

The Social-Institutional Bases of Happiness: An International Comparison

Hiroshi Ono*

Texas A&M University

Kristen Schultz Lee

The University at Buffalo, SUNY

Abstract

We examine the determinants of happiness from a comparative perspective. We use data from the 2002 International Social Survey Programme with roughly 40,000 individuals nested within 30 countries. We apply a multi-level modeling approach to formulate the specific interactions between the macro and micro. We focus on public social expenditures and taxes as proxy measures of state intervention at the macro-level, and happiness as the specific measure of welfare outcome at the micro-level.

Our study suggests that happiness in the welfare states closely reflects the redistribution of income and resources in these countries. We find clear evidence that happiness is transferred from the low-risk to high-risk individuals in the welfare regimes. For example, we find that married persons are significantly happier, but single persons are significantly less happy in the welfare states. This finding suggests that pro-family ideology of the welfare states protects families from social risk and improves their well-being *at the cost of single persons*. Further, we find that the happiness gap between the high versus the low-income earners is considerably smaller in the welfare states, suggesting that happiness is transferred from the privileged to the less privileged.

* Direct correspondences to: Hiroshi Ono, Texas A&M University, Department of Sociology, College Station, TX 77843-4351 <hono@tamu.edu>

INTRODUCTION

The extent to which the state and the market provide for the welfare of citizens has been the subject of great debate in political economy and in public policy. Esping-Andersen's (1999) work on the "varieties of welfare capitalism" is a notable example of how modern capitalist societies can be categorized according to their contrasting positions regarding the roles of the state and the market. Against this backdrop, the concept of happiness becomes a pawn in the debates between competing ideologies, with political and economic systems pitted against each other. Indeed there is now a growing body of research that examines the "political economy of happiness" (see for example, Bjørnskov et al 2007, Radcliff 2001, Rothstein 2010 and Veehoven 2000). However, aside from the politics, international comparisons using rigorous analytical methods are surprisingly few.

In this paper, we examine the determinants of happiness in an international context. Our research is grounded in methodology and not ideology. We treat happiness as a measure of life satisfaction, and as an individual-level outcome influenced by demographic characteristics and socio-economic status. We also consider the larger social institutional framework in which the individuals are situated. At the macro-level, we are primarily interested in studying how the countries' welfare expenditures and taxes affect the happiness of their citizens. These macro-level factors relating to the economy and society may shape the subjective well-being of their citizens, either directly, or via the various interactions between the macro and the micro. What makes people happy in one institutional context may not translate to happiness in another. Happiness is then best understood as an individual-level outcome that is simultaneously shaped by larger social forces.

Is happiness greater in the welfare states? The pursuit for the “optimal level” of state or market intervention may be quantitatively and qualitatively difficult to assess. State intervention and welfare are both empirically vague notions that require more precise specifications. We focus on particular measures, mainly public social expenditures and taxes as proxy measures of state intervention, and happiness as the specific measure of welfare outcome. The “happiness equation” would then have happiness on the left-hand side, and macro-level predictors on the right-hand side. Note, however, that this question by itself has a strictly macro-level orientation. Indeed, one of the shortcomings of earlier studies on the welfare states is that they have been limited to the macro-level (Esping-Andersen 1999). Underlying this macro formulation is the implicit assumption that *all* persons, regardless of socioeconomic status or demographics, are made better off (or worse off) in the welfare states. This line of inquiry may be empirically interesting to the study of political economy, but sociologists are more excited about probing the macro-micro link (Coleman 1990), i.e. how do macro-level forces affect micro-level outcomes?

Our second question explores this interaction effect, specifically by asking: Who benefits *within* the welfare regimes? The operations of the welfare states must be considered in conjunction with *both* distinguishable features – universalism and wealth distribution. The welfare states provide a universal safety net with comprehensive coverage of social risks. These countries achieve egalitarianism through the massive redistribution of wealth, and the transfer of resources from those at low social risk to those at high social risk. If happiness follows this path of redistribution, then we may in fact observe a similar pattern of “happiness redistribution” whereby happiness is “transferred” from the privileged to the less privileged. The beneficiaries of the welfare states gain at the cost of the benefactor.

At the micro-level, we focus especially on the institutions of family and marriage as our unit of analysis. According to Esping-Andersen (1999), social policy is the “public management of social risk” (p.36). Under this framework, the family is a social institution that is exposed to higher risk, at least in comparison to non-family units such as single persons. Indeed the study of welfare regimes involves the systematic examination of “the inter-causal triad of state, market and family” (p.35). Accordingly, the welfare regimes maintain a strong pro-family ideology, where considerable resources are allocated to improve the welfare and well-being of families. These countries also allow for flexible family forms whereby cohabiting persons receive similar (if not identical) benefits as do married persons. Our primary focus on the institutions of family and marriage thus allows us to better isolate the effect of state intervention on happiness.

We take advantage of hierarchically structured data with individuals nested within countries. We apply a multi-level modeling approach to formulate the specific links and interactions between the macro and micro. Our investigation reveals how macro-level forces affect the micro-level foundations of society.

BACKGROUND

Happiness in Social Context: The Market versus the State

While countries strive for greater economic performance and higher growth, recent studies in happiness science have discovered that there is a fundamental disconnect between economic well-being and subjective well-being (Blanchflower and Oswald 2004; Easterlin 1974). Across countries, the correlation between national income and happiness is weak. Within countries, the rise in national income has not been accompanied by a rise in happiness. If

governments want to improve the well-being of their citizens, then they must seek means other than raising their national income to make their people happier.

One initiative is for the government to take a direct role in improving the welfare of their citizens, through greater involvement and direct subsidies in their everyday lives. The measure of our central interest is the public social expenditure (PSE), here defined as welfare expenditures as a percentage share of GDP, excluding education. We use PSE as a proxy measure which captures the extent of government's role in providing for the welfare of its citizens.¹ On one end of the spectrum lies the market-based regime characterized by low PSE and low involvement by the state. The market-based regime maintains "a political commitment to minimize the state, to individualize risks, and to promote market solutions" (Esping-Andersen 1999: 75).

On the other end of this spectrum lies welfare capitalism characterized by high PSE and extensive involvement of the state. The extreme manifestation of this welfare state model is the social democratic welfare regime. The countries of Denmark, Norway and Sweden are the notable countries that fall in this category. This so-called Scandinavian Welfare Model is first and foremost identified by "unusually heavy social spending, benefits and services of high standards, and a high degree of government intervention" (Esping-Andersen and Korpi 1987: 42). It is also distinguished by its universalism and comprehensive provision of welfare services and transfers (Kangas and Palme 1993: 3).

Welfare provision by the state is a form of social insurance, because it lays out a safety net that ensures a basic standard of living for their citizens, and protects their citizens from unforeseen events or social risk in general. The welfare states can be seen as "rational responses to market failures" (Lindbeck 2004: 63). In essence, the state has made "a powerful commitment

to collective social responsibility for the optimal welfare of citizens” (Esping-Andersen and Korpi 1987: 53). The specifics of this involve such measures as government subsidized healthcare, generous and far-reaching family policies, and extensive care for the elderly. All citizens, regardless of income or background, are entitled to these social benefits. The social welfare programs help to reduce poverty, and the overall level of economic and social inequality (Kenworthy 1999; Korpi and Palme 1998; Lindbeck 1997). For example, OECD (2008) data shows that the tax and transfer systems reduced income inequality by 45 percent in Denmark, Sweden and Belgium, compared to 17 percent in the U.S., and less than 8 percent in South Korea.²

The arrangement in the welfare states therefore contrasts greatly to those observed in other regimes where the market plays a greater role in providing for the benefits and services. Social insurance is replaced by private insurance, and many of the publicly provided services such as healthcare and childcare are replaced by market mechanisms. The market-based system generates a more stratified society consisting of those who can afford such services versus those who cannot.

The other feature of the welfare states is its massive resource redistribution scheme. The state collects revenue through a combination of progressive income taxes, where the rich are taxed at higher rates compared to the poor, flat consumption taxes, flat social security taxes, and heavy taxation on addiction goods such as alcohol and tobacco (Lindert 2005; Steinmo 1989). Tax revenue is then returned in the form of social programs that are intended to benefit those that paid into the system. Ultimately, however, “there is a definitive redistributive element to all social spending” (Lindert 2005, p.6). Indeed, the degree of redistribution in the welfare states is

far greater than the one that is in place in the U.S. For example, Alesina et al (2004) elaborate on the contrasting role of government in redistribution between the U.S. and Europe:

Most governments redistribute income, using both direct and indirect means. Even though this role of the public sector has increased vastly in the last few decades in all industrial countries, European governments are more heavily involved with redistribution than that of the United States. European fiscal systems are more progressive than in the United States and the welfare state is more generous in Europe, where the share of government in the economy is substantially larger than in the United States. For instance, in 2000 the share of total government spending (excluding interest payments) over GDP was about 30% in the US, versus 45% in Continental Europe. (Alesina et al 2004: 2010)

Income redistribution, and consequently income compression, is most extreme in the Scandinavian welfare states. Indeed, the Scandinavian countries are the most egalitarian in the world with respect to income inequality (OECD 2008; see also Gini index in Table 1).

The redistribution of resources has the objective of reducing inequality and social risk in the cross-section *and* across the life span, where the latter is often termed the “cradle to grave” arrangement of the welfare state (Jonsson and Collins 2001; Lindbeck 2004):³

A notable feature of this structure is the way in which it acts to redistribute resources across life-course stages. An important legitimating feature of welfare state spending in Sweden has been its tendency to collect taxes from citizens in their productive years, only to return the money in the form of universal benefits tied to significant life events, in the form of child allowances, unemployment benefits, heavily subsidized healthcare, daycare, schooling and pensions. The implication for the life-course is not only that cross-sectional inequality is reduced, but also that the amplitudes of life-course cycles... are attenuated. (Jonsson and Collins 2001: xiv)

It should thus be emphasized that even within the welfare state, *some persons benefit more than do others*. Some types of social insurance benefit all citizens, e.g. unemployment, sickness, and old age, but others are targeted specifically for families, e.g. parental leave and subsidized childcare. With respect to public spending on education, families with children benefit much more directly from state expenditures on schooling than do single people. This pro-family policy is based on the view that families are exposed to greater social risk than are

single persons. For example, in the case of healthcare, a single person may only be concerned with her own health. But a parent in a family of four must ensure that she is protected against the risk of illness not only for herself, but also for her spouse and two children.

In many of the European countries, non-marital cohabitation is now institutionalized; it is considered to be a socially acceptable alternative family form (Mårtinson 2007; Soons and Kalmijn 2009). The benefits of the welfare state extend to cohabiting couples in the same manner as to married couples. These policies are the states' responses towards more inclusion, tolerance and acceptance towards diverse family forms. The state does not discriminate between married persons and cohabiting persons in determining the eligibility of social benefits, and in the level of their benefits. The inclusion of cohabiters in social benefits is both the consequence and the driving force for greater social acceptance of cohabitation as a legally-recognized alternative to marriage.

Universal welfare can only be sustained through high taxes. Indeed the citizens of the Scandinavian welfare states benefit from the most generous level of social insurance, but they also pay the highest taxes in the world in terms of both average and marginal taxes (OECD 2009b). The rich are taxed heavily to subsidize the poor. Hence, while the benefits of the welfare states are many, so are the costs associated with this system. The effect of the welfare provision on happiness must be evaluated in light of its costs and benefits.

To reiterate, the social insurance policy is intended to be a universal, non-discriminatory policy that extends benefits to all citizens. But all policies have their blind spots and unintended consequences. If the welfare states discriminate, they do so against single people. In terms of costs, single people on average pay *higher* personal income tax and contributions to social security (as percentage of gross wage earnings) than do married persons (OECD 2009b).⁴ While

single persons do benefit from some forms of social insurance such as sick leave, unemployment, healthcare, and old age assistance, they obviously do not qualify for the benefits that are targeted for families. Hence, in this regard, the welfare state is partial to families, and single persons bear the costs of the pro-family policy. From the perspective of costs, benefits and incentives, the welfare states' pro-family policy is one that discourages their citizens to remain single.

Happiness at the Individual Level

Much of the previous research on happiness has focused on the demographic and socioeconomic characteristics associated with greater happiness. Overall, women report greater life happiness than do men, despite the effects of gender discrimination and structural inequality (Aldous and Ganey 1999; Wood, Rhodes, and Whelan 1989). There is an overall positive association between income and happiness within countries (Blanchflower and Oswald 2004; Clark and Oswald 1996; Easterlin 2001). Past research has explored variations in happiness over the life span (Costa et al 1987; Rodgers 1982). Recent work in this area finds that there is an overall increase in happiness with age (Yang 2008).

An extensive literature documents the relationship between marriage and general happiness (see for example, Hansen and Shapiro 2007; Haring-Hidore et al 1985; Kim and McKenry 2002; Nock 1995; Waite and Gallagher 2000), and confirms first and foremost the positive effects of marriage in comparison to single persons. Married individuals are also found to be happier than cohabiters (Stack and Eshleman 1998; Waite and Gallagher 2000). Several different explanations for the happiness gap between married and cohabiting individuals have been proposed: the relatively weaker bond between cohabiters (Popenoe and Whitehead 2002; Waite and Gallagher 2000), the protective effects of being married which include social and

financial support as well as greater health (Skinner et al 2002; Stack and Eshleman 1998), the incomplete institutionalization of cohabitation, the relatively weaker social support received by cohabiters (Nock 1995; Skinner et al 2002), as well as to the selection effects into marriage (Stack and Eshleman 1998). Overall, most research has attributed the relationship between marriage and happiness to the protective effects of marriage (Kim and McKenry 2002; Skinner et al 2002; Stack and Eshleman 1998) or to a combination of protection and selection effects (Nock 1995), rather than to selection effects alone.

Although the relationship between children and well-being varies depending on the timing of childbirth, the age of the child, social class, parent gender, and marital status among other factors (Umberson et al 2010), the overall consensus is that parents of minor co-resident children report poorer life satisfaction than childless persons (McLanahan and Adams 1987). Working mothers in particular experience lower levels of well-being associated with parenting because of their greater involvement in child care, compared to fathers (Nomaguchi, Milkie, and Bianchi 2005).

What is missing from the previous literature, however, is an attention to the role played by the social-institutional context in shaping the happiness of individuals and families.⁵ Such an approach is particularly important when we examine happiness across a wide spectrum of countries. Individuals and families are embedded in a specific cultural, economic, and social context which defines the parameters of their well-being. A more precise understanding of happiness requires that happiness be studied in the specific macro-institutional context in which individuals are situated.

Macro-micro interaction

According to the *OECD Factbook 2009*, the happiest country in the world was Denmark, followed closely by Finland, Netherlands and Sweden (OECD 2009a). The media's reaction to this announcement was decidedly predictable. Since the high-taxed countries of Scandinavia occupied the top of the happiness rankings, a number of media outlets jumped to the conclusion that "the happiest people on earth are heavily taxed," thereby alluding to the positive correlation (and perhaps even causation) between taxes and happiness.⁶ The debate over welfare states and happiness is hardly new. While some scholars contend that happiness is greater in the welfare states (Pacek and Radcliff 2008; Radcliff 2001), others argue that there is no link (Veenhoven 2000). Still others claim that the size of government is inversely related to happiness (Bjørnskov et al 2007).

We make the case that measures of happiness at the country-level are not informative from the perspective of welfare and distribution policies. Aggregate rankings of happiness fail to capture the social mechanisms that relate macro-level forces to happiness at the micro-level. To take one example, suppose we observe a positive effect of marriage on happiness in the (benchmark) market-based economies. The positive effect of marriage may not be the same across countries, but greater in the welfare states because they offer extensive benefits for family support.

Consider the case of families with small children in the U.S., as described by Simon (2008):

In America we lack institutional supports that would help ease the social and economic burdens—and subsequent stressfulness and emotional disadvantages—associated with parenthood. Instituting better tax credits, developing more and better day care and after school options, as well as offering flexible work schedules for employed mothers and fathers would go far toward alleviating some of the stress for parents raising children. (p.44-45)

In contrast, owing to the most generous social insurance system in the world, the Swedes benefit from the extensive menu of services that are available for parents with small children. In comparison to their U.S. counterparts, the “penalty” (Budig and England 2001) of taking time off to raise children in Sweden is thus significantly offset by the direct and indirect subsidies offered by the state. The institutional support provided by the welfare states may thus ease the stress associated with parenting, and this may subsequently lead to greater happiness for families in the welfare regimes in comparison to the market regimes.

The effects of public social expenditures on happiness may not be symmetrical between men and women. As Esping-Andersen (1999) explains, “the Nordic welfare state remains the only ones where social policy is explicitly designed to maximize women’s economic independence” (p.45). To the extent that women of all countries take on a disproportionate share of non-market (or family) responsibilities, women may benefit more from the pro-family policies of the welfare states than do men. The institutionalization of cohabitation in the European countries can also be viewed as a movement towards greater female autonomy in these countries (Mårtinson 2007).

In sum, we expect to find a pattern of happiness redistribution in the welfare states which mirrors the pattern of income redistribution in these countries. Happiness is transferred in the direction from low risk to high risk persons, and from privileged to less privileged persons. We examine these transfer effects in the areas of family, marriage, and income.

We designate the market-based regimes as our benchmark, and the welfare states as the polar opposite of this benchmark. We use public social expenditures (PSE) as a proxy measure that captures the degree of state intervention in social welfare, which distinguishes the market regimes from the welfare regimes. We employ multi-level models and specify macro-micro

interactions with PSE and the particular micro-level institutions in order to capture the extent to which state intervention affects individual happiness with regard to these institutions.

First, in line with the welfare states' pro-family ideology, we expect transfer effects in these countries to be most evidently observed among the institutions of family and marriage. Our empirical analysis thus focuses especially on the relationship between happiness, marital status, cohabitation and the presence of children.

And second, wealth redistribution in the welfare states is achieved through taxation, and by transferring money from high-income earners to low-income earners. We expect happiness transfers in the welfare states to occur in the same direction as the income transfers. Mirroring the largely compressed distribution of income in these countries, we expect the distribution of happiness in the welfare states to be less widely dispersed.

Data and Method

We analyze data from the 2002 International Social Survey Program's (ISSP) "Family and Changing Gender Roles" module.⁷ These data allowed us to examine the family characteristics related to happiness in 30 countries in different geographic regions and stages of economic development.

In all of our analyses, we exclude respondents over the age of 75 in order to minimize the heterogeneity resulting from old age, attributable to mortality, declines in physical health, and retirement. We chose 75 as the maximum age in order to achieve consistency across countries (Finland did not include respondents over the age of 75 in their sample) and on the basis of a sensitivity analysis in which we tested our models with different age cutoffs (e.g., age 55, 65, and 75). Results of these additional tests confirmed that our analysis is robust to different

specification of age limits and only 4.5% of the total sample is lost through this age restriction. We also removed respondents under the age of 18 from the analysis (an additional 0.6% of the original sample), owing to the fact that the legal age of marriage is 18 and above in all of the countries that we consider here. The final sample size for our analysis is 43,218 respondents.

The ISSP has broader geographic coverage than do other datasets, e.g. the European Social Survey. In comparison to some cross-national studies that may focus exclusively on advanced economies of the world, the ISSP includes a wide range of countries with regard to GDP, PSE, and other macro-level indicators, which allows us to capture variations in these measures across countries. However, there is an overall underrepresentation of developing countries in the ISSP, and this may be a shortcoming of the dataset.

Level 1 Variables

The dependent variable in all equations is the respondent's report of their general life happiness. Responses range from *1 = completely unhappy* to *7 = completely happy*. Descriptive statistics for all variables included in the analysis are presented in Table 1. Key independent variables at the individual level are the respondent's gender (*1 = female*), presence of children under 18 in the home (*1 = present*), and marital status (mutually exclusive dummy variables for married, single, cohabiting, divorced/separated, and widowed). Depending on the model, one marital status dummy variable is excluded from the analysis to serve as the reference category. Standard control variables for the respondent's age, age-squared, employment status (*1 = full-time employment*), and educational attainment (*1 = has completed a college degree or more*) are also included in the analysis.

We control for individual income.⁸ Because income varies considerably across countries in both absolute and relative terms, income is generally not comparable between countries. We follow the convention used by Ruiters and van Tubergen (2009) among others, and estimated Z-scores of individual incomes per country. We imputed missing income cases on the basis of other attributes included in the equations. In our analysis of income and happiness, we also use income quartiles where we designate the fifth category as missing income. These income measures should thus be interpreted as relative (and not absolute) income. They capture income differences within countries, but not across countries.

Level 2 variables

Table 1 shows descriptive statistics of key indicators by country (descriptive statistics for the Level-1 variables are available from the authors by request). Table 2 shows the correlations among the country-level indicators. We briefly describe the variables below.

“Married” is the mean share of married persons, and “cohabit” is the mean share of cohabiting persons in the ISSP sample. Public social expenditures (PSE) is the percentage share of GDP spent on welfare excluding education (source: OECD 2009a). “Tax” is tax revenue as percentage of GDP (source: Index of Economic Freedom, Heritage Foundation). The Gini index shows the extent of income inequality in the country (source: World Bank [2007]), with larger numbers indicating greater inequality.⁹ Log GDP is the natural logarithm of GDP. Western Europe is coded one if the country is classified as a Western European country; Eastern Europe is coded one if the country belongs to the former Soviet bloc. And finally, “happy” is the mean value of happiness assigned to the country aggregated from the individual-level variables.

The correlation matrix (Table 2) shows a number of associations that are of substantive interest. We discuss the highlights below.

PSE is strongly correlated with other Level 2 variables.

We confirm many of the stylized facts associated with the welfare state regimes. First, high taxes are taken to be synonymous with the welfare state; PSE and taxes are highly correlated, with a coefficient of 0.69.

Second, the high PSE countries are more likely to be Western European countries. Sweden, Denmark and France are ranked among the highest PSE countries, with a host of other Western European countries to follow (Table 1). At the bottom of the PSE scale are Mexico, the Philippines, and Taiwan. The matrix also shows that correlation between PSE and Eastern European countries are weak.

Third, PSE is associated with lower inequality. Higher taxes are the revenue source for providing the generous and comprehensive benefits of the welfare states. But they also reduce inequality through the redistribution of wealth, mainly by imposing higher marginal tax rates on the higher-income earners. The matrix shows an even stronger negative correlation between the Gini index and taxes.

Fourth, higher PSE is associated with higher cohabitation rates. PSE is not correlated with the rate of marriage, however. While some pro-marriage/ pro-family scholars claim that the institutionalization of cohabitation in the welfare states is associated with lower rates of marriage (e.g. Popenoe and Whitehead 2002), we do not confirm this association, at least not with the sample of countries we examine here.

And fifth, there is an overall positive association between PSE and GDP.

Happiness is only weakly correlated with other Level 2 variables.

The matrix only shows a weak correlation with happiness and the other Level 2 variables. In particular, PSE, taxes and GDP do not appear to have much impact on happiness. The overall effect of country-level attributes on happiness is therefore not entirely straightforward. There are two exceptions. First, income inequality is positively correlated with happiness. The previous evidence on this is mixed. Guriev and Zhuravskaya (2009) review the existing literature and explain that the relationship between inequality and happiness depends on the specific countries included in the sample. For example, Alesina et al (2004) found that inequality has a large negative effect on happiness in Europe, but not in the U.S.

And second, happiness in the Eastern European countries is considerably lower compared to the other countries. There is substantial evidence of this negative correlation from earlier studies. Deaton (2008), in his study of life satisfaction around the world, finds strong evidence of the “misery of many of the countries of eastern Europe and the former Soviet Union” (p.69). Bonini (2008) finds a similar negative effect on happiness among the countries of Eastern Europe and the former USSR, as does Guriev and Zhuravskaya (2009) among the transition economies. They explain that “a substantial increase in inequality and perceived unfairness in the new socioeconomic order” (p.156) accompanied by a deterioration in the quality of public goods provision are among the main sources of their dissatisfaction.

Selection of the Level-2 variables

We use the correlation matrix to facilitate our selection of the other Level-2 variables in our statistical models. We include PSE as a proxy for the extent of welfare spending by country.

Depending on the analysis involved, we also examine how taxes (at the country-level) affect people's happiness. Because the two are highly correlated, we include one or the other in our models, and not both.

We designate East Europe as the control variable that will be used consistently across all models. There are several reasons for this selection. First, among the Level-2 variables, East Europe has the strongest correlation with happiness, suggesting that its inclusion will significantly improve the fit of our model estimations.¹⁰ Second, it is only weakly correlated with the other Level-2 variables – most importantly PSE – which allows us to avoid problems of collinearity between the Level-2 variables. And third, we take advantage of the fact that East Europe is negatively associated with GDP, and use this as a proxy for macroeconomic performance.

Multilevel Models

Multilevel models (estimated using HLM software) are used to address the non-independence of observations from the same country (Raudenbush and Bryk 2002). When such clustering is ignored, the standard errors of the parameters tend to be underestimated (Guo and Zhao 2000). We estimate 2-level ordered logistic regression models, predicting general happiness. The Level-1 ordinal logistic regression model is as follows:

$$\log\left(\frac{\phi_{mij}}{1-\phi_{mij}}\right) = \beta_{0j} + \sum_{q=1}^Q \beta_{qj} X_{q1j} + \sum_{m=2}^M \delta_m \quad (1)$$

where ϕ_{mij} is the probability that respondent i in country j is at or above response option m in their response to the question of how happy they are with their life in general. β_{0j} is the intercept

for country j and β_{qj} is the coefficient for independent variable q in country j . δ_m is a threshold that separates categories $m - 1$ and m .

The Level-2 equations model the intercept (equation 2a) and the slopes of female (equation 2b), cohabiting (equation 2c), married (or single in the case of Table 3, Model 3; equation 2d), and children under 18 in the home (equation 2e) as randomly varying across countries. Although cross-level interaction terms are included with some of the other Level-1 variables, the error terms of all other independent variables are modeled as fixed across countries unless otherwise noted. For example, in the case of Model 1 in Table 3, we have the following set of Level-2 equations with random error terms:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(E. Europe)_j + \gamma_{02}(PSE)_j + u_{0j} \quad (2a)$$

$$\text{Female:} \quad \beta_{1j} = \gamma_{10} + \gamma_{11}(PSE)_j + u_{1j} \quad (2b)$$

$$\text{Cohabiting:} \quad \beta_{2j} = \gamma_{20} + \gamma_{21}(PSE)_j + u_{2j} \quad (2c)$$

$$\text{Married:} \quad \beta_{3j} = \gamma_{30} + \gamma_{31}(PSE)_j + u_{3j} \quad (2d)$$

$$\text{Children under 18:} \quad \beta_{4j} = \gamma_{40} + \gamma_{41}(PSE)_j + u_{4j} \quad (2e)$$

The coefficient for country-level PSE in a country in equation 2b (γ_{11}) indicates the interaction of PSE and gender (female). Similarly in equations 2c, 2d, and 2e the coefficient for PSE indicates the interaction of PSE with cohabiting (γ_{21}), being married (γ_{31}), and having children under 18 (γ_{41}), respectively. All variables in the equations are grand mean centered unless noted otherwise.

The performance of the multilevel models may be sensitive to outliers if the level-2 random effects do not share a multivariate normal distribution. We conducted diagnostic tests to

check the normality assumption of level-2 random effects following the procedures outlined in Raudenbush and Bryk (2002). These robustness checks revealed that our hypothesis tests and confidence intervals for the fixed effects are not sensitive to outliers and influential observations.

Findings

We first present the results from two models of happiness using multilevel models (Table 3). Consistently, the results show that happiness in Eastern European countries is significantly lower compared to the other countries. The estimation results also highlight the role of the welfare state in determining happiness. In results not shown here, we estimated a model that includes all of the level-2 and level-1 covariates shown in Table 3, but without the interaction effects. Results of this model confirmed that public social expenditures (PSE) has no direct effect on happiness at the country-level. Aggregate happiness does not vary by the size of the welfare state. The effect of PSE on happiness is *not* manifested universally across all citizens, but indirectly with some socioeconomic and demographic groups benefiting more than others. The task then is to examine the cross-level interaction effects of PSE with individual-level attributes. We discuss highlights below.

In Model 1, the intercept, and the coefficients for female, the presence of a child under age 18, cohabiting and married are modeled as randomly varying. The random coefficients are specified to be the same in Model 2, with the one exception that the variable married is replaced with the variable single.

First, on average, women and men are equally happy. However, women in high PSE countries are happier than are women in lower PSE countries (as indicated by the positive coefficient for the interaction effect between female and PSE). The predicted odds of reporting a

higher level of happiness (category $j + 1$ versus category j) are about 32% greater for women in countries with the maximum level of PSE, compared to women living in countries with the minimum level of PSE.

Second, married persons are happier than are unmarried persons. The gap between the married and the unmarried is greater in the high PSE countries. In a country with the maximum level of PSE, the predicted odds of reporting a higher level of happiness for married people are more than three times those for non-married, non-cohabiting individuals. But in countries with the minimum level of PSE, the odds of reporting a higher level of happiness for married people drops to about twice that for non-married, non-cohabiting people. Many of the benefits of the welfare states, such as subsidized daycare and parental leave, begin when individuals enter into a union, whether it be marriage or cohabitation. It follows then, that these benefits are larger for married persons, and that this is related to higher happiness.

Third, cohabiting persons are happier than are unmarried persons, and this difference is greater in the high PSE countries. Cohabitors' odds of reporting a higher level of happiness are 1.15 times greater than those for non-married, non-cohabiting individuals in countries with the minimum level of PSE and 2.6 times greater in countries with the maximum level of PSE. Cohabitors in the welfare states enjoy comparable benefits to those of married couples. This inclusive, non-discriminatory policy is associated with a smaller happiness gap between married and cohabiting couples.

And fourth, having children under 18 in the home (hereafter children) has no effect on happiness overall but has a positive effect on happiness in the high-PSE countries. The effect of children on happiness will be examined in greater detail in our subsequent analysis, which separates the sample into men and women.

In Model 2, we include the dummy variables for single, widowed, and divorced/separated (combined category) in place of married. For clarification, the dummy variables for marital status are mutually exclusive categories, thus married becomes the default reference category here. The coding scheme in Model 2 thus allows us to better isolate the effect of being single as it relates to being married. Here we find that happiness among single persons is significantly lower than it is for married persons. More interestingly, this negative effect is even stronger among single persons in high-PSE countries. This is essentially the opposite of what we observe for married persons in Model 1. The policies of the welfare states are explicit family-support policies put in place to protect and to improve the welfare of married persons and families. Consequently, single persons report relatively lower levels of happiness in the welfare states.

We find that the cohabitation effect is now negative, indicating that cohabiting persons are less happy than are married persons. Our findings are thus consistent with Stack and Eshleman (1998)'s study, and suggest that the protective effects of marriage extend beyond the benefits of civil union. The cross-level interaction effect with PSE is not significant indicating that the happiness gap between cohabiting and married persons persists regardless of the country's PSE.

The happiness gap between men and women

So far, we have hinted at the possibility that women may benefit more from the welfare states than do men. We now examine this more closely by analyzing the sample of men and women separately. Table 4 shows the results. Our analysis reveals a number of similarities as well as dissimilarities between the sexes.

Marriage is associated with the highest odds of greater happiness for both genders, especially among the higher PSE countries. In countries with the maximum level of PSE, the predicted odds of reporting a higher level of happiness are nearly three times greater for married than for non-married, non-cohabiting women and nearly four times greater for married than for non-married, non-cohabiting men. Cohabitation is associated with higher happiness for both genders. The effects of age, college education and income on happiness are roughly the same for men and women, with regard to both magnitude and direction of the effects. Full-time employment is associated with higher happiness for men, but it does nothing to improve happiness for women.

The effect of children on happiness exposes the gender asymmetries of parenthood commonly discussed in the literature, mainly that the burden of raising children falls disproportionately on women than on men (e.g. Lee and Ono 2008). The direct effect of children is negative for women, but has no effect on men. More interestingly, the interaction effect of PSE is positive for women, but has no effect on men. For women with a child in the home, the predicted odds of reporting a higher level of happiness are about three-quarters of those for women without children in countries with the minimum level of PSE and about equal to those for childless women in countries with the maximum level of PSE. These results suggest that for women, the negative effect of children on happiness is offset by the role of the welfare state in the high-PSE countries, presumably because the social welfare system provides institutional support to alleviate the constraints imposed on families with children. The primary beneficiaries of this family support system are women with small children.

Our results thus far (in Tables 3 and 4) show clearly that the effect of relative income on happiness is positive. But does this positive effect vary across countries when we consider their

socio-economic context? We investigate this question next by examining the relationship between income and happiness, and the intervening role of PSE and taxes.

Income and happiness

Most countries employ progressive taxation, with high-income earners facing higher marginal tax rates than do low-income earners. Marginal tax rates are generally higher in the Scandinavian welfare states (OECD 2009b), as previously discussed. Transferring money income from the rich to the poor is in fact one of their main features. This income redistribution scheme has an equalizing effect where the after-tax income of the rich and the poor is compressed. If money and happiness are closely linked, then the happiness gained from money income may be smaller in high-PSE/ high-taxed countries, because the income distribution will be more compressed in these countries. This can be shown as follows.

Let happiness (U) be a function of income (I) and taxes (T) such that:

$$U = f(I, T) \tag{3}$$

The change in happiness from a change in income (dU/dI) is the marginal utility of income.

With taxes in the equation, the marginal utility of income can be expressed:

$$\frac{dU}{dI} = \frac{\partial U}{\partial T} \cdot \frac{dT}{dI} + \frac{\partial U}{\partial I} \tag{4}$$

(-) (+) (+)

Here, dT/dI is the marginal tax rate which is always positive. $\partial U/\partial T$, the pure effect of taxes on happiness, is negative since it is reasonable to assume that people prefer lower (rather than higher) taxes. Finally, $\partial U/\partial I$, the pure effect of income on happiness, is positive since higher income is generally associated with higher happiness.

Equation (4) thus leads to several predictions. First, dU/dI is *always lower* in countries with high (versus low) marginal tax rates. Since Scandinavian countries have the highest marginal tax rates in the world, equation (4) would predict that dU/dI in Scandinavia is smaller compared to other countries. Note that this condition holds true even if $\partial U/\partial I = 0$. Second, if the indirect effect $\left(\frac{\partial U}{\partial T} \cdot \frac{dT}{dI}\right)$ was sufficiently negative, then this may offset the positive effect of $\partial U/\partial I$, in which case the total effect of income on happiness (dU/dI) may be zero or even negative. And third, if one lives in a world with no taxes, or in a world where citizens of *all* countries face the same lump sum tax regardless of income level, then $dT/dI = 0$, and equation (4) would collapse, such that $dU/dI = \partial U/\partial I$. The effect of taxes on happiness can be disregarded, and the marginal utility of income would be the same across all countries.

Our empirical specification of the happiness equation begins with the following generic equation which predicts happiness as a function of income (I):

$$Y_{ij} = \beta_{0j} + \beta_{1j} I_{ij} + r_{ij} \quad (5)$$

where r_{ij} is the observation- and group-specific residual. If we allow the intercept (β_0) and coefficient (β_1) to vary by country-level TAX, we get:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} TAX_j + u_{0j} \quad (6a)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}TAX_j + u_{1j} \quad (6b)$$

where the u 's are the residual terms. Combining equations (5) and (6), we get:

$$Y_{ij} = (\gamma_{00} + \gamma_{10}I_{ij} + \gamma_{01}TAX_j + \gamma_{11}I_{ij}TAX_j) + (u_{0j} + u_{1j}I_{ij} + r_{ij}) \quad (7)$$

The expected value of happiness (U) is then:

$$U_{ij} = (\gamma_{00} + \gamma_{01}TAX_j) + (\gamma_{10} + \gamma_{11}TAX_j) I_{ij} \quad (8)$$

The marginal utility of income is the change in happiness from a change in income:

$$dU/dI = \gamma_{10} + \gamma_{11}TAX_j \quad (9)$$

where γ_{10} is the main effect of income on happiness. γ_{11} is the indirect effect manifested through taxes which is expected to be negative. Note that the same predictions hold true if we were to substitute TAX with PSE, since these two measures are highly correlated, and they move in the same direction.

Table 5 shows the results of four models estimated under different specifications of relative income – Z-scores or income quartiles – interacted with either taxes or PSE. In Models (2) and (4), the reference (omitted) category is quartile 1 which corresponds to the lowest income quartile. In all four models, we confirm that income has a positive effect on happiness (γ_{10}), and that this effect increases monotonically across income quartiles. More interestingly, we find that

the interaction between income and taxes (γ_{11}), or the interaction between income and PSE is generally decreasing. In essence, the findings here suggest that the marginal utility of income is significantly smaller in the higher-tax/ PSE countries than in the lower-tax/ PSE countries.

Using the coefficients from Table 5, we can illustrate how happiness changes with income as we move from low- to high-PSE countries (see Figure 1). In this three-dimensional illustration, one horizontal axis is income (I) expressed in Z -scores, the other is PSE, and the vertical axis is the predicted log odds of belonging to a higher category of happiness (U). For reference, we indicate the four corners of the graph. Point A is the lowest income group in the lowest PSE country; at the other extreme is point D which is the highest income group in the highest PSE country. The slope of AC and BD is the marginal utility of income (dU/dI), i.e. it measures how happiness changes as a function of income. The slope of AB and CD captures the change in happiness as a function of PSE ($dU/dPSE$). From equation (8), $dU/dPSE = \gamma_{01} + \gamma_{11} I$: the slope is determined by the sum of the pure effect of PSE on happiness (γ_{01}) plus the interaction effect (γ_{11}) of PSE on I . We describe the highlights below.

First, dU/dI is greater in the low-PSE countries than in the high-PSE countries. From Figure 1, we can see that the slope of AC is steeper than the slope of BD. Higher income is associated with higher happiness in all countries, but this effect is considerably stronger in the low-PSE countries. Second, $dU/dPSE$ is positive for the low-income group, but negative for the high-income group. Low-income earners are actually happier if they live in high-PSE countries. In contrast, high-income earners are happier if they live in low-PSE countries. According to our simulations, happiness for the highest income group in the highest-PSE country (at point D) is approximately equal to the happiness in the income group that is close to the mean ($Z = .4$) in the lowest-PSE country.¹¹

Does money buy happiness? Our answer is yes, but with qualifications. The gain in happiness derived from money incomes is not uniform across countries. Specifically, people in the low-tax/ low-PSE countries stand to benefit most from higher incomes when it comes to happiness. In contrast, people in the high-tax/ high-PSE countries derive little happiness from money income. “Spreading the wealth around,” as we observe in the high PSE countries diminishes the marginal utility of income, which has the effect of equalizing people’s happiness regardless of their income levels. Clearly, we see that the distribution of happiness is compressed much like income in these countries. There is less distance in the happiness gap between the rich and the poor, suggesting a more egalitarian society with less economic and social inequality.¹²

The fact that low-income individuals are happier in the high PSE countries (than in the low PSE countries) suggests that the social welfare programs not only improve the economic well-being of the poor and protect them from poverty, but they also improve their subjective well-being. Further, the fact that high-income individuals are less happy in the high PSE countries may indicate that low-income earners achieve greater happiness *at the cost of the high-income earners* in these countries.

And finally, there may be some credence to the common criticism that the welfare states undermine people’s incentive to work. As their income grows, the extra income earned ends up being less in one’s pocket, and more in other people’s pockets. This unselfish taxation scheme may help to redistribute wealth, but it may discourage some from exerting extra effort. Prescott (2004), for example, argues that the high marginal tax rates in Europe are the main reason why Europeans work considerably fewer hours than do Americans.

Discussion

This research spotlights the social-institutional context of happiness. At the country-level, we find a consistent negative correlation between East European countries and happiness. At the individual-level, we find that characteristics such as income (Blanchflower and Oswald 2004), the presence of children (Umberson et al 2010), and marital status (Nock 1995; Waite and Gallagher 2000) are important correlates of happiness, but this is not the whole story. The statistically significant associations found between country-level indicators and these individual-level factors suggest that, in order to understand cross-national variation in happiness, we must consider the specific social and institutional context in which respondents live.

Is happiness greater in the welfare states? We offer a classic sociological explanation: *It depends on whom you ask*. The welfare state does not produce greater happiness for the whole, but makes some people happier and others less so. Studying happiness in the welfare states requires unveiling the various interactions between the macro and the micro. The measure of public social expenditures in itself has no direct effect on happiness, suggesting that aggregate happiness does not vary by the size of the welfare state. Rather, our multi-level analysis clearly shows that social insurance is effective in protecting the welfare of specifically targeted demographic groups.

Our key contribution is in the discovery that the distribution of happiness in the welfare states roughly follows the redistribution of resources and income in the expected direction. The transfer of resources from the low-risk to high-risk individuals in welfare states results in a leveling effect in happiness in these countries. It is a pro-family policy that is associated with greater happiness for women, especially for women with young children, married persons, and cohabiting persons (compared to single persons). The massive redistribution of wealth which is

realized through high marginal tax rates for the high-income earners reduces the happiness gap between the rich and the poor: The happiness of the poor is lifted, and the happiness of the rich is lowered. High taxes and high expenditures on social welfare do not make everyone happy across the board. The beneficiaries of the welfare states achieve happiness at the cost of the benefactor.

Just as there are benefits, there are also considerable costs and negative externalities associated with the welfare regime. Aside from the obvious disutility associated with high taxes, our analysis has uncovered some areas where the welfare regime may be associated with lower happiness. While the system looks after the welfare of families, regardless of whether the parents are married or cohabiting, it places a heavy tax burden on single persons. They are, in effect, the victims and at the same time benefactors of the welfare state. Single people on average face a higher tax burden than do married persons, but they get the least back from the system (especially if they are in good health). In fact, the system encourages single persons to get married or to cohabit, and even more, to have children. This incentive structure is attributed to one of the leading causes for the recovery of fertility in Sweden during the 1990s.

It is well known in the economics literature that taxes and subsidies distort individual decisions (Freeman et al 1997; Lindbeck 1997), for example, in the area of work. The generous benefits of the welfare states, combined with the high marginal tax brackets for higher income earners, may sap the incentive to work. Our analysis of income and happiness has shown that the marginal utility of income is lower in the high tax/ high PSE countries. From this it follows that working persons may allocate less time and effort into their work, and more time towards leisure. The aggregation of this micro-level mechanism can explain at least in part why Europeans on average work significantly shorter hours than do Americans who face lower

marginal tax rates. Apart from these distortions, there is the general and pervasive problem of moral hazard. Aronsson and Walker (1997) suggest that the social insurance provided by the Swedish labor market, e.g. sickness leave and unemployment, may be overprotective, and creates strong incentives among workers to limit their effort and work hours. Lindbeck (1997) explains that “cheating” or gaming the system results in a non-negligible loss in transfer payments in Sweden.

Methodologically, we have shown that multilevel modeling is the appropriate empirical strategy to examine happiness across countries. We started our analysis by showing that there are very few country-level factors that are associated with happiness. We then demonstrated in our empirical analysis that it is the interaction between the country-level factors and individual-level attributes that contribute to a better understanding of happiness across different cultures. Such a conclusion would have been overlooked had we employed methods that do not account for macro-micro interactions, and the hierarchical nature of individuals that are embedded in the larger socioeconomic context.

By considering public social expenditures, we gain an understanding of how the policies of the welfare state differentially impact individuals and families depending on their marital status, presence of children, and income. This paper speaks both to sociology of the family and to economics of happiness literatures in examining the social embeddedness of happiness. In order to understand what makes people happy, we argue that the answers lie in the interplay of individual characteristics and the social context, and beyond individual characteristics alone.

Notes

¹ A common critique of using PSE as a proxy for the welfare state is that social expenditures may not adequately capture the state's commitment to welfare (Esping-Andersen and Korpi 1987; Patek and Radcliff 2008). Indeed, Esping-Andersen (1999) and others have proposed alternative measures to approximate the quality of the welfare state. While these measures may be a better alternative, their main shortcoming is in their limited scope and coverage of countries. The measure of "decommodification" (Esping-Andersen 1999), for example, only covers 18 advanced industrial countries, and social wage (Patek and Radcliff 2008) is limited to the OECD member states. The utility of the PSE measure, in spite of its criticisms, is that the data are available for all countries included in the ISSP dataset.

² Korpi and Palme (1998) examine income redistribution in terms of the relative reduction in the Gini index when we compare market income versus income after taxes and transfers. In their sample of 11 OECD countries, Sweden and the Netherlands have the largest redistributive effects; the U.S. and Switzerland have the lowest redistributive effects. Smeeding (2006) estimates percentage reduction in poverty before and after social assistance among the OECD countries. The U.S. achieved the lowest reduction (26 percent), and Sweden achieved the highest (77 percent).

³ See Jonsson and Collins (2004) for collection of articles that analyzes how the welfare state influences the life-cycle dynamics of individuals and families in Sweden.

⁴ This is based on OECD's comparison between single persons with no children, and married one earner couple with two children.

⁵ Exceptions include Diener et al (2000), Soons and Kalmijn (2009), and Stack and Eshleman (1998) who examine happiness among cohabiters and married couples cross-nationally, and Margolis and Myrskylä (2011) who study how happiness varies across countries depending on the family support system.

⁶ See for example, Kostigen, Thomas. 2009. "The happiest taxes on earth: More people are satisfied in heavily tariffed nations." *Market Watch*, as well as a number of blog entries, for example, "Study shows 'socialist' highly taxed countries have happiest people." (*Oprah.com*, May 18, 2009), and "High taxes lead to happiness" (*TaxProf Blog*, July 7, 2010). It should be noted, however, that the original study by Deaton (2008) using the same data did not make any reference to the role of taxes.

⁷ The data used here were made available by the Zentralarchiv fuer Empirische Sozialforschung. Data were collected by independent institutions in each country as documented in ISSP (2004). Neither the original data collectors nor the Zentralarchiv bear any responsibility for the analyses or conclusions presented here. We selected the ISSP 2002 dataset for our analysis because of its wider coverage of countries (compared to the European Social Survey for example), and because the 2002 module includes a rich set of questions relating to family and marriage that are not included in other datasets, e.g. World Values Survey.

⁸ Information regarding income varied across countries in the ISSP dataset. These include: (i) gross individual income (before taxes); (ii) net individual income after taxes and transfers; and (iii) income with no information to indicate whether it was net or gross. We did not find a systematic pattern between these variations in reported income and Level-2 variables. The number of income categories also varied across countries.

⁹ The World Bank data is the most widely-used source for the international comparison of Gini indices. However, the World Bank (2007) also points out a number of shortcomings, owing to the difficulties of obtaining directly comparable data across a large number of countries. In some countries, consumption is used instead of income, and it may be measured among individuals rather than households. These shortcomings are described in greater detail in Alesina et al (2004).

¹⁰ The Gini index is the other candidate but it is strongly correlated with PSE.

¹¹ This can be calculated for any range of PSE and/or income by manipulating equation (8). For example, in order to estimate income (I) in the lowest PSE country (PSE_{min}) that matches happiness in the highest income category (I_{max}) in the highest PSE country (PSE_{max}), we solve for:

$$I = \frac{\gamma_{01}(PSE_{max} - PSE_{min}) + \gamma_{11}PSE_{max}I_{max} + \gamma_{10}I_{max}}{\gamma_{10} + \gamma_{11}PSE_{min}}$$

¹² The marginal utility of income is greater in poor countries, and smaller in rich countries (e.g. Clark et al 2008). Since PSE and GDP are correlated, it is difficult to distinguish the PSE effect from the GDP effect. In order to address this point, we reran our regression by including a cross-level interaction with East EU and income, in

addition to our cross-level interaction between PSE and income. Results showed that the interaction effect with PSE and income remains significant even after controlling for the cross-level interaction with East EU. Because East EU is a proxy for GDP, our findings suggest that the interaction effect between PSE and income are robust even after we control for cross-national differences in income levels. The robustness check with respect to TAX achieved identical results.

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Table 1: Descriptive Statistics by country

	Public social expenditures (PSE) as % of GDP	Tax revenue as % of GDP	GDP per capita adjusted for purchase power parity	Gini index of inequality	Happiness ^{a)}	
					Mean	S.D.
Australia	18.0	30.5	36,300	0.35	5.38	(0.92)
Austria	26.0	43.4	38,400	0.29	5.55	(0.93)
Belgium	24.7	46.8	35,300	0.33	5.20	(0.90)
Brazil	16.2	38.8	9,700	0.57	5.42	(0.89)
Chile	14.0	17.1	13,900	0.55	5.54	(1.02)
Cyprus	21.8	36.6	21,200	0.29	5.29	(1.08)
Czech	20.1	36.3	24,200	0.25	5.03	(0.99)
Denmark	29.2	50.0	37,400	0.25	5.34	(0.96)
Finland	24.8	43.6	35,300	0.27	5.24	(0.96)
France	28.5	46.1	33,200	0.33	5.25	(0.95)
Germany East	27.4	40.6	34,200	0.28	5.03	(0.91)
Germany West	27.4	40.6	34,200	0.28	5.16	(0.85)
Hungary	20.1	37.3	19,000	0.27	5.04	(1.11)
Israel	20.0	36.8	25,800	0.36	5.34	(1.10)
Latvia	8.6	30.4	17,400	0.38	4.85	(0.97)
Mexico	5.1	9.7	12,800	0.46	5.58	(1.06)
New Zealand	18.5	36.5	26,400	0.36	5.48	(0.96)
Norway	23.9	43.6	53,000	0.26	5.30	(0.92)
Philippines	4.7	14.4	3,400	0.45	5.41	(1.25)
Poland	23.0	33.8	16,300	0.35	4.97	(1.03)
Portugal	21.1	37.0	21,700	0.39	5.19	(1.06)
Russia	0.8	36.9	14,700	0.40	4.87	(1.14)
Slovak	17.9	29.5	20,300	0.26	4.89	(1.05)
Slovenia	5.1	39.3	27,200	0.28	5.19	(0.94)
Spain	19.6	37.3	30,100	0.35	5.26	(0.89)
Sweden	29.8	49.7	36,500	0.25	5.24	(0.97)
Swiss	26.4	30.1	41,100	0.34	5.52	(0.77)
Taiwan	5.7	12.4	30,100	0.33	5.19	(1.10)
U.K.	21.8	39.0	35,100	0.36	5.42	(1.00)
USA	14.7	28.2	45,800	0.41	5.52	(0.96)

^{a)} The data are country averages aggregated from the ISSP data.

Table 2: Correlation matrix of level-2 variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Marriage ^{a)}	1.00								
(2) Cohabitation ^{a)}	-0.46 **	1.00							
(3) Public social expenditures (PSE) as % of GDP	-0.22	0.59 ***	1.00						
(4) Tax revenue as % of GDP	-0.32 †	0.62 ***	0.69 ***	1.00					
(5) Gini index	-0.17	-0.17	-0.45 **	-0.59 ***	1.00				
(6) Log GDP	-0.20	0.34 *	0.58 ***	0.52 **	-0.57 ***	1.00			
(7) West Europe	-0.41 *	0.47 **	0.61 ***	0.59 ***	-0.31 †	0.51 **	1.00		
(8) East Europe	0.08	-0.20	-0.26	0.02	-0.28	-0.30 †	-0.51 **	1.00	
(9) Happiness ^{a)}	-0.19	0.10	0.12	-0.18	0.40 *	0.23	0.25	-0.80 ***	1.00

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

^{a)} The data are country averages aggregated from the ISSP data.

Table 3: Ordered logit regression models predicting general happiness

	(1)			(2)		
<i>Country-level variables</i>						
Intercept	-2.415	***	(0.107)	-2.412	***	(0.107)
East Europe	-0.778	***	(0.106)	-0.766	***	(0.107)
Public social expenditures (PSE) as % of GDP	-0.010		(0.007)	-0.009		(0.007)
<i>Individual-level variables</i>						
Female	0.006		(0.038)	0.023		(0.037)
Female X Country-level PSE	0.009	*	(0.004)	0.008	*	(0.004)
Cohabiting	0.661	***	(0.069)	-0.302	***	(0.053)
Cohabit X Country-level PSE	0.027	*	(0.011)	0.014		(0.010)
Married	0.989	***	(0.053)			
Married X Country-level PSE	0.017	**	(0.005)			
Divorced/ Separated				-1.139	***	(0.081)
Widowed				-0.989	***	(0.092)
Single				-0.875	***	(0.062)
Single X Country-level PSE				-0.011	*	(0.005)
Child under 18 in the home	-0.030		(0.024)	-0.007		(0.023)
Child X Country-level PSE	0.005	†	(0.003)	0.007	*	(0.003)
Full-time employment	0.075	*	(0.034)	0.070	*	(0.032)
Age	-0.109	***	(0.010)	-0.102	***	(0.010)
Age square	0.001	***	(0.000)	0.001	***	(0.000)
College education	0.158	**	(0.052)	0.156	**	(0.050)
Income Z score	0.108	***	(0.013)	0.111	***	(0.012)
<i>Random effects</i>						
Intercept	0.089	***		0.089	***	
Female	0.035	***		0.034	***	
Child under 18	0.013	**		0.020	***	
Cohabit	0.057	***		0.041	**	
Married	0.024	***				
Single				0.024	***	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests). Robust standard errors in parentheses. Threshold levels are suppressed from the output.

Table 4: Ordered logit regression models predicting general happiness by gender

	Women			Men		
<i>Country-level variables</i>						
Intercept	-2.411	***	(0.101)	-2.427	***	(0.122)
East Europe	-0.762	***	(0.105)	-0.886	***	(0.106)
Public social expenditures (PSE) as % of GDP	-0.006		(0.007)	-0.016	†	(0.009)
<i>Individual-level variables</i>						
Cohabiting	0.532	***	(0.083)	0.837	***	(0.079)
Cohabit X Country-level PSE	0.033	*	(0.013)	0.020	*	(0.009)
Married	0.860	***	(0.058)	1.161	***	(0.068)
Married X Country-level PSE	0.018	**	(0.006)	0.016	*	(0.006)
Child under 18 in the home	-0.093	*	(0.035)	0.002		(0.033)
Child X Country-level PSE	0.010	*	(0.004)	-0.002		(0.003)
Full-time employment	-0.004		(0.035)	0.149	**	(0.056)
Age	-0.093	***	(0.010)	-0.131	***	(0.013)
Age square	0.001	***	(0.000)	0.001	***	(0.000)
College education	0.161	*	(0.059)	0.163	**	(0.060)
Income Z score	0.085	***	(0.018)	0.113	***	(0.017)
<i>Random effects</i>						
Intercept	0.102	***		0.089	***	
Child under 18	0.019	**		0.018	*	
Cohabit	0.105	***		0.044		
Married	0.031	**		0.034	**	

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests). Robust standard errors in parentheses. Threshold levels are suppressed from the output.

Table 5: Ordered logit regression models predicting general happiness

	(1) Income Z-score			(2) Income quartiles			(3) Income Z-score			(4) Income quartiles		
	X Country-level PSE			X Country-level PSE			X Country-level tax			X Country-level tax		
<i>Country-level variables</i>												
Intercept	-2.406	**	(0.109)	-2.402	***	(0.108)	-2.409	***	(0.106)	-2.405	***	(0.105)
East Europe	-0.834	**	(0.102)	-0.814	***	(0.104)	-0.785	***	(0.097)	-0.761	***	(0.098)
Public social expenditures (PSE) as % of GDP	-0.005		(0.007)	-0.006		(0.007)						
Tax revenue as % of GDP							-0.008		(0.006)	-0.009		(0.006)
<i>Individual-level variables</i>												
Income Z score	0.100	***	(0.015)				0.100	***	(0.014)			
X Country-level interaction	-0.003	**	(0.001)				-0.002	**	(0.001)			
Income quartiles ^a												
Quartile 2				0.060		(0.041)				0.059		(0.039)
X Country-level interaction				-0.004		(0.005)				-0.007	*	(0.004)
Quartile 3				0.188	**	(0.050)				0.186	***	(0.046)
X Country-level interaction				-0.006		(0.005)				-0.009	†	(0.005)
Quartile 4				0.319	***	(0.057)				0.314	***	(0.052)
X Country-level interaction				-0.013	*	(0.006)				-0.015	**	(0.005)
Quartile missing				0.185	**	(0.049)				0.181	**	(0.045)
X Country-level interaction				-0.013	*	(0.005)				-0.015	**	(0.005)

† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests). Robust standard errors in parentheses.

^a The reference (omitted) category is income quartile 1 which corresponds to the lowest income category.

The model also controls for the same variables shown in Model 1 of Table 3 minus the interaction effects. These control variables and threshold levels are suppressed from the output.

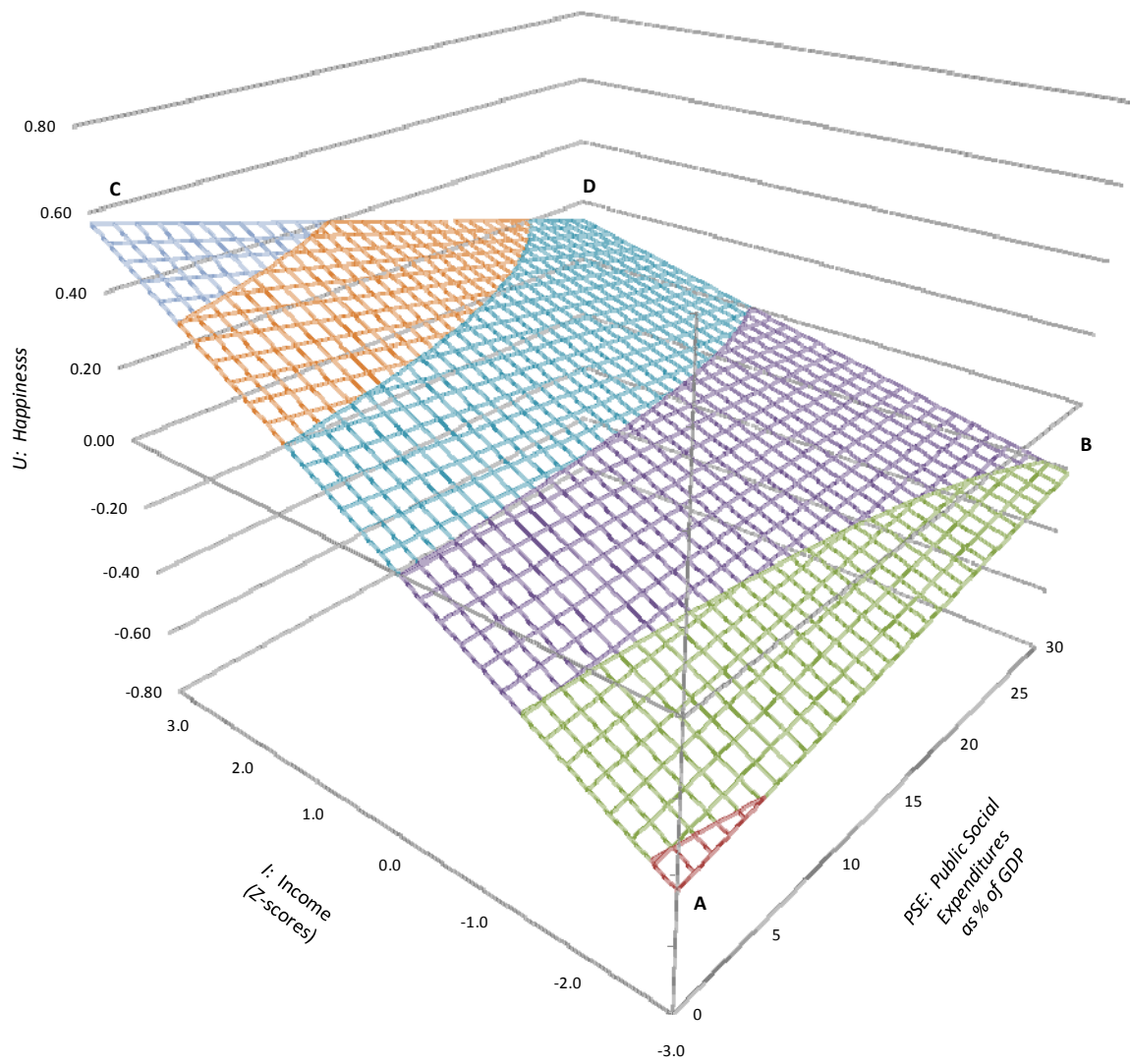


Figure 1: Happiness as a function of income and public social expenditures (PSE)