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Socioeconomic Structures and Happiness

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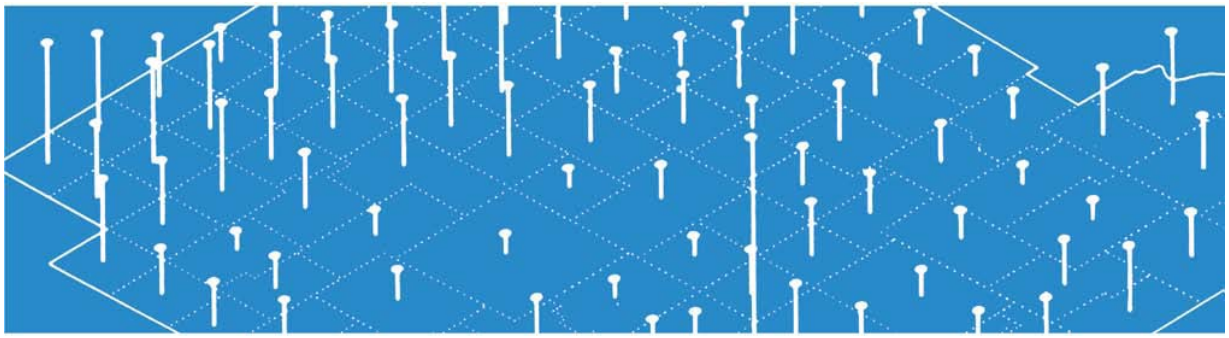

Abstract

Our research examines the role of post-industrial structures and values on happiness across the nations of the world. We argue that these structures and values shape happiness in ways that go beyond the previously examined effects of income. Drawing from previous theory and research, we measured post-industrial structures in terms of higher level education and the share of the workforce engaged in knowledge-based/ creative work. Post-industrial values were measured in terms of acceptance of racial and ethnic minorities and of gays and lesbians. Our measure of happiness is derived from a large-scale global survey of life satisfaction conducted by the Gallup Organization. We controlled for income in our analyses and divided our sample into high- and low-income countries to explore whether income has different effects on countries at different stages of economic development. Our results indicate that post-industrial structures and values have a stronger effect on happiness in higher-income countries, where the standard of living has surpassed a certain level. Income, on the other hand, has a stronger impact on happiness in low-income countries. Thus, we propose that when income rises beyond a certain level, a new system of post-industrial values centered on education, creativity, and openness become better predictors of happiness than income.

JEL: I0, J24

Keywords: happiness, income, education, occupational structure, openness

Introduction

The desire to understand what makes people happy has a long history. Earlier thinkers from Aristotle (350 BCE) to Smith (1776) to Bentham (1781) fulminated on the question of what constitutes a desirable state of being – "the good life" - for individuals. More recently psychologists, economists and social scientists have developed more formal definitions of happiness, such as subjective well-being and overall life satisfaction. There is a long line of empirical studies in psychology (Diener, Diener and Diener, 1995; Diener and Lucas, 2000; Park, Peterson and Seligman, 2004; Shimai et al., 2006; and others), behavioral economics (Kahneman and Snell, 1990; Kahneman and Thaler, 1991) and econometrics (Di Tella, MacCulloch, and Oswald, 2003; Di Tella and MacCulloch, 2008) that have sought to identify the determinants of happiness across individuals and nations. Much of this debate has revolved around the effects of money or material well-being on happiness. While it was initially found that the relationship between income and happiness only holds within and not across countries– the so-called "Easterlin effect" – more recent econometric studies by Deaton (2008) and Stevenson and Wolfers (2008) based on new data collected worldwide by the Gallup Organization have challenged this view, finding that income exerts strong effects on happiness across the board. Graham (2009) seeks to square this analytical circle calling attention to the paradox of the "happy peasant and the miserable millionaire," suggesting that while people can adapt to be happy at low levels of income, they are far less happy when there is uncertainty over their future wealth. Some have gone so far as to suggest that life satisfaction and well-being be utilized to supplement more conventional measures of economic output like Gross Domestic Product (Helliwell, 2003; Stiglitz, 2009), and Diener (2006) and Di Tella and MacCulloch (2008) among others have made the case for measure of Gross National Happiness.

Our analysis seeks to shed additional light on the ongoing income and happiness

debate, by suggesting that it is not simply the effects of income per se that shape happiness. While common sense as well as the empirical literature give credence to the view that income plays a role in shaping subjective well-being, we hypothesize that happiness stems from another structural factor associated with the level of economic development. We argue that one key, yet overlooked, determinant of happiness at the national level derives from the socioeconomic structure of nations. Our central hypothesis is that higher levels of happiness or subjective well-being will be exhibited in societies that have made the transition to post-industrial economies - those where a smaller share of the workforce is engaged in blue-collar production work and a greater share is engaged in knowledge-based and creative work. We test this proposition empirically by examining the statistical associations between happiness (measured by life satisfaction) and variables such as knowledge-based/ creative work versus blue-collar work, level of education, economic output per capita, and other factors.

The Effects of Income on National Differences in Well-being.

Most of the research that has anything to say about place and well-being has focused on national differences (Veenhoven, 1993; Diener and Diener, 1995; Diener, Diener, and Diener, 1995; Diener and Lucas, 2000; Steel and Ones, 2002; Diener, Oishi, and Lucas, 2003; Inglehart and Klingemann, 2000; Lynn and Steel, 2006). The results from several international studies show consistent national differences in life satisfaction. For example, Canada, Denmark, Switzerland and the US invariably have well-being and life satisfaction scores near the top of the rankings, while many nations in Eastern Europe and Africa score near the bottom (Veenhoven, 1993; Diener, Diener and Diener, 1995; Diener, 2000).

Explanations for national differences in life satisfaction have frequently focused on its relationship to social and economic indicators. A considerable amount of attention has been placed on the impact of economic growth and productivity on life satisfaction (Diener, Diener

and Diener, 1995; Diener and Suh, 1997; Schyns, 1998; Diener, Oishi and Lucas, 2003). For example, Stevenson and Wolfers (2008) have recently come to the conclusion that happiness and income are closely related— that people with high incomes are happier than people with lower incomes, both in absolute and relative terms. However, it should be noted that other research contradicts this finding (see Easterlin, 1995; Veenhoven, 1991). Certainly one reason why income and GDP might be important to life satisfaction is that individuals must meet their basic needs for food, water, and shelter in order to survive. Another reason may be that wealth affords people opportunities and experiences to enrich their lives.

While income levels matter for happiness, work by Graham (2008) finds the relationship between the two is relative. Noting the paradox of the "happy peasant and the miserable millionaire," Graham contends that although people can adapt to be happy at low levels of income, they are far less happy when there is uncertainty over their future wealth. Thus the income effect on happiness is not only based on individual perceptions, but also on the social and economic context in which individuals are embedded. For example, the effects of unemployment on happiness tend to be larger in places where unemployment is generally low, while the effect is weaker if the individual lives in a place with high unemployment and thus the future is more uncertain. Helliwell (2003) suggests that happiness is affected by institutional factors such as governmental stability or effectiveness, and that these have a stronger effect than traditional economic metrics like economic growth and productivity. Helliwell and Putnam (2004) also suggest a strong connection between social capital and happiness, a relationship that goes beyond income effects. Using the Gallup World Poll dataset, Deaton (2008) examines the relationship between income and life satisfaction and concludes that there is a strong relationship between the two. Deaton does, however, question the usefulness of health or health satisfaction as happiness measures, as he finds such measures have little relation with life satisfaction as a whole.

Researchers have also examined the connections between life satisfaction and culture. There is evidence that cultural differences in individualism and collectivism are associated with national well-being (Diener and Dieter, 1995; Hofstede, 2001). One explanation for the link between life satisfaction and individualism is that individualistic societies encourage diversity in thought and behavior, thus allowing people to pursue a wider variety of opportunities than in collectivistic cultures. Moreover, in individualistic cultures success is more closely related to personal ability, so individuals derive more self-esteem and self-confidence from their accomplishments than do people in collectivistic cultures. Interestingly, Schmitt et al. (2008) found that more prosperous, healthy and egalitarian cultures tend to have wider differences in personality traits between the sexes, evidence that as increasing numbers of people pursue their personal interests, modes of self-expression and lifestyles, they experience and are exposed to greater levels of diversity.

There is also evidence suggesting that nations with high life satisfaction maintain higher standards of human rights and social equality. Specifically, the assertion is that nations that protect the rights of people of a different gender, race, nationality, religion, or sexual orientation afford a greater proportion of their populations the freedom to pursue a life that is satisfying and rewarding (Inglehart, 1990). Thus, in societies where people are allowed to be themselves without fear of persecution or ostracism, individuals are more satisfied with their lives. Schmitt et al. (2008) found that places with greater personality differences between the sexes tend to have higher life satisfaction.

Overall, research on cross-national differences in life satisfaction shows clearly that life satisfaction is not uniformly distributed around the world, but instead that it is substantially higher in certain places. In nations where basic needs are taken care of, where people have the freedom to be themselves, and where differences are tolerated, people appear to be generally happier. Given these clues about which aspects of place are related to life

satisfaction, we proceed to our own contribution to this research stream.

Post-Industrial Transformation

There is a substantial literature documenting the transformation from industrial to post-industrial economies and societies. Nearly a half-century ago, Machlup (1962) identified the rise of the knowledge economy and was the first to attempt to measure the production and distribution of knowledge in the United States. His research revealed that total knowledge-production in 1958 was approximately 29 percent of adjusted GNP, and that higher proportions of knowledge-producing labor in the economy are associated with economic growth. Around the same time, Drucker (1967) coined the term "knowledge worker" to refer to the emerging social group of workers who understand how to apply knowledge to productive use. This construct was later expanded to one of a "knowledge society" (Drucker, 1993) characterized by economic, social, and geographic change, where the traditional means of production are replaced by human capital and new institutional structures. Bell (1973) predicted the rise of a "post-industrial society" led by an increasingly powerful class of highly educated scientists and technocrats. Similarly, Reich (1991) described the rise of what he termed "symbolic analysts"— a sector of workers comprising engineers, scientists, executives, and professors, whose work involves processing and manipulating information and symbols. Moreover, Fussell (1983) argued for the rise of a new "X class" made up of aspirational young people devoting themselves to creative work that liberates them from traditional offices and management structures. Empirical support for these transformations revealed that as of 1996, the "scientific, professional and knowledge economy" (defined as industries where at least 5 percent of the workforce has graduate degrees) accounted for 36 percent of US employment (Brint, 2001).

Florida (2002) documents the rise of the creative class, which is engaged in analytical

and creative thinking and includes workers in science and technology; arts, culture and design; media and entertainment; business and management; law; healthcare and education. The creative class has been growing substantially for decades, while the proportion of blue-collar workers has been declining in the United States and other advanced nations. Empirical studies have found that the creative class makes up between a third to more than forty percent of the workforce in these nations, with Northern European and Scandinavian nations having the highest concentrations (Florida, 2004; Boschma and Fritsch, 2007; Clifton, 2008).

Post-industrial structures have been found to be associated with a significant shift in values. For example, data from the World Values Survey, which began tracking 22 countries in 1981 and now tracks over sixty countries (www.worldvaluessurvey.org) suggests that the shift from older "materialist" to more contemporary "post-materialist" values is closely associated with the shift to post-industrial economic structures (Inglehart, 1989; 1997). This shift revolves around a movement away from traditional religious values, conformity, norms about seniority, conventional views about gender and sexuality, and redistributive interest-group politics to new values that are more secular in nature, encourage self-expression and individualism, openness and tolerance, and favor public goods over redistribution (e.g., the rise of environmental awareness). Inglehart and colleagues (1977, 1990, 2000) found the shift to post-materialist values to be most pronounced in the Northern European and Scandinavian nations. Nonetheless, they argue that across the advanced nations, people show less interest in traditional institutions, political parties, social class, and organized religion. Furthermore, politics has become increasingly concerned with issues around individual freedom, individual rights, and the right of self-expression (Inglehart, 1977, 1990; Inglehart and Baker, 2000).

Overview of the Present Research

The present research examines whether social structures affect life satisfaction.

Consistent with Stevenson and Wolfers' (2008) national level research, we expect individuals who live in wealthy nations to be happier, on average, than those who live in poorer countries. Moreover, based on previous research indicating that people in democratic and tolerant societies are happier than those in restricted and less open societies (Diener, Diener and Diener, 1995; Hofstede, 2001), we expect life satisfaction to be comparatively high in nations that are inclusive and accepting of alternative lifestyles and cultures. This latter hypothesis is particularly important, as previous work suggests that freedom, equality, and social relationships have greater influence on well-being in wealthy societies compared to poor ones (Diener and Seligman, 2004).

Our central hypothesis is that national levels of happiness and subjective well-being are higher in nations with post-industrial socioeconomic structures and post-materialist values than in the less advanced nations. We further suggest that there are at least two distinctive mechanisms driving this difference. One mechanism is employment. Results from a number of studies indicate that well-being is positively related to job satisfaction (Diener and Seligman, 2004), and job satisfaction is linked to job complexity (Judge, Thoresen, Bono, and Patton, 2001), the range of skills used on the job (Glisson and Durick, 1988), person-job fit (Roberts et al., 2007), and perceived control over one's work (Grebner, Semmer, and Elfering, 2005). Given that post-industrial societies are characterized by highly skilled and creative occupations, it is conceivable that well-being is higher in such societies because more individuals are engaged in jobs that offer more satisfying work experiences compared to industrialized societies. Therefore, larger proportions of people in postindustrial nations should derive satisfaction from their jobs and, as a result, experience greater life satisfaction compared to individuals in industrial nations. Also, individuals in creative-knowledge-professional jobs experience lower rates of unemployment than those in blue-collar industrial work or lower-skill service jobs (Martin Prosperity Institute, 2009). Individuals in creative-

knowledge-professional work also tend to have higher-level and more flexible skills which enable them to switch jobs more readily than others when laid off, or to find new more fulfilling employment if their job becomes less interesting.

A second mechanism that could contribute to social structural differences in well-being is education. Post-industrial nations are characterized by large proportions of knowledge workers, the majority of whom have advanced levels of education. While previous studies have not found a close relationship between education and well-being (Diener, 1984; Diener, Suh, Lucas, & Smith, 1999), we propose several mechanisms through which education affects happiness. Nations with more educated individuals may be comparatively high in life satisfaction because education affords many opportunities and experiences that are linked to happiness. For example, education is positively related to social mobility, income, occupational status, and negatively related to depression (Lipset and Bendix, 1959 ; Mincer, 1974; Becker, 1993; Mirowsky and Ross, 2003). Education is also associated with more stable marriages and family ties - factors that are closely correlated with subjective well-being. Research has found adults in the US (Glenn and Supancic, 1984) and Norway (Lyngstad, 2004) who complete college have lower levels of divorce and more stable marriages than less well-educated households. More educated individuals postpone marriage and have more opportunities over time to select more suitable partners (Dixon, 1978; Goldstein and Kenney, 2001). Higher levels of education, in particular a college level of education, affords greater of work and occupation and studies of job satisfaction note a close connection between challenging work and happiness (Judge, Thoresen, Bono, and Patton, 2001). Education is also closely associated with unemployment. College-educated adults in the United States face levels of unemployment that are markedly lower than those for high-school graduates and even more so for individuals without high school degrees. Furthermore, education is strongly related to open-mindedness and having progressive values (McCrae,

1996; McCrae & Sutin, 2009), which, at a national level, could underlie the tolerance and acceptance of minority groups reported in previous studies (e.g., Diener et al., 1995; Inglehart, 1990). In these ways, education affords people opportunities and resources to enrich their lives and thus has an indirect effect on happiness. Because levels of education are higher in post-industrial societies, it is conceivable that education contributes to national differences in well-being.

Data, Variables and Methods

In order to examine the relationship between life satisfaction and post-industrial structures, we examined national levels of life satisfaction with GDP per capita, as well as variables related to post-industrialism, including the proportion of citizens with higher education, the proportion of individuals working in creative, service, and manufacturing occupations, and variables tapping national levels of openness and inclusiveness.

Life Satisfaction

National life satisfaction data were obtained from The Gallup Organization's World Poll for the year 2009. The survey is based on approximately 1,000 interviews per country (adjusted depending on population size) and takes place in approximately 150 countries. The sample represents roughly 95 percent of the world's adult population and is stratified proportionally with the distribution of the population across cities and rural areas of different sizes (for more information about the sampling procedure see Gallup, 2010a). The target population is all civilian, non-institutionalized ages 15 years or older. The interviews are conducted by telephone in countries where at least 80 percent of the population has access to telephones, and in most other countries conducted face-to-face (for more information about the methodology see Gallup, 2010b). Life satisfaction is measured using a standard set of

core questions in which individuals ranked their satisfaction of life today from 1 to 10, where 10 reflected the highest level of satisfaction.

Economic Performance

Gross Domestic Product (GDP) per capita is a standard measure of economic performance. This measure is based on 2005 data from the World Development Indicators.

Post-Industrial Indicators

Human Capital. This variable is based on the World Development Indicators Tertiary Education Enrollment data, expressed as the share of the proper age group enrolled in tertiary education. Tertiary education includes training at a wide range of post-secondary education institutions, including technical and vocational schools, community colleges, and universities, which normally require as a minimum condition of admission the successful completion of education at the secondary level. Since these data are not reported for each country every year, we calculate an average of the reported numbers for the years 2001-2006.

Creative class. This cluster, or class of occupations, is based upon previous research (Florida, 2002) and is composed of individuals who engage in complex problem solving that involves independent judgment and requires high levels of education or human capital. The group includes occupations in computer science and mathematics; architecture, engineering; life, physical, and social science; education, training, and library science; as well as arts and design work, work in and entertainment, sports, and media – and also professional and knowledge work occupations including management occupations, business and financial operations, legal positions, healthcare practitioners, technical occupations, and high-end sales and sales management. This variable is measured as a share of the total employed labor force. The data used to compute it are reported annually per country and compiled by the

International Labor Organization. For the present study, we calculated an average of the reported numbers for the years 2001-2007 to obtain a reliable estimate.

Service class. We define service class as the proportion of a nation's residents who work in routine service occupations. Routine service occupations are based on occupational data from the International Labor Organization and measured as share of the national employed labor force in more traditional and standardized services (separated from more knowledge-based services). Routine service occupations include food preparation and food-service-related occupations, building and grounds cleaning and maintenance, personal care and service, low-end sales, office and administrative support, community and social services, and protective services. We calculate the average of the reported service class numbers for the years 2001-2007.

Working class. This group consists of occupations related to construction and extraction, installation, maintenance and repair, production, transportation and material moving occupations. The variable is measured as share of the regional labor force. The data is from the International Labor Organization. We calculated the average proportion of workers in manufacturing for the years 2001-2007.

Social Tolerance and Acceptance

One of our primary interests concerns the associations between national life satisfaction and social tolerance. To that end, we employ indicators of social tolerance and openness towards gays and racial minorities.

Acceptance of gays and lesbians. To measure acceptance of gays and lesbians, we used data from the 2009 Gallup World Poll survey, which asks respondents to indicate whether their place is a good place for gay and lesbian people to live. We use the share of the population that endorses that statement as our variable indicating acceptance of gays.

Acceptance of racial and ethnic minorities. Acceptance of racial and ethnic minorities is assessed using data from the 2009 Gallup World Poll survey. The survey includes a question asking respondents to indicate whether their place is a good place for racial and ethnic minorities to live. We employ the share of the population that endorsed that statement for our variable as an indicator of acceptance of members of such groups.

Results

We now turn to our results. The descriptive statistics for all the variables and indicators can be found in Table 1. We also split the descriptive statistics into low- and high-income countries with a cutoff at US $11,000, with the aim of getting at the different dynamics of life satisfaction in each set of countries.

(Table 1 about here)

We begin by providing simple correlation coefficients between life satisfaction and key measures for income (GDP per capita), and post-industrial variables represented by educational and occupational measures, as well as tolerance and openness measures. The subsequent section summarizes the key findings from bivariate relations between life satisfaction and the other variables. Since earlier research has suggested a relationship between income levels and life satisfaction, we also conducted partial correlations to control for the effects of income. Also, since earlier research has suggested a non-linear relationship between life satisfaction and income, we speculate that the marginal happiness effects from higher levels of income may be quite different from those at lower levels of income. We therefore split the sample into high- and low-GDP per capita income countries, with a cut-off at the US$11,000 level, roughly at the level of the World Bank definition. We re-run the same bivariate and partial correlations once more to examine possible differences between the high and low income groups. To further examine these relationships, we now move on to a series of scatter plots. For all relationships we run scatter plots for three different set of

countries: all countries, low-income countries and high-income countries.

(Table 2 about here)

Table 2 provides bivariate and partial correlations for all key variables. Looking at the bivariate correlations for all countries (Table 2, column 1), we observe a strong and significant relationship between GDP per capita and Life Satisfaction (.80). This suggests that people living in wealthy nations, where the standard of living is high, are more satisfied with their lives compared to people in less wealthy nations. This finding is consistent with previous research.

(Figure 1 about here)

Figure 1 is evidence of a linear relationship between life satisfaction and GDP per capita. High-income countries also experience higher levels of life satisfaction. On top of the fitted line, we find the Netherlands, Canada, Switzerland and the Scandinavian countries. Below the fitted line, we find Kyrgyzstan, Cambodia, Mongolia and Moldavia. Japan, Hong Kong and South Korea all experience lower levels of life satisfaction than expected given their level of GDP per capita. These outliers are also clearly exposed when we split the scatter plots into low and high-income countries. For low-income countries, the relationship is still relatively linear.

Comparing the bivariate correlations for low- and high-income countries (as shown in data columns 3 and 4 in Table 2), indicates that the correlations between GDP per capita and Life Satisfaction are lower for high-income countries (.52) compared to low-income countries (.62). Although the correlations are statistically significant in all three cases, they do not significantly differ from one another at the 5 percent level.

We next examine the links between educational attainment and life satisfaction. As

can be seen in the second data row in Table 2, there is a significant relationship between human capital and life satisfaction (.488). However, in subsequent analysis of this relationship among low- and high-income nations (Table, columns 3 and 4) the correlations are comparatively smaller and not significant (-.03, .25, low- and high-income nations, respectively). When we control for GDP (columns 4 though 6), the correlations among all countries drop substantially, but become larger when we examine low- and high-income nations separately (-.32 and .40 for low and high-income nations, respectively). This suggests that the relationship between educational attainment and life satisfaction varies as a function of national wealth. It is conceivable that highly educated people who live in low-income countries are less satisfied with life because they may have fewer opportunities to apply and use the skills they have developed.

(Figure 2 about here)

Figure 2 shows a significant relationship between life satisfaction and educational attainment. There is, however, a larger variance among the observations compared to the GDP per capita scatters above. Above the fitted line, we find Scandinavian countries such as Finland, Sweden, Norway and Denmark, together with New Zealand, Australia and the United States. Beneath the fitted line, we find countries like Cambodia, El Salvador and Indonesia. Russia, Latvia, Lithuania, South Korea and Ukraine all perform below expected life satisfaction, given their educational attainment levels. Ireland, the Netherlands and Switzerland all have higher levels of life satisfaction than expected, given their educational attainment levels. When we split the sample between low- and high-income countries, the linearity between the two variables disappears in both cases.

A similar pattern of relationships emerges for life satisfaction and share of the labor force in creative jobs. As can be seen in Table 2, across all countries the correlation between life satisfaction and the creative class is quite strong, but when we analyze low- and high-

income nations separately, only high income countries display a positive relationship between life satisfaction and creative jobs (.76). Furthermore, when we control for GDP per capita for all countries (data column 4), the link between life satisfaction and creative jobs drops (.10), but when we analyze low- and high-income countries separately, the size of the correlations becomes larger or stays about the same (data columns 5 and 6). Specifically, low-income countries display a negative relationship between life satisfaction and creative jobs (-.31) while high-income countries show a positive relationship (.72). This suggests that people who live in low-income countries with high shares of creative jobs experience lower levels of life satisfaction compared to people in high-income nations.

We now turn to the relationships between life satisfaction and the service class share of the labor market. For all countries (data column 1), there is a strong and significant correlation between life satisfaction and service class (.45), but different patterns of results emerge when we analyze low- and high-income countries separately. Among low-income countries the relationship remains positive (.48) and among high-income countries the link is negative, but not at a statistically significant level. When we control for GDP per capita across all countries, the significant relation between service class and life satisfaction is eliminated, but the correlations stayed moderate in size for low-income countries (.33) and increased for high-income countries (-.57). These results might suggest that in low-income countries a higher share of service jobs is a sign they are undergoing an economic transition, moving from manufacturing-based production to an economic system that is more dependent on services. This step usually implies higher wage levels in general, and therefore a relatively higher standard of living. In high-income countries, by contrast, higher shares of standardized service jobs may instead signal a lack of knowledge-based production and relatively lower wage levels and standard of living.

(Figure 3 about here)

As shown in Figure 3, in all countries the relationship between life satisfaction and the creative class stays relatively constant up until a certain point. After the creative class share reaches approximately 40 percent, most countries experience higher levels of life satisfaction than expected, compared to countries with creative class shares below 40 percent of the labor force. Countries with creative class shares above 40 percent include the Netherlands, Switzerland, Norway, Finland and Ireland. Countries with lower shares of creative class include Cambodia, Indonesia, El Salvador, Honduras and Dominican Republic. This pattern is also reinforced in the split sample, where we find no significant relationship between life satisfaction and creative class for low-income countries, but a positive relationship among high-income countries.

(Figure 4 about here)

Figure 4 demonstrates that the relationship between service class share and life satisfaction is not strictly linear, but comprises a large group of countries with a service class share ranging from 10 to 30 percent. A few outliers emerge where the life satisfaction levels are rather low given their service class shares (Chile, Colombia, Japan and Venezuela). When these countries are excluded from the full sample, the correlations increased slightly from .45 to .49. The relationships for low-income countries are very similar to those for all countries. For high-income countries, we found no significant relationship at all.

Across all countries, the correlation between share of the workforce in working class jobs and life satisfaction was negative and significant (-.32), but when low and high-income nations are analyzed separately, the relationship is small and non-significant among low income countries (.18) and large and negative among high income countries (-53). When we control for GDP per capita, the results reveal a significant negative relationship between life-satisfaction and manufacturing for high income countries remains (-.370).

(Figure 5 about here)

Figure 5 shows a weak and negative relationship between life satisfaction and the working class share of the labor force across all countries. Countries with lower levels of working class jobs tend to have large creative class shares, e.g. New Zealand, the US, Belgium, the UK, Netherlands and the Scandinavian countries. Cambodia, Georgia and Kyrgyzstan all scored low on life satisfaction and have small shares of manufacturing class workers, but they do not have large shares of creative class workers – employment there is predominantly in fishing and farming. Such countries are at an even earlier stage in the economic transformation and have lower shares of standardized service jobs. When we divide the sample into high- and low-income countries, we find no significant relationships for the latter group. Among high-income countries, however, we find a clear negative and significant relationship. High-income countries with large shares of manufacturing class jobs score lower in terms of life satisfaction (e.g., Portugal, South Korea, Hong Kong, Slovenia and Japan).

While higher educational attainment and creative class occupational structures are two signs of post-industrial transformation, higher levels of tolerance and acceptance are also indicators of more developed societies (e.g. Inglehart, 1989; 1997). With that in mind, we examine the relationships between life satisfaction and two types of openness: tolerance in relation to gays and lesbians and tolerance in relation to racial and ethnic minorities. Across all countries, there is a positive correlation between life satisfaction and both types of tolerance (.78, .63, gays and racial minorities, respectively). The positive correlations between life satisfaction and the two tolerance indicators remain when we analyze low-income countries (.47, .36, tolerance of gays and racial minorities, respectively) and high-income countries (.75, .50, tolerance of gays and racial minorities, respectively) separately. The results from the partial correlations, which hold GDP per capita constant, reveal positive correlations for all countries (.47, .34, tolerance of gays and racial minorities, respectively). The relationships are comparatively weaker, but when we analyzed low and high-income

nations separately we found interesting results. Among low-income countries, the relationship between life satisfaction and the tolerance indicators was no longer significant (.23, .22, tolerance of gays and racial minorities, respectively). In other words, increased tolerance as a factor influencing increased life satisfaction appears to be a reflection of higher income as well. Among high-income countries, higher levels of tolerance imply higher levels of life satisfaction, which do not appear to be driven by an increase in income levels (.69, .43, tolerance of gays and racial minorities, respectively). Overall, these findings suggest that people are happier in nations where individuals are open and accepting of alternative lifestyles and cultures.

(Figure 6 about here)

Figure 6 shows the relationship between life satisfaction and acceptance of gays and lesbians. For all countries, we find a linear and positive relation between the two, indicating that open and tolerant countries are places where people experience higher levels of life satisfaction. The Netherlands, Canada, Spain, Ireland, and the Scandinavian countries all rank high on tolerance of gays and lesbians. In contrast, Georgia, the West Bank and Gaza Strip, Kyrgyzstan, Indonesia and Moldova all rank near the bottom. When we divide the sample, we find a somewhat weaker but still significant relationship for low income countries. Jamaica, Belize, Panama, Costa Rica and Mexico all displayed higher levels of life satisfaction than expected given their openness to gay and lesbian people level. Uruguay displays less life satisfaction than expected given its tolerance level. Among high-income countries, the slope is steeper. Portugal and Hong Kong score lower than expected in terms of life satisfaction given their tolerance levels.

(Figure 7 about here)

Figure 7 shows that the relationship between life satisfaction and tolerance of racial and ethnic minorities is similar the plot for tolerance of gays in Figure 6. Clearly, countries

with higher levels of openness to racial and ethnic minorities are countries with higher levels of life satisfaction. Canada, New Zealand, Ireland, Australia and the United States ranked at the top of the fitted line and the West Bank and Gaza Strip, Cambodia, Moldova, and Ukraine all fell near the bottom. Among the low-income countries, the Czech Republic, Mexico, Panama and Costa Rica all display relatively high levels of life satisfaction given their tolerance of racial and ethnic minorities. At the same time, Georgia and Macedonia have lower levels of life satisfaction given their openness levels. In the high-income countries group, we found the same group of countries as in the scatter for all countries (Canada, New Zeeland, Ireland, Australia and the United States). Taken together, these results suggest that life satisfaction is high in countries where people are tolerant and accepting of homosexuals and racial and ethnic minorities.

Conclusions

Our research examined the effects of post-industrial socioeconomic structures and related values on happiness across nations. Starting from the ongoing debate over the effects of income on happiness, we hypothesized that post-industrial structures – namely the shift from lower-skill industrial work to more knowledge-oriented and creative work associated with higher levels of educational attainment – would have an effect on happiness that operates in addition to income.

Our findings supported this hypothesis. Consistent with previous work, we found that GDP per capita was strongly related to life satisfaction. And consistent with our predictions, all the postindustrial economic and value indicators were significantly related to life satisfaction. However, when GDP per capita was held constant, only the associations with the value indicators remained statistically significant. These findings suggest that, all else being equal, national levels of life satisfaction are closely tied to post-industrial values of tolerance

and acceptance of minorities.

However, the relative importance of the indicators became clearer when high- and low-income countries were analyzed separately. In lower-income countries, GDP per capita, share of service-class jobs, and social tolerance were all positively related to life satisfaction. But when GDP per capita was held constant, only service jobs remained positively related to satisfaction, and human capital and creative capital emerged as negative correlates of life satisfaction. In high-income countries, post-industrial structures and values were positively related to life satisfaction. When GDP per capita was held constant, the indicators for human capital, creative class, and tolerance were all positively related to life satisfaction, while the service and manufacturing indicators were negatively related to life satisfaction.

Taken together, these results suggest that national differences in life satisfaction can be understood not only in terms of income, but also in terms of post-industrial structures and values. Indeed, education and creative occupations both contribute to national levels of life satisfaction in high-income nations. Our conclusion regarding human capital stands in some contrast to the findings of previous research, which found no close relationship between education and well-being (Diener, 1984; Diener, Suh, Lucas, & Smith, 1999).

Yet in low-income nations, it appears that income is more important. In general, at an early stage of an economic transformation, economies often experience a marginal increase in service jobs as shift from manufacturing tasks to more basic service-oriented jobs, which are relatively better paid than manufacturing jobs (Andersson, 1985; Florida, 2002). For that reason, the larger share of service jobs in low-income countries may very well have a positive effect on life satisfaction.

It is not immediately clear why human capital and creative class are negatively related to life satisfaction in low-income nations. One possibility is that in low-income countries, higher education and creative occupations broaden people's awareness of possibilities for self-

expression, wealth, and consumption that exist in more-developed countries and not in their own. A Bangladeshi web developer (creative class) is more aware of the opportunities she is missing out on by not emigrating to, say, London or Toronto, while a Bangladeshi security guard (service class) may very well be the child of subsistence farmers and feel relatively wealthy and content relative to the social circles he moves in, less aware of the opportunities that would await him in other countries and certainly less able to capitalize on his skills were he to emigrate. This goes back to Graham's point (2008, 2009) that the impact of, for example, unemployment or wealth is relative and highly dependent on the context of the individual. If you are unemployed surrounded by a prevalence of other unemployed people, the impact from unemployment on your happiness level will be less than if employed individuals dominate your surroundings. In other words, we may expect the awareness of individuals to be affected by the context created by the other individuals around them.

In general, we believe this research has the potential to inform our understanding of the critical ways in which institutions and society contribute to well-being. In light of the current findings, it is reasonable to posit that social structure and values may account for associations found between culture and well-being (e.g., Diener et al., 2003). Thus, future research that examines the combined effects of psychologically-oriented cultural variables (e.g., individualism/collectivism) and social structural variables might yield valuable information about which aspects of culture are most strongly related to national levels of well-being.

The previous research makes it clear that there is no single variable that drives national well-being. Indeed, happiness and life satisfaction are based on a combination of economic, social, cultural, and psychological factors. The results from the present study suggest that these factors operate differently in low- and high-income nations. Furthermore, it appears that the combined profile of these factors is important, not simply their absolute

levels.

While research into subjective well-being already draws on psychology and economics, we believe an even broader multi-disciplinary approach would strengthen future research in this field. Our analyses suggest that the dynamics of well-being differ distinctly at the individual and locational scales and have psychological, economic, sociological and geographic elements. Each of these factors does not simply operate in a vacuum. They work together in concert, and further research into well-being will benefit from taking a broad, interdisciplinary range of factors into consideration.

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Table 1. *Descriptive Statistics*

Full Sample

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Life Satisfaction	66	4.20	8.00	6.01	1.00
Human Capital	66	2.27	86.74	44.24	21.04
Creative Class	66	3.31	46.57	26.56	11.40
Service Class	66	9.14	46.06	24.29	7.92
Manufacturing Class	66	14.60	74.49	35.85	10.82
Openness Racial and Ethnic Minorities	66	.24	.91	.587	.14
Openness Gay and Lesbian	66	.02	.83	.346	.22
Valid N (listwise)	66				

Low Income Countries

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Life Satisfaction	42	4.2	6.9	5.490	.70
Human Capital	42	2.27	67.97	34.81	17.00
Creative Class	42	3.31	39.18	21.12	9.23
Service Class	42	9.14	46.06	21.88	8.04
Manufacturing Class	42	14.60	74.49	39.27	11.18
Openness Racial and Ethnic Minorities	42	.24	.77	.529	.11
Openness Gay and Lesbian	42	.02	.70	.241	.15
Valid N (listwise)	42				

High Income Countries

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Life Satisfaction	24	5.4	8.0	6.90	.80
Human Capital	24	8.54	86.74	60.73	17.02
Creative Class	24	17.21	46.57	36.08	8.17
Service Class	24	21.11	45.46	28.49	5.76
Manufacturing Class	24	18.33	48.50	29.87	7.04
Openness Racial and Ethnic Minorities	24	.39	.91	.688	.13
Openness Gay and Lesbian	24	.13	.83	.530	.20
Valid N (listwise)	24				

Table 2. *Bivariate and Partial Correlations between Life Satisfaction and Post Industrial Indicators Across 66 Nations*

	Bivariate Correlations			*Partial Correlations Controlling for GDP per Capita*		
	All Countries	*Low Income*	*High Income*	*All Countries*	*Low Income*	*High Income*
GDP per Capita	.80***	.62***	.52**	-	-	-
Human Capital	.49***	-.03	.25	-.06	-.32**	.40**
Creative Class	.62***	.09	.76***	.10	-.31**	.72***
Service Class	.45***	.48***	-.23	.05	.33**	-.57***
Manufacturing Class	-.32**	.18	-.53***	-.05	.15	-.37*
Gay and Lesbian	.78***	.47***	.75***	.47***	.23	.69***
Racial Ethnic Minorities	.63***	.36**	.50**	.34***	.22	.43**

Figure Captions

Figure 1. Life Satisfaction and GDP per Capita

Figure 2. Life Satisfaction and Human Capital

Figure 3. Life Satisfaction and the Creative Class

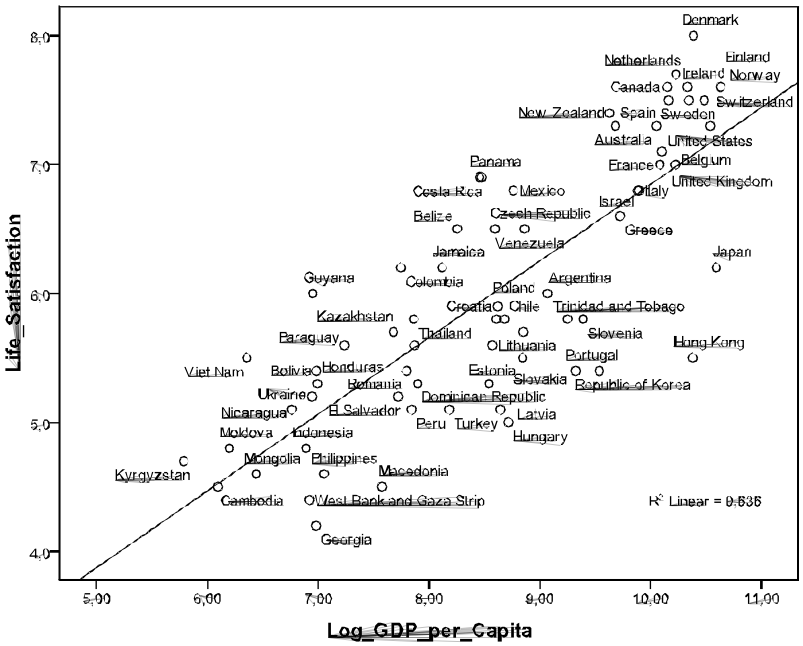
Figure 4. Life Satisfaction and the Service Class

Figure 5. Life Satisfaction and the Manufacturing Class

Figure 6. Life Satisfaction and Openness to Gay and Lesbian

Figure 7. Life Satisfaction and Openness to Racial and Ethnic Minorities

Figure 1.



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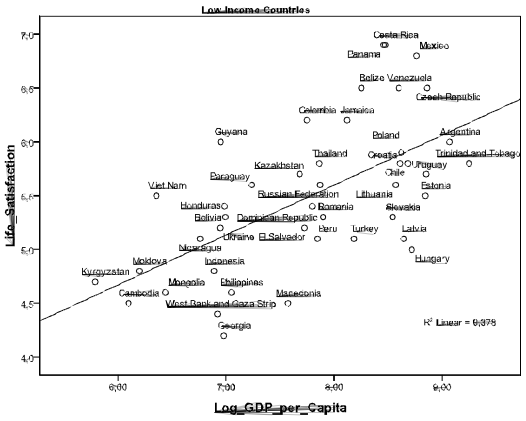
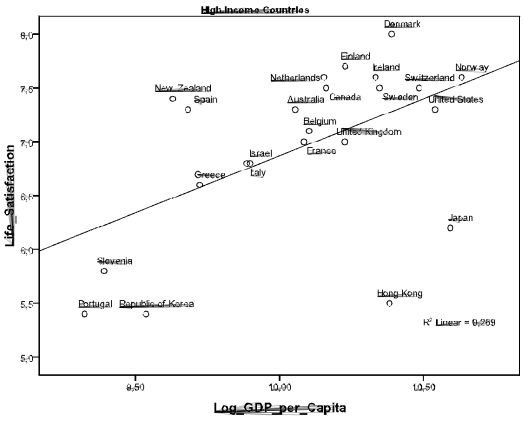
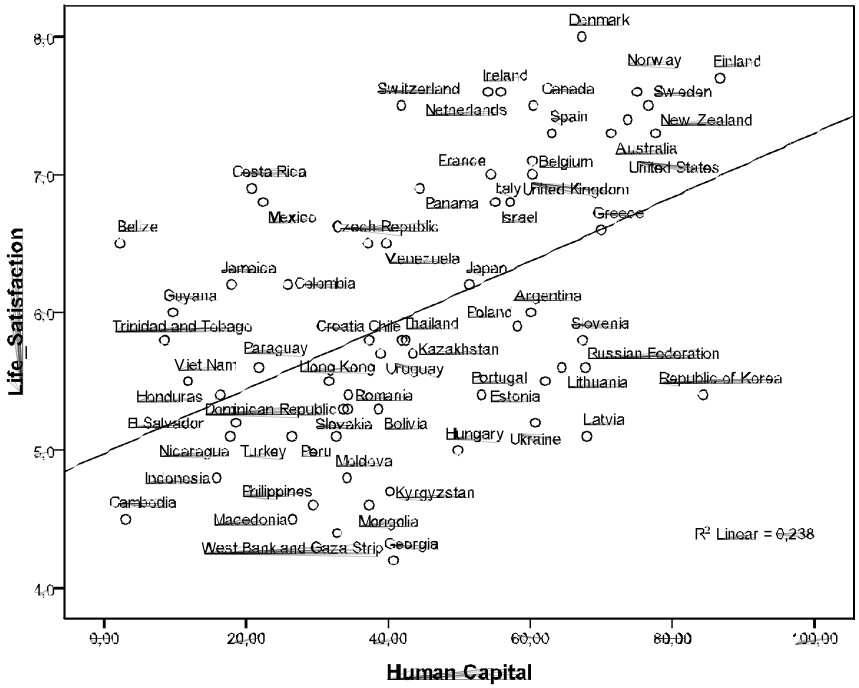


Low Income Countries



High Income Countries

Figure 2.



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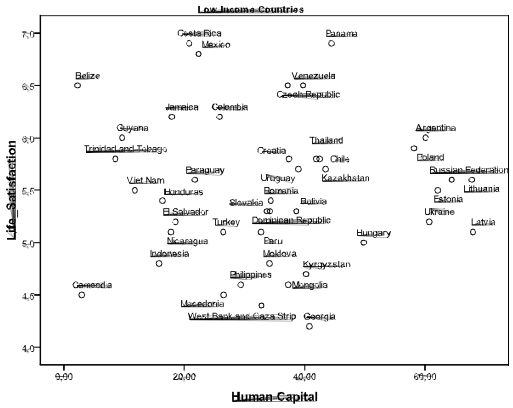

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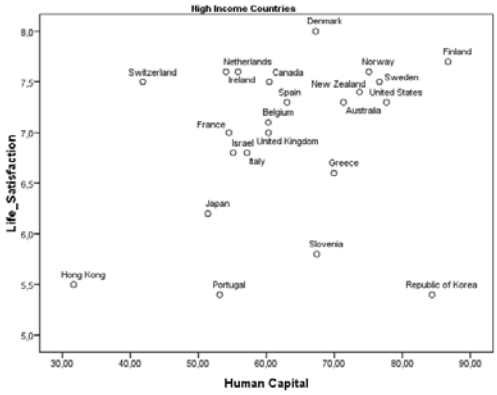
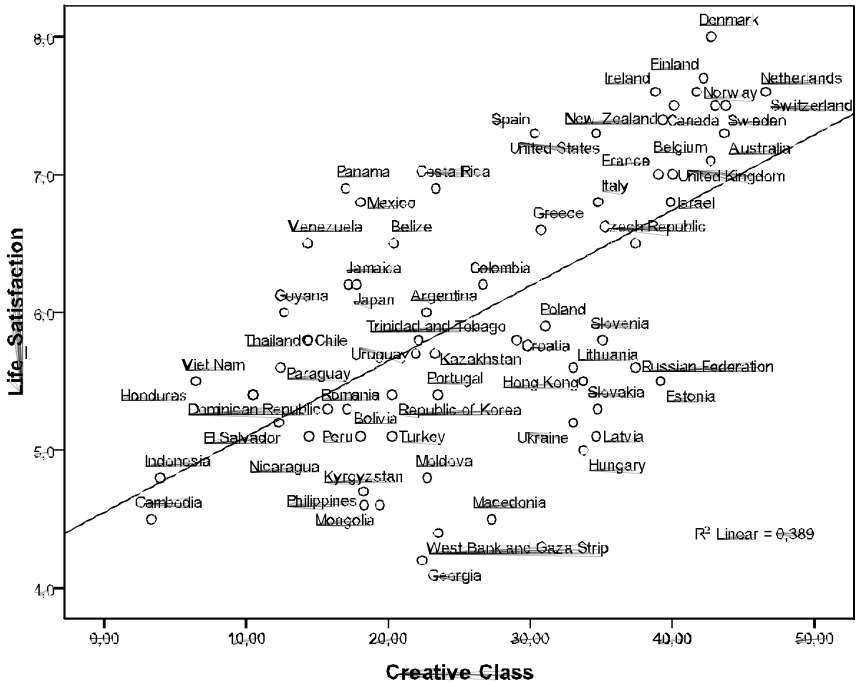


High Income Countries

Figure 3.



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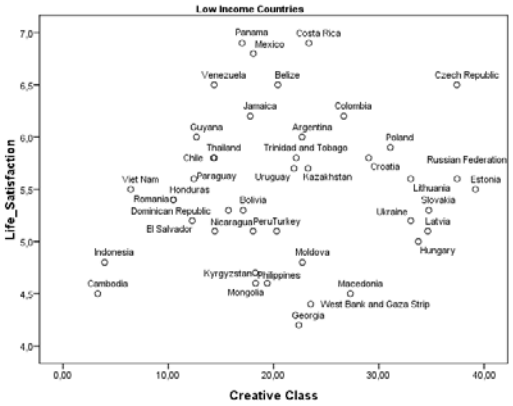

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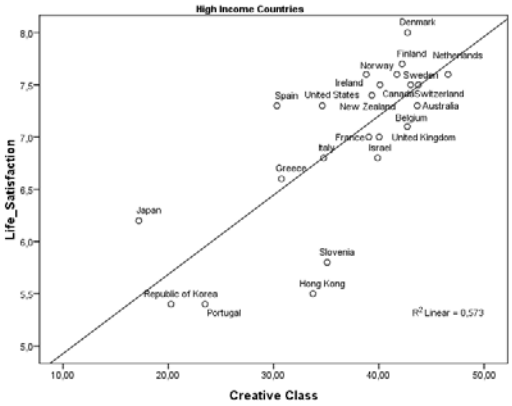
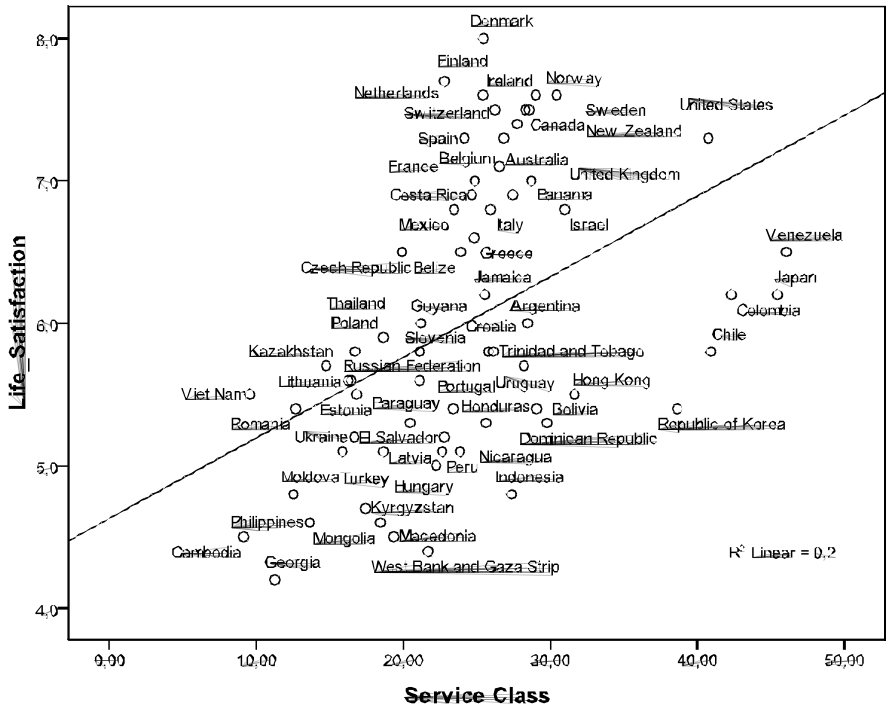


High Income Countries

Figure 4.



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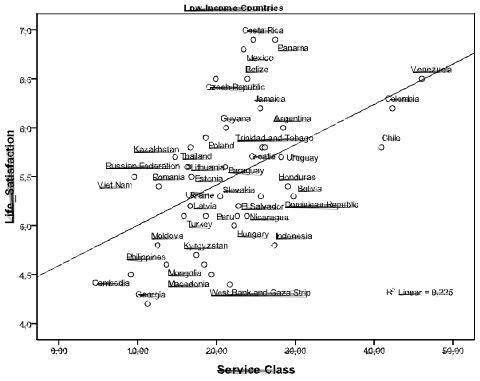

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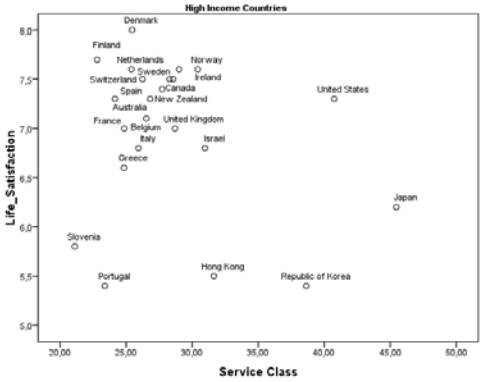
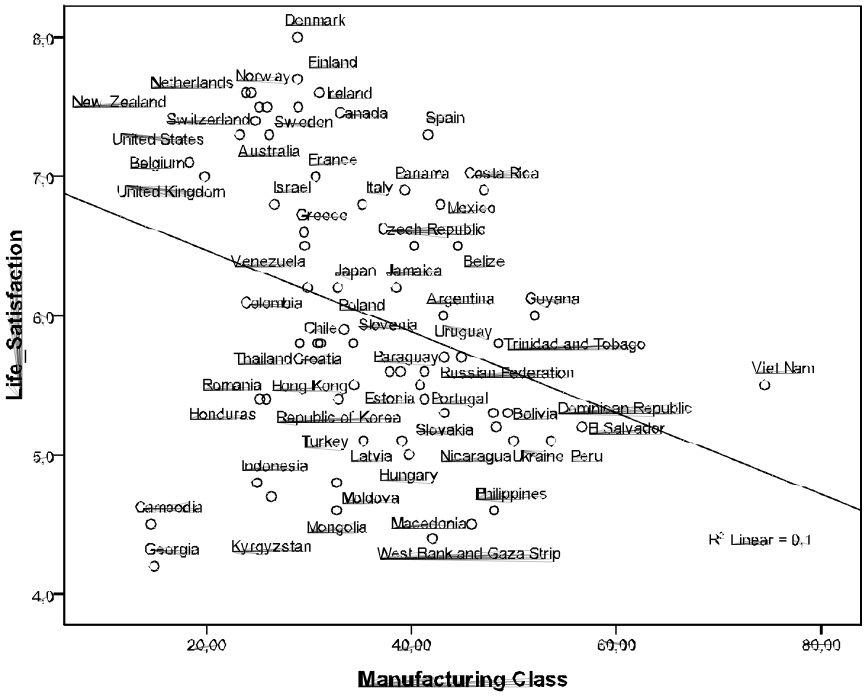


High Income Countries

Figure 5.



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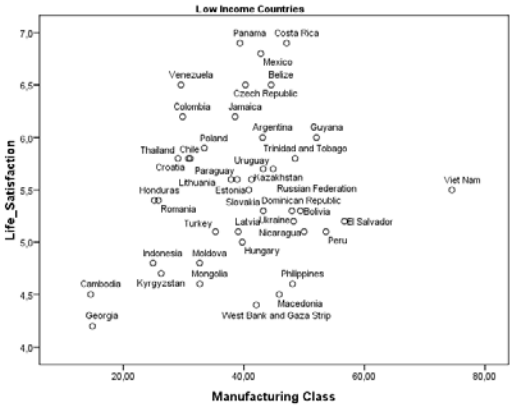

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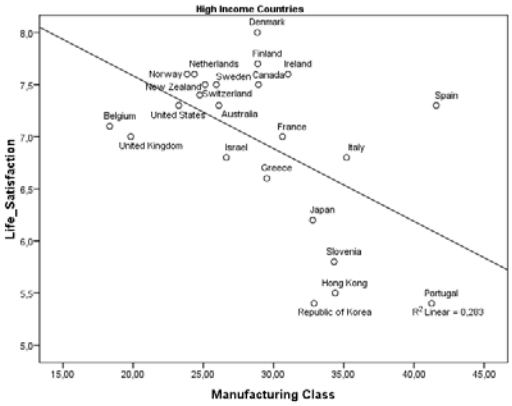

High Income Countries

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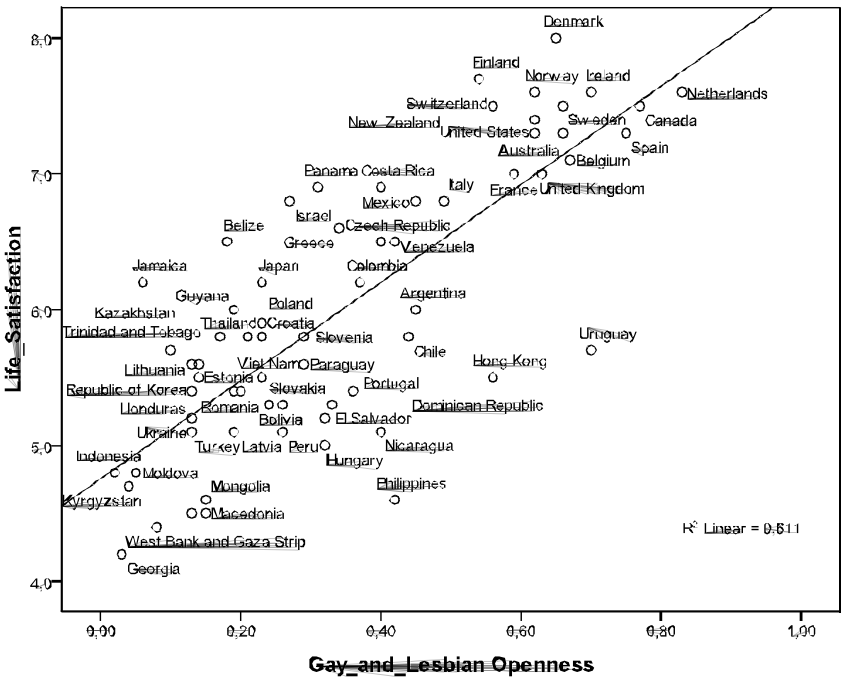

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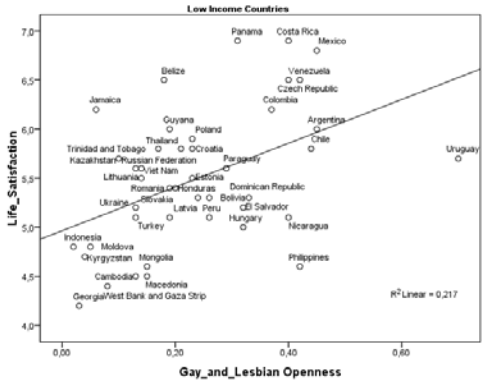

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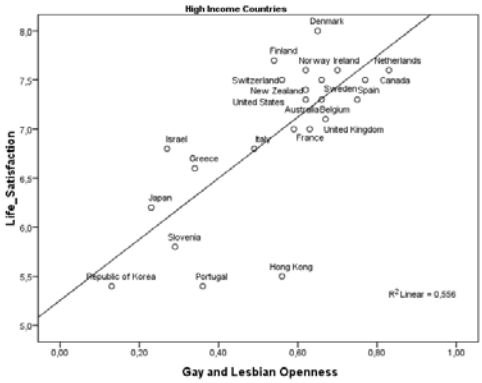
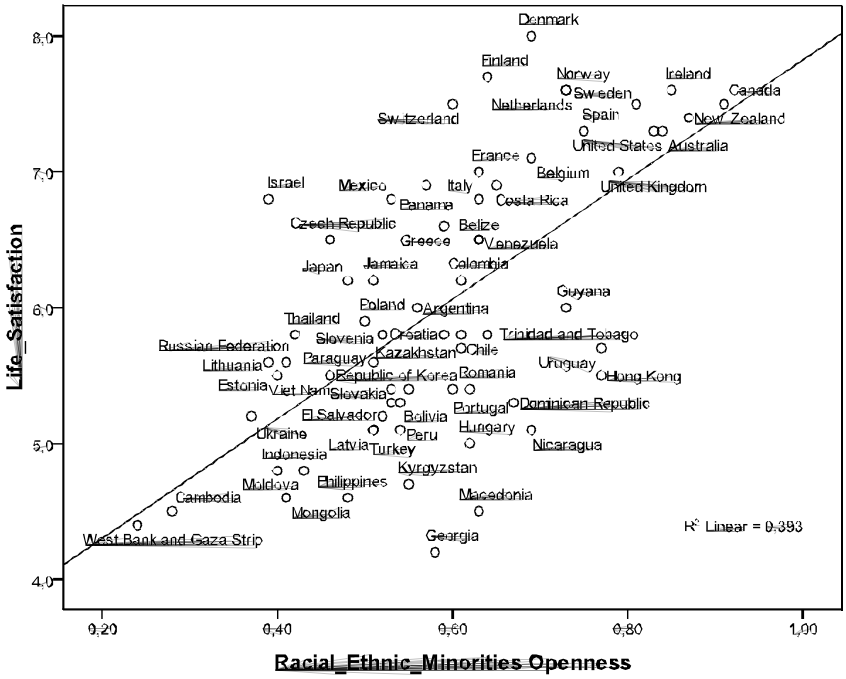


High Income Countries

Figure 7.



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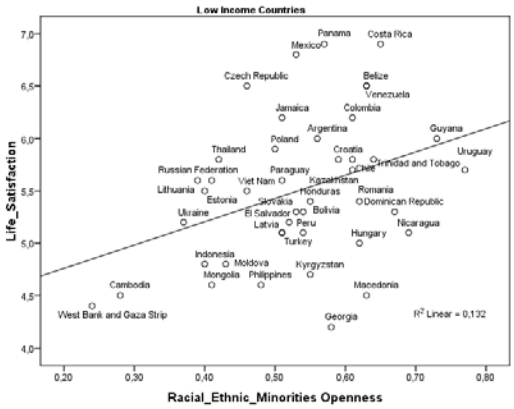

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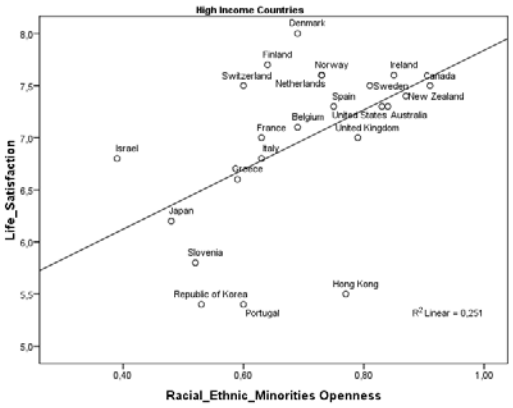

High Income Countries

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