

What makes people in Scotland happy? Is it where they live?

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Orkney has been named the best place to live in Scotland for the third year in a row according to the 2015 Bank of Scotland Quality of Life Survey.... rural areas scored consistently across a range of categories covering health and life expectancy, personal well-being and a low crime rate. Glasgow, Scotland's biggest city and the most densely populated area of the country, was ranked lowest." (Scotsman, 18th December, 2015).

1. Introduction

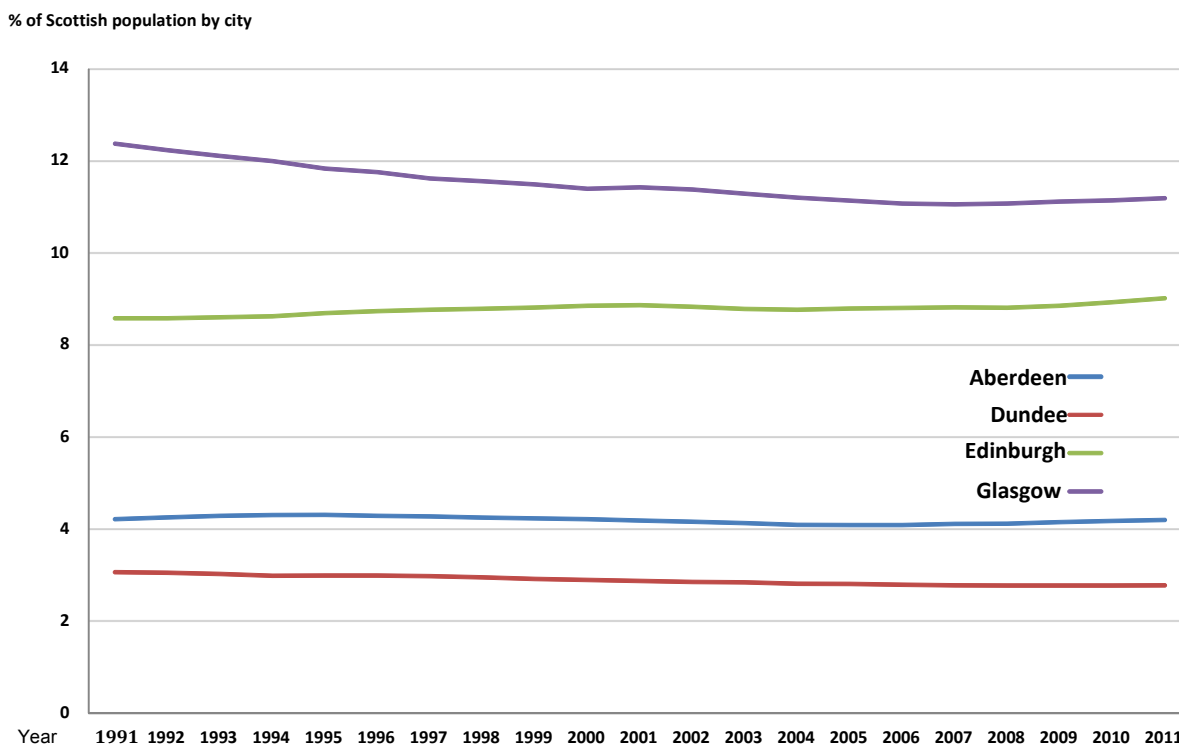
Globally, the proportion of the world's population living in cities of 10 million or more has increased from 3.2% 1950 to 11.5% in 2011 (United Nations, 2011). A key regional growth model, the New Economic Geography (NEG) identifies the mechanism underlying this shift as workers moving in search of higher real wages. Relevant to the growth of larger economic areas, studies in recent decades argue that the main rationale for regional policy should be to help generate agglomeration economies, particularly knowledge spill-overs (e.g. Morgan, Aydalot & Keeble, Cooke). This has recently become a central element in UK spatial policy, with the emphasis on the role of city regions, the 'Northern Powerhouse' and City Deals.

It is important to note, however, that the performance of UK cities (when measured by population change) is less emphatic than the New Economic Geography (NEG) might suggest. Over a twenty year period, 1991 to 2011, for example, the share of UK population located in London increased from 14% to 15%, but the share in the top 23 cities remained constant at 46%.² The position in Scotland, the focus of the present study, is even more nuanced. Figure 1 below shows that Scottish cities *lost* population share until 2008 followed by a slight subsequent improvement and of Scotland's major cities, only Edinburgh has experienced a continuing population increase over this period.

A central mechanism in the process of spatial adjustment proposed in the NEG is that migration will equalise real wages between different areas. However, reliable local consumer price index (CPI) data are not available within the UK, and this creates real difficulties in testing for real wage equality over space. Therefore, rather than take the real wage as an appropriate indication of whether a location is a "good place to live", this paper uses the average life-satisfaction score to measure the quality of life in local areas.

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² The 23 cities are those with a population over 500,000 in 1991. Only nine had population growth greater than the British average over the subsequent period to 2011. The growth of London was by far the highest. Cheshire et al., 2014, p. 14.

Figure 1: Percentage of Scottish population in main cities

This paper examines three questions. First, it examines the question of what makes people in Scotland “happy”, by investigating the factors that affect this in Scotland³. There is now a well-established body of academic work on happiness, but this is the first time this type of analysis has been conducted for Scotland. Second, in light of recent policy developments, particularly the notion of a Northern Powerhouse, it focuses on happiness in Scottish cities versus other areas. Finally, it tests the NEG account of spatial development by examining whether happiness is equalised across different types of area. The results show that cities are locations with low life satisfaction scores.

We use data from the Scottish Household Survey (SHS). This data source includes key demographic, social and economic data and also specifies the respondent’s life satisfaction and their home location. We can therefore use the SHS to explain inter-personal variations in self-reported life satisfaction, focussing specifically on the question of cities versus other areas.

2. Happiness Research

Work on happiness can be dated to Easterlin’s seminal 1974 analysis, which found that self-reported happiness in America did not increase even after considerable increases in average US income. Since then, a key question in this literature is how income affects welfare - does being richer make people feel happier? However, note that the argument is not necessarily that additional income has no effect on

³ For reasons discussed below, “happiness” is measured by life satisfaction scores.

wellbeing but rather that people's lives are also enhanced by a wide range of other factors. Focusing policy on factors other than economic growth may therefore increase overall welfare.

The call to set policy according to a broader set of quality of life indicators has recently been made by the Sarkozy Commission (Fitoussi et al, 2009) which recommended that the type of wellbeing analysis undertaken in academic circles should also be used to guide welfare policy. This suggestion has recently been taken up in the UK, where the Office for National Statistics (ONS) began to collect UK national wellbeing data in 2011.

However, the academic work on wellbeing is not without controversy. Firstly, much research in this area has used large-scale surveys of individual's personal happiness or wellbeing, which are then related to both subjective and objective indicators (income, health, unemployment, etc.) thought to influence wellbeing. This is the approach that we ourselves adopt. The complement to wellbeing in economics is utility, and while surveys of self-reported wellbeing have long been used in psychology, economics has been sceptical of the view that utility can be measured by these types of stated preference measures. Since Samuelson (1938), economics has conventionally approached utility in terms of revealed preference and argued that an individual's utility should be identified by what they do rather than what they say.

That said, research on wellbeing shows a high correspondence between an individual's self-reported wellbeing and objective indicators. For example, individuals with higher happiness scores also tend to have higher levels of life expectancy and suffer from fewer mental health problems (Deiner, et al, 1996). The extensive body of work on wellbeing also shows that a common set of influences affect wellbeing, both across time and nations, including income, health, unemployment, age and gender. In most cases, the results reflect the intuitively expected outcome. For example, studies consistently find that poor health and unemployment are major determinants of wellbeing⁴.

A second concern is that people's perceptions are socially constructed, leading to differing self-interpretations of life satisfaction. For example (Skidelsky and Skidelsky, 2012, p 109) argue:

Ask an American how he is doing and the chances are he will say "*great, thanks*". Ask a Russian the same question and he is likely to shrug and say "*normalno*", suggesting that things could be worse.

Many wellbeing studies are pan-European, where difficulties might arise in controlling for differences in cultural norms. The present study uses data for areas within one country - Scotland - and the results are therefore much less likely to be affected by cultural differences in how individuals interpret this basic question.

A third question is which term should be used to indicate wellbeing? The various terms which have been used include wellbeing itself, happiness and life satisfaction. However, these are not synonymous; asking someone whether they are 'happy' is likely to provide a result that reflects temporary emotional responses, while responses to 'life satisfaction' are more likely to measure people's reflections on their

⁴ See, for example, Dolan et al, pages 100 and 101.

longer-term life experience. Previous studies have shown that happiness and life satisfaction are not necessarily closely related. Bjornskov et al (2008), for example, found that in the World Values Survey the correlation between self-reported life satisfaction and happiness was only 0.44. The Scottish Household Survey uses life satisfaction, which we believe is preferable to happiness in that it is more likely to provide a more cognitive assessment of an individual's entire life experience and so provide a more comprehensive measure of how people rate their wellbeing.

3. Previous analysis of life satisfaction

3.1 General Analysis

A substantial body of work has been conducted since Easterlin's 1974 analysis and there is now broad agreement on the principal determinants of wellbeing. Notably, higher income is almost invariably associated with greater well-being, a point confirmed by Blanchflower and Oswald (2011), who concluded:

“Some textbooks have wrongly told generations of psychology undergraduates that money is not a source of happiness. In so far as regression equations can settle the question, the answer is unambiguous: yes, money buys happiness”.

Education is also typically associated with higher levels of life satisfaction⁵. Age is also significant, with many studies finding a U-shaped relationship where life satisfaction reaches a minimum point and then increases as people get older. Gender and ethnicity appear to have some influence, with men and non-white groups both typically displaying lower life satisfaction scores. Other individual level variables influencing life satisfaction include marriage and having children.

Some studies also note the significance of social capital. Bjornskov et al (2008) argue that having a wide range of social connections creates greater social cohesion between people and increases trust, thereby improving individuals' life satisfaction. The ONS has also recently argued that “networks of individual relationships with family and friends, local community and civic engagement form the fabric of a cohesive society” (Seigler, 2015, p.2).

3.2 Living in the City - Spatial differences in life satisfaction

Table 1 reviews previous studies that have included an area variable as one of the determinants of happiness - typically these studies find that living in more densely populated areas lowers life satisfaction. For Sweden, Gerdtham and Johannesson (2001) explore the relationship between life satisfaction and several socio-economic variables, including an urbanisation measure. They found that those living in the three largest Swedish cities reported a lower level of life satisfaction than respondents in other areas.

⁵ However, Blanchflower and Oswald (2011) note that studies which control for both income and education tend to find that the relationship is through the influence of education on income – i.e. highly qualified people tend to earn more.

The Australian study reported in Dockery (2003) included a variable measuring whether respondents lived in a major city and, controlling for other factors, life satisfaction was found to be significantly lower in these cities. Hayo (2004) investigated life satisfaction in seven Eastern European countries and showed that, controlling for a range of characteristics including age, gender, marital status, education and unemployment, people living in relatively rural areas (less than 5,000 inhabitants) had a statistically significant higher level of life satisfaction than all other areas.

Other authors confirm that life satisfaction in cities is typically lower than in rural areas. Hudson (2006) found that those living in villages were happier than others, while Graham and Felton's (2006) study of Latin America revealed that people in small towns had higher life satisfaction compared to residents of large cities.⁶ Shucksmith et al. (2009) used 2003 European Quality of Life Survey (EQLS) data for 28 European countries and found that rural residents in the 12 twelve richest countries of the EU had higher wellbeing than city residents.

Sørensen (2014) used European Values Study (EVS) data for 27 countries and measured urbanisation by three categories of population size, from rural (fewer than 5,000), to town (5,001-100,000) to city (over 100,000 inhabitants). His results incorporated 32 commonly-used independent variables and identified a significant difference between rural areas and cities, with life satisfaction higher in rural areas.

For the UK, the major wellbeing survey conducted by the UK's Office for National Statistics (ONS) also finds higher life satisfaction scores in rural areas compared to cities.

The above studies measure wellbeing with several different dependent variables and across a variety of different area definitions. However, the broad conclusion from previous research is that being less happy in larger areas, including cities, is common in many countries.

⁶ *The paper did not define "small towns" or "large cities".*

Table 1: Well-being studies reporting spatial characteristics

Study	Area	Question	LS point scale	Data	No. of area types	Result
Gerdtham and Johannesson (2001)	Sweden	(Daily life is never a source of personal satisfaction, daily life is sometimes a source of personal satisfaction, daily life is a source of personal satisfaction most of the time.)	3	Level of Living Survey (LNU, 1991) (Institutet for Social Forskning, 1992)	3	Lower life satisfaction in the larger cities
Dockery (2003)	Australia	Happiness with your life as a whole (unhappy, fairly unhappy, fairly happy or very happy.)	4	Longitudinal Surveys of Australian Youth (LSAY) and the Household Income and Labour Dynamics Australia survey (HILDA)	2	Lower life satisfaction in cities
Hayo (2004)	Eastern Europe	On the whole, are you very satisfied, not very satisfied, or not at all satisfied with the life you lead?	3	1,000 respondents per country from opinion surveys in seven countries, organised by the Paul-Lazarsfeld-Society	3	Higher level of life satisfaction among those living in relatively rural areas
Hudson (2006)	EU member countries	On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the life you lead?	3	Eurobarometer survey (2001)	2	Those living in villages happier than others
Graham and Felton (2006)	Latin America	On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the life you lead?	3	Annual survey conducted by the Latinobarómetro organization (2004)	2	Residents of small cities had a higher life satisfaction compared to residents of large cities.
Shucksmith <i>et al.</i> (2009)	Europe	Life satisfaction - scale of one (very dissatisfied) to ten (very satisfied)	10	2003 European Quality of Life Survey	3	Rural residents in the 12 twelve richest EU countries had higher life satisfaction than city residents
Sørensen (2014)	Europe	All things considered, how satisfied are you with your life as a whole these days?	10	European Values Study	4	Significant difference between rural areas and cities, with life satisfaction higher in rural areas
Oguz, 2014	UK	Overall, how satisfied are you with your life nowadays?	10	Office for National Statistics, Measuring National Well-being programme survey	2	People living in rural areas give higher ratings for their well-being than those living in urban areas

4. Life satisfaction in Scotland - Scottish Household Survey data

The main dataset used in this paper is the 2009 Scottish Household Survey (SHS), a random survey conducted biennially by the Scottish Government and weighted to be representative of the Scottish population to Local Authority level. The information collected covers a wide range of measures on life in Scotland, including both life satisfaction scores and many indicators which previous research in this area has been shown to affect life satisfaction. The respondent's location is identified separately, and respondents are classified into cities, towns and rural areas on the basis of population size.

Table 2: Descriptive Statistics

	Mean Life Satisfaction Score*	8.6
Location		
	% living in Cities	34.9
	% living in Towns	43.9
	% living in Rural areas	21.3
Income		
	Average Annual Income (£s,2009)	23 125
Personal Characteristics		
	Average Age	51.6
	% Male	43.7
	%Female	56.3
	Ethnicity (% White)	97.6
Health Status (%)		
	Very Good	34.2
	Good	36.9
	Fair	21.2
	Bad	6.1
	Very Bad	1.6
Marital Status and Children(%)		
	Married	43.7
	Single	29.1
	Separated	4.2
	Divorced	9.4
	Widowed	13.6
Employment Status (%)		
	Employed Full Time	31.9
	Employed Part Time	10.3
	Self Employed	5.6
	Looking after Home/Family	5.3
	Retired	31.6
	Unemployed	4.7
	Disabled	5.1
	Other	5.3
* Scored from 1-11		

Descriptive statistics

Table 2 shows the values of some of the key variables. The SHS provides a large sample size, 24,982 responses, approximately 0.5% of Scotland's total population. As discussed earlier, the wellbeing measure used is the respondent's life satisfaction score - specifically, respondents were asked: "All things considered, how satisfied are you with your life as a whole nowadays?" with responses scored from 0-11.

Urbanisation Measure

Results are classified by three area types; cities, towns and rural areas. Rural areas have a population of less than 3,000, towns between 3,000-125,000 and cities over 125,000 residents. Areas defined as cities are the four largest Scottish urban areas, Glasgow, Edinburgh, Aberdeen and Dundee.

Table 3 shows the average life satisfaction scores for the three areas. The figures show that rural areas score highest, followed by towns and then cities. The difference between cities and towns is relatively small, with the town score only 1.5% above the city score. However, there is a more evident difference in life satisfaction when we compare cities with rural areas, where life satisfaction is almost 6% above the city score.

Table 3: Average Life Satisfaction by area

City	8.41
Town	8.53
Rural	8.90

Scottish Local Authority data

The SHS does not collect figures on a number of potentially relevant spatial measures. However, it specifies the respondent's Local Authority area, and we have augmented the SHS figures with other data available at this level to reflect details of the local areas. The model also therefore includes measures of the local unemployment rate, a crime index, a measure of income inequality and two measures of the quality of local public services (school education and health). Data on these was gathered for all 32 Local Authority areas in Scotland.

Methods and results

The analysis here seeks to explain which factors affect life satisfaction - for example, are people in Scotland who are in good health happier than others (the answer is yes) and, if so, by how much? Is being in good health more important than having a high income (again, yes).

We address these questions by developing a regression model, where each person's life satisfaction score is related to measures such as health, income, age, etc. - life satisfaction is termed the dependent variable because it is "depends" on, or is affected by, the other variables in the model.

We also report coefficients. For example, in Table 4 immediately below the coefficient for Towns is 0.126. Life satisfaction scores run from 1 to 11, and this means that if an individual moved from a city to a town (and nothing else in their life changed) they could expect their life satisfaction score to increase by 0.126 life satisfaction points.

Finally, the t-value shows whether the result is statistically significant; t-values above 2 (for positive effects, where a factor such as higher income increases life satisfaction) or below 2 (where the effect is negative, such as being unemployed) are statistically significant.

Regressing life satisfaction against the urban/rural measures, with city dwelling as the comparator (or reference, see Table 5), shows that there are statistically significant differences in life satisfaction between urban and rural areas within Scotland (Table 4).

Table 4: Regression results (Area only)

	Regression Coefficient	t-value	Regression R-squared
Towns	0.126	4.04	0.009
Rural Areas	0.497	13.19	

However, there are two puzzles with this finding. The first, the standard neo-classical economic argument, is that we might expect that migration would even out variations in life satisfaction over space, and this is clearly not the case. The second is that if there are differences we should perhaps expect, as the New Economic Geography argues, that life satisfaction would be greater in vibrant urban spaces. The reality is clearly more complex.

We next ask whether differences in life satisfaction over space can be linked to the characteristics of the local area. In order to determine this, we report results from a regression model that includes a range of explanatory factors typically found to influence life satisfaction (see Table 5). The results are, in general, very consistent with previous findings. In selecting explanatory variables, we focused in particular on a wellbeing model developed by the ONS, so that our approach would replicate as far as possible findings likely to influence official thinking and policy on wellbeing policy in the UK (Oguz *et al* (2013)). This also allows us to compare our Scottish results against UK findings, an assessment of considerable interest given recent political developments regarding the devolution of legislative power in the UK.

Table 5: Determinants of Life Satisfaction in Scotland

Location (Reference: Cities)	Coefficient	t-ratio
Towns	0.047	1.00
Rural Areas	0.123	2.08
Income		
Average Annual Income (£s,2009)	0.006	6.34
Personal Characteristics		
Age	-0.039	-7.20
Age Squared	0.0004	8.07
Gender (Female)	0.205	6.05
Ethnicity (Reference = White)	-0.262	-2.42
Health Status		
Very Good (Reference: Good Health)	0.414	11.47
Fair	-0.626	-14.72
Bad	-1.723	-24.27
Very Bad	-2.200	-17.58
Marital Status (Reference: Married)		
Single	-0.312	-6.43
Separated	-0.496	-6.02
Divorced	-0.429	-7.02
Widowed	-0.480	-7.04
Single parent	-0.071	-1.49
Employment Status (Reference: Employed Full Time)		
Employed Part Time	-0.039	-0.70
Self Employed	0.064	0.93
Looking after Home/Family	-0.227	-2.95
Retired	0.285	4.39
Unemployed	-1.019	-12.94
Disabled	-0.626	-7.43
Other	-0.119	-1.51
Housing Reference: (Owns Home)		
Buying with Mortgage	-0.092	-2.05
Local Authority Renter	-0.191	-3.53
Housing Association Renter	-0.162	-2.52
Private Sector Renter	-0.128	-2.03
Other		
Local Amenities	0.063	1.91
Community Spirit	0.098	2.11
Good Neighbours	0.143	4.40
Feeling Very Unsafe	-0.470	-7.72
Crime Index	0.0001	0.14
Pupil /Teacher Ratio	0.0001	0.01
Medical employees ratio	0.0005	0.31
Local Unemployment rate	-0.012	-1.58
Income Inequality	-0.090	-0.71
Rural/Green/Seaside area	0.133	-0.66
No Pollution in area	0.375	0.46

The results reported in Table 5 show that the type of area does affect life satisfaction. When we control for other factors affecting life satisfaction we find that there is no statistically significant difference between towns and cities but that those living in rural areas of Scotland have a higher life satisfaction (although the effects are much reduced both in size and statistical significance). This result corresponds with other analysis of how place affects wellbeing which typically find that rural residents have a higher level of life satisfaction than those living in cities.

Thus, while the type of area does have some effect, it is only one of several factors that affect life satisfaction and it is useful to consider its *relative* importance compared to other factors.

We do this firstly by discussing the results in Table 5 in terms of how different types of factors affect wellbeing. People will have little conscious choice over some of these factors, for example personal characteristics like age and sex, but how these are distributed by area will still affect the overall level of life satisfaction in different areas. The same applies to factors over which they may have some choice (e.g. being married, education). In contrast, some variables will vary across areas, including average incomes, unemployment, deprivation, housing and the local environment. It is therefore important to try and isolate the extent to which life satisfaction is affected specifically by spatial factors.

We do this by discussing the results in Table 5 in terms of the framework developed by Dolan et al. Their review article discusses the influence of a range of factors under the following headings, many of which are included in the present analysis⁷:

- Income
- Personal characteristics (e.g. age, gender)
- Socially developed characteristics (e.g. education, type of work)
- How we spend our time (e.g. hours worked)
- Relationships (e.g. marriage, seeing family and friends)
- The wider economic and social environment (including area impacts)

Income

Echoing the conclusion noted earlier by Blanchflower and Oswald (2011), people in Scotland do feel that having more money improves their lives, which provides some support to the argument that increasing GDP should be a component of economic and welfare policy.

*Personal characteristics*⁸

Both age and age-squared are significant and life satisfaction in Scotland has the same U-shaped profile as seen elsewhere. Both gender and ethnicity matter – women and white population groups both have a statistically significant higher level of life satisfaction when compared to the relevant reference groups.

⁷. Dolan et al's full categorisation includes other variables not considered here because they are not measured in the SHS.

⁸. The model does not include a variable measuring inherited personality as in Diener (1999).

Education

As noted, Blanchflower and Oswald question whether the link between education and life satisfaction is direct or is rather the result of the impact of education on income. The education measure used here was not significant.

Type of work

This was measured by the Standard Occupational Classification skill categorisation, which runs from Higher Managerial to Routine Occupations⁹. Occupational status did not significantly affect life satisfaction.

How we spend our time (hours worked, including unemployed)

There is robust evidence that being unemployed typically results in a significant reduction in wellbeing, and this also comes out very strongly here - unemployment is the second most important factor after health; other things being equal, unemployment reduces life satisfaction by 9.3% compared to full-time employment.

However, there is less evidence that the number of hours worked affects wellbeing. Working part-time marginally lessens life satisfaction compared to full-time employment, but the effect is not significant. Despite the possibility that those who are self-employed may work longer hours, this also has little effect. Only two time-related variables, other than being unemployed, impact on wellbeing. These are being retired (positively) and spending time looking after home and family (negatively), suggesting that it may not be the amount of free time we have, but how we are able to spend it.

Relationships

Relationship status makes a significant contribution to life satisfaction. The model used being married as the reference variable and compares this with four other types of relationship (single, separated, divorced and widowed) and all four categories show significantly lower levels of life satisfaction. Table 5 also shows that the reduction in life satisfaction is greater for those who have been in a relationship (i.e. those who are separated, divorced or widowed) compared to single people.

Housing

Home ownership clearly matters to people and the security of owning a home significantly increases life satisfaction. The reference case is those who own their home and while there is some difference between this group and those purchasing with a mortgage, both have a higher life satisfaction score than those who are renting, particularly so where this involves local authority housing.

⁹.Higher managerial and professional occupations, Lower managerial and professional occupations, Intermediate occupations, Small employers and own account workers, Lower supervisory and technical occupations, Semi-routine occupations and Routine occupations.

Health

As elsewhere, health matters more to wellbeing than any other measure. Moving from “Good Health” to “Bad Health” reduces life satisfaction by 16% and this falls even more for those in “Very Bad Health”, which reduces life satisfaction by a fifth (20.4%).

The local economic, social and physical environment

i) Public Services

Neither of the two indicators used to measure the quality of local public services appears to have any significant influence on wellbeing. One is the quality of local education, which is measured by the ratio of pupils to teachers. In contrast to what we would intuitively expect, this had a positive impact on life satisfaction, suggesting the unlikely finding that people are happier when their children are in larger classes. The variable measuring local health provision (the number of health workers to population) is positive, but has no significant effect on life satisfaction.

One possibility is that these measures may simply be similar within local areas. Both ratios are measured at Local Authority level and since councils set policy locally, the pupil/teacher ratio, for example, should be similar for all schools in the same local authority area. Because the figures do not vary by local authority area, we may simply be unable to pick up any potential impact from this measure.

ii) Crime and Deprivation

Despite its links to deprivation and its presumed importance to the quality of local life, there has been a relatively little amount of previous work on how local crime rates affect wellbeing¹⁰. Crime is measured here by the number of crimes per 10,000 of population by Scottish local authority area. This does show sizeable variation across Scotland; all Scottish cities have a crime rate above the Scottish average and so should be picked up in model results.

Despite this, the results show no relationship between life satisfaction and the level of crime at a local area level. Contrary to expectation, the measured impact is actually positive. This result may again be due to the fact that it is measured at the (relatively aggregated) local authority area level. If, for example, crime is localised in crime ‘hotspots’ within these areas, the majority of people will be unaffected and so we would expect this to have little impact on life satisfaction. Further research on this area at sub-local authority level is probably needed to address this question further.

However, we find a curious relationship between life satisfaction and the *perception* of crime. While the incidence of crime is not significant, there is a very strong association between life satisfaction and feeling safe in one’s local area; a move from feeling “Very Safe” to “Very Unsafe” reduces happiness by 4.3%. Unlike the crime index, this variable is measured for individuals and may be more likely to pick up on the local experience of crime. Alternatively, it may be that fear of crime is unrelated to the volume of

¹⁰. Di Tella, R., & MacCulloch (2008) did find a relationship between happiness and the levels of violent crime.

crime that actually occurs in a locality. We show that this measure does help to explain differences in life satisfaction between rural and other areas.

The results also show that other measures of deprivation appear to make little difference. Neither the local unemployment rate nor living in an area of multiple deprivation had any significant effect. The first of these is measured at local authority level and so may suffer from the same problem identified with several other variables discussed above, in that the area definition is simply too aggregated to detect more localised impacts. However, this issue does not apply to the deprivation variable, which is measured for individuals.

ii) *Income Inequality*

The model also included a Palma Ratio¹¹. Inequality has been extensively discussed in the academic literature on wellbeing and was Easterlin's original explanation of why increasing GDP doesn't increase happiness. He argued that because people compare themselves with others, happiness is unchanged unless people rise up the *relative* income scale; hence, individuals feel no better off even when their own income increases if they remain in the same relative position.

We find no relationship between inequality and life satisfaction at local authority level in Scotland. Once again, however, finding no influence in our model does not mean that inequality has no effect since the finding could again be because the data on this is measured at local authority level.

iii) *Social Capital*

Respondents to the SHS are asked to specify a series of questions about what they liked about their local area, including two measures of social capital:

- Whether they felt that the area had a sense of community spirit
- Whether they felt they had good neighbours

Both measures were both positive and significant. Given that people do appear to value living in areas where there is a strong sense of community support, social capital would appear to play some role in increasing life satisfaction.

The Local Environment

The responses to what people liked about their area in the Scottish Household Survey also included two environmental measures. The first was whether they liked the area because it was a "Rural/green/countryside/seaside" area and the second was whether it had "No pollution/fresh air". Neither variable was significant in our analysis.

¹¹. This is measured as the ratio of the income share of the top 10% of income earners to that of the bottom 40%

How important are spatial differences to life satisfaction?

In summary, we detect a limited impact from a number of spatial measures which might be expected to influence life satisfaction. This includes measures of the quality of local life such as crime, deprivation, living in an area of high unemployment, income inequality and the quality of local public services. The converse is true for many personal and relationship measures.¹² Age, gender, marital status and health appear to impact significantly on people's happiness, but it is more difficult to identify the effect of local area characteristics.

Finally, we examine the contribution of spatial variables by comparing our results against the findings of the ONS's wellbeing study, (Table 6)¹³. We do this by using the R-squared statistic derived from the model. R-squared shows the proportion of life satisfaction that is explained by the model. For example, the model results reported in Table 5 has an R Squared equal to 24.9%, meaning that this explains 24.9% of all variations in life satisfaction in Scotland.

We assess the importance of each measure using the following criteria:

- Large = contribution of 1.0 percentage point or more to R-square
- Moderate = contribution of .05 < 1.0 percentage point to R-square;
- Small = contribution of 0.1 < 0.5 percentage point to R-square;
- Very small = contribution of less than 0.10 percentage point to R-square.

Table 6: Contribution of variables to Life Satisfaction, UK and Scotland

	ONS	SHS
Self-reported health	Large	Large
Marital Status	Large	Large
Unemployment	Large	Large
Age	Moderate	Small
Housing Tenure	Small	Moderate
Ethnicity	Small	Very Small
Area	Small	Very Small
Gender	Very Small	Small
Living in deprived area	Very Small	Not Significant
Education	Very Small	Not Significant
Having Children	Very Small	Not Significant
Migration	Very Small	N.A.

These two exercises use different databases and a different range of variables and definitions. For example, the variables measuring health, age, gender, marital status and housing tenure are identical or

¹². The overall effect of personal measures would probably increase if we had been able to include a measure of personality itself in the model.

¹³. The ONS results are reported in Oguz et al, (2013), Table 1, p3.

very similar. Meanwhile the measures for deprivation differ, as do those for ethnicity, work status and having children, in each case because the ONS variables are wider than those used here. For example, our definition of ethnicity is white versus non-white, while the ONS includes nine different ethnic groups¹⁴.

Similar to the present study, the ONS found that “generally across regions, people living in rural areas give higher ratings for their well-being than those living in urban areas when other factors have been taken into account.¹⁵” In both cases, the area in which people live made only a very limited contribution to the model’s explanatory power.

Overall, the results for Scotland are very consistent with those for the UK; what makes people in Scotland happy does not differ greatly from people across the UK. Interestingly, this appears to suggest that moves or greater devolution of powers in the UK do not arise from differences in socio-economic preferences as between Scotland the rest of the UK.

What explains urban-rural differences in life satisfaction?

As in other studies, the results presented here show that the type of area does appear to have some impact on life satisfaction. Finally, we examine differences in life satisfaction across three spatial levels. Table 7 details differences in the level of variables which were statistically significant in the main regression equation, for three area types - cities, towns and rural areas.

Table 7: Area endowments of key variables (% by area)

	Cities	Towns	Rural Areas
Marital Status	37	44	53
Gender	44	43	45
Unemployment	6	5	2
Health	35	32	36
Single parent	7	6	4
Retired	29	33	34
Looking after home and family	6	5	6
Good Neighbours	35	39	36
Community Spirit	10	11	22
Income (,000s)	22.5	22.4	25.6
Feeling safe in the local area	29	36	68

Table 7 demonstrates that rural areas in Scotland have a higher level of life satisfaction compared to urban areas because their endowment of several significant factors is in their favour. This comes out very strongly in the variable measuring “Feeling Safe”, where rural dwellers are much more likely to report that they do. One additional reason why rural inhabitants are happier is because they are much more likely to be married. The data also shows that cities contain a high proportion of single people

¹⁴. See Oguz *et al* for a full set of ONS variable definitions.

¹⁵. Oguz *et al*, (2013), p42.

compared to towns or rural areas; 37% of those living in cities were single compared to 27% in towns and 21% in rural areas. Rural areas are also more likely to have a larger proportion of retired and lower proportions of single parents, both of which increase life satisfaction. While the effect is relatively slight, rural areas also contain (slightly) more women and are also (slightly) more likely to respond that they are in very good health. With respect to area variables, rural residents are considerably (twice) more likely to like their local area because they feel that it has a sense of community spirit¹⁶.

Rural inhabitants also perform better against two key economic variables; annual net income and whether they are unemployed. Both findings are surprising given the data reported in other surveys such as the European Quality of Life Survey. This has further implications for the New Economic Geography¹⁷.

For income and unemployment it is important to note that these are both measured by where respondents live and not by where they work. In a country the size of Scotland, it is perfectly possible to live in a rural area and to commute to work in a town or city. We addressed this by re-running the model with the wider area categorisation shown in Table 8. This specification differs from that used in the main model in that it distinguishes areas by whether or not they are accessible to larger settlements, although only to those with a population above 10,000¹⁸.

Table 8: Accessibility and Life Satisfaction

	t-ratio
Small Urban Areas	0.98
Accessible Small Towns	0.05
Remote Small Towns	1.34
Accessible Rural Areas	2.37
Remote Rural Areas	1.21

The table shows that life satisfaction is only significantly higher when individuals live in an area which is *both rural and* accessible to a larger area, including cities. The coefficient on “Accessible Rural” is larger than the on rural alone¹⁹ and the statistical significance also increases. Other things being equal, living in the country does increase life satisfaction, but only where rural residents are also able to access the services (including employment) available in larger areas.

5. Conclusions - Urban-rural differences in life satisfaction in Scotland

A significant aspect of the UK policy focus on economic growth is focused on cities, which are seen as the location of growth-supporting agglomeration effects, such as knowledge spillovers, labour pooling and producer-supplier linkages. Even the policy objective of geographically rebalancing the UK economy

¹⁶. Although this does not hold for the other measure of social capital, having good neighbours.

¹⁷. Very similar findings emerge even if we exclude pensioners and limit the analysis only to those who are in the labour market.

¹⁸. While we included all variables shown in Table 3 above, there is little difference in the other variables and we report results only for the revised areas. The reference case is cities.

¹⁹. The coefficient rises from 0.1218 (All Rural areas) to 0.1496 (Accessible Rural Areas).

is expressed in terms of strengthening “challenger” cities to offset the dominance of London. However, the growth of UK cities, in terms of population, has been no higher than that of the rest of the country in the twenty year period 1991-2011.

Moreover, as this study indicates, life satisfaction appears to be significantly lower in cities. This suggests that policy-makers should be wary of endeavouring to increase city size as a means to stimulate economic growth, or should at least implement complementary policies that address the social and environmental costs of cities. The concentration of job opportunities in cities increases interregional migration, which in turn stretches family, friendship and community relationships. In addition, commuting times tend to be longer in large cities, leading to a reduction in leisure and family time, and potentially generating strains in family relationships and broader social capital. Similarly, in the absence of effective policy responses, environmental quality is likely to be lower in agglomerations, partly due to congestion and pollution, but also due to more limited access to green space and the natural environment.

One consequence of new information and communication technologies (ICT) is the increased scope for some businesses and workers to locate at a distance from their customers. Public investment to improve connectivity (notably high quality broadband and transport infrastructure) networks can facilitate business creation and home-working in remote and rural areas, and reduce time spent commuting. This study suggests that such moves may be beneficial in enhancing life satisfaction, possibly because people are better able to maintain stronger family and other social ties, or because they allow individuals to make a wider range of choices about where they live and work.

Further, policy-makers could consider the implications of land use, urban and transport planning for life satisfaction, rather than emphasising its effects on business development and economic growth. In particular, effective urban planning can contribute to reducing commuting times and difficulties via decisions on the location of business, housing, amenities and public services. Land use planning can help to safeguard and promote more widespread access to the natural environment and green space, in both urban and rural areas.

Finally, the study suggests the need for public policy to address both the interpersonal and the interregional dimensions of inequality. It shows that the disadvantage of cities diminishes if account is taken of individual characteristics which are known to affect life satisfaction. It therefore supports the importance of targeted support to individuals and social groups which suffer particular or multiple dimensions of disadvantage (e.g. in terms of income, access to employment or education/training, mental health and family support). However, even after allowing for such individual factors, cities remain characterised by lower levels of life satisfaction, suggesting that there is also a need for additional policy intervention in particular areas. This may take the form of policy instruments aimed, for example, at the physical regeneration of certain urban areas, to create employment in areas with high unemployment, or to empower communities to find their own solutions to local problems.

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