent modernization. Third, by analyzing data embracing wealth, societal conditions and cultural values, this research

implies that the policies to enhance national SWB should be made taking accounting for national culture as well as economic level.

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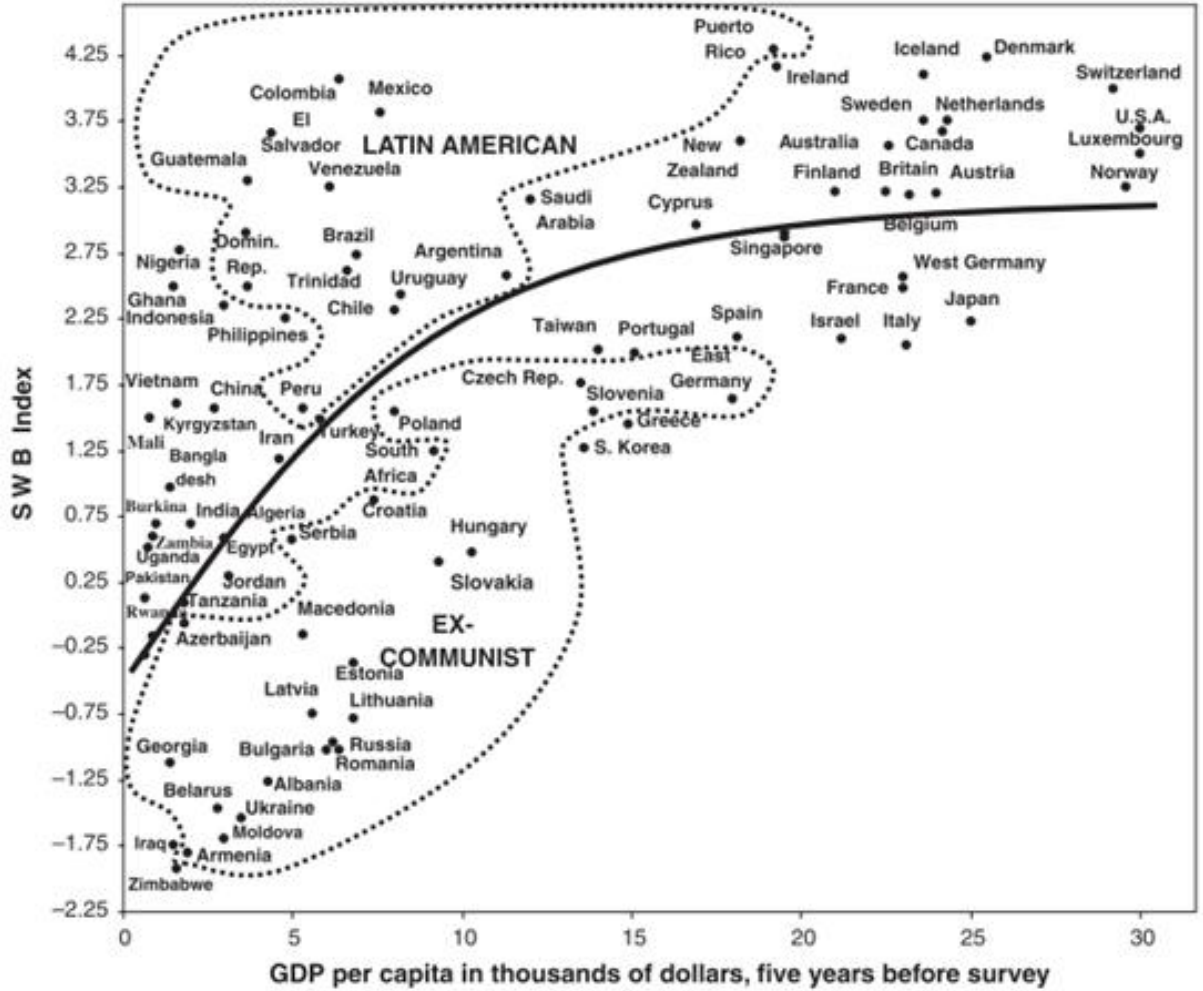
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FIGURES

Figure 1 high subjective well-being of Latin American, Inglehart and Norris 2008



TABLES

Table 1 Religiosity Comparison, World Value Survey 1981-2007 national average score *

Civilizations	Subset 1	Subset 2	Subset 3	Subset 4
East Asia (N=5)	4.639			
Western Europe (N=11)	5.368	5.368		
Eastern Europe (N=22)	6.537	6.537		
English-Speaking (N=4)	6.81	6.81	6.81	
South Asia (N=6)		7.816	7.816	7.816
Other Islamic (N=2)			8.722	8.722
Latin American (N=12)			9.05	9.05
Sub-Saharan Africa (N=10)			9.381	9.381
Arab countries (N=6)				9.818

* Here, the criterion of cultural zone is in accordance with Inglehart (2007)

Table 2 Classification of Civilization

Civilization	Countries
Western (N=32)	Andorra, Australia, Austria, Belgium, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, United Kingdom, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United States
East Asian (N=14)	Bhutan, Myanmar, Cambodia, Sri Lanka, China, Hong Kong, Japan, South Korea, Laos, Mongolia, Nepal, Singapore, Vietnam, Thailand
Orthodox (N=14)	Armenia, Bulgaria, Belarus, Cyprus, Ethiopia, Georgia, Greece, Moldova, Romania, Russia, Ukraine, Macedonia, Serbia, Montenegro
Latin American (N=19)	Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Philippines, Uruguay, Venezuela
Islamic (N=40)	Afghanistan, Albania, Algeria, Azerbaijan, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei, Chad, Djibouti, Palestine, Indonesia, Iran, Iraq, Kazakhstan, Jordan, Kuwait, Kyrgyzstan, Lebanon, Libya, Malaysia, Maldives, Mali, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tajikistan, United Arab Emirates, Tunisia, Turkey, Turkmenistan, Egypt, Burkina Faso, Uzbekistan, Yemen
Sub-Saharan African (N=30)	Angola, Botswana, Burundi, Cameroon, Central African Republic, Comoros, Congo, Congo DDR, Benin, Ghana, Guinea, Haiti, Ivory Coast, Jamaica, Kenya, Liberia, Malawi, Mauritania, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sierra Leon, South Africa, Zimbabwe, Togo, Uganda, Tanzania, Zambia

Table 3 Cultural Value Dimension Systems

Typology	Dimensions	N
Schwartz (1994)	Affective Autonomy	31
	Intellectual Autonomy	
	Conservatism	
	Egalitarian Commitment	
GLOBE (2004)	Assertiveness	57
	Future Orientation	
	Gender Egalitarianism	
	Humane Orientation	
	In-Group Collectivism	
	Institutional Collectivism	
	Performance Orientation	
	Power Distance	
Uncertainty Avoidance		
Trompenaars (1994)	Universalism	31
	Individualism	40
	Neutral versus Affective	49
	Specificity	52
	Achievement versus Ascription	47
	Internal versus External Control	48
Hofstede (2008)	Indulgence versus Restraint	92
	Long-Term versus Short-Term Orientation	
	Individualism	
	Masculinity versus Femininity	
Singelis (1994)	Power Distance Index	69
	Uncertainty Avoidance Index	
	Egalitarian Interdependence	
	Group Loyalty	
Singelis (1994)	Low Context Assertive	28
	Uniqueness Independence	

Table 4 Factor analysis: Imputed Hofstede Variables (varimax rotation)

	Factor 1: horizontal Individualism	Factor 2: short-term hedonism	Factor 3: adventure vs. harmony
Individualism	.833		
Power Distance	-.839		
Indulgence versus Restraint		.847	
Long-Term Orientation		-.815	
Masculinity			.825
Uncertainty Avoidance			-.635

Table 5 Limited Availability of OECD better life index indicators for non-OECD countries

Sub-index	Indicator	Availability: Non-OECD
Housing	Rooms per person	N
	Dwelling without basic facilities	N
Income	Household disposable income	N
	Household financial wealth	N
Jobs	Employment rate	Y
	Long-term unemployment rate	Partial (N=48)
Community	Quality of support network	N
Education	Educational attainment	N
	Students reading skills	Y
Environment	Air pollution	Y
Governance	Consultation on rule-making	N
	Voter turnout	Y
Health	Life expectancy	Y
	Self-reported health	N
Life Satisfaction	Life Satisfaction	Y
Safety	Homicide rate	Y
	Assault rate	Y
Work-life balance	Employees working very long hours	Y
	Employment rate of women with children	N
	Time devoted to leisure and personal care	N

Table 6 Correlation among WISP dimensions (data in 2009, N=162 for all pairwise correlation)

	Education	Health	Women Status	Defense Effort	Economy	Demography	Environmental	Social Chaos	Diversity
Education									
Health	0.953 ***								
Women Status	0.948 ***	0.943 ***							
Defense Effort	0.614 ***	0.623 ***	0.659 ***						
Economy	0.288 ***	0.341 ***	0.236 ***	0.098 ***					
Demography	0.561 ***	0.616 ***	0.528 ***	0.210 ***	0.474 ***				
Environmental	-0.056 ***	-0.071 ***	-0.018 ***	0.126 ***	-0.255 ***	-0.140 ***			
Social Chaos	0.354 ***	0.402 ***	0.352 ***	0.199 ***	0.276 ***	0.551 ***	-0.018 ***		
Diversity	0.193 ***	0.256 ***	0.223 ***	-0.014 ***	0.188 ***	0.432 ***	-0.042 ***	0.284 ***	
Welfare Effort	0.334 ***	0.437 ***	0.318 ***	0.215 ***	0.372 ***	0.712 ***	0.028 ***	0.546 ***	0.348 ***

Table 7 Social Quality indicators and raw data source

No.	Variables	Source
1	Male employment rate	World Bank Group - Social Protection and Labor
2	Female employment rate	
3	Public education expenditure % of GDP	World Bank EdStats
4	Gross enrollment rate (%), secondary, total	
5	GINI Index	World Income Inequality Database V2.0c May 2008; CIA World Factbook 2008
6	Public Social Protection and Health Expenditure %	IMF Government financial statistics
7	Trade Union Density	ILO Social Dialogue Indicators 2008/09, New Unionism - Combined Labor Statistics
8	Press Freedom	Freedom House - Freedom of the Press Historical Data
9	Government Effectiveness	World Governance Indicators - World Governance Indicators
10	Percent of Internet Users	World Bank - Internet Users
11	Control of Corruption	World Bank - World Governance Indicators
12	Average Rights	Freedom House - Freedom in the World
13	Gender Empowerment	UN - Human Development Reports
14	General Trust	World Value Survey (Wave 4, 5), European Value Survey (2008), Asian Barometer (Round 1,2), Asia Barometer(2006,2007), Latinobarometro (2009), Afrobarometer (Round 1,3)
15	Institutional Trust	
16	Voter Turnout Participation	IDEA - Voter Turnout
17	Organizational Participation Rate	Afrobarometer (Round 1,2,3,4), Asian Barometer (Round 1,2) European Value Survey (2008) Latinobarometro (2009), World Value Survey (Wave 4-5)
18	Satisfaction with Democracy	

Table 8 Error structure problems and method validity

Preferred Method	unit-effect correlation	error structure problems that the method allows for		
		hetero- scedasticity	serial correlation	contemporane-ous correlation
Standard RE	X	X	X	X
PCSE	X	O	X	O
RE robust SE	X	O	O	X
Standard FE	O	X	X	X
FE robust SE	O	O	O	O

Table 9 Standard Descriptive Statistics

		Observation		Mean		Std. Deviation	
		All	higher income	All	higher income	All	higher income
GWP LS (scale 0-10)	Wave 1	136	64	5.909	6.769	1.386	1.076
	Wave 2	138	65	5.825	6.697	1.414	1.154
	Wave 3	143	67	5.407	6.167	1.154	1.028
	N* T	417	196	5.709	6.539	1.336	1.336
SQ Factor: socio-economic participation	Wave 1	127	62	-0.030	-0.370	0.816	0.527
	Wave 2	131	62	0.052	-0.250	0.807	0.531
	Wave 3	138	65	0.027	-0.323	0.821	0.535
	N* T	396	189	0.017	-0.315	0.813	0.531
SQ Factor: safety net	Wave 1	127	62	-0.067	0.374	0.807	0.720
	Wave 2	131	62	-0.056	0.275	0.757	0.696
	Wave 3	138	65	-0.091	0.266	0.762	0.718
	N* T	396	189	-0.072	0.304	0.773	0.709
SQ Factor: social empowerment	Wave 1	127	62	-0.057	0.562	0.844	0.739
	Wave 2	131	62	-0.035	0.599	0.828	0.735
	Wave 3	138	65	-0.008	0.639	0.843	0.730
	N* T	396	189	-0.033	0.601	0.836	0.731

(continued)

Table 9 Standard Descriptive Statistics (continued)

		Observation		Mean		Std. Deviation	
		All	higher income	All	higher income	All	higher income
SQ Factor: political empowerment	Wave 1	127	62	0.042	-0.039	0.822	0.751
	Wave 2	131	62	0.041	-0.025	0.831	0.736
	Wave 3	138	65	0.025	-0.025	0.815	0.721
	N* T	396	189	0.036	-0.030	0.821	0.732
GDP PPP per capita	Wave 1	135	63	11453	21651	13486	13833
	Wave 2	136	64	14363	26975	16651	16818
	Wave 3	139	64	14204	26814	15991	15905
	N* T	410	191	13351	25165	15465	15691
Hofstede Factor: Horizontal Individualism	n	99	61	0.001	0.321	1.013	1.000
	N* T	294	181	0.000	0.321	1.013	0.997
Hofstede Factor: Short-term Hedonism	n	97	61	-0.031	-0.051	0.977	0.983
	N* T	288	180	-0.023	-0.051	0.972	0.976
Hofstede Factor: Adventure versus Harmony	n	97	59	0.040	-0.119	1.017	0.991
	N* T	288	175	0.019	-0.119	0.997	0.962

Table 10-1 Time Period Dummy Fixed Effects on GWP LS, natural logarithm of SQ factors and GDP PPP per capita, for all countries (N=396, 138)

Baseline: Wave 3	logged PPP	socio-economic participation	safety net	social empowerment	political empowerment	GWP LS
Wave 1	-0.037 (0.061)	0.104 *** (0.021)	-0.045 *** (0.005)	-0.009 (0.159)	-0.287 * (0.023)	0.477 *** (0.049)
Wave 2	-0.015 (0.061)	0.005 (0.021)	-0.017 ** (0.005)	0.000 (0.157)	0.064 ** (0.023)	0.419 *** (0.049)
Constant	-0.012 (0.043)	0.269 *** (0.015)	0.801 *** (0.004)	10.045 *** (0.009)	-0.317 *** (0.016)	5.415 *** (0.034)
within R2	0.177***	0.003	0.214***	0.002	0.788***	0.294***

* p<0.05, ** p<0.01, *** p<0.001

Table 10-2 Time Period Dummy Fixed Effects on GWP LS, natural logarithm of SQ factors and GDP PPP per capita, for higher income countries

Baseline: Wave 3	logged PPP	socio- economic participation	safety net	social empower- ment	political empower- ment	GWP LS
Wave 1	-0.025 ** (0.010)	0.033 *** (0.007)	-0.038 *** (0.006)	-0.016 (0.023)	-0.256 *** (0.013)	0.586 *** (0.057)
Wave 2	0.029 ** (0.010)	0.003 (0.007)	-0.021 ** (0.006)	-0.006 (0.023)	-0.033 ** (0.013)	0.520 *** (0.057)
Constant	0.824 (0.007)	1.137 *** (0.005)	1.072 *** (0.004)	1.105 *** (0.016)	10.045 *** (0.009)	6.176 *** (0.040)
N	189	189	189	189	191	196
n	65	65	65	65	65	67
within R2	0.204***	0.177***	0.228***	0.004	0.790***	0.503***

* p<0.05, ** p<0.01, *** p<0.001

Table 11-1 income effect on SWB, controlling SQ factors, no cultural variables, no time dummies, for all countries (N=391, 136)

	Model 1	Model 2	Model 3	Model 4	Model 5
logged PPP	-1.243*** (0.171)	-1.117*** (0.154)	-0.854*** (0.180)	-1.147*** (0.155)	-1.017*** (0.198)
socioeconomic participation	1.123*** (0.485)				1.037* (0.486)
safety net		0.199 (0.372)			0.154 (0.361)
social empowerment			-1.911** (0.731)		-1.742* (0.732)
political empowerment				0.403 (0.246)	0.425 (0.252)
Constant	15.572*** (1.372)	15.313*** (1.400)	14.707*** (1.385)	15.325*** (1.325)	14.409*** (1.429)
within R2	0.170***	0.158***	0.185***	0.166***	0.207***

* p<0.05, ** p<0.01, *** p<0.001

Table 11-2 income effect on SWB, controlling SQ factors, no cultural variables, no time dummies, for higher income countries (N=184,63)

	Model 1	Model 2	Model 3	Model 4	Model 5
logged PPP	-1.696*** (0.219)	-1.300*** (0.217)	-1.110*** (0.236)	-1.447*** (0.175)	-1.415*** (0.261)
socioeconomic participation	2.156*** (0.533)				2.052*** (0.565)
safety net		0.637 (0.843)			1.231 (0.863)
social empowerment			-2.210* (1.062)		-1.796 (1.156)
political empowerment				0.470 (0.299)	0.504 (0.293)
Constant	21.659*** (2.049)	18.761*** (2.725)	19.964*** (2.033)	20.440*** (1.779)	18.896*** (2.507)
within R2	0.306***	0.238***	0.267***	0.249***	0.351***

* p<0.05, ** p<0.01, *** p<0.001

Table 12-1 income effect on SWB, controlling SQ factors and time effect, for all countries (N=391,136)

	Model 1	Model 2	Model 3	Model 4	Model 5
logged PPP	-0.258 (0.329)	-0.227 (0.322)	-0.083 (0.314)	-0.275 (0.332)	-0.140 (0.327)
socioeconomic participation	0.363 (0.433)				0.323 (0.429)
safety net		0.126 (0.321)			0.097 (0.315)
social empowerment			-1.422* (0.709)		-1.356 (0.696)
political empowerment				0.386 (0.230)	0.392 (0.231)
time dummy: wave 1	0.437*** (0.103)	0.435*** (0.102)	0.413*** (0.102)	0.428*** (0.102)	0.415*** (0.100)
time dummy: wave 2	0.430*** (0.055)	0.436*** (0.055)	0.423*** (0.055)	0.436*** (0.055)	0.415*** (0.056)
Constant	7.366** (2.833)	7.302* (2.845)	7.297* (2.797)	7.424* (2.938)	6.907* (2.794)
within R2	0.335***	0.334***	0.349***	0.343***	0.359***

* p<0.05, ** p<0.01, *** p<0.001

Table 12-2 income effect on SWB, controlling SQ factors and time effect, for higher income countries (N=184,63)

	Model 1	Model 2	Model 3	Model 4	Model 5
logged PPP	0.047 (0.362)	0.158 (0.374)	0.177 (0.357)	-0.038 (0.337)	-0.124 (0.355)
socioeconomic participation	0.527 (0.507)				0.547 (0.545)
safety net		0.265 (0.789)			0.521 (0.838)
social empowerment			-0.246 (0.606)		-0.260 (0.608)
political empowerment				0.429* (0.200)	0.444* (0.207)
time dummy: wave 1	0.673*** (0.092)	0.681*** (0.093)	0.685*** (0.092)	0.652*** (0.092)	0.615*** (0.100)
time dummy: wave 2	0.587*** (0.050)	0.605*** (0.049)	0.602*** (0.049)	0.605*** (0.049)	0.579*** (0.053)
Constant	5.278 (3.639)	4.293 (3.904)	4.669 (3.705)	6.081 (3.428)	6.161 (3.585)
within R2	0.650***	0.671***	0.671***	0.682***	0.662***

* p<0.05, ** p<0.01, *** p<0.001

Table 13-1 Civilization* income interaction Effect for SWB, controlling for SQ factor, for all countries (N=391, 136)

	SQ factor: socioeconomic participation	SQ factor: safety net	SQ factor: social empowerment	SQ factor: political empowerment
logged PPP	-1.490*** (0.253)	-1.242*** (0.229)	-1.003*** (0.243)	-1.266*** (0.201)
* Latin American	-0.598 (0.515)	-0.465 (0.551)	-0.387 (0.545)	-0.637 (0.544)
* East Asian	-0.655 (0.448)	-0.911* (0.425)	-0.975* (0.411)	-0.918* (0.425)
* Islamic	0.330 (0.353)	0.131 (0.350)	0.201 (0.340)	0.195 (0.292)
* Orthodox	0.383 (0.444)	0.196 (0.420)	0.289 (0.437)	0.247 (0.418)
* African	1.871*** (0.413)	1.825*** (0.410)	1.766*** (0.403)	1.741*** (0.398)
SQ factor	1.213* (0.535)	0.306 (0.353)	-1.935** (0.713)	0.448 (0.246)
Constant	15.323*** (1.158)	14.612*** (1.255)	14.179*** (1.186)	14.820*** (1.090)
within R2	0.244***	0.233***	0.259***	0.242***

* p<0.05, ** p<0.01, *** p<0.001

Table 13-2 Civilization* income interaction Effect for SWB, controlling for SQ factor, for higher income countries (N=184, 63)

	SQ factor: socio-economic participation	SQ factor: safety net	SQ factor: social empowerment	SQ factor: political empowerment
logged PPP	-1.725*** (0.290)	-1.248*** (0.304)	-0.946** (0.315)	-1.302*** (0.212)
* Latin American	-0.035 (0.465)	0.317 (0.537)	0.317 (0.616)	0.071 (0.540)
* East Asian	-0.770 (1.438)	-1.512 (1.031)	-2.059 (1.160)	-1.641 (1.173)
* Islamic	0.667 (0.578)	0.266 (0.567)	0.260 (0.725)	0.234 (0.445)
* Orthodox	-0.037 (0.598)	-0.375 (0.570)	-0.425 (0.467)	-0.409 (0.452)
* African	-1.307 (1.135)	0.077 (0.719)	-0.757 (1.115)	-0.480 (0.878)
SQ factor	2.271*** (0.603)	0.500 (0.863)	-2.572 (1.306)	0.460 (0.286)
Constant	22.081*** (1.940)	19.123*** (2.857)	20.146*** (1.909)	20.411*** (1.683)
within R2	0.321***	0.258***	0.298***	0.268***

* p<0.05, ** p<0.01, *** p<0.001

Table 14-1 civilizational diversity in SQ effect on GWP LS, controlling for income, for all countries (N=391,136)

	SQ factor: socioeconomic participation	SQ factor: safety net	SQ factor: social empowermen t	SQ factor: political empowermen t
logged PPP	-1.222 (0.172)***	-1.121 (0.167)***	-0.731 (0.177)***	-1.104 (0.146)***
Social Quality factor				
* baseline	2.188 *** (0.562)	-0.602 (0.748)	-6.482 *** (1.309)	1.267 * (0.584)
* Latin American	-1.801 (1.191)	-0.509 (0.971)	2.108 (2.559)	-1.296 (0.823)
* East Asian	-0.173 (1.464)	2.725* (1.319)	1.187 (1.929)	-4.963 (2.983)
* Islamic	-2.521 ** (0.935)	0.910 (0.935)	5.453 *** (1.395)	-0.545 (0.787)
* Orthodox	-0.681 (1.503)	0.969 (1.366)	5.777 ** (2.121)	-1.432 (0.823)
* African	-0.491 *** (1.877)	0.582 (1.014)	5.495 ** (1.937)	-0.572 (0.713)
Constant	15.276*** (1.419)	15.580*** (1.632)	15.253*** (1.300)	15.224*** (1.274)
within R2	0.181***	0.170***	0.222***	0.190 ***

* p<0.05, ** p<0.01, *** p<0.001

Table 14-2 civilizational diversity in SQ effect on GWP LS, controlling for income (N=184, 63)

	SQ factor: socioeconomic participation	SQ factor: safety net	SQ factor: social empowerment	SQ factor: political empowerment
logged PPP	-1.788*** (0.257)	-1.424*** (0.224)	-0.755** (0.233)	-1.347*** (0.173)
Social Quality factor				
* baseline	2.755*** (0.631)	-1.676 (0.922)	-6.450*** (1.416)	1.202* (0.601)
* Latin American	0.495 (1.265)	3.302 (2.023)	3.858 (4.524)	-0.854 (0.955)
* East Asian	-2.333* (1.098)	5.303** (1.683)	7.669 (6.546)	-8.446** (2.988)
* Islamic	-2.037** (0.724)	3.612 (4.416)	5.595** (1.751)	-0.327 (0.854)
* Orthodox	-0.284 (1.753)	-0.638 (2.033)	0.058 (2.448)	-1.014 (0.807)
* African	-3.063* (1.344)	2.871** (0.888)	13.125 *** (2.062)	-2.619 (1.462)
Constant	22.434*** (2.358)	21.461*** (2.920)	18.970*** (1.869)	19.721*** (1.770)
within R2	0.328***	0.278***	0.321***	0.295***

* p<0.05, ** p<0.01, *** p<0.001

Table 15-1 Hofstede factors instrumental effect for socio-economic participation effect on SWB, controlling for logged income, for all countries

	Model 1	Model 2	Model 3	Model 4
logged PPP	0.647 *** (0.050)	0.510 *** (0.077)	0.637 *** (0.061)	0.591*** (0.065)
SQ Factor: socio-economic participation	0.247 (0.225)	0.217 * (0.092)	0.297 (0.297)	0.542 (0.286)
Horizontal Individualism		0.441 (0.282)		
Short-term Hedonism			0.292*** (0.091)	
Adventure versus Harmony				-0.077 (0.095)
Constant	-0.178 (0.540)	1.004 (0.773)	-0.041 (0.660)	0.157 (0.690)
overall R2	0.575***	0.528***	0.601***	0.565***
N	391	283	276	280
n	136	96	94	95

* p<0.05, ** p<0.01, *** p<0.001

Table 15-2 Hofstede factors instrumental effect for socio-economic participation effect on SWB, controlling for logged income, for higher income countries

	Model 1	Model 2	Model 3	Model 4
logged PPP	-0.011 (0.137)	-0.371** (0.144)	0.151 (0.138)	-0.076 (0.138)
SQ Factor: socio-economic participation	2.201*** (0.405)	2.229*** (0.398)	1.707*** (0.474)	2.211*** (0.433)
Horizontal Individualism		0.492*** (0.095)		
Short-term Hedonism			0.272** (0.102)	
Adventure versus Harmony				0.110 (0.101)
Constant	4.886*** (1.293)	8.363*** (1.383)	3.748** (1.283)	5.598*** (1.333)
overall R2	0.373***	0.405***	0.469***	0.367***
N	184	171	172	168
n	63	58	59	57

* p<0.05, ** p<0.01, *** p<0.001

Table 16-1 Hofstede factors instrumental effect for safety net effect on SWB, controlling for logged income, for all countries

	Model 1	Model 2	Model 3	Model 4
logged PPP	0.582*** (0.056)	0.433*** (0.079)	0.538*** (0.068)	0.479*** (0.070)
SQ Factor: safety net	0.322 (0.246)	0.206* (0.103)	0.722** (0.276)	0.571* (0.286)
Horizontal Individualism		0.377 (0.312)		
Short-term Hedonism			0.359*** (0.085)	
Adventure versus Harmony				-0.061 (0.099)
Constant	0.296 (0.449)	1.702* (0.756)	0.361 (0.594)	1.058 (0.615)
overall R2	0.552***	0.473***	0.571***	0.486***
N	391	283	276	280
n	136	96	94	95

* p<0.05, ** p<0.01, *** p<0.001

Table 16-2 Hofstede factors instrumental effect for safety net effect on SWB, controlling for logged income, for higher income countries

	Model 1	Model 2	Model 3	Model 4
logged PPP	-0.018 (0.134)	-0.326* (0.154)	0.147 (0.126)	-0.180 (0.143)
SQ Factor: safety net	1.607*** (0.438)	0.502 (0.572)	1.506*** (0.386)	1.540** (0.484)
Horizontal Individualism		0.507** (0.161)		
Short-term Hedonism			0.512*** (0.091)	
Adventure versus Harmony				0.235 (0.131)
Constant	4.890*** (1.381)	9.161*** (1.741)	3.445** (1.315)	6.687*** (1.465)
overall R2	0.075**	0.107***	0.365***	0.041**
N	184	171	172	168
n	63	58	59	57

* p<0.05, ** p<0.01, *** p<0.001

Table 17-1 Hofstede factors instrumental effect for social empowerment effect on SWB, controlling for logged income, for all countries

	Model 1	Model 2	Model 3	Model 4
logged PPP	0.447*** (0.092)	0.375** (0.122)	0.427*** (0.117)	0.298** (0.115)
SQ Factor: social empowerment	0.732* (0.349)	0.223* (0.109)	0.846* (0.419)	1.094* (0.428)
Horizontal Individualism		0.369 (0.509)		
Short-term Hedonism			0.317*** (0.084)	
Adventure versus Harmony				-0.065 (0.098)
Constant	1.226* (0.601)	2.295** (0.831)	1.384 (0.791)	2.335** (0.783)
overall R2	0.57***	0.493***	0.593***	0.529***
N	391	283	276	280
n	136	96	94	95

* p<0.05, ** p<0.01, *** p<0.001

Table 17-2 Hofstede factors instrumental effect for social empowerment effect on SWB, controlling for logged income, for higher income countries

	Model 1	Model 2	Model 3	Model 4
logged PPP	-0.320 (0.191)	-0.368 (0.193)	-0.089 (0.190)	-0.486** (0.193)
SQ Factor: social empowerment	1.722** (0.569)	-0.066 (0.759)	1.491** (0.474)	1.825 *** (0.485)
Horizontal Individualism		0.598*** (0.173)		
Short-term Hedonism			0.470*** (0.090)	
Adventure versus Harmony				0.207 (0.128)
Constant	7.918 *** (1.512)	10.198 *** (1.539)	5.949 *** (1.566)	9.536 *** (1.608)
overall R2	0.172**	0.102***	0.424***	0.147***
N	184	171	172	168
n	63	58	59	57

* p<0.05, ** p<0.01, *** p<0.001

Table 18-1 Hofstede factors instrumental effect for political empowerment effect on SWB, controlling for logged income, for all countries

	Model 1	Model 2	Model 3	Model 4
logged PPP	0.611*** (0.050)	0.444*** (0.080)	0.613*** (0.062)	0.532*** (0.066)
SQ Factor: political empowerment	0.250 (0.225)	0.253** (0.097)	0.087 (0.298)	0.089 (0.310)
Horizontal Individualism		0.128 (0.308)		
Short-term Hedonism			0.324*** (0.086)	
Adventure versus Harmony				-0.065 (0.098)
Constant	0.085 (0.487)	1.854** (0.779)	0.345 (0.637)	1.082 (0.677)
overall R2	0.562***	0.49***	0.587***	0.518***
N	391	283	276	280
n	136	96	94	95

* p<0.05, ** p<0.01, *** p<0.001

Table 18-2 Hofstede factors instrumental effect for political empowerment effect on SWB, controlling for logged income, for higher income countries

	Model 1	Model 2	Model 3	Model 4
logged PPP	0.035 (0.148)	-0.442** (0.164)	0.230 (0.149)	-0.145 (0.156)
SQ Factor: political empowerment	0.496 (0.376)	0.699* (0.344)	0.429 (0.354)	0.569 (0.367)
Horizontal Individualism		0.590*** (0.124)		
Short-term Hedonism			0.449*** (0.094)	
Adventure versus Harmony				0.200 (0.126)
Constant	5.674*** (1.365)	10.098*** (1.535)	3.905*** (1.371)	7.492*** (1.448)
overall R2	0.128	0.156***	0.366***	0.035
N	184	171	172	168
n	63	58	59	57

* p<0.05, ** p<0.01, *** p<0.001

초 록

소득 및 사회적 요인이 주관적 행복도에 미치는 영향력의 문화적 상이성

서울대학교 대학원

사회학과

전기훈

본 연구는 주관적 행복도에 소득 및 사회지표가 미치는 영향력에 대하여 비교문화적 분석을 시도하였다. 2004년-2010년 기간 동안 총 3개 시점 및 138개국을 분석 대상이었으며, 독립변수로는 사회의 질 요인과 실질소득 로그값, 종속변수로는 국제개발 삶의 만족도를 활용하였다. 이들 간의 관계에 있어 문화 매개변수로는 문화권과 홉스테드 요인을 투입하여 각각 별도의 분석을 하였으며, 한 편으로 전체 국가군과 고소득 국가군에 대한 개별 분석도 병용하였다. 분석 결과는 다음과 같다. 첫째, 고정효과 모형에서 전반적으로 소득 수준의 변화는 주관적 행복도와 부정적 관계 양상을 보였다. 둘째, 사회의 질 4개 요인의 영향력에 있어서 서구권과 비서구권의 양상이 뚜렷하게 갈렸다. 셋째, 이들 비서구 문화권 내에서는 상대적으로 이슬람권과 동방정교권이 가장 강한 유사성을 보였다. 마지막으로, 홉스테드 요인 모형에서 수평적 개인주의는 소득 효과에 대하여 강한 매개효과를 보였으며, 사회의 질 요인 중 사회적 안전망은 홉스테드 3개 요인과 모두 유의미한 상호작용을 보였다. 이러한 분석결과의 시사점은 다음과 같다. 첫째, 2004-2010년 기간 동안에 한해서는 이스털린 패러독스가 그대로 나타났다고 볼 수 있으며, 장기적으로는 소득과 행복도 간 관계가 불규칙할 수 밖에 없음을 보여주고 있다. 둘째, 그 동안 소득의 효과라고 여겨져 왔던 것이 부분적으로는 문화적 차이로 흡수됨을 알 수 있다. 셋째, 무엇보다도, 소득 뿐 아니라 사회 진보를 나타내는 요소들도 문화적 특이성에 따라서 주관적 행복도와 다양한 관계를 맺음이 드러나고 있다.

주요어: 사회의 질, 주관적 행복도, 이스털린 패러독스, 패널 분석 방법론, 문화권, 홉스테드 가치관 지수

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