Research Article

The relationship between income and well-being, an Irish study

Abstract

This study presents an empirical analysis of the importance of absolute, reference and relative income on individual well-being in Ireland. Four primary hypotheses are tested: First, whether individual income results in a positive effect on individual well-being; Second, whether reference group income results in a negative effect on individual well-being; Third, whether relative income results in a positive effect on individual well-being and finally, whether the effect of income on well-being is affected by the different definitions of well-being; namely that of happiness and life satisfaction. A subjective self-reported measure of life satisfaction and happiness is used in order to measure individual well-being levels. The ordered probit technique is applied to data from the European Values Study 2008 to estimate the well-being equation. Results find a statistically significant positive absolute income coefficient. This illustrates that higher household income results in higher subjective well-being. Thus, in Ireland richer individuals are found to report higher levels of well-being than co-citizens at the bottom of the income distribution. Reference income results find a negative coefficient illustrating that higher reference group income results in lower subjective well-being. Therefore, this study finds that in Ireland an increase in reference group income results in a reduction in individual well-being. This study finds a positive relative income coefficient. Hence, this study finds that in Ireland the richer a particular individual is compared to his/her reference group the higher subjective well-being that individual will possess. This study identifies that, in the context of considerable similarity, particular variations between the happiness and life satisfaction regression results are found. Primarily, findings illustrate that non-economic conditions have a larger effect on happiness than life satisfaction. Economic conditions however, depict a larger effect on life satisfaction than happiness.

Keywords: well-being, absolute-income, relative-income, reference-income, happiness, life-satisfaction

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Introduction

Income and well-being

Neoclassical economists traditionally derive utility purely from income as arbitrated by consumer preferences and choice.[1] Utility theory presumes that individuals are rational and insatiable consumers, always favouring more over less and thus, higher income results in higher well-being. In other words, the degree of individual preferences that are fulfilled is directly correlated with individual utility within a rational individual's monetary budget constraint. Despite this, the correlation between income and well-being has vastly been debated within economic literature since the 1970s.[2] Literature in the area of behavioural economics has found that individuals often make decisions that somewhat compromise their own well-being and thus, depart from the standard model of the rational economic agent.[3] If indeed, individuals display limited rationality when maximizing utility, then choices made do not necessarily mirror individual's true preferences. As a result of this, economists have become increasingly apprehensive with regards to the traditional preference theory when measuring utility.[4] These concerns have been intensified by the frequent discrepancies which occur between individual reported well-being and income levels in numerous economic literatures.

Easterlin[5] pioneered the economics of happiness in the 1970s. Easterlin[5–7] finds that well-being levels across individuals within a specified nation fluctuate directly with income however; national income increases do not result in greater national well-being levels. Easterlin's[5–7] finding was confirmed by subsequent studies based on time series analysis for one nation.[8] Diversely, cross-sectional micro-empirical analyses, using individual level data from a single nation, find mixed results. Primarily however, studies using such data find positive, albeit largely weak, correlations between income and well-being. Micro-empirical analyses, using data from same individuals over time, find statistically significant positive relationships between income and well-being with correlation coefficients ranging from 0.12[9] and approximately 0.2.[7] Cross sectional analyses on numerous nations find a lower income well-being correlation when regarding within nation results as when regarding between nation results.

Numerous explanations, for the apparent contradictory results when regarding the relationship between income and well-being, have been suggested. The concept which this study is concerned with is that of relative income. Numerous empirical results find that well-being is determined by the discrepancy between absolute and relative income.[10,11,12] This theory of relative income specifies that an individual's well-being depends not only on absolute income but also on relative income. As stated by Easterlin "happiness, or subjective well-being, varies directly with one's own income and inversely with the incomes of others. Raising the incomes of all, does not increase the happiness of all, because the positive effect of higher income of subjective well-being is offset by the negative effect of higher living level norms brought about by the growth in incomes generally".[6] What

Easterling[6] refers to here as "others" constitutes a reference group. When national economic activity increases, individual incomes and reference incomes increase at comparable rates resulting in little or no variation amongst the two and thus, individual's well-being levels remain constant. The effect of relative income on well-being has since been studied by a number of economists.[17] Easterlin's[6] findings on relative income have been confirmed by, but not exclusive to.[13–17]

All studies using micro data when assessing the relationship between individual well-being and relative income, find a negative relationship between one's own well-being and the income level of other's. Kapteyn & Herwaarden[18] Kapteyn et al.,[19] Kapteyn et al.,[20] and Van de Stadt et al.,[21] all conduct an empirical analysis of the importance of individual perception of their place in the income distribution on individual well-being. All four studies find that reference group income has a negative effect on individual well-being/utility. Clark & Oswald[13] find a negative relationship of reference group income on individual subjective job satisfaction. McBride[22] conducts an empirical analysis on the effect of absolute income, parents past income and reference group income on well-being. McBride,[22] using subjective self-reported well-being data, finds a negative relationship between individual well-being and (a) reference group income and (b) parent's past financial situation. Thus, higher peers income results in less individual well-being. Carbonell,[16] using GSOEP data finds that reference group income is as influential on individual well-being as own income and that the greater individual income is, in comparison to a reference group's income, the greater individual well-being is.

Other explanations, for the apparent contradictory results when regarding the relationship between income and well-being, include: First, the absolute income hypothesis or the modified-Esterlin hypothesis states that upon obtaining a particular income level, enabling the consumption of basic needs, raising income no longer results in greater well-being. Thus, raising income does not increase well-being ad infinitum as increases in well-being tail off as absolute income rises.[2] This hypothesis assumes that once an individual's basic material needs are satisfied, non-material wealth such as health and religion primarily determines an individual's well-being. This hypothesis coincides with the theory of diminishing marginal utility of consumption and income which is characterised by the neoclassical theory of utility. Second, Rojas[23] rationalises the weak correlation between income and well-being through the conceptual-referent theory of happiness. According to this theory different individuals have different ideas regarding what a happy and fulfilled life entails and thus, dissimilar evaluations of their well-being. Rojas[23] argues that this heterogeneity in ideas regarding a happy and fulfilled life encompasses the association between income and well-being as some individuals may believe income not to be important when assessing well-being. Third, numerous studies argue that individuals alter and adapt their expectations once new situations occur.[24]

[1]Well-being surveys are reported to measure utility. For example, Frey & Stutzer[2] state that; 'Utility can and should be cardinally measured in the form of subjective well-being. Thus, an increase in income results in increases in expectations resulting in the commonly known "hedonic treadmill". Here higher incomes result merely in temporary increases in well-being. Stutzer[25] finds greater income aspirations partially determined by individual's previous income and average income in their area of residence reduces well-being or utility. Easterlin[26] finds that aspirations regarding economic wealth alter with actual levels of economic wealth.

Happiness versus life satisfaction

Many studies, despite having two distinct meanings, use the term happiness and life satisfaction interchangeably.[2,16,27,28] The fourth hypotheses of this study identify whether the effect of income on well-being is affected by the different definitions of well-being, namely that of happiness and life satisfaction. Limited economic empirical work has been completed in this area and therefore, this study contributes significantly to this vastly neglected topic. Studies that have concerned themselves with this issue have found distinctions between the two definitions. Helliwell & Putnam[29] distinguishes both terms by conceptualising happiness as "short-term, situation-dependent expressions of mood" and life satisfaction as a "longer-term, more stable evaluation". Thus, happiness is a short term, sporadic measure of well-being influenced by ones current situation whereas, life satisfaction is a long term stable measure of well-being influenced by ones overall situation. Peiro[30] found that changes in economic conditions, such as employment or income, decisively affect life satisfaction, while having a much more limited effect on happiness levels. Caporale et al.,[17] empirical work shows slight differences in the size of the estimated coefficients between life satisfaction and happiness. Caporale et al.,[17] rationalised happiness as being a "broader concept" than life satisfaction, where the effects of economic factors on happiness are alleviated by the impact of factors affecting individual's well-being in the life domain. These results indicate the importance of distinguishing between the two definitions of well-being and those empirical studies who fail to do so may be obtaining incomplete results.

Contribution of study

This study presents an empirical analysis of the importance of absolute, reference and relative income on individual well-being in Ireland. Four primary hypotheses are tested. The first hypothesis states a positive relationship between own income and subjective individual well-being. Thus, higher household income results in higher subjective well-being. The second hypothesis states a negative relationship between reference group income and subjective individual well-being. Therefore, higher reference group income results in lower subjective well-being. The third hypothesis states a positive relationship between relative income and subjective individual well-being. Thus, the richer a particular individual is compared to his/her reference group the higher subjective well-being that individual will possess. The final hypothesis states that the effect of income on well-being is affected by the different definitions of well-being; namely that of happiness and life satisfaction. Therefore, the effect of income on well-being differs depending on the measurement of well-being. In order to test these four hypotheses a self-reported measure of life satisfaction and happiness is used when measuring individual well-being levels. The ordered probit technique is applied to data from the European Values Study 2008 to estimate the well-being equation.

Economic growth matters only in so far as it increases individual well-being.[31] Therefore, evaluating policy prescriptions requires an accurate understanding of the income-well-being relationship. As previously stated, existing literature is founded on fragile and incomplete evidence about this relationship.[32,33] Indeed, empirical studies that test the relative income hypothesis are rare.[16] If economic growth results in merely slight improvements in well-being it should not be a primary aim of government policy in developed economies and current policies should shift focus from continuous economic growth to maximizing subjective well-being.[34] Pukeliene

& Kisieliauskas[35] state that further and comprehensive research, into the correlation between income and well-being, is required. Easterlin[36] also necessitates such research. This study contributes to the existing literature by providing a comprehensive understanding of the magnitude of the income-well-being effect and providing further understanding of the importance of absolute, reference and relative income on individual well-being in Ireland.[37–39]

Materials and methods

Happiness and life satisfaction data

The discipline of Economics typically infers preferences from observed individual choices.[7] Thus, economic literature traditionally monitors what people do instead of listen to what people say. Well-being research departs from this custom.[2] Indeed, well-being researchers are primarily concerned with self-reported levels of happiness and life satisfaction. These self-reported measures, which have been widespread within psychology, have been recently adopted by economists.[38] Richard Easterlin[5] was the first to draw economic attention to self-reported well-being data.[14] Despite much controversy, self-reported measures appear to be adequate indicators of individual happiness and life satisfaction as extensive research has found that individuals are able to consistently evaluate their own state of well-being. Indeed, self-reported measures have been identified as the best indicator of happiness and life satisfaction.[4] These self-reported measures of well-being have now been extensively used by economists including Clark,[40,41] Clark & Oswald,[31,42] Di Tella et al.,[43] Easterlin,[5–7,44] Carbonell & Frijters,[45] Carbonell & Van Praag,[46,47] Frey & Stutzer,[28,48] Frijters,[49] Ng,[50] McBride,[22] Oswald,[31] Van Praag et al.,[51] and Pradhan & Ravallion.[52]

Data description

This study employs 2008 Irish data from the European Values Study (EVS). The EVS is a large-scale, cross-national survey research program, which concerns itself with human values.[53] The EVS is to date, the most inclusive European research project on human values. For the Irish EVS 2008 data, one thousand and thirteen valid interviews were conducted. Face-to-face interviews were executed with a standardized questionnaire. Those interviewed included persons eighteen years or older who were resident within private households in Ireland, regardless of nationality, citizenship or language. The empirical analysis of this study is based on the subjective, self-reported measure of well-being namely; happiness and life satisfaction. This study's dependent variable "happiness" concerns itself with the self-reported answers to the 2008 EVS question which reads as follows "All things together how happy are you?" Interviewees ranked their responses on an ordered scale, with the options of choosing "not at all happy", "not very happy", "quite happy" or "very happy". A total of 1,010 individuals determined what happiness level they fell into. The distribution of self-reported happiness levels in Ireland 2008 is illustrated in Figure 1. 46.73% or a total of 472 interviewees reported a happiness level of 1 (very happy). 48.22% or a total of 487 interviewees reported a happiness level of 2 (Quite happy), 4.36% or a total of 44 interviewees reported a happiness level of 3 (not very happy) and 0.69% or a total of 7 interviewees reported a happiness level of 4 (not at all happy). The sample mean for the dependent variables happiness is 3.4 with a min of 1 and a max of 4.

Satisfaction levels in Ireland 2008 are illustrated in Figure 2. 0.89% or a total of 9 interviewees reported a life satisfaction level

of 1 (dissatisfied). 0.40% or a total of 4 interviewees reported a life satisfaction level of 2. 0.79% or a total of 8 interviewees reported a life satisfaction level of 3. 2.18% or a total of 22 interviewees reported a life satisfaction level of 4. 5.25% or a total of 53 interviewees reported a life satisfaction level of 5. 10.31% or a total of 104 interviewees reported a life satisfaction level of 6. 14.77% or a total of 149 interviewees reported a life satisfaction level of 7. 26.07% or a total of 263 interviewees reported a life satisfaction level of 8. 24.38% or a total of 246 interviewees reported a life satisfaction level of 9 and 14.97% or a total of 151 interviewees reported a life satisfaction level of 10 (Satisfied). The sample mean for the dependent variables life satisfaction is 7.8 with a min of 1 and a max of 10.
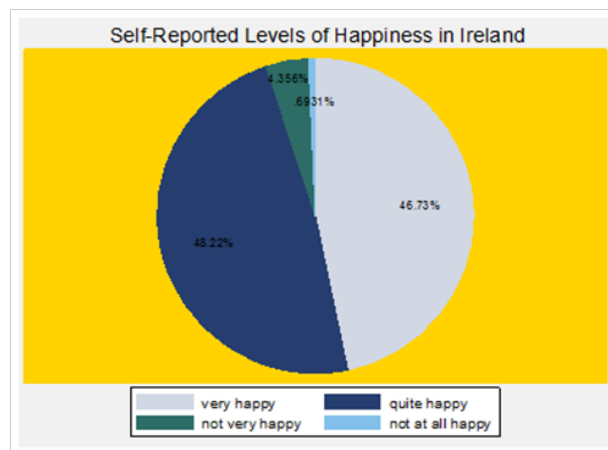

Figure 1 Self-Reported Levels of Happiness in Ireland, EVS 2008.
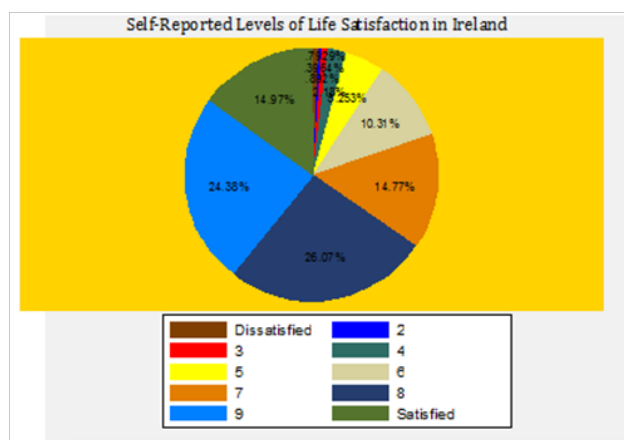

Figure 2 Self-Reported Levels of Life Satisfaction in Ireland, EVS 2008.

This study's independent variable "annual household income" concerns itself with the self-reported answers to the 2008 EVS question which reads as follows: "Here is a list of incomes and we would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, after taxes and other deductions". Interviewees ranked their responses on 12 point scale ranging from an annual household income of "less than €1800" to an annual household income of "€120000 or more". A total of 582 individuals determined what annual household income category they fell into. The sample mean for the independent variables annual household income is 6.9 with a min of 1 and a max of 12.

Statistical methods

This study aims to present an empirical analysis of the importance of absolute, reference and relative income on individual well-being in Ireland. The following equation depicts the assumed relationship for each individual i at a particular (constant) time t.

$$WB = SWB(I, I, V) \qquad \text{(Equation 1)}$$

Where:

WB = individual well-being namely happiness or life satisfaction

I = household income

Ir = reference group income

V = set of variables that effect individual well-being

The set of control variables "V" employed in this study include: gender, health, employment status, job satisfaction, region, religion and age. Various included control variables are correlated with individual income and therefore including these variables when determining the relationship between income and subjective well-being is important.[16] The inclusion of particular control variables is based on previous economic literature and data availability. For more insight into the included determinants of well-being see literature on employment,[54] gender,[55] health,[27] religion,[56] job satisfaction,[13] region[57] and age.[58,59]

The empirical analysis of this study is based on three various specifications of equation (1) in order to test the four hypotheses. To test the first hypothesis this study's specification includes, in addition to V, merely absolute annual household income as a determinant of subjective well-being. In the EVS respondents did not record exact annual household income figures, instead determining (from 12 categories) which annual household income category they fell into. In order to acquire an absolute annual household income measure for each individual a new absolute income variable was created. An individual's absolute income was made equal to the middle income of the appropriate income group. For example, if individual i stated an annual household income level of €36000 to €60000, then i's absolute income is equal to €48000. In relation to the lowest category (an annual household income of 1800 Euros or less) two thirds (1200 Euros) of the upper threshold of this category was made equal to the absolute income level. In relation to the highest category (an annual household income of 120000 euro or more) one third of the income threshold (40000 Euros) was added to the income threshold (120000 Euros) in order to compute an absolute income level of 160000 Euros. This derivation is consistent with that done by McBride.[22] The well-being function is primarily believed to be concave in income[16] and subsequently this study presents absolute income in logarithmic form.

To test the second hypothesis this study's specification includes, in addition to V, absolute annual household income and reference group income as determinants of subjective well-being. This study defines the reference group as individuals who are living in the same region, possess the same education level and are in the age range of five years younger and five years older than the individual concerned. This definition is similar to that used by Carbonell.[16] This study defined the reference group income as the average income of all individuals in the reference group. Few economic empirical analyses, which focus on well-being and income, account for reference group income. Some studies that do include Clark & Oswald,[13] Kapteyn & Herwaarden V,[18]

Kapteyn et al.,[20] McBride[22] and Carbonell [16] who all found reference group income to have a negative effect on individual well-being. As with absolute annual household income this study presents reference group income in logarithmic form.

To test the third hypothesis this study's specification includes, in addition to V, absolute annual household income and relative income as determinants of subjective well-being. In this study the term relative income refers to a person's position in the income distribution. This is consistent with the definition used by Blanchflower & Oswald.[60] EVS data does not possess a relative income variable and therefore, one was derived by implementing the following steps:

1. Firstly, as previously described, the reference group is identified. The reference group is defined as individuals who are living in the same region, possess the same education level and are in the age range of five years younger and five years older than the individual concerned.[16]

2. Secondly, the reference income of the identified reference groups is calculated. The reference income is defined as the average income of all individuals in the same reference group.[16] The reference income is derived as the sum of the absolute income of all individuals in each reference group divided by the number of individuals in that precise reference group.

3. Thirdly, relative income was derived, for both the happiness and life satisfaction regressions, by calculating the difference between the logarithm of individual's absolute annual household income and the logarithm of reference income. Thus, relative income= log absolute income-log reference income.

To test the forth hypothesis the first three hypothesis are tested twice. First EVS happiness data is used as a measure of well-being and secondly EVS life satisfaction data is used as a measure of well-being. Results from both well-being regressions are then distinguished.

The ordered probit model

The measurement of this study's dependent variables, happiness and life satisfaction, are regarded as being that of ordinal ranking.[28] Variables with ordinal levels of measurement are, as well as being mutually exclusive categories, ordered categories from low to high. However, the differences between the responses are not uniform. The four various happiness levels and 10 various life satisfaction levels may be ranked as it is known which category is highest or more preferred on a dimension. However, the intervals between the various categories are not precise or equal.[61] These kinds of responses with ordered categories cannot be simply modelled using classical regression.

Ordinary linear regression is unsuitable due to the dependent variable's no interval nature as the spacing of the outcome choices may not be assumed to be uniform.[62] Alternatively, although it is possible to use multinomial logit models, the ordinal nature of the dependent variable would not be accounted for. Such a model would therefore, not use all of the available information regarding the particular variable being examined. Ordinal logit and probit models are extensively used in order to analyse such data.[63] Ordered probit regressions and ordered logistic regression are extremely similar. The difference between the two models originates in the distribution of the $\in i$, the error term[64] as illustrated in the following well-being equation (2).

$$Wellbeing_{it} = a + \beta y_{it} + \beta k + \varepsilon \qquad \text{(Equation 2)}$$

Where:

i=individual

ϵ = error term

t = time

a = constant

y = absolute income

k = other explanatory variables

β= well-being–income gradient

This study employs an ordered probit model for several reasons. Firstly, the probit model does not assume that a rise in subjective well-being "not at all happy" to "not very happy" is identical as a rise from "quite happy" to "very happy".[22] Secondly, an ordered logit model assumes that the ϵi is logistically distributed whereas the ordered probit model assumes that ϵi is normally distributed.[64] Greene[65] argues that the justification of one distribution over the other is problematic on theoretical grounds. However researchers commonly assume a normal distribution when the true distribution is unknown.[65] Lastly, subjective well-being measurements have an inherent ordering which is not accounted for when using a standard multinomial probit model.[22] This study therefore employs an ordered probit model which account for this inherent ordering. The use of an ordered probit model is consistent with ordered probit model used by Clark & Oswald,[42] Plug,[66] Carbonell,[16] Frey & Stutzer,[28,48] Hartog & Oosterbeek,[67] Litchfield et al.,[68] McBride,[22] Van Praag et al.,[51] and Wottiez & Theeuwes.[71]

Results and discussion

In this section the three well-being equations are estimated via an ordered probit model using data from the Irish European Values Study 2008. The sample mean for the dependent variables happiness is 3.4 with a min of 1 and a max of 4. The sample mean for life satisfaction is 7.8 with a min of 1 and a max of 10. For information on the description of variables see Table A in the appendix. The pseudo-R^2 for the six regressions is between 0.07 and 0.11. This is roughly consistent with previous literature that states that between eight and twenty percent of individual well-being results from objective variables and therefore may be explicated.[46]

Discussion of results-absolute, reference and relative income

Table 1 testes the first hypothesis by estimating the effects of household annual absolute income and the set of control variables on individual happiness and life satisfaction using an ordered probit model. The absolute income coefficient is statistically significant and positive illustrating that higher household income results in higher subjective well-being. These results for Ireland are in accordance with previous economic findings, namely that richer individuals, ceteris paribus, report higher levels of well-being than co-citizens at the bottom of the income distribution.[5,28] Table 2 tests the second hypothesis by estimating the effects of reference income and the set of control variables on individual happiness and life satisfaction using an ordered probit model. The negative reference income coefficient illustrating that higher reference group income results in lower subjective well-being. Reference income is however, non-statistically significant. These results for Ireland are in accordance with previous economic findings, namely that an increase in income of an individual's reference group results in a reduction in well-being for that individual.[16] Table 3 testes the third hypothesis by estimating the effects of absolute and relative income and the set of control variables on individual happiness and life satisfaction using an ordered probit model. As seen in Table 3 the relative income coefficient is positive in both the happiness and life satisfaction regressions. This indicates that the richer a particular individual is compared to his/her reference group the higher subjective well-being that individual will possess. The relative income coefficient for life satisfaction and happiness are however, non- statistically significant. These results for Ireland are in accordance with previous economic findings, namely that an increase in income compared to the reference group income results in an increase in well-being.[16]

Table 1 The Determinants of Individual Happiness and Life Satisfaction Using an Ordered Probit Model- Absolute Income Being the Primary Independent Variable

Variable name	Happiness		Life Satisfaction	
	Coefficient (β)	p value	Coefficient (β)	p value
In (Absolute income)	0.189	0.02	0.353	<.0001
Relvimp	0.271	0.042	0.014	0.904
Relnimp	-0.056	0.686	-0.085	0.475
Relnalimp	-0.35	0.053	-0.141	0.377
Health good	-0.433	<.0001	-0.227	0.025
Health fair	-0.629	<.0001	-0.584	<.0001

Table continued...

Variable name	Happiness		Life Satisfaction	
	Coefficient (β)	p value	Coefficient (β)	p value
Health poor	-1.769	<.0001	-1.395	<.0001
Health v poor	-0.481	0.428	-0.626	0.238
Job dissatisfied	0.745	0.549	-0.734	0.493
Job satisfied 2	-0.019	0.983	-0.029	0.97
Job satisfied 4	-0.775	0.082	-0.995	0.011
Job satisfied 5	0.461	0.297	-1.099	0.003
Job satisfied 6	-0.287	0.405	-1.011	0.001
Job satisfied 7	-0.255	0.221	-0.555	0.002
Job satisfied 8	-0.341	0.068	-0.418	0.01
Job satisfied 9	0.196	0.329	-0.191	0.261
Male	0.005	0.965	-0.105	0.312
EmpL30	-0.054	0.785	0.175	0.311
Emp Self	-0.131	0.603	-0.014	0.95
Emp Retired	-0.061	0.796	-0.216	0.295
Emp House wife	-0.12	0.519	-0.282	0.084
Emp Student	0.378	0.427	-0.865	0.033
Emp Unemploye	-0.407	0.081	-0.529	0.01
Emp Disability	-0.233	0.619	-0.705	0.093
Emp Other	0.054	0.932	0.655	0.241
Age 17 to 25	-0.491	0.014	-0.188	0.279
Age 36 to 45	-0.468	0.003	-0.26	0.057
Age 46 to 55	-0.323	0.059	-0.203	0.166
Age 56 to 65	-0.438	0.024	-0.039	0.817
Age 66 to 75	-0.192	0.408	0.178	0.376
Age 76 plus	-0.312	0.237	0.334	0.152
South West	-0.13	0.432	0.233	0.101
South East	-0.065	0.713	0.559	<.0001
Mid West	-0.278	0.14	0.504	0.003
Mid East	0.269	0.262	0.493	0.015
West	-0.333	0.068	0.266	0.098
Midland	-0.137	0.465	0.044	0.786
Border	-0.354	0.095	0.039	0.832

(Source: Author's own. Dependent Variable: Happiness on an ordered scale from "very happy", "quite happy", "not very happy" to "Not at all happy"; Life satisfaction on an ordered scale ranging from 1 (dissatisfied) to 10 (satisfied)).

Table 2 The Determinants of Individual Happiness and Life Satisfaction Using an Ordered Probit Model- Absolute and Reference Group Income Being the Primary Independent Variable

Table continued...

Variable name	Happiness		Life satisfaction	
	Coefficient (β)	p value	Coefficient (β)	p value
In (Absolute income)	0.268	0.008	0.436	<.0001
Reference Income	-0.185	0.184	-0.193	0.111
Relvimp	0.274	0.04	0.014	0.902
Relnimp	-0.056	0.684	-0.086	0.47
Relnalimp	-0.345	0.057	-0.135	0.399
Health good	-0.442	<.0001	-0.235	0.02
Health fair	-0.645	<.0001	-0.599	<.0001
Health poor	-1.752	<.0001	-1.378	<.0001
Health v. poor	-0.486	0.425	-0.63	0.235
Job dissatisfied	0.764	0.539	-0.716	0.504
Job satisfied 2	-0.006	0.995	-0.024	0.975
Job satisfied 4	-0.788	0.077	-1.009	0.01
Job satisfied 5	0.495	0.264	-1.071	0.004
Job satisfied 6	-0.28	0.417	-1.008	0.001
Job satisfied 7	-0.246	0.238	-0.546	0.003
Job satisfied 8	-0.346	0.064	-0.422	0.009
Job satisfied 9	0.207	0.305	-0.18	0.289
Male	0.015	0.9	-0.096	0.357
EmpL30	-0.061	0.758	0.166	0.337
Emp Self	-0.13	0.605	-0.011	0.96
Emp Retired	-0.058	0.804	-0.218	0.291
Emp House wife	-0.121	0.517	-0.283	0.083
Emp Student	0.405	0.396	-0.835	0.039
Emp Unemploye	-0.412	0.078	-0.539	0.009
Emp Disability	-0.271	0.563	-0.749	0.074
Emp Other	0.017	0.978	0.615	0.272
Age17to25	-0.51	0.011	-0.206	0.237
Age36to45	-0.473	0.003	-0.265	0.053
Age46to55	-0.326	0.058	-0.206	0.16
Age56to65	-0.48	0.014	-0.08	0.638
Age66to75	-0.285	0.241	0.086	0.68
Age76plus	-0.424	0.126	0.222	0.362
South West	-0.13	0.432	0.23	0.106
South East	-0.07	0.693	0.552	<.0001
Mid West	-0.295	0.119	0.488	0.004
Mid East	0.258	0.283	0.479	0.018
West	-0.364	0.048	0.233	0.151
Midland	-0.155	0.411	0.025	0.878
Border	-0.391	0.067	-0.001	0.996

(Source: Author's own. Dependent Variable: Happiness on an ordered scale from "very happy", "quite happy", "not very happy" to "Not at all happy"; Life satisfaction on an ordered scale ranging from 1 (dissatisfied) to 10 (satisfied).

Discussion of results- additional explanatory variables

The coefficients of the additional explanatory variables, in Table 2, do not present much variation from previous literature. Health is found to have a positive effect on well-being. The coefficient results for "Health good", "Health fair" and "Health poor" are all negative and statistically significant at the 1% or 5% level. This illustrates that individuals who reported their health as being very good possess greater well-being than individuals who reported their health as being good, fair or poor. These findings are in accordance with Lelkes,[71] Gerdtham & Johannesson,[27] Clark & Oswald[42] and Dolan et al.,[12] where a significant positive relationship between health and well-being is found. Findings on job satisfaction illustrate a positive relationship between job satisfaction and well-being. The life satisfaction job satisfaction coefficient (across all categories excluding Job satisfied 1, Job satisfied 2 and Job satisfied 9 on a scale of 1 to 10: 1 meaning dissatisfied 10 meaning satisfied) is negative and statistically significant. Thus, individual who state that they possess a job satisfaction level of 4,5,6,7 and 8 report lower levels of life satisfaction than individuals who possess a job satisfaction level of 10. The unemployment coefficient is negative and statistically significant, illustrating the negative relationship between being unemployed and well-being. This result is in comparison to individuals who are in paid employment of 30hours a week or more. This is consistent with previous literature such as Stutzer,[25] Di Tella et al.,[43] Frey & Stutzer,[28] Clark & Oswald[42] and Helliwell.[56] The being a housewife, student or disabled life satisfaction coefficients are all negative and statistically significant, illustrating the negative relationship between being unemployed and well-being. This result is in comparison to individuals who are in paid employment of 30hours a week or more. A negative relationship between living in the Dublin area and life satisfaction was found. This is illustrated by the positive statistically significant life satisfaction coefficient on individuals living in the south east, mid-west, mid-east and west. This is consistent with evidence from economic studies including Dockery,[57] Gerdtham & Johannesson[27] and Graham & Felton[1] who all find that living in large cities is detrimental to well-being and that living in rural areas is beneficial to well-being. Religion has a positive relationship with well-being. Those who report religion to be very important have higher happiness then those who report religion to be quite important. This is illustrated by the positive statistically significant happiness

coefficient on "relvimp". Likewise, those who report religion as not at all important report less happiness then those who report religion to be quite important. This is illustrated by the negative statistically significant coefficient on "renalimp". That age coefficients do not conform to the common u-shape relationship between age and well-being- with individuals of around 40 years old possessing the lowest well-being levels.[2] This study finds individuals of an age between 26 and 35 possessing higher happiness levels than individuals of an age between 17 and 25 or 36 and 65.

Table 3 The Determinants of Individual Happiness and Life Satisfaction Using an Ordered Probit Model- Absolute and Relative Income Being the Primary Independent Variable

Variable name	Happiness		Life satisfaction	
	Coefficient (β)	p value	Coefficient (β)	p value
In (Absolute income)	0.097	0.337	0.333	<.0001
Relative Income	0.00000528	0.125	0.00000106	0.717
Relvimp	0.288	0.031	0.017	0.884
Relnimp	-0.046	0.742	-0.084	0.484
Relnalimp	-0.334	0.066	-0.138	0.39
Health good	-0.444	<.0001	-0.228	0.024
Health fair	-0.636	<.0001	-0.585	<.0001
Health poor	-1.755	<.0001	-1.391	<.0001
Health v. poor	-0.488	0.423	-0.627	0.238
Job dissatisfied	0.767	0.537	-0.73	0.495
Job satisfied 2	-0.025	0.978	-0.031	0.968
Job satisfied 4	-0.783	0.08	-0.996	0.011
Job satisfied 5	0.51	0.251	-1.091	0.003
Job satisfied 6	-0.286	0.407	-1.011	0.001
Job satisfied 7	-0.258	0.216	-0.556	0.002
Job satisfied 8	-0.356	0.057	-0.421	0.01
Job satisfied 9	0.195	0.333	-0.191	0.261
Male	0.03	0.805	-0.1	0.34
EmpL30	-0.057	0.772	0.174	0.313
Emp Self	-0.118	0.642	-0.011	0.961
Emp Retired	-0.069	0.769	-0.218	0.29
Emp House wife	-0.116	0.535	-0.281	0.085
Emp Student	0.374	0.436	-0.868	0.032
Emp Unemploye	-0.43	0.067	-0.535	0.01
Emp Disability	-0.286	0.542	-0.717	0.088
Emp Other	0.023	0.971	0.648	0.247

Table continued...

Variable name	Happiness		Life satisfaction	
	Coefficient (β)	p value	Coefficient (β)	p value
Age17 to 25	-0.505	0.012	-0.19	0.274
Age 36 to 45	-0.471	0.003	-0.260*	0.057
Age 46 to 55	-0.324	0.059	-0.203	0.166
Age 56 to 65	-0.484	0.013	-0.048	0.779
Age 66 to 75	-0.265	0.265	0.164	0.423
Age 76 plus	-0.397	0.141	0.318	0.182
South West	-0.12	0.467	0.235	0.1
South East	-0.065	0.714	0.558	<.0001
Mid West	-0.277	0.142	0.505	0.003
Mid East	0.278	0.247	0.494	0.014
West	-0.345	0.059	0.263	0.102
Mid land	-0.133	0.48	0.044	0.783
Border	-0.364	0.086	0.037	0.842

Discussion of results- difference between life satisfaction and happiness

When comparing the life satisfaction and happiness results this study finds specific variances, within an overall context of significant similarity. It is seen that, when responding to the life satisfaction question, individual's answers are reflective of their whole life experience including economic conditions whereas the happiness question prompted responses based on one's current circumstances or mood and are more reflective of non-economic factors. Job satisfaction, region of residence and being unemployment are all seen to depict a stronger association with life satisfaction than with happiness. These findings illustrate that economic conditions have a larger effect on life satisfaction then on happiness. However, non-economic conditions depict a larger effect on happiness then on life satisfaction. This is seen in the age, religion and health coefficients which depict a stronger association with happiness then with life satisfaction. This is consistent with Peiro's[30] study that differentiates happiness and life satisfaction as two distinct spheres of well-being: happiness being independent of economic factors while life satisfaction being conditioned by them.

Conclusion

This study presents empirical analysis of the importance of absolute, reference and relative income for individual well-being in Ireland. Irish data from the 2008 EVS is employed where the responses to a life satisfaction and happiness question are used in order to assess well-being levels. The primary conclusions of this study are as follows: higher household income results in higher subjective well-being; Higher reference group income results in a reduction in individual well-being; The richer a particular individual is compared to his/her reference group the higher subjective well-being that individual will possess. This study contributes to the existing literature by providing a comprehensive understanding of the magnitude of the income-well-being effect and providing further understanding of the importance of absolute, reference and relative income on individual well-being in Ireland. These studies results depict that individual well-being levels in Ireland depend not merely on absolute income but also on relative income. Economic growth matters only in so far as it increases individual well-being.[31] Therefore, this study suggests government policy in Ireland to shift their primary focus away from continuous economic growth and towards maximizing subjective well-being.[34]

Conflict of interest

The author declares no conflict of interest.

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