

Understanding Subjective Well-Being across Countries: Economic, Cultural and Institutional Factors

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Abstract

The paper examines factors affecting subjective well-being across 58 countries. At the individual level, higher income and education, being female, married, and a housewife are all strongly associated with higher subjective well-being. Negative effects were observed for those who are unemployed and older. Macro variables in six categories were also examined: economic, freedom, religion, legal origin, fractionalization, and “other”. The results give evidence of the importance of cultural and institutional variables, in addition to economic ones, for understanding variation in subjective well-being. Significant differences in how the variables affect well-being across low and high income countries were also observed.

Keywords: Subjective well-being, ordered probit, national factors.

I. Introduction

Using data from the World Values Survey, the paper estimates the relationship between individual level characteristics and national factors with the subjective well-being of survey respondents from 58 countries. The underlying assumption in this line of research is that welfare or utility can be measured by answers to survey questions on the level of subjective well-being, e.g. “Taking all things together, would you say you are: 1. Very happy, 2. Quite happy, 3. Not very happy, or 4. Not at all happy.” The examination of the determinants of happiness has a rich literature in multiple disciplines. The economic literature goes back to Easterlin (1974) who examined stagnant happiness levels in the US. Studies have also investigated whether answers to such happiness surveys actually reflect utility or welfare. Generally, the research has found a positive association (see Diener (1984)). In the economic literature, Frey and Stutzer (2003) provide an excellent summary of findings on the relationship between happiness and national income, unemployment and inflation rates.

This paper extends the work of previous studies by analyzing a larger set of nations, including developing nations, and a larger set of macro variables, including cultural and institutional ones. Results show that higher GDP per capita, lower unemployment rates, and lower inflation rates are all associated with higher levels of subjective well-being. While the paper

finds no difference across high income and low income countries with regard to the association between GDP per capita and happiness, individuals in low income countries do display smaller effects in relation to changes in subjective well-being with inflation and unemployment rates. Most interesting, using the Gini coefficient as a measure of income inequality, results for high income countries reflect a significant reduction in happiness levels as income inequality increases, whereas low income countries actually achieve higher happiness as inequality increases. This latter result may be associated with the empirical observation that increased economic development is often accompanied by increasing income inequality, especially at early stages of development.

The paper also presents findings for other macro non-economic variables such as measures of freedom, religion, legal origin, and ethnic, linguistic and religious fractionalization. The estimation controls for varying mortality rates, life expectancy and geography across nations. Results also show significant differences in the effects of individual characteristics in explaining happiness levels across high and low income nations. While there is a strong positive relationship between subjective well-being, on the one hand, and income and education levels, on the other, in low income countries, happiness levels are lower for individuals with the same level of educational attainment and for those who belong to the lower part of the income distribution compared to their counterparts in high income countries. Happiness levels are also larger for individuals in the higher portion of the income distribution. Religion also displays a larger positive impact on subjective well-being in the developing world. These results add rich information to the research on subjective well-being which has primarily focused on individuals in high income countries.

The paper is organized as follows: Section 2 discusses the data and the empirical methodology used in estimating the effects of individual and macro variables on subjective well-being. The section also discusses previous work that has examined these variables, whether in the context of subjective well-being or economic growth studies. Section 3 presents the empirical findings of the paper and Section 4 concludes, discussing potential future research direction and policy implications.

II. Data and Methodology

Data measuring individual happiness levels was obtained from the latest round of the World Values Survey conducted by Ronald Inglehart et al. (2004). The data includes responses to questions for individuals in 81 different societies. Given the ordered responses that respondents give for the happiness question, an ordered probit regression is the appropriate methodology to employ in determining which factors are associated with higher levels of happiness (see Greene (2002)). In the ordered probit, it is assumed that there is an underlying latent regression that determines the response to the question:

$$(1) \quad y^* = x'\beta + \varepsilon$$

Where y^* is unobserved. The relationship between the observed response for happiness, y , and the unobservable y^* is given by the following:

$$(2) \quad \begin{aligned} y &= 1 \text{ ("Very happy")} && \text{if } y^* \leq 0 \\ &= 2 \text{ ("Quite happy")} && \text{if } 0 < y^* \leq \mu_1 \\ &= 3 \text{ ("Not very happy")} && \text{if } \mu_1 < y^* \leq \mu_2 \\ &= 4 \text{ ("Not at all happy")} && \text{if } \mu_2 < y^* \end{aligned}$$

Here, the μ 's are parameters that are estimated along with the β 's.

One can think of the unobservable regression as a proxy for a “happiness” or utility function, $U(x)$. In the current context, it is assumed there are two dimensions of variables that effect happiness: those on the individual level and those at the national level. This suggests that (1) becomes:

$$(3) \quad y_{i,s}^* = x_i' \beta_i + x_s' \beta_s + \varepsilon_{i,s}$$

x_i represents the individual level characteristics associated with happiness responses and x_s represents the macro variables. Care must be taken in interpreting the estimate of the β 's in the case of an ordered probit. Based on (3), the estimate of β suggests that an increase in an x variable will potentially cause individuals to move from their current response category, as determined by (2), into another category. In reporting the parameter estimates, the β 's and their standard errors, along with the proportion of people moving into or out of the response category 1, “very happy”, will be presented.

The individual level characteristics controlled for in the ordered probit are standard variables that others have used in studies examining subjective well-being. They include religion, gender, marital status, education level, employment status and income level, all of which are indicator or dummy variables which take on a value of one if the individual belongs to that category.¹ A total of 63,425 individuals from 58 countries are included in the sample.²

The macro variables used in the paper are classified into 6 broad categories; economic, freedom, religion, legal origin, fractionalization, and other. Appendix A gives an explanation of how each variable is measured and the source of the data. In the economic category, GDP per capita, the inflation rate, unemployment rate, and Gini index are included. Averages over 1995-2000 were used for the first three variables and the most recent available measure for the Gini coefficient. Frey and Stutzer (2003) indicate that evidence between the relationship of GDP per capita and subjective well-being is mixed and not conclusive. This is especially true in studies investigating the association of happiness and GDP per capita over time. Di Tella, MacCulloch, and Oswald (2003) found a strong positive relationship using a sample of Europeans from 11 countries and Americans. Helliwell (2003) examined data for 49 countries using the World Values Survey and found a small effect of increases in GDP per capita on life satisfaction, although there was some evidence that the effect is restricted to poorer nations whose national incomes were less than 50 percent of the US level.

In a previous paper, Di Tella, MacCulloch, and Oswald (2001) focused attention on the effects of unemployment and inflation on subjective well-being at the national level (Di Tella, MacCulloch, and Oswald (2003) also revisits this subject). Oswald (1997), Winkelmann and Winkelmann (1997), and Wolfers (2003) also examine the subject. All studies concluded that there was a significant negative impact from increases in the unemployment rate and inflation rate on subjective well-being. Alesina, Di Tella and MacCulloch (2004) examined the association between increased levels of income inequality and happiness. The authors find a negative relationship; increases in income inequality, as measured by the Gini coefficient, are negatively related to happiness levels. In contrast, Helliwell (2003) found no relationship between subjective well-being and income distribution as measured by the Gini coefficient. While these findings in the literature are robust, they are restricted to samples that only included individuals from Europe and the United States, with the exception of Helliwell (2003). The current study includes a sample 58 countries, at varying levels of economic

¹ The religious categories were selected based on the criteria that at least 1000 individuals in the sample belonged to each category.

² The full sample of the World Values Survey includes 118,519 individuals. The smaller size of the final sample is due to missing observations for variables of interest, both individual and macro variables.

development. In addition, other cultural and institutional macro variables are included to determine whether the importance of the economic variables dominate other potential factors that may be associated with subjective well-being across countries.

The second broad category of macro variables is freedom. Variables in this category include economic freedom measures such as size of government, legal structure/property rights, sound money, free trade and regulation. As Appendix 1 indicates, these variables are measured on a 10 point scale where higher values are indicative of greater freedom. Also included among the freedom variables are measures of democracy and corruption. There are various studies which examine the relationship between these freedom variables and other economic variables of interest such as per capita output or output growth. De Haan and Siermann (1998) find mixed results between the relationship of economic freedom and growth where results are sensitive to which measure of freedom is used. Alesina et al. (2002) find a negative relationship between size of government, in the form of public spending and taxation, and investment.

The literature has also found mixed results for the relationship between growth and democracy. Several studies concluded that a moderate negative relationship exists between democracy and growth, although the estimates in several instances are not statistically significant (see Tavares and Wacziarg (2001), Helliwell (1994), Barro (1996)). Abrams and Lewis (1995) actually find a positive relationship. Mauro (1995) found a significant negative relationship between corruption and growth: as corruption increases, investment levels are lower and growth rates fall. It's also the case that the economic variables may in fact affect well-being through their impact on these freedom variables. For example, Alesina and Perotti (1996) show increased income inequality increases the degree of political instability, lowering investment, suggesting that economic growth will be lower.

Veenhoven (2000) directly examines relationship between subjective well-being and freedom. Three dimensions of freedom, political, economic and personal, are included. The study shows that economic freedom has strong positive associations with happiness, but political and private less so. The positive association is mostly observed in richer nations. Frey and Stutzer (2000) find that happiness levels are higher the more developed are democratic institutions.

The third category of macro variables is religion. Four variables measuring the percent of the population in a country belonging to a particular religious group are created: Muslim, Protestant, Christian/Catholic, and "other". Religion is also included in the individual level characteristics. As such, the religion measures at the macro level are included to capture any additional effect on well-being beyond the individual effect. For example, this could reflect institutional features where countries with higher percentage of practitioners in a single religion may have influential religious institutions or traditions widely prevalent in that society that affect subjective well-being.

A country's legal origin is the fourth macro variable category. Porta et al. (1999) develop indicators for a country's legal origin and test for its relationship with the quality of government. The authors present evidence showing that nations whose legal origin is of French or Socialist origin display lower quality of government performance. They also find the same effect for countries that have a higher proportion of Catholics or Muslims, lower levels of GDP per capita, are closer to the equator, and display greater ethno linguistic fractionalization. This again suggests the potential interplay among variables of interest. Measures of fractionalization developed by Alesina et al. (2003) make up the fifth macro variable category. In their paper, Alesina et al. (2003) examine the relationship between fractionalization and economic growth, finding little relationship between growth and religious and ethnic fractionalization, but a strong negative association for linguistic fractionalization.

The final macro variable category is labeled “other” and includes the three variables, death rates, life expectancy, and latitude. Hall and Jones (1999) found a significant relationship between latitude and economic growth across countries; those countries in more temperate climates have higher output per worker. More recently a burgeoning literature has developed on the relationship between climate and economic growth (see Gallup, Sachs, and Mellinger (1999) and Masters and McMillan (2001)).

In addition to estimating the relationship of these macro variables with subjective well-being across countries, the paper also tests whether countries at varying levels of economic development display any differences using the World Bank’s income classification system. Specifically, a dummy variable, DEV_d , is created for countries belonging to the low/middle income category (henceforth called “low income countries”) of the World Bank classification system. Equation (3) is then estimated using the following interaction terms:

$$(4) \quad y_{i,s}^* = x_i' \beta_i + x_s' \beta_s + (DEV_d * x_i)' \gamma_i + (DEV_d * x_s)' \gamma_s + \varepsilon_{i,s}$$

where the size and significance of the γ ’s will indicate whether low income countries, relative to high income countries, exhibit varying impacts of both individual characteristics and macro variables on subjective well-being. The next section presents estimation results for the relationship of subjective well-being with the individual level and macro variables described above.

Results

Table 3 presents results for the basic ordered probit regression with happiness levels used as the dependent variable. The regression includes individual characteristics along with fixed country effects.³ For each variable listed in the Table, there are three columns. The first column gives the parameter estimate; the second column gives the standard error of the estimate; and the third column gives the percent of the sample that would move into or out of the highest response category (“1”) given a one standard deviation change in the independent variable. The parameter estimate for age suggests that happiness levels are lower as age increases. The third column of Table 2 shows that if age increased by one standard deviation of the sample, 12 percent of the sample would move out of the “very happy” response category into a lower level of happiness. The significance of the squared term suggests that there is some nonlinearity in happiness levels with respect to age. These results for age are common in the literature for subjective well-being.

In cases where the independent variable is an indicator variable, as is the case for all other variables in Table 3, the third column reflects the percent of the population that would move into or out of the highest happiness level if the entire sample took on that individual characteristic. The parameter estimate for divorced/separated is negative, relative to married individuals, and the third column shows that if the entire sample moved into the group, divorced/separated, 9.3 percent of the sample would move out of the response category “very happy”.

For religion, Buddhist and “no religion” are the only two variables significant at the 5 percent significance level, although Orthodox and “other religion” are significant at the 10 percent level. These estimates are relative to the religious category Evangelicals, which is excluded in the regression. The female variable is significant and positive suggesting that females are more likely to have higher happiness responses. Eight education category’s are reported in the World Values Survey and the lowest level, incomplete elementary, is the excluded

³ All of the country fixed effects are significant at the 5 percent level except for two. Results are available from the author upon request.

category in Table 3. The estimates show that education levels are important for understanding subjective well-being. Generally speaking, progressively higher levels of educational attainment are associated with greater happiness levels, with “completed university” having the largest effect.

There are also eight categories for employment status and results in Table 3 are relative to the omitted group “housewife”. Notably, every category with the exception of “student” and “other” show lower levels of happiness. As is the case in previous studies, the size and magnitude is largest for those who are unemployed. The World Values Survey also includes data on which income decile each respondent belongs to in their country. The fifth or middle decile was used as the omitted category in Table 3. Parameter estimates are significant for every income decile and the size and magnitude of the estimates indicate that higher (lower) income levels are associated with higher (lower) proportion of individuals belonging to the “very happy” response category. The lone exception is the eight decile, where the parameter estimate is smaller in absolute levels compared to that of the seventh decile. Overall, the results show there is a strong, significant relationship between subjective well-being and age, gender, marital and employment status, educational attainment, and income levels.

Table 2 presents the estimates for the six macro variable categories.⁴ In column (1) we see a strong association between GDP per capita and subjective well-being across countries. The third row shows that for a one standard deviation increase in GDP per capita in the sample 6 percent of the sample moves into the highest happiness response category. This result shows a significant, strong relationship between GDP per capita and subjective well-being. A one standard deviation increase in unemployment is associated with a 4.3 percent decline in the number of respondents belonging to the highest happiness category. Both of these results are consistent with previous findings and the results for GDP per capita provide further evidence in the debate over the relationship between national income and happiness levels.

The parameter estimate for inflation, although of the right sign, is statistically not significant. Among the variables in the freedom category, “sound money” is closely related to our measure of inflation. In fact, the correlation between the two variables in the sample is -0.72. The parameter estimate for “sound money” is significant and shows that better money policies result in a greater fraction of people in the highest happiness category. Column (2) estimates the ordered probit excluding the variable “sound money”. The parameter estimate on inflation is now significant and shows that a one standard deviation increase in the inflation rate results in a 2.8 percent reduction in the number of people in the top happiness category.

One of the most surprising results in Table 2 is the sign on the significant parameter estimate for income inequality as measured by the Gini coefficient. Increases in the Gini coefficient are associated with an increase in the number of people responding “very happy”. This result is opposite to the findings of Alesina, Di Tella, and MacCulloch (2004). Their study examined a sample of individuals in Europe and the US and it may be that the inclusion of developing countries in the current sample is contributing to the difference in the results. It is well documented in the inequality literature that early stages of development are often associated with increases in income inequality. This increasing inequality that occurs simultaneously as material well-being increases may explain the positive association between subjective well-being and income inequality in the data. This issue is examined further later in this section.

Turning to the freedom measures, all variables are statistically significant. As expected, greater democracy, less corruption, more freedom in “sound money” and legal/property

⁴ Table 2 does not present parameter estimates for the individual level characteristics. These parameter estimates are largely unchanged from those given in Table 1. Results are available from the author upon request.

rights, and freer trade are all associated with increased happiness. The estimates show, however, that less government involvement as reflected both by the size of government and its involvement in regulations results in a lower fraction of people in the highest happiness category. This suggests that welfare increases with government involvement, perhaps indicating people's desire for government to deal with market imperfections and inequalities.

The macro variables for religion indicate that there is additional gain in subjective well-being for countries with greater concentrations of the population being Muslim and Christian/Catholic. Again, this is above and beyond the individual religion effect. With regard to legal origin, relative to French origin which is the omitted category, countries of a Scandinavian origin display large positive effects. The same directional effect is observed for countries of English legal origin, although the size is much smaller. Countries with a socialist legal origin have the opposite result. These results may imply that the legal origin variables are a proxy for regional effects: the raw mean happiness scores show that Scandinavian countries have very low ordinal scores (high happiness) while former socialist countries have very low ones. It is difficult to disentangle regional and legal origin effects in this case.

While Alesina et al. (2003) found a strong negative relationship between linguistic fractionalization and economic growth, estimates in Table 5 show a significant positive relationship between subjective well-being and ethnic, linguistic, and religious fractionalization. The size of the effect for ethnic fractionalization is largest; a one standard deviation increase in ethnic fractionalization is associated with a 7.6 percent increase in the number of people in the highest happiness response category. Table 5 also shows that lower death rates and higher life expectancy result in higher levels of happiness, as one would expect based on a quality of life argument. The parameter estimate for latitude also suggests that the further is a country from the equator, the lower the fraction of people in the highest happiness category. Previous results have shown that countries in more temperate zones have higher GDP per capita. The results here show that subjective well-being may display a different relationship with latitude than does GDP per capita.

To investigate the possibility of varying responses for countries depending on their level of economic development, countries were categorized into two broad groups using the World Bank classification system: low/middle income and high income. Table 3 presents results for the estimation of equation (5) for the individual level characteristics.⁵ Estimates show that the relationship between subjective well-being and age does not differ across the two groups of countries except for the squared term which is negative and statistically significant at the 10 percent level. This suggests the nonlinearity is slightly more pronounced in developing countries.

In contrast, the results for individual religion variables do differ from previous ones. Jewish, Muslim, Protestant, Roman Catholic, and Sunni are all now significant compared to results in Table 1. In Table 3, Hindu is the only individual religious category that is not statistically significant. In all cases where there is a statistically significant difference for individuals living in low income countries (Buddhist, Jewish, Muslim, Protestant, Roman Catholic and No Religion) relative to individuals practicing the same faith in high income countries, the evidence shows that subjective well-being is higher for these individuals, holding all else constant.⁶ One possible explanation could be the larger relative importance of religion in the lives and daily affairs for individuals in low income countries.

⁵ The Macro variables were also included in the regression for Table 3, without level of development interaction terms. Results were consistent with previous findings given in Table 2 with slight change in magnitudes in some cases. Results are available from the author upon request.

⁶ All individuals in the sample that are from the Sunni religious tradition are from Pakistan. This is why there is no interaction term for this variable in Table 4.

Gender effects are the same across all countries while the effect of marital status is diminished in the developing world. Education continues to be important for understanding differences in subjective well-being although the estimate for “completed elementary” is no longer significant. Across the two groups of countries a statistical difference is observed only for three of the four secondary education categories. The size and sign of the estimates suggest that the effect of increased education on subjective well-being for individuals who have completed or achieved some secondary education relative to no elementary education is lower in low income countries. However, there is no difference across the two groups of countries for college education.

Interestingly, when the interaction terms are included, the employment status variables are largely insignificant, with the notable exception that those who are unemployed have significantly lower subjective well-being. In this latter case, there is no difference in the individual unemployment effect across countries. In Table 1, individuals who were retired displayed relatively lower levels of happiness compared to the “housewife” category. Results in Table 3 show that this result was driven entirely by individuals in low income countries as retirees in high income countries show no statistical difference in subjective well-being relative to the omitted category.

For individual income deciles, including interaction terms now leaves the parameter estimates of the adjacent deciles from the omitted category, fifth decile, statistically insignificant; there is no statistically significant difference in subjective well-being for individuals in the fourth-sixth deciles. Differences between low and high income countries are found in the bottom and top three income deciles. Individuals in the top income deciles have higher subjective well-being in low income countries while individuals in the lowest three deciles have relatively lower subjective well-being compared to their counterparts in high income countries. These results show that individuals belonging to the higher segment of the income distribution have a higher return in subjective well-being in the developing world and people belonging to the lower part of the income distribution have a larger negative effect. Thus, while results in Table 2 showed that subjective well-being increased with greater income inequality as measured by the Gini coefficient, perhaps due to increased inequality associated with development, the results here show there is a significant effect on subjective well-being of income distribution.

Table 4 extends the ordered probit regression in Table 3 to allow for interaction terms in the macro variables as well. One issue that must be addressed is the limitation due to degrees of freedom in the case of the macro variables. Given the number of countries in the sample, it is not possible to include interaction terms using the development indicator for all macro variables. Table 4 instead presents estimates where each row is a separate regression allowing only for an interaction term in the macro variable listed in that particular row. Each regression does include all other macro variables, without interaction terms, and interaction terms for all individual level characteristics. The scaled R-squared for each regression is also given in the Table.⁷

The first regression allows for an interaction term for the development indicator and GDP per capita. This regression is especially interesting given the debate in the literature regarding the effect of GDP per capita on subjective well-being depending on the level of development of a country. Figure 1 shows a plot of mean happiness scores relative to GDP per capita for all countries in the sample. Inglehart (2000), using a similar picture, argues that there is little relationship between subjective well-being and income per capita for wealthier nations. Evidence in the literature is in fact mixed. Inglehart and Klingemann (2000) and Veenhoven

⁷ Parameter estimates for the individual level characteristics are largely similar to those presented in Table 6. Similarly, the parameter estimates for the other macro variables without interaction terms are similar to those presented in Table 5. Results are available from the author upon request.

(1989) argue that happiness is very responsive to national income levels for countries at lower stages of economic development but there is no clear relationship between national GDP per capita and happiness in high income countries. The authors argue for a “postmodern” values interpretation where material well-being is less important for subjective well-being in high income countries. Results in Table 4 suggest there is no difference between low and high income countries in the relation between GDP per capita and subjective well-being: an increase in GDP per capita is strongly associated with increased levels of subjective well-being.

The next two rows of Table 4 show that the negative relationship between subjective well-being, on the one hand, and inflation and unemployment on the other continue to hold when interaction terms are included for individual level characteristics and for each of the two macro variables, in their respective regressions. In both cases, however, the interaction term shows that this negative relationship is significantly stronger in high income countries relative to low income countries. The parameter estimates for the Gini index and the interaction term sheds light on previous results. Allowing for the interaction term shows that high income countries do in fact display a negative relationship between subjective well-being and income inequality, supporting findings by Alesina, Di Tella, and MacCulloch (2004) who focused on European and American survey respondents. The negative relationship between subjective well-being and the Gini index found previously in Table 2 was driven entirely by individuals from low income countries. The negative parameter estimate for the Gini index interaction term shows that for individuals in the developing world, a higher Gini index is associated with higher levels of subjective well-being. This lends further support to the interpretation that the Gini index is capturing economic development factors in the case of the low income countries.

With regard to the freedom variables, there is no difference found between developing and developed countries for the effect of the size of government and democracy. Table 4, does show that the previous results for free trade and corruption were driven solely by low income countries: less corruption and freer trade leads to higher levels of subjective well-being. This may reflect the lesser degree of corruption across high income countries and lower dependency on trade as a source of aggregate demand. The results for regulation show that high income countries actually do have higher levels of subjective well-being from less regulation, in contrast to previous results. This is evidence that people in these countries prefer less government involvement, at least in this respect. The estimate of the interaction term suggests that the original finding in Table 2 is due to low income countries. Again, this may show a preference for individuals in low income countries for more government involvement to address market imperfection and fairness issues.

The results for the macro religion variables in Table 7 show that subjective well-being has a different relationship with these variables across low and high income countries. For the case of Muslim and Christian/Catholic, the developing world shows higher levels of subjective well-being the greater is the percentage of the population belonging to these groups. The opposite is true for Protestants. With regard to legal origin, there are no interaction terms for Scandinavian and German origin in Table 4 as none of the low income countries in the sample have legal systems of that origin. Lower levels of subjective well-being are observed for low income countries of English and Socialist legal origin relative to high income countries. Again, this may simply reflect regional effects. The estimates for the ethnic and language fractionalization measures show that there is no difference across the two groups of countries. In contrast, while individuals have significantly higher subjective well-being with increased religious fractionalization, this effect is substantially lower for individuals in low income countries.

For the remaining three macro variables in Table 4, death rate, life expectancy, and latitude, there is a significant difference in the estimates across the two groups of countries. While

lower death rates and higher life expectancy result in higher subjective well-being, the size of the effect is significantly smaller for individuals in low income countries. Finally, Table 4 shows the previous results for latitude were driven by individuals in low income countries. For these countries, there is a strong negative relationship between latitude and subjective well-being. Future research may investigate whether this result is due to a preference for warmer climate or if there is some other factor latitude is capturing.

Conclusion

The paper adds to our understanding of subjective well-being across countries. At the individual level, higher income and education, being female, married, and a housewife are all strongly associated with higher subjective well-being for individuals in 58 countries who participated in the World Values Survey. Negative effects were observed for those who are unemployed and older. Macro variables in six categories were also examined: economic, freedom, religion, legal origin, fractionalization, and "other". Strong effects were found in each category showing the importance of cultural and institutional variables, in addition to economic ones, for understanding variation in subjective well-being.

The results also show there are significant differences in how these macro variables affect subjective well-being across countries depending on their level of development. While there is no significant difference in the positive relationship between subjective well-being and GDP per capita across countries, that is not the case for other economic variables. High income countries care more about inflation and unemployment, and low income countries care more about freer trade. Interestingly, results also show that increased income inequality as measured by the Gini index is associated with higher subjective well-being in low income countries, where the opposite result is found for high income countries. The result for the low income countries may indicate an additional economic effect as economic development is often associated with increased income inequality. Collectively, the results show that material well-being is strongly associated with overall well-being for individuals in both groups of countries, but depending on which economic variable is being examined, this may be displayed in different ways.

At the individual level higher income and education have strong positive effects on subjective well-being. In both cases, however, individuals with lower levels of attainment in low income countries have lower subjective well-being relative to their counterparts in high income countries. Those belonging to the groups of higher levels of education or income also realize a higher return to subjective well-being in high income countries relative to their counterparts in the developing world. This may reflect greater disparity in these variables for the two groups of countries. This is an area for future investigation.

One potential implication of the current results is that in low income countries, policies directed at economic development should be less concerned with distributional effects. The results suggest that development policies can also be less attentive to effects on inflation and unemployment as well, at least relative to losses in subjective well-being that individuals would experience in high income countries. It appears that individuals in low income countries may be more willing to put up with higher inflation and unemployment, even welcome increased income inequality, if the result is more robust economic development.

The results also show that non-economic macro variables are strongly associated with subjective well-being. All countries display an equal increase in subjective well-being from greater democracy. This is significant given the findings in the economic literature that countries with greater democracy often display smaller growth effects. This supports an independent effect of democracy on welfare apart from any economic effect.

In the literature on subjective well-being, a postmodern values interpretation has emerged arguing, in the developed world, material factors such as income per capita are less important and quality of life and fairness issues are the main factors affecting subjective well-being. The paper shows that lower death rates and increased life expectancy are positively associated with subjective well-being across all countries and that this effect is stronger in high income countries. This result, along with the result that only high income countries exhibit increases in subjective well-being from greater income equality, supports this postmodern values interpretation of the world. That is, for individuals living in high income countries, the importance of factors such as quality of life and equality are more important. However, the paper also shows that these values do not replace the importance of material well-being for determining subjective well-being; the postmodern values simply become more important in high income countries without necessarily reducing the importance of the material, economic factors.

It is not the case, however, that subjective well-being for individuals in low income countries is solely or predominantly determined by material well-being. Results for freedom variables show that there is greater preference for government involvement, perhaps reflecting a preference for government to address quality of life and equality issues. The results also show that individuals in low income countries exhibit much greater increases in subjective well-being from less corruption and warmer climates, as measured by a country's latitude. These non-economic factors, in fact, are only statistically significant in these countries and not in high income countries. The results also show a larger importance for religion in determining subjective well-being in low income countries. At the individual level the effect can be seen for almost all faiths and at the national level, the effect is large for Muslims and Christians/Catholics. In these instances, there is a sizeable positive effect of religion on the subjective well-being of individuals.

A direction for future research is to investigate the theoretical foundations behind the relationship between subjective well-being and economic, cultural and institutional factors. Policies and research have mainly focused attention on how these factors affect economic growth and development. This is in large part due to the strong belief that improvements in the economic realm result in large positive welfare effects. While this may be true, and results here support that view, policy makers may benefit from expanding the focus to a more holistic view of development; a view where non-economic factors are also examined in how they affect welfare, both through increasing material well-being and through an entirely independent subjective well-being channel. The very nature of this investigation will require greater interdisciplinary effort, perhaps under the rubric of welfare studies.

Tables and Figure:

**Table 1: Individual Variables Parameter Estimates,
Ordered Probit with fixed Country Effects**

Variable	Estimate	Std. Error	Distribution Change
Constant	-0.820*	(0.070)	
Age	0.030*	(0.002)	-12.0%
Age ²	-2.8E-04*	(2.0E-05)	22.7%
Religion			
Buddhist	0.152*	(0.058)	-6.0%
Hindu	-0.094	(0.069)	4.7%
Jewish	-0.028	(0.072)	1.4%
Muslim	-0.037	(0.048)	1.7%
Orthodox	0.098**	(0.053)	-4.0%
Protestant	-0.034	(0.042)	1.2%
Roman Catholic	0.043	(0.040)	-0.9%
Sunni	-0.007	(0.066)	0.3%
No Religion	0.161*	(0.043)	-5.8%
Other Religion	0.077**	(0.044)	-3.2%
Gender			
Female	-0.055*	(0.010)	1.4%
Marital Status			
Divorced/Separated	0.312*	(0.014)	-9.3%
Single/Never Married	0.294*	(0.014)	-7.3%
Education			
Completed Elementary	-0.081*	(0.017)	3.7%
Incomplete Secondary - Vocational	-0.114*	(0.020)	5.1%
Completed Secondary - Vocational	-0.150*	(0.019)	6.3%
Incomplete Secondary - College Prep	-0.106*	(0.021)	4.8%
Completed Secondary - College Prep	-0.141*	(0.019)	6.2%
Some University	-0.148*	(0.023)	6.6%
Completed University	-0.171*	(0.021)	7.5%
Employment			
Full-time	0.049*	(0.016)	-1.2%
Part-time	0.063*	(0.021)	-2.4%
Self Employed	0.088*	(0.020)	-3.4%
Retired	0.097*	(0.022)	-3.8%
Student	0.004	(0.025)	-0.2%
Unemployed	0.243*	(0.021)	-8.0%
Other	0.060	(0.040)	-2.6%
Income			
income - first decile	0.293*	(0.020)	-9.2%
income - second decile	0.208*	(0.018)	-7.2%
income - third decile	0.111*	(0.018)	-4.2%
income - fourth decile	0.045*	(0.017)	-1.7%
income - sixth decile	-0.045*	(0.019)	1.9%
income - seventh decile	-0.115*	(0.020)	5.1%
income - eighth decile	-0.091*	(0.022)	4.0%
income - ninth decile	-0.169*	(0.026)	8.1%
income - tenth decile	-0.200*	(0.027)	9.8%
Scaled R-squared	0.184		

* denotes significant at the 5 percent level

** denotes significant at the 10 percent level

Table 2: Macro Variables Parameter Estimates, Ordered Probit

	(1)	(2)		(1)	(2)
Constant	1.201* (0.221)	1.358* (0.220)	Legal Origin		
Economic			English	-0.199* (0.023)	-0.177* (0.023)
GDP per Capita	-8.6E-06* (1.3E-06)	-7.1E-06* (1.2E-06)	Scandinavian	6.7% (0.093)	5.80% (0.092)
Inflation	2.4E-04 (3.4E-04)	0.002* (2.4E-04)	Socialist	65.1% (0.028)	69.30% (0.026)
Unemployment rate	-0.4% 0.023* (0.002)	-2.80% 0.021* (0.001)	German	0.182* (0.028)	0.240* (0.026)
Gini Index	-4.3% -0.015* (0.001)	-4.00% -0.013* (0.001)	Fractionalization	-6.8% (0.033)	-8.10% (0.032)
Freedom			Ethnic	0.5% (0.037)	1.00% (0.037)
Size of Government	9.1% 0.041* (0.006)	8.00% 0.031* (0.005)	Language	-0.547* (0.037)	-0.520* (0.037)
Legal Structure/Property Rights	-2.9% -0.084* (0.011)	-2.40% -0.104* (0.011)	Religion	7.6% (0.035)	7.20% (0.035)
Sound Money	9.5% -0.043* (0.006)	12.00% -0.043* (0.006)	Other	1.8% (0.048)	2.10% (0.048)
Free Trade	5.1% -0.030* (0.009)	-0.046* (0.008)	Death rate	2.0% (0.048)	2.60% (0.048)
Regulation	1.9% 0.059* (0.011)	2.90% 0.054* (0.011)	Life expectancy	0.018* (0.005)	0.012* (0.005)
Democracy	-2.5% -0.034* (0.003)	-2.40% -0.026* (0.003)	Latitude	-3.1% (0.002)	-2.20% (0.002)
Corruption	6.4% 0.078* (0.009)	4.80% 0.085* (0.009)		2.7% (0.057)	4.90% (0.057)
Religion				-4.5% (0.057)	-5.00% (0.057)
Muslim	-6.8% -0.002* (5.3E-04)	-7.40% -0.002* (5.3E-04)			
Protestant	4.4% 0.002 (9.4E-04)	4.20% 0.002* (9.3E-04)			
Cristian-Catholic	-1.9% -0.004* (3.9E-04)	-2.10% -0.004* (3.9E-04)			
	8.5% (3.9E-04)	9.30% (3.9E-04)	Individual Variables Included	Yes	Yes
			Scaled R	0.159	0.158

* denotes significant at the 5 percent level

** denotes significant at the 10 percent level

**Table 3: Individual Variables Parameter Estimates,
Ordered Probit with Development Level Interaction Terms**

Variable	Estimate	Std. Error	Estimate of Dev*Variable	Std. Error	Distribution Change
Constant	1.427*	(0.227)			
Age	0.027*	(0.003)	0.006	(0.004)	-9.8%
Age ²	-2.3E-04*	(3.2E-05)	-7.5E-05**	(4.1E-05)	27.3%
Religion					
Buddhist	0.371*	(0.122)	-0.456*	(0.205)	-2.4%
Hindu	0.216	(0.143)	-0.245	(0.156)	-3.3%
Jewish	0.786*	(0.126)	-0.840*	(0.151)	-3.5%
Muslim	0.348*	(0.122)	-0.517*	(0.119)	-0.4%
Orthodox	0.499*	(0.120)	-0.123	(0.118)	-9.6%
Protestant	0.315*	(0.117)	-0.527*	(0.114)	2.2%
Roman Catholic	0.383*	(0.114)	-0.426*	(0.109)	-2.5%
Sunni	0.170*	(0.061)			-6.7%
No Religion	0.409*	(0.117)	-0.336*	(0.112)	-5.9%
Other Religion	0.318*	(0.120)	-0.157	(0.118)	-7.4%
Gender					
Female	-0.060*	(0.017)	0.003	(0.022)	1.6%
Marital Status					
Divorced/Separated	0.378*	(0.024)	-0.129*	(0.029)	-8.8%
Single/Never Married	0.392*	(0.025)	-0.161*	(0.030)	-7.2%
Education					
Completed Elementary	-0.026	(0.037)	-0.042	(0.042)	2.3%
Incomplete Secondary - Vocational	-0.199*	(0.040)	0.181*	(0.047)	5.4%
Completed Secondary - Vocational	-0.150*	(0.039)	0.056	(0.045)	5.5%
Incomplete Secondary - College Prep	-0.164*	(0.041)	0.148*	(0.048)	4.5%
Completed Secondary - College Prep	-0.157*	(0.040)	0.100*	(0.045)	5.4%
Some University	-0.183*	(0.042)	0.075	(0.050)	7.4%
Completed University	-0.158*	(0.041)	0.030	(0.048)	7.0%
Employment					
Full-time	0.037	(0.030)	0.008	(0.036)	-1.2%
Part-time	0.019	(0.035)	0.069	(0.044)	-2.2%
Self Employed	0.021	(0.041)	0.039	(0.047)	-1.6%
Retired	-0.006	(0.035)	0.174*	(0.044)	-3.0%
Student	0.038	(0.046)	-0.063	(0.055)	-0.5%
Unemployed	0.288*	(0.044)	-0.061	(0.050)	-8.3%
Other	0.046	(0.061)	0.010	(0.081)	-2.5%
Income					
income - first decile	0.199*	(0.037)	0.194*	(0.044)	-8.7%
income - second decile	0.176*	(0.032)	0.085*	(0.039)	-7.7%
income - third decile	0.085*	(0.031)	0.072**	(0.038)	-4.9%
income - fourth decile	0.028	(0.031)	0.027	(0.037)	-1.7%
income - sixth decile	-0.021	(0.032)	-0.051	(0.040)	2.0%
income - seventh decile	-0.126*	(0.033)	0.006	(0.042)	6.2%
income - eighth decile	-0.046	(0.037)	-0.098*	(0.046)	4.7%
income - ninth decile	-0.092*	(0.040)	-0.156*	(0.052)	9.8%
income - tenth decile	-0.119*	(0.040)	-0.161*	(0.054)	11.6%
Country Variables Included	Yes				
Scaled R-squared	0.163				

* denotes significant at the 5 percent level

** denotes significant at the 10 percent level

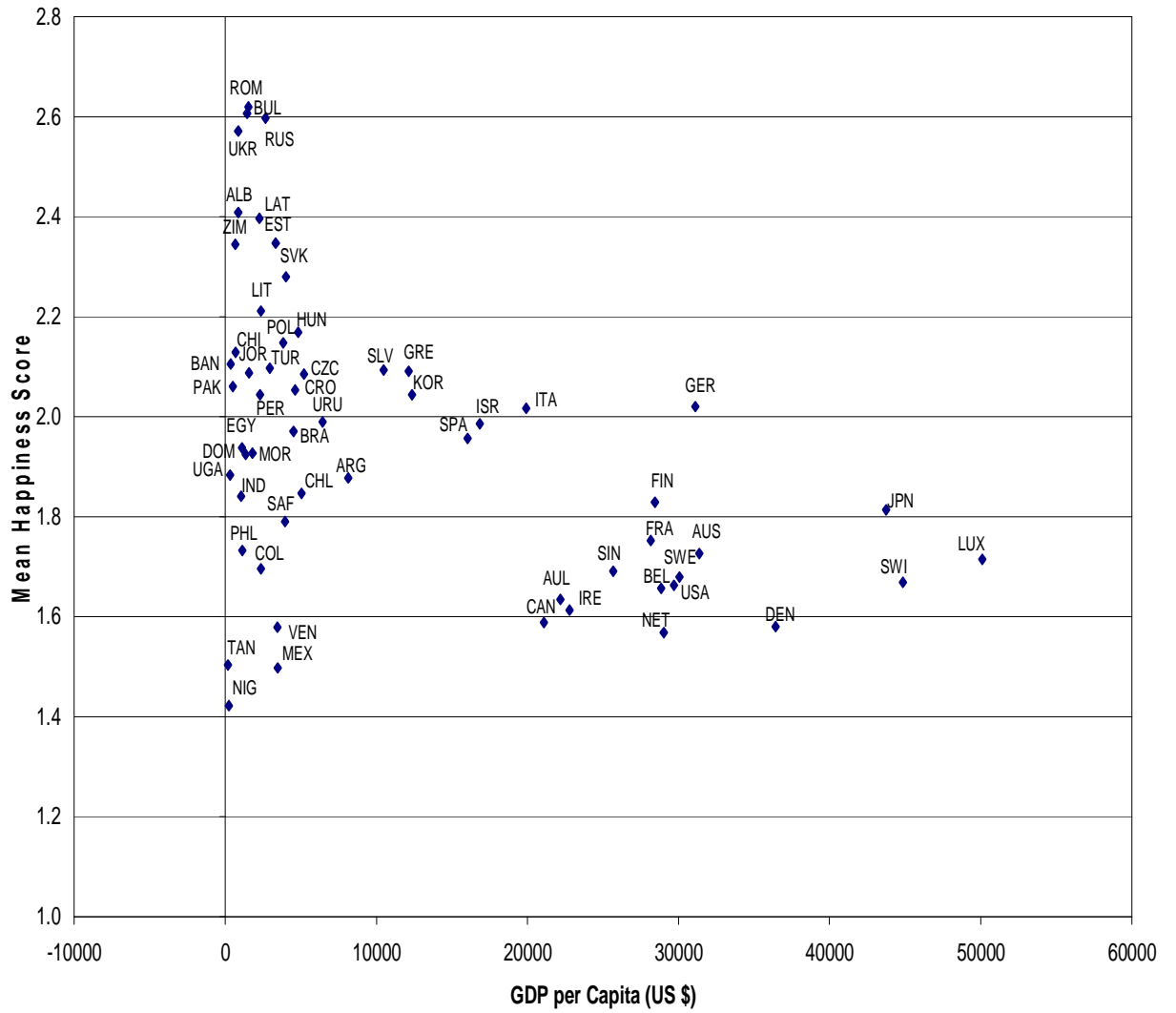
**Table 4: Macro Variables Parameter Estimates,
Ordered Probit with Development Level Interaction Terms**

Variable	Estimate	Std. Error	Estimate of Dev*Variable	Std. Error	Distribution Change	Scaled R-squared
Economic						
GDP per Capita	-1.0E-05*	(1.4E-06)	5.0E-06	(6.3E-06)	5.6%	0.163
Inflation	0.036*	(0.007)	-0.034*	(0.007)	-6.0%	0.164
Unemployment rate	0.029*	(0.003)	-0.011*	(0.003)	-4.5%	0.163
Gini Index	0.024*	(0.003)	-0.041*	(0.004)	0.7%	0.165
Freedom						
Size of Government	0.050*	(0.008)	-0.009	(0.012)	-3.2%	0.163
Legal Structure/Property Rights	-0.165*	(0.020)	0.070*	(0.016)	14.9%	0.164
Free Trade	-0.015	(0.018)	-0.061*	(0.020)	2.9%	0.163
Regulation	-0.196*	(0.023)	0.310*	(0.022)	3.1%	0.166
Democracy	-0.022*	(0.007)	0.003	(0.007)	3.9%	0.163
Corruption	-0.008	(0.012)	0.138*	(0.013)	-4.0%	0.165
Religion						
Muslim	0.009*	(0.003)	-0.011*	(0.003)	-3.5%	0.163
Protestant	7.1E-04	(1.1E-03)	3.7E-03*	(1.6E-03)	-2.1%	0.163
Cristian-Catholic	-3.3E-03*	(5.3E-04)	-2.3E-03*	(6.6E-04)	9.4%	0.163
Legal Origin						
English	-0.423*	(0.034)	0.373*	(0.057)	-1.7%	0.164
Scandanavian	-0.998*	(0.094)			68.5%	0.163
Socialist	0.109**	(0.062)	0.333*	(0.073)	-9.7%	0.164
German	-0.048	(0.034)			2.3%	0.163
Fractionalization						
Ethnic	-0.436*	(0.057)	-0.003	(0.066)	6.0%	0.163
Language	-0.272*	(0.071)	0.094	(0.074)	3.5%	0.163
Religion	-0.657*	(0.075)	0.602*	(0.082)	5.1%	0.164
Other						
Death rate	0.058*	(0.010)	-0.051*	(0.010)	-4.7%	0.164
Life expectancy	-0.024*	(0.005)	0.011*	(0.005)	10.4%	0.163
Latitude	-0.041	(0.082)	1.271*	(0.129)	-3.9%	0.165

* denotes significant at the 5 percent level

** denotes significant at the 10 percent level

Figure 1: Mean Happiness Score and GDP per Capita



Appendix A: Macro Variables Description and Source

Variable	Description	Source
Economic		
GDP per Capita	Average of GDP per capita from 1995-2000	WDI: World Bank Development Indicators
Inflation	Average inflation rate from 1995-2000	Ibid.
Unemployment rate	Average unemployment rate from 1995-2000	Ibid.
Gini Index	Income Distribution measure (most recent year available).	Ibid.
Freedom		
Size of Government	Scale from 0-10, based on measures of general government consumption spending as a percentage of total consumption, transfers and subsidies as a percentage of GDP, government enterprises as a percentage of total investment, and the top marginal tax rate. Higher score indicates smaller involvement.	Gwartney et al. (2002)
Legal Structure/Property Rights	Scale from 0-10, based on indexes measuring judicial independence, impartial courts, protection of intellectual property, military interference in the rule of law and the political process, and the integrity of the legal system. Higher score indicates more freedom.	Ibid.
Sound Money	Scale from 0-10, based on difference between average money growth and real GDP growth, inflation variability, recent inflation rate, and freedom to own foreign currency. Higher score indicates more sound money policies.	Ibid.
Free Trade	Scale from 0-10, based on taxes on international trade, regulatory trade barriers, size of the trade sector, difference between official and black market exchange rates, and international capital market controls. Higher score indicates freer trade.	Ibid.
Regulation	Scale from 0-10, based on credit market, labor market, and business regulations. Higher score indicates less regulation.	Ibid.
Democracy	Democracy Index. Higher score indicates more democratic.	Polity IV
Corruption	Corruption Index, 0-10, average from 1996-2004. Higher score indicates higher corruption.	Transparency international (2004)
Religion		
Muslim	Percentage of population that is Muslim	Barret et al. (2001)
Protestant	Percentage of population that is protestant	Ibid.
Cristian-Catholic	Percentage of population that is Christian or Catholic	Ibid.
Other	Percentage of population that is non-Muslim, Christian, Catholic or Protestant	Ibid.
Legal Origin		
English	1 if legal system is of English origin, 0 otherwise.	La Porta R., et al (1999)
French	1 if legal system is of French origin, 0 otherwise.	Ibid.
Scandanavian	1 if legal system is of Scandinavian origin, 0 otherwise.	Ibid.
Socialist	1 if legal system is of Socialist origin, 0 otherwise.	Ibid.
German	1 if legal system is of German origin, 0 otherwise.	Ibid.
Fractionalization		
Ethnic	Index for ethnic fractionalization. Higher score indicates greater fractionalization.	Alesina et al (2003)
Language	Index for linguistic fractionalization. Higher score indicates greater fractionalization.	Ibid.
Religion	Index for religious fractionalization. Higher score indicates greater fractionalization.	Ibid.
Other		
Death rate	Death rate, crude (per 1,000 people).	WDI: World Bank Development Indicators
Life expectancy	Life expectancy at birth, total (years).	Ibid.
Latitude	Latitude of a country, scaled from 0 to 1.	CIA Factbook

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