

# The Utility of Between-Nation Subjective Wellbeing Comparisons Amongst Nations Within the European Social Survey

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**Abstract** Between-nation differences in wellbeing are frequently reported. Such differences are attributed to between-nation differences in social, economic and political factors. However, there is a likelihood that between-nation differences are over-estimated as they fail to account for the extent to which wellbeing varies within-nation owing to within-nation factors. Participant data for 43,000 participants from 23 countries was obtained from wave 3 of the European Social Survey in 2006. Analyses were undertaken in a multi-level framework with citizens nested within-nation in order to derive maximum likelihood estimates and standard error which adjust for the nested data hierarchy. Participant data was adjusted for (1) a design weight which adjusted for a sampling probability reflecting their likelihood of being recruited for the study, and (2) a population weight which adjusts for the extent individuals reflected a nation's population. Across wellbeing indicators, most variance was accounted for at the within-nation level (>95%). Within-nation factors were the strongest drivers of wellbeing. Best linear unbiased predictions indicated that raw national aggregated well-being means over-estimate between-nation wellbeing differences. Many prior cross-national wellbeing comparisons likely overestimate between-nation differences as they fail to account for the nested data structure in which individual citizens are nested within countries. Between-nation factors were not substantive drivers of wellbeing outcomes in comparison with within-nation effects and interpretation of any between-nation effects need to be carefully considered since so little wellbeing variance is accounted for at the between-nation level.

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## 1 Introduction

Between-nation differences in mean levels of happiness or subjective wellbeing are frequently reported. These differences are used as a basis to posit the impact of national social and economic policies on citizens' wellbeing and happiness (Ballas and Tranmer 2012; Brulé and Veenhoven 2014; Cheng et al. 2016; Diener and Diener 1995; Diener et al. 1995a, b; Jorm and Ryan 2014; Kahneman and Deaton 2010; Levin et al. 2011; Schyns 2002; Tella et al. 2003; Veenhoven 2012; Wang and Wong 2014). There is evidence to support the assertion that social, economic and health policies do indeed drive national differences in wellbeing and consequently the importance of identifying, measuring and focusing on citizens' wellbeing is increasingly informing national and local governance (Huppert et al. 2009). Recently, Jorm and Ryan (2014) provided an important summary of the main issues regarding cross-national differences in wellbeing, but emphasised its potential contribution to extending our understanding of psychiatric epidemiology to incorporate an understanding of wellbeing processes.

Social, economic, demographic and cultural factors, are frequently identified as driving between-nation differences in wellbeing. In terms of social and political factors, Portela et al. (2013) reported that institutional trust (trust in judicial and political systems), social trust (trust in the community), civic engagement, and good social networks were strongly related to life satisfaction and happiness. In examining the differences in wellbeing between those countries which valued individual freedom and those that valued control, Harrington et al. (2015) identified that both extremely permissive and constrained social and political contexts were associated with lower happiness, and higher rates of depression and suicide rates. They concluded that debate about social and political freedoms should emphasise less the differences between free or controlled societies and more on how to attain a moderate position on policies and mechanisms that would provide a balance of both positions. However, it is noted that the relationship between freedom, choice and wellbeing is moderated by culture (Schwartz and Cheek 2017).

Indeed, there is evidence for the role of cultural factors in promoting wellbeing. Comparisons between those born and raised in a country with those born in the same country but raised in another country have supported the impact of national wellbeing differences that are attributed to between-nation differences in economic policy and social contexts. For example, Veenhoven (2012) used wellbeing differences between French and Dutch Speaking Belgians and those living in France and Holland as support for the impact of culture and society. Similarly Lee and Seligman (1997) reported that White Americans reported higher levels of optimism than Chinese Americans who were in turn higher in optimism than mainland Chinese. These differences were attributed to differences in those cultural norms in respect to self-referent capacity. Cultural differences between East (collectivist) and West (Individualistic) nations are frequently touted as evidence for cultural differences. It has been suggested for example that Eastern notions of happiness originate from Confucian ideas that states of happiness and unhappiness reflect a flow of life and as such happiness is not excessively prioritised (Diener and Suh 2000). An interesting methodological issue highlights the impact of culture norms on the response patterns in self-report measures. For example, Vittersø et al. (2005) identified that whilst there was

no significant difference in life satisfaction between Norwegians and Greenlanders, Rasch modelling of the life satisfaction items identified significant differences in the response profiles, such that Greenlanders used more extreme response codes of the life satisfaction scale. Once these response profiles were controlled for, the Norwegian sample reported higher levels of life satisfaction in comparison with the Greenlanders.

Between-nation wellbeing differences can also be attributed to economic factors, including mean income level (Diener et al. 1995b). However it has been suggested that the link between economic development and subjective wellbeing is stronger in developing than developed countries (Kenny 2005). One major review (Arthaud-Day and Near 2005) reported that the suggested link between income and wellbeing is weak but confirmed Kenny's (2005) findings that there are stronger effects for economic factors in developing nations than in developed nations.

The findings derived from many national surveys of wellbeing (Brulé and Veenhoven 2014; Diener and Diener 1995; Diener et al. 1995a, b; Kahneman and Deaton 2010) do however have limitations. Notably, many surveys are drawn from aggregated population-level data. Even where individual level data is available, analyses often ignore the clustered level of the respondent data. That is, the extent to which individuals' reported wellbeing varies or is clustered within nations is often ignored. Instead, analyses typically focus on between-nation differences at the macro or higher level of the data structure. For example, Minkov (2009) analysed subjective wellbeing between 97 nations using data from the World Values Survey using a single-level linear regression approach. Similarly, in deriving a metric of income adjusted happiness across 90 nations, Veenhoven and Kalmijn (2005), derived their metric by using aggregated nation-level means and standard deviations. And more recently, although utilising a multi-level framework to examine changes in nation-level (level 2) wellbeing and income over time (level 1), Diener et al. (2013) ignored the extent to which wellbeing varies within-nations or within individuals over time. Such naïve approaches assume independence of clustered data at lower levels of the data hierarchy (Snijders and Bosker 1999). Schneider (2016) has provided a recent summary of the methodological approaches used in the comparison of between-nation wellbeing differences, also identifying the limitations with many studies that utilise aggregated single level regression methods. Where the hierarchical/clustered nature of the data is addressed, analyses typically ignore the extent to which wellbeing varies at different levels of the data hierarchy (Alesina et al. 2004; Berg and Veenhoven 2010; Haller and Hadler 2006; Layte 2012) and rather focus on fixed effect estimates of risk/protective wellbeing factors.

Another significant issue of the current literature base on cross-national wellbeing comparison is that many studies utilise very narrow definitions of wellbeing that are defined by items of satisfaction, happiness and mood (Alesina et al. 2004; Arthaud-Day and Near 2005; Berg and Veenhoven 2010; Haller and Hadler 2006; Layte 2012; Novak and Pahor 2017; Schyns 2002), ignoring other important dimensions of wellbeing (Diener et al. 1995b; Huppert et al. 2009). It appears that patterns of associations between risk and protective factors on wellbeing outcomes can be attributed to which type of wellbeing outcome is used and supports the need for a multi-dimensional model of wellbeing (Diener et al. 1995b; Huppert et al. 2009), beyond the assessment of mood, life satisfaction or happiness. Indeed, there is additional complexity in the study of multiple dimensions of wellbeing as it is well documented that drivers of positive and negative wellbeing are different and that the absence of risk factors for low wellbeing does not necessarily lead to increase in wellbeing (Huppert 2009).

A further issue often ignored in between-nation wellbeing comparisons is the effect of sample selection and the extent to which respondents are representative of their nation's

population. Explicit discussion of weighting of between-nation comparisons is rare (Eichhorn 2013). Many studies simply do not apply appropriate weights that either adjust for individuals' likelihood of being sampled or their representativeness of the national population. Or at least, discussion of the weighting of individual respondents' data is frequently not explicitly described (Brulé and Veenhoven 2014; Diener and Diener 1995; Diener et al. 1995a, b; Kahneman and Deaton 2010; Minkov 2009; Veenhoven and Kalmijn 2005). This is a significant limitation as survey respondents may be biased in terms of how they are selected to participate in a survey (e.g. random sampling) and the extent to which they accurately reflect the population (e.g. the sample is representative of the population which it reflects). Weighting corrects for the likelihood of sample participants in each country being selected to participate, whilst weighting to the population adjusts for the extent to which participants differ from the population from which they are drawn (Chambers and Skinner 2003). Without addressing sampling design and participant selection probabilities, the validity of between-nation comparisons is questionable.

There are notable exceptions to these limitations (Ballas and Tranmer 2012; Cheng et al. 2016; Levin et al. 2011; Schyns 2002; Tella et al. 2003; Wang and Wong 2014). For example, the issue of examining cross-national differences in wellbeing within a multi-level framework was highlighted several years ago by Schyns (2002) who examined the impact of within and between-nation income differences as determinants of life satisfaction and was able to demonstrate the particular vulnerabilities of the poor living in the poorest countries in contrast to the poor living in wealthier countries. Similarly, Ballas and Tranmer (2012) utilised a multi-level framework to assess data from the British Household Panel Survey and identified that wellbeing variance between local areas in the UK were not substantial. Their findings indicated that most variance was accounted for within local regional areas. It may therefore follow that purported between-nation differences are overstated in comparison to the extent wellbeing actually varies between nations. For example, one study of 33 countries found that only 3–7% of the variance in happiness could be attributed to the nation level (Wang and Wong 2014). Although not emphasised in the results, Layte (2012) found similar proportions of wellbeing variance accounted for at the between-nation level. Bleidorn et al. (2016) identified only 2% of the variance in self-esteem was accounted for at the between-nation level. Such findings are increasingly reported (Joshani et al. 2015). If these findings are consistent between other nations, and importantly across multiple wellbeing measures, it brings into question the utility of examining between-nation differences if most of the variance is accounted for at the within-nation or individual levels. Instead it supports an argument for a greater focus on within-nation disparity. These findings should not be surprising; previous research, including findings from large longitudinal population studies and measurement burst studies, have suggested that between 40 and 60% of the variance in wellbeing could be attributed specifically to within-person factors (Burns et al. 2014; Burns and Ma 2015; Burns and Machin 2012; Mroczek and Spiro 2005; Mroczek et al. 2003).

The current paper therefore seeks to address a number of the limitations with existing between-nation wellbeing comparisons. Two main aims will be addressed. Within a multi-level framework the first aim will decompose variance in several wellbeing indicators in a 2-level multi-level model in which citizens are nested within nations. This will allow us to demonstrate the extent to which wellbeing varies at the between-nation level. The second aim will examine the extent to which social, demographic and economic drivers of wellbeing account for between and within-nation wellbeing variance components. Three contexts will be considered to examine this second aim. First, measures of trust in national political and legal structures will examine the extent to which these social-political contexts account

for between and within-nation wellbeing (Harrington et al. 2015; Portela et al. 2013). Second, within and between-level indicators of financial capital will examine the extent to which between and within-nation wellbeing variance can be accounted for by economic factors (Arthaud-Day and Near 2005; Diener et al. 1995b; Kenny 2005).

Finally, analyses will combine these measures of within and between-nation trust and financial/economic factors with demographic factors such as age, gender and marital status. These analyses will allow us to demonstrate the differences between nation-level (e.g. GDP) and individual-level (e.g. household income) drivers of individual wellbeing. To address limitations of other cross-national wellbeing comparisons, data will be weighted to adjust for individuals' likelihood of being sampled and the extent they reflect the national population (Chambers and Skinner 2003). This way sample estimates can be said to reflected the population (Chambers and Skinner 2003). Also, by utilising a multi-dimensional model of wellbeing (Huppert et al. 2009), this study addresses significant limitations of many cross-national comparative studies that have primarily focused on single wellbeing indicators (e.g. life satisfaction, happiness) and incorporate other wellbeing dimensions.

## 2 Methods

### 2.1 Participants

Participant data was obtained from the European Social Survey (ESS) from the online ESS website ([www.europeansocialsurvey.org](http://www.europeansocialsurvey.org)). Substantial background and detail about the ESS are covered by Stoop et al. (2002). In brief, the ESS is a large-scale international survey project designed to create a map of social attitudes in Europe to complement economic and demographic survey data. The ESS has been funded by the European Commission, the European Science and the National Science Foundations. Originally, the first wave of data collection was undertaken in 2002/3 in 22 countries. The data for the current study was derived from the third wave of data collection and comprised 43,000 participants from 23 countries that include Austria, Belgium, Bulgaria, Switzerland, Cyprus, Germany, Denmark, Estonia, Spain, Finland, France, Great Britain, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Russia, Sweden, Slovenia, Slovakia and Ukraine. Participants ( $n=39,272$ ) were on average 47.7 years of age ( $SD=18.6$  years; range=14–101); 54.4% were female. The number of respondents within countries ranged from 907 to 2715.

### 2.2 Measures

#### 2.2.1 Wellbeing Outcomes

*Wellbeing* was measured with the ESS Wellbeing Module which has previously been fully described elsewhere (Huppert et al. 2009). Informed from a wellbeing literature that frequently describes the importance of using multiple indicators of wellbeing (Deci and Ryan 2000; Ryan and Deci 2001), the ESS module comprises a multi-dimensional model that includes items reflecting multiple dimensions of psychological feeling [Positive ( $\alpha=.75$ ) and Negative ( $\alpha=.73$ ) Emotions, Vitality ( $\alpha=.75$ ), Self-Esteem ( $\alpha=.64$ ), Satisfaction ( $\alpha=.85$ )] and functioning, [Competence ( $\alpha=.44$ ), Autonomy ( $\alpha=.55$ ), Engagement ( $\alpha=.45$ ), Purpose ( $\alpha=.40$ )] as well as social dimensions [Social Support ( $\alpha=.53$ ), and Social Trust and Belongingness ( $\alpha=.64$ )]. Item content are detailed in Supplementary

Table 1. Clearly several internal reliability estimates for individual wellbeing dimensions are low; this is due to indicators being derived from only two or three items. Also several items within wellbeing domains were on different scales. Such domains report lower alpha. Consequently standardized scores ( $M=50$ ;  $SD=10$ ) for each wellbeing dimensions were computed and averaged based on a-priori scale development (Huppert et al. 2009). Then a factor analysis of all wellbeing indicators was undertaken, revealing that all wellbeing scales reflected a single wellbeing factor reporting an eigenvalue  $> 1$  and capturing 98% of the variance in the wellbeing items. Cronbach's alpha for the scores that reflected this factor was appropriate ( $\alpha=.86$ ; range between nations was  $\alpha=.79$  thru  $\alpha=.88$ ). Item loadings for this factor analysis are reported in Supplementary Table 2. Analyses will utilise all individual wellbeing scales and the overall wellbeing factor score as dependent variables.

### 2.2.2 Predictors of Wellbeing

*Trust in judiciary, and political structures* was measured with several items that asked participants to indicate their trust in their country's parliament, legal system, police, politicians, and political parties, on scale from '0' 'No trust at all' to '10' 'Complete Trust'. Within-nation indicators of trust were derived from a factor analysis with an oblique direct oblimin rotation of all the trust items which identified that these manifest indicators reflected 1 latent Trust factor at level 1 of the multi-level model. A between-nation indicator of trust was derived from the same trust items. National means on each item were computed. As with the within-nation level factor scores, a factor analysis was undertaken of the nation-level trust scores and again revealed that these manifest indicators reflected 1 latent Trust factor at level 2 of the multi-level model. Results of the factor analyses of trust indicators within and between nations are reported in Supplementary Table 3. Both factor analyses revealed a single level factor reporting eigenvalue  $> 1$ , with 94 and 98% of the variance explained in the level 1 and level 2 factors respectively.

*Financial Capital* was assessed using several different items for within and between-level nation analyses. Between-nation indicators of financial capital were drawn from The World Bank data archives (<http://data.worldbank.org/indicator>) and included measures of Gross Domestic Product (GDP) per capita, and percentile rates of GDP Growth and Unemployment. Within-nation financial capital was assessed using data from the ESS survey and included participants' self-reported household total net income with  $< 30,000$  EU the reference category. However, three nations (Hungary, Ukraine, and Estonia) did not have equivalent household income data. Therefore an additional model was also estimated replacing the household income variable with an item that assessed participants' perception that they were "living comfortably off their income" (the reference), "coping with their income", and "finding it very difficult/difficult to live on their income". Nation-averaged levels were computed by assigning the nation's modal response. This additional model was estimated in combination with the trust in judiciary/political structures items in order to maximise inclusion of European countries.

## 2.3 Statistical Analyses

A series of analyses were undertaken within a multi-level framework to test the study aims (Snijders and Bosker 1999). A multi-level framework adjusts for the nested nature of the data in which participants (Level 1) are nested within-nations (Level 2). Failing to adjust for such structured data can lead to incorrect inferences as traditional regression

methods treat each unit as independent observations, when data within-levels are likely correlated, leading to standard error that are underestimated and Type 1 error—claiming an effect when one does not exist (Snijders and Bosker 1999). Other advantages include model estimates derived from maximum likelihood estimation, the partitioning of dependent variable variance into components to reflect the different levels of the data hierarchy, and the inclusion of Level 1 (within-nation) and 2 (between-nation) predictors. Further advantages of multi-level models include cross-level interactions but these will not be examined here. Analyses of the individual wellbeing scales and the wellbeing factor score were assessed one at a time.

Analyses were weighted to adjust for design effects at level 1 of the analyses. Several participant countries implemented sampling designs whereby probability of selection into the ESS varied between-nations and between regions within-nations. Design weights were computed to correct for these different sampling probabilities and estimated as the inverse of the inclusion probabilities. To account for differences in population sizes between-nations, a population weight was included to adjust for the extent the sample reflected nations' population. All analyses were adjusted for sex (male vs. female—reference), age (mean centred to the sample average of 47.89 years) and marital status (married—reference vs. Separated/Divorced, Widowed, Never Married). Of the 43,000 in the ESS, missing data on those variables included in the analyses were very low (<1%), therefore analyses were undertaken on those ( $n=39,272$ ) who provided full information on all variables. As data was to be weighted, imputation methods (multiple imputation with chained equations) was not considered. All analyses were undertaken in STATA v.14.

### 3 Results

#### 3.1 Delineating Between and Within-Nation Wellbeing Variance

One-Way ANOVA estimated the differences between nations across all wellbeing indicators and are reported in Table 1. There were significant differences between nations on all wellbeing outcomes. Intercept-only multi-level models were then estimated in order to derive the variance components across all wellbeing variables. Despite nation differences in mean levels of wellbeing, comparison of the variance components revealed that most of the variance in most of the wellbeing indicators was not accounted for at the between-nation level (Table 1). Eight of the 11 wellbeing outcomes reported variance less than 5% at the between-nation level. Other than positive (9.2%) and negative (7.2%) emotion, most wellbeing indicators reported very little variance (2.8–5.0%) at the between-nation level. Only life satisfaction (22.7%), reported variance of any substantial size at the between-nation level. These results suggest that despite mean level differences in wellbeing between nations, focusing on cross-national wellbeing differences needs to be moderated by the extent to which wellbeing actually varies between-nations. These findings suggest that most wellbeing variance is not accounted for at the between-nation level. Rerunning these models with independent residuals, that is where residuals were estimated separately for each nation, indicated that the proportions of the variance at level 2 were relatively consistent between nations (Supplementary Tables 4 and 5). Consequently, we must conclude that wellbeing varies far more within than between nations.



**Table 1** Differences between countries and comparison of variance components from an intercept only multi-level model

	ANOVA analysis	Multi-level analysis		
		Variance components		Proportion of variance accounted for between nations (Level 2)
		Level 2	Residual	% (95 CI)
	F (df)	B (SE)	B (SE)	
Positive emotion	200.68 (22)***	6.36 (1.18)	62.87 (2.68)	9.2 (7.1; 11.8)
Negative emotion	211.15 (22)***	5.64 (1.04)	78.02 (4.62)	7.2 (5.7; 9.2)
Vitality	126.53 (22)***	1.49 (.36)	37.07 (1.47)	4.0 (2.7; 5.9)
Self-esteem	110.36 (22)***	2.42 (.83)	62.94 (3.38)	3.9 (2.2; 6.8)
Competence	100.80 (22)***	1.80 (.58)	57.44 (1.81)	3.1 (1.8; 5.5)
Autonomy	69.87 (22)***	1.65 (.45)	55.31 (1.73)	3.0 (1.9; 4.8)
Engage	137.35 (22)***	1.93 (.58)	43.37 (2.55)	4.4 (2.7; 7.2)
Purpose	73.32 (22)***	2.05 (.65)	73.35 (4.21)	2.8 (1.7; 4.6)
Support	102.85 (22)***	1.54 (.46)	32.22 (3.16)	4.8 (3.2; 7.1)
Trust and belonging	134.47 (22)***	1.93 (.52)	38.38 (.99)	5.0 (3.1; 8.1)
Life satisfaction	533.08 (22)***	20.93 (5.42)	91.92 (8.08)	22.7 (16.3; 31.9)
Wellbeing	185.84 (22)***	6.29 (1.36)	93.21 (4.46)	6.8 (7.7; 14.9)

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

### 3.2 The Effects of Between and Within-Nation Trust in Political and Legal Processes on Wellbeing Variability

The utility of discriminating between and within-nation effects across the wellbeing indicators was then examined using within and between-nation level indicators of trust in political systems and judiciary (Table 2). Results between different wellbeing indicators were not consistent. That is for some wellbeing indicators, between-nation factors were identified as the main drivers in wellbeing, whilst for other wellbeing indicators within-nation factors were the strongest drivers in wellbeing responses. For example, for negative emotion, stronger effects of trust were reported between-nations ( $B = -1.80$ ;  $SE = .29$ ) in comparison with the within-nation ( $B = -.79$ ;  $SE = .12$ ) effects. In contrast, for trust and belonging, stronger effects were reported within-nations ( $B = 1.68$ ;  $SE = .10$ ) than in comparison with the between-nation ( $B = .40$ ;  $SE = .26$ ) effects. For some wellbeing indicators, between and within-nation factors contributed equally; comparable effects of trust between ( $B = 1.70$ ;  $SE = .19$ ) and within ( $B = 1.69$ ;  $SE = .33$ ) nations in overall wellbeing were reported.

Examination of the variance components reveals interesting findings. It is important to note that the inclusion of a single indicator of between and within-nation trust, accounted for a substantial proportion of between-nation variance. Between 33 and 77% of the unadjusted variance from the null model was accounted for at the between-nation level (Table 1) by the trust variables alone, leaving little variation unaccounted for at the between-nation level. For the residual, between 3.2 and 10.6% of the variance was accounted for across different wellbeing indicators. There is still a substantial amount of



**Table 2** Comparison of between and within-nation differences in trust of politicians, law, democracy, and police on wellbeing

	Fixed effects trust		Variance components		Proportional reduction		Variance explained	
	Within		Between		Level 1		Level 2	
	B (SE)		B (SE)		B (SE)	%	B (SE)	%
Positive emotion	1.21 (.10)***	1.66 (.37)***	1.76 (.29)	57.22 (2.00)	9.0	72.4	.08 (.01)***	.60 (.11)***
Negative emotion	-.79 (.12)***	-1.80 (.29)***	1.30 (.43)	71.33 (3.75)	8.6	77.0	.06 (.01)***	.64 (.10)***
Vitality	.70 (.11)***	.60 (.15)***	.44 (.12)	33.17 (.99)	10.6	70.5	.08 (.01)***	.40 (.14)***
Self-esteem	.62 (.05)***	.24 (.34)	2.00 (.74)	60.86 (3.33)	3.4	17.4	.02 (.00)***	.03 (.07)
Competence	.67 (.19)***	.53 (.25)*	1.28 (.32)	55.64 (1.76)	3.2	28.9	.03 (.00)***	.39 (.15)**
Autonomy	.73 (.15)***	.96 (.22)***	.37 (.11)	53.12 (2.15)	4.0	77.6	.02 (.00)***	.58 (.13)***
Engage	.60 (.09)***	.49 (.23)*	1.25 (.63)	40.19 (2.12)	7.4	35.3	.06 (.01)***	.20 (.17)
Purpose	1.02 (.12)***	.63 (.35)	1.04 (.21)	68.44 (3.39)	6.7	49.3	.03 (.00)***	.43 (.13)**
Support	.43 (.06)***	.73 (.23)***	.79 (.25)	30.04 (2.86)	6.8	48.7	.05 (.01)***	.29 (.17)
Trust and belonging	1.68 (.10)***	.40 (.26)	1.00 (.32)	34.93 (.94)	9.0	48.2	.10 (.01)***	.10 (.10)
Life satisfaction	2.46 (.21)***	3.38 (.69)***	4.83 (2.22)	82.00 (6.16)	10.8	76.9	.11 (.01)***	.73 (.10)***
Wellbeing	1.70 (.19)***	1.69 (.33)***	.93 (.29)	84.33 (3.58)	9.6	85.3	.09 (.01)***	.69 (.10)***

Proportional reduction: reflects the proportional reduction in Variance between the intercept-only model and the Political Trust Model

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

within-nation variance that remains to be accounted for. In terms of variance explained, there was a large amount of variance explained by the trust variables. Overall, there was far greater variability explained at the between-nation level although this ranged from 3% for self-esteem to 73% for life satisfaction. For level 1, variance explained ranged from 2% for Self-Esteem and Autonomy, to 11% for Life Satisfaction. The variance explained between-nations must be balanced by the variance components which showed that so little of the variance actually varied between-nations.

### 3.3 The Effects of Between and Within-Nation Financial Capital on Wellbeing Variability

The importance of discriminating between and within-nation wellbeing was then demonstrated using between and within-nation indicators of financial/economic capital. Examination of overall wellbeing and the psychological feeling indicators (Table 3) indicate greater substantive effects attributed to within-nation differences in financial capital. Overall, unemployment rate, GDP growth, GNI and GDP per capita were mostly unrelated to psychological feeling or were of considerably smaller magnitude in comparison with the within-financial capital indicators. Similarly for psychological functioning and social wellbeing, there were few between-nation effects (Table 4). Only effects for national-averaged household income on Purpose, Support and Trust and Belongings were of a substantive magnitude. Of interest, differences in the magnitude of within-nation financial capital were reported and suggests that higher levels of net household income are not strong drivers for all wellbeing indicators. This supports the need for the inclusion of a multi-dimensional model of wellbeing since the association between financial capital and different wellbeing outcomes was not consistent.

As with the previous analyses of the unconditioned model (Table 1) and the model adjusted for trust (Table 2), examination of the variance components from these models of financial capital provide important findings. Overall, the proportion of variance at the between-nation level in these models was very small and approached zero in comparison with the level 1 variance. Clearly, a substantial proportion of the between-nation variance identified in the intercept-only model was accounted for in the model conditioned for financial capital. As with the analyses of the trust variables, a large amount of wellbeing variance was explained by these economic factors. Again, there was far greater variability explained at the between-nation level although this ranged from 24% for self-esteem to 77% for the general wellbeing factor. In contrast, the amount of level 1 variance explained ranged from only 2–6% for all variables. Again, whilst the amount of between-nation variance explained by these models appears substantive this must be balanced by the small extent to which wellbeing varies between-nations.

### 3.4 The Effects of Between and Within-Nation Financial Capital on Wellbeing Variability

Finally, a multi-variate model incorporated both the trust and financial capital models was estimated. However, as three nations (Hungary, Ukraine, and Estonia) did not have equivalent household income data and were excluded from the earlier financial capital models, the following models therefore substituted household income data with an item that assessed participants' perception that they were "living comfortably off their income" (the reference), "coping with their income", and "finding it very difficult/difficult to live

**Table 3** Comparison of between and within-nation differences in financial capital on wellbeing and psychological feeling

	Wellbeing B (SE)	Life satisfaction B (SE)	Positive emotion B (SE)	Negative emotion B (SE)	Vitality B (SE)	Self-esteem B (SE)
<i>Fixed effects</i>						
Intercept	49.33 (.31)***	49.26 (.88)***	50.16 (.48)***	50.71 (.17)***	49.06 (.29)***	49.55 (.54)***
Between-nation						
Unemployment	.13 (.08)	.48 (.22)*	.06 (.16)	-.13 (.04)**	.15 (.06)**	.16 (.17)
GDP per capita	.11 (.02)***	.23 (.06)***	.10 (.06)	-.13 (.02)***	.06 (.02)***	.00 (.05)
GDP-Growth rate	.11 (.11)	.27 (.42)	-.19 (.26)	-.19 (.13)	.20 (.12)	-.19 (.28)
Household income	1.17 (1.02)	.72 (1.70)	-.25 (1.12)	.27 (.82)	.20 (.54)	-.51 (1.39)
Within-nation						
30–60k EU\$	2.04 (.39)***	2.45 (.59)***	1.36 (.38)***	– 1.62 (.19)***	1.16 (.23)***	.60 (.30)*
60–90k EU\$	3.14 (.64)***	3.12 (.77)***	1.90 (.53)***	– 2.25 (.37)***	1.48 (.13)***	1.12 (.42)**
90k+ EU\$	3.64 (.54)***	3.25 (.69)***	2.22 (.48)***	– 1.92 (.36)***	1.28 (.29)***	1.90 (.30)***
<i>Random effects</i>						
Between-nation	.63 (.28)	4.48 (1.53)	1.12 (.49)	.29 (.17)	.29 (.14)	1.72 (.59)
Within-nation	83.91 (3.34)	86.20 (8.75)	57.74 (2.07)	70.28 (3.75)	33.20 (.82)	60.20 (3.43)
<i>Variance explained</i>						
Within-nation ( $R^2$ )	.06 (.01)***	.06 (.01)***	.05 (.01)***	.06 (.01)***	.07 (.01)***	.02 (.00)***
Between-nation ( $R^2$ )	.77 (.10)***	.62 (.14)***	.69 (.11)***	.71 (.11)***	.54 (.13)***	.24 (.17)

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

**Table 4** Comparison of between and within-nation differences in financial capital on psychological functioning and social wellbeing indicators

	Competence B (SE)	Autonomy B (SE)	Engage B (SE)	Purpose B (SE)	Support B (SE)	Trust and belonging B (SE)
<i>Fixed effects</i>						
Intercept	49.62 (.30)***	48.99 (.25)***	49.86 (.43)***	50.20 (.45)***	50.21 (.28)***	49.77 (.35)***
Between-nation						
Unemployment	-.05 (.15)	.01 (.08)	.08 (.11)	.05 (.09)	-.03 (.06)	.05 (.07)
GDP per capita	.09 (.04)*	.06 (.02)**	.07 (.03)*	.01 (.03)	-.01 (.02)	.03 (.02)
GDP-Growth rate	.66 (.23)**	-.06 (.12)	.41 (.22)	-.32 (.19)	-.30 (.17)	-.03 (.19)
Household income	.54 (1.13)	.63 (.80)	-.24 (1.22)	2.34 (1.05)*	1.29 (.58)*	2.23 (.75)**
Within-nation						
30-60k EU\$	1.31 (.24)***	-.36 (.21)	1.69 (.17)***	.72 (.35)*	.46 (.17)**	.50 (.28)
60-90k EU\$	2.41 (.45)***	-.06 (.48)	2.31 (.21)***	1.69 (.56)**	.69 (.32)*	.71 (.44)
90k+ EU\$	3.17 (.43)***	.39 (.34)	2.97 (.17)***	1.99 (.41)***	.69 9.24)***	1.25 (.30)***
<i>Random effects</i>						
Between-nation	.77 (.33)	.43 (.15)	1.21 (.46)	.61 (.24)	.68 (.36)	.95 (.58)
Within-nation	55.12 (1.31)	54.19 (1.97)	39.32 (2.14)	68.73 (4.42)	29.07 (3.10)	37.09 (1.02)
<i>Variance explained</i>						
Within-nation ( $R^2$ )	.03 (.00)***	.02 (.00)***	.06 (.01)***	.02 (.00)***	.04 (.01)***	.04 (.01)***
Between-nation ( $R^2$ )	.67 (.13)***	.62 (.10)***	.38 (.16)*	.58 (.15)***	.52 (.15)***	.71 (.12)***

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

on their income". Level 2 nation-average levels were computed by assigning the nation's modal response to this item. Results of these multivariate models on overall wellbeing, and the individual wellbeing outcome indicators are displayed in Tables 5 and 6. Most notably, the more individuals reported with living comfortably on their income accounted for a .81 SD effect on overall wellbeing, and effect sizes of between .26 and .59 SD for the individual wellbeing variables. Socio-demographic differences were not consistent between different wellbeing indicators, although there was relatively consistent negative effects for those who were separated/divorced or widowed. Consistently, effects for between-nation differences in trust and financial capital were unrelated to wellbeing outcomes. Exceptions include the effect of national-averaged perceptions of difficulty living on current income on overall wellbeing, positive emotion, autonomy, purpose and trust and belonging. Instead it is clear that within-nation factors appear to be far stronger drivers of individual wellbeing. For example, GDP was only weakly associated with sense of Competence, Autonomy and Engagement (e.g. .09–.07), whilst the effects for within-nation income levels were 20–35 times larger (e.g. 1.31–3.17).

Again, a review of the variance components indicates that most of the variance identified at the between-nation level in the intercept-only model, across all wellbeing indicators, was accounted for. For most wellbeing outcomes, the variance component for level 2, the proportion of variance at the between-nation level, approaches zero. Even for life satisfaction, in which 22.7% of the variance was captured by the second level in the intercept-only model, only 1.8% of the unaccounted variance in this final model was reported at the between-nation level. Overall, these results again confirm that wellbeing varies more greatly within nations than between nations. Further the fixed effects indicate that within-nation differences are far more substantive drivers of individual wellbeing than between-nation factors. And in line with the prior analyses, the final multi-variate models that combined trust and financial capital variables indicated a large amount of variance explained. However, consistent with the prior analyses, there was far greater variability explained at the between-nation level although this ranged from 12% for Purpose to 78% for the Life Satisfaction. Of the level 1 wellbeing variance, variance explained ranged from only 5% for self-esteem to 28% for Life Satisfaction. Again, whilst the amount of variance explained by these models appears substantive, particularly at the between-nation level, this must be balanced by the extent to which wellbeing varies between-nations.

Finally, best linear unbiased predictions (BLUPs) were estimated for the results of the overall wellbeing score from this final model and are displayed in Fig. 1 in order to compare with the aggregated mean country average (reflected by the gray square indicators) and the model adjusted estimates (reflected by the black crosses). Clearly, differences in between-nation differences in wellbeing are attenuated when comparing the aggregated nation means and the model adjusted estimates. The greater the difference between a nation's aggregated mean and estimated mean reflects the impact of differences in the predictors between nations. BLUPs and their corresponding 95% CI are empirical Bayes estimates (Snijders and Bosker 1999) of each country's overall wellbeing score and are reflected by the circles and error bars. The main difference between the BLUP and estimated model mean is that the estimated model mean is based on the fixed portion of the model for that nation. The BLUP is a weighted average of the nation's estimated score and the overall population of the entire sample. We can see in Fig. 1 that examination of the BLUPs indicate far fewer between-nation differences, perhaps only between the very top and bottom ranked countries, and even then these differences are of only a small magnitude. The BLUPs again provide evidence to suggest that between-nation differences are likely not as substantive as frequently posited.

**Table 5** Comparison of between and within-nation differences in social, economic and demographic factors on wellbeing and psychological feeling

	Wellbeing	Life satisfaction	Positive emotion	Negative emotion	Vitality	Self-esteem
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
<b>Fixed effects</b>						
Intercept	55.09 (.58)***	54.51 (.88)***	53.96 (.47)***	48.24 (.46)***	51.51 (.36)***	51.16 (.72)
<i>Within-nation</i>						
Trust	1.36 (.11)***	2.11 (.20)***	.96 (.07)***	-.60 (.08)***	.55 (.08)***	.44 (.05)***
Living comfortably (ref)						
Coping on income	-2.72 (.21)***	-2.55 (.37)***	-2.00 (.11)***	1.30 (.07)***	-1.09 (.18)***	-1.22 (.19)***
Difficulty living on income	-8.14 (.47)***	-8.24 (.67)***	-5.92 (.24)***	4.74 (.39)***	-3.68 (.19)***	-3.94 (.36)***
Male	1.03 (.16)***	-.39 (.17)*	-.08 (.10)	-1.89 (.25)***	1.15 (.12)***	1.27 (.39)**
Married (ref)						
Separated/divorced	-2.96 (.33)***	-2.61 (.26)***	-3.02 (.30)***	2.04 (.29)***	-.69 (.12)***	-1.29 (.25)***
Widowed	-5.37 (.67)***	-2.62 (.34)***	-4.65 (.38)***	4.77 (.43)***	-3.61 (.46)***	-.57 (.46)
Never married	-.78 (.35)*	.28 (.49)	-4.65 (.38)***	.56 (.28)*	.59 (.32)	-.21 (.39)
Age (10-year group)	-.04 (.00)***	-.01 (.01)	-.03 (.01)*	.03 (.01)*	-.04 (.02)	.00 (.00)
<i>Between-nation</i>						
Trust	-.20 (.41)	.71 (.66)	-.66 (.33)	.31 (.46)	-.14 (.23)	-.18 (.71)
Living comfortably (ref)						
Coping on income	-1.97 (.74)**	.73 (1.15)	-.09 (.52)	.31 (.55)	-1.08 (.60)	-.12 (1.16)
Difficulty living on income	-.68 (.78)	-4.45 (1.90)*	-2.50 (1.15)*	-1.06 (1.09)	.69 (.37)	1.52 (1.73)
Unemployment	.12 (.11)	-.01 (.22)	-.26 (.14)	-.19 (.10)	.26 (.09)**	.28 (.23)
GDP_Capita	.01 (.02)	.05 (.05)	.01 (.03)	-.11 (.03)	.04 (.01)**	.00 (.05)
GDP_Growth	-.16 (.14)	.91 (.43)*	.05 (.18)	-.12 (.14)	-.00 (.12)	-.26 (.31)
<b>Random effects</b>						
Between-nation	.34 (.13)	1.36 (.48)	.45 (.17)	.38 (.18)	.21 (.11)	1.48 (.49)
within-nation	77.36 (3.88)	74.85 (5.85)	53.62 (2.02)	68.89 (3.98)	31.72 (.93)	59.38 (3.56)

**Table 5** (continued)

	Wellbeing	Life satisfaction	Positive emotion	Negative emotion	Vitality	Self-esteem
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
<b>Variance explained</b>						
Between-nation ( $R^2$ )	.64 (.16)***	.78 (.08)***	.62 (.12)***	.64 (.11)***	.21 (.14)	.33 (.15)*
Within-nation ( $R^2$ )	.21 (.01)***	.28 (.01)***	.15 (.01)***	.11 (.01)***	.14 (.01)***	.05 (.01)***

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



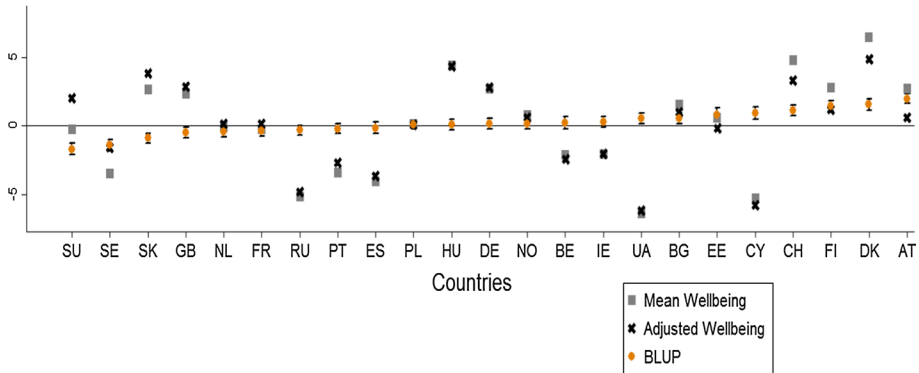
**Table 6** Comparison of between and within-nation differences in social, economic and demographic factors on psychological functioning and social wellbeing indicators

	Competence B (SE)	Autonomy B (SE)	Engage B (SE)	Purpose B (SE)	Support B (SE)	Trust and belonging B (SE)
<b>Fixed effects</b>						
Intercept	52.28 (.58)***	51.52 (.41)***	52.59 (.64)***	54.26 (.81)***	52.35 (.45)***	53.11 (.85)***
<i>Within-nation</i>						
Trust	.49 (.13)***	.60 (.11)***	.44 (.06)***	.87 (.09)***	.32 (.06)***	1.54 (.07)***
Living comfortably (ref)						
Coping on income	-1.77 (.24)***	-1.34 (.15)***	-1.40 (.10)***	-1.26 (.18)***	-.76 (.07)***	-1.09 (.14)***
Difficulty living on income	-4.49 (.50)***	-3.51 (.25)***	-3.65 (.23)***	-3.91 (.42)***	-2.61 (.18)***	-2.71 (.37)***
Male	.26 (.12)*	.76 (.19)***	.12 (.08)	-.24 (.15)	-.17 (.09)	-.15 (.08)
Married (ref)						
Separated/divorced	-.59 (.15)***	.34 (.32)	-.46 (.25)	-1.56 (.19)***	-2.17 (.33)***	-1.65 (.11)***
Widowed	-2.00 (.24)***	1.38 (.63)*	-3.58 (.32)***	-2.23 (.44)***	-2.87 (.32)***	.22 (.33)
Never married	-.45 (.33)	.32 (.10)**	-.20 (.23)	-1.85 (.24)***	-.33 (.17)*	-1.58 (.17)***
Age (10-year group)	-.02 (.01)*	.01 (.02)	-.03 (.01)	-.00 (.00)	-.02 (.01)**	.02 (.01)
<i>Between-nation</i>						
Trust	.37 (.39)	.07 (.30)	.40 (.61)	-.31 (.58)	.08 (.43)	.03 (.61)
Living comfortably (ref)						
Coping on income	-.80 (.73)	-1.02 (.49)*	-1.48 (1.06)	-2.45 (1.00)*	-.58 (.71)	-1.73 (1.09)
Difficulty living on income	2.13 (1.66)	-1.85 (.62)**	1.93 (1.35)	-1.83 (1.18)	-1.71 (.96)	-2.92 (1.30)*
Unemployment	.06 (.21)	-.08 (.06)	.27 (.19)	.03 (.14)	-.10 (.12)	-.10 (.15)
GDP_Capita	.03 (.05)	-.02 (.01)	.00 (.06)	-.05 (.03)	-.03 (.04)	-.08 (.05)
GDP_Growth	.13 (.21)	-.02 (.09)	-.30 (.20)	-.45 (.21)*	-.06 (.19)	-.19 (.20)
<b>Random effects</b>						
Between-nation	.89 (.36)	.19 (.09)	1.17 (.57)	.59 (.17)	.56 (.24)	.72 (.24)
Within-nation	53.64 (1.87)	51.85 (2.23)	38.84 (2.14)	66.75 (3.54)	29.20 (2.84)	34.25 (1.03)

Table 6 (continued)

	Competence B (SE)	Autonomy B (SE)	Engage B (SE)	Purpose B (SE)	Support B (SE)	Trust and belonging B (SE)
<b>Variance explained</b>						
Between-nation ( $R^2$ )	.30 (.14)*	.21 (.16)	.06 (.08)	.12 (.14)	.13 (.12)	.12 (.13)
Within-nation ( $R^2$ )	.08 (.01)***	.06 (.01)***	.10 (.01)***	.07 (.01)***	.08 (.01)***	.13 (.01)***

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



**Fig. 1** Comparison of raw mean wellbeing and best linear unbiased predictions (BLUPs) of overall wellbeing in 23 European countries. *SU* Slovenia, *SE* Sweden, *SK* Slovakia, *GB* Great Britain, *NL* Netherlands, *RU* Russia, *PT* Portugal, *ES* Spain, *PL* Poland, *HU* Hungary, *DE* Germany, *NO* Norway, *BE* Belgium, *IE* Ireland, *UA* Ukraine, *BG* Bulgaria, *EE* Estonia, *CY* Cyprus, *CH* Switzerland, *FI* Finland, *DK* Denmark, *AT* Austria

## 4 Discussion

This study primarily sought to determine the extent to which wellbeing varies between and within-nations. By partitioning wellbeing variance into between and residual variance components, results clearly demonstrated that variance in most indicators of wellbeing (>95%) was not accounted for between-nations. Hence, any purported between-nation differences in wellbeing differences, even those mean level differences reported in this paper (see Table 1), need to be carefully interpreted. These findings are in line with other recent cross-national comparisons of wellbeing outcomes (Bleidorn et al. 2016; Joshanloo et al. 2015; Layte 2012; Wang and Wong 2014). Whilst positive and negative emotions reported 9.2 and 7.2% of their respective variance at the between-nation level, only life satisfaction reported substantial variation at the between-nation level with around 22.7% of the variance in life satisfaction accounted for at the higher level of the data structure. Why should life satisfaction differ substantively from other wellbeing indicators? In some respects many of the ESS wellbeing indicators reflect individual level traits and are more likely to be an outcome of individuals themselves. In contrast, life satisfaction is as strong a measurement of external life context and consequently driven by national differences in economic prosperity and social policy, as well as an outcome of individual characteristics. However, it must be emphasised that these variance components are from the unadjusted analyses (see Table 1). Examination of the variance components in the various adjusted models (see Tables 2, 3, 4, 5, 6) shows that most level 2 variance components approach zero percent. Even life satisfaction only reported around 1.8% variance in the adjusted regression models at the between-nation level (see Table 5). Clearly individual wellbeing varies more greatly within-nations and possibly at the individual level, than between-nations.

It was clear that what limited between-nation factors were included in these analyses were able to explain a considerable amount of wellbeing variation, particularly at the between-nation level. The amount of level 2 (between-nation) explained variance was as high as 78% for the fully adjusted model for some wellbeing outcomes (e.g. life satisfaction). However, given that so little variance was accounted for between nations, it is not

surprising that these models are able to ‘explain’ this amount of variance. In contrast, the variance explained at level 1 was far less substantive (e.g. 28% for life satisfaction), perhaps owing to the limited individual-level factors. It is known that personality and traits are strongly predictive of individual-level wellbeing (Burns and Ma 2015; Burns and Machin 2010) and more variance would likely be explained at the lower level of the hierarchy if individual factors were included. Regardless, since more variance was reported at level 1 this lower explained variance reflects a greater proportion of wellbeing variance than the greater amount of explained variance at level 2. Overall, the patterns of the variance components and variance explained were consistent in all models although reversed in their measure of magnitude. Simply, wellbeing varied far less between nations and consequently the level 2 predictors explained most of this small amount of wellbeing variance. In contrast, there was a considerable amount of residual variance not accounted for by the clustering of nations, but comparably lower variance explained. Importantly, a comparison of effects clearly demonstrate that it is the within-nation and individual level factors which reported the more substantive effects on the wellbeing outcomes than the between nation differences.

The second aim of the study examined the extent to which between and within-nation factors accounted for between and within-nation wellbeing variance using indicators of trust in judiciary and political systems, and economic factors. For the analysis of trust factors, there were comparable within and between-nation effects in judicial/legal trust that accounted for both between and within-nation variance in wellbeing. With regards the analysis of financial and economic factors, between-nation differences were not strongly associated with wellbeing outcomes. Rather it was the within-nation differences in net family income that was most strongly related to wellbeing, across most indicators. This is line with the findings of other studies which have emphasised the importance of relative income in contrast to global national wealth status (Kenny 2005). It is noted that other authors have suggested that within-nation correlations between income and wellbeing are small and is of consequence mostly to overcome levels of poverty (Diener and Biswas-Diener 2002). However, the findings from this study indicate that wellbeing increases incrementally as household income increases. This finding was replicated in the 3rd set of analyses that combined both the judicial/legal trust variables and the financial/economic factors. Of importance, due to the small extent to which wellbeing variance was accounted for at the between-nation level in unadjusted analyses, most of this between-nation variance was accounted for in these analyses. Overall, most of the level 2 between-nation wellbeing variance approached zero in the adjusted regression models whilst substantial level 1 variance remained. Although substantial residual variance remained, those within-nation factors included in these analyses were comparatively stronger drivers of wellbeing in contrast to the effects reported for between-nation factors. Between-nation drivers of wellbeing were mostly of little substantive magnitude in comparison with the within-nation effects. For example, individuals who reported difficulty living on their income reported .82 SD lower level in their life satisfaction than those living comfortably on their household income; that is almost a full standard deviation lower. In comparison, a 1% increase in GDP Growth was associated with a .09 SD increase. As a comparison, it therefore would take a 9.11% increase in GDP growth to report a comparable .82 SD increase in their life satisfaction. Therefore addressing within-nation inequalities in terms of social, economic and cultural factors is an important mechanism improving individual wellbeing and clearly must be a public policy priority.

These results highlight clear limitations with current studies that report on between-nation wellbeing differences (Brulé and Veenhoven 2014; Diener and Diener 1995; Diener

et al. 1995a, b; Kahneman and Deaton 2010). As in the current paper, many studies identify differences in mean national levels of SWB but fail to consider the extent to which wellbeing variance is accounted for at the individual or within-nation level. Aggregation of within-nation reports assumes independence of observations within clusters. In this study, a multi-level framework estimated individual citizen responses within countries on the assumption that observations within levels are not independent and as the findings in this study have shown, there is far greater wellbeing variation within- than between-nations. This is in line with other studies that have similarly reported small proportions of wellbeing variance between nations (Bleidorn et al. 2016; Diener and Tay 2015; Joshanloo et al. 2015; Wang and Wong 2014). This important facet relating to the nature of wellbeing is often overlooked in current comparisons of between-nation wellbeing differences. The implications are clear. Whilst nations could invest a considerable amount of time and effort changing social and economic policy to improve a nation's wellbeing in line with other nations, such improvements may only impact on a very small proportion of wellbeing variance. Rather investments could see far greater rewards if attention was to address within-nation inequality and those individual level factors that drive wellbeing. Finally, examination of the BLUPs from a fully adjusted model indicated that raw aggregated nation-level wellbeing scores and fixed effects adjusted estimates of wellbeing, are poor estimates of national wellbeing. As reflected in Fig. 1 the BLUPs indicated that between-nation differences are far less substantive than otherwise typically reported.

Despite the strengths of the analytical framework employed, it must be noted that there are limitations with the current study. For instance, the use of cross-sectional designs prohibit the capacity to decompose wellbeing variance further in terms of between and within-person levels. It is well established that a significant proportion of wellbeing variance is captured within individuals over time (Burns et al. 2014; Burns and Ma 2015; Burns and Machin 2012; Mroczek and Spiro 2005; Mroczek et al. 2003). Owing to the repeated cross-sectional design of the ESS it is not possible to follow the same individuals over time to determine the extent different wellbeing indicators vary within individuals. This also limits capacity to identify the long term risk or benefit of those factors examined here. For example, we are unable to make any claims as to the extent nation or individual levels of trust in political and legal structures, or employment and economic state are related to wellbeing over time. It may be that there exists differences in the extent to which these risk and protective factors vary at the between and within-person level in terms of their long-term association with wellbeing. Previously, using two indicators of subjective or affective wellbeing, Burns and Ma (2015), identified that the extent to which wellbeing can be accounted for at the between-person level varied between positive (52%) and negative (63%) affect. They also found differences in the extent to which risk factors accounted for separate proportions of variance explained in the inter-individual levels of positive and negative affect at the within (positive = 24%; negative = 40%) and between (positive = 29%; negative = 33%) levels, but also in the amount of intra-individual variance of positive and negative affect at the within (positive = 18%; negative = 65%) and between (positive = 27%; negative = 61%) levels (Burns and Ma 2015). This clearly emphasises the need for further examination of between-nation differences needs to consider intra-individual differences. That is, we need to consider the extent to which individuals change within themselves over time, as a consequence of natural daily variation, as well as in terms of the impact of significant changes in social-cultural-economic contexts, in order to further clarify our understanding of the role of between and within-nation factors in wellbeing outcomes. Unfortunately, such longitudinal designs are not readily available and what national longitudinal

comparisons have been made are frequently drawn from data derived from repeated cross-sectional designs (Diener et al. 2013).

Other issues in between nation comparison are recognised; response bias within-nations also need to be considered and could reflect cultural differences in response bias. Bonsang and van Soest (2012) identified that use of differential item functioning between-nations could account for between-nation differences owing to social desirability or national response norms. In contrast, Vittersø et al. (2005), identified differences between Norwegian and Greenlanders only when adjusting for different cultural differences in response patterns. This issue is clearly important, but the extent to which cultural biases influence nation-level differences needs to be further examined. It is unclear whether this bias attenuates or conflates between-nation differences, but what these studies do show is that there is a relationship; both mechanisms could be hypothesised. Also, it is important to recognise that cultural factors, that is the shared values, customs and behaviours of a community, may be reflected not just in between-nation comparisons but within-nations (Diener and Suh 2000). This is particularly pertinent for multicultural and pluralist societies which are common in many of those European nations sampled in this paper. For instance Romani culture permeates national boundaries throughout Europe (Herakova 2009; Petrova 2003) and with current open-border policies, cross-fertilisation of peoples locating between nations will require careful consideration of cultural effects beyond geo-political boundaries. However, examining nation-level differences are still important as it is through their political structure within which inequalities within-nations can be addressed by effective and informed public policy on those factors that are implicated most strongly in wellbeing outcomes.

Finally, whilst the proportion of variance for different wellbeing at the cluster/nation level was negligible, analytical frameworks that adjust for the nested nature of the data are highly advisable. The use of multilevel models for clustered data has a number of benefits features, including addressing the underestimation of naïve standard errors, examination of cross-level interactions, addressing the concerns of aggregation bias, and estimating random coefficient variability at the cluster level (Hox and Kreft 1994). Also, whilst the variance at the cluster level was low, in this paper, design effects (DEF), where  $DEF = 1 + \rho(m - 1)$ , and  $\rho$  is the proportion of variance at the cluster level and  $m$  is the average cluster size, were sufficient ( $DEF > 2$ ) to warrant methods that account for the clustering (Thompson et al. 2012).

In conclusion, discussion about between-nation differences in individual wellbeing needs to be carefully moderated in light of the proportion of wellbeing variance that actually varies at the between-nation level. Whilst wellbeing differences between-nation and nation-level drivers of wellbeing are reported, it is well articulated that wellbeing varies far more within-nations and that inequalities in social, economic and demographic factors within-nations are more substantive drivers of individuals' wellbeing. Results from the regression models in this paper support these findings with most of the wellbeing variance not accounted for at the between-nation level, and within-nation factors consistently stronger drivers of individual wellbeing. These findings highlight that rather than focusing on efforts to describe those factors which drive between-nation differences; instead public policy should focus efforts on addressing within-nation inequalities. These findings were consistent across a range of wellbeing indicators which is an important contribution to the literature base. However, the effects of different risk factors were not consistent for all wellbeing indicators at either the within or between-nation levels. This provides further support for the need to utilise multiple wellbeing indicators in order to assess the impact of public policies on individual wellbeing.

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