



THE SCOTS MAY BE BRAVE BUT THEY ARE NEITHER HEALTHY NOR HAPPY

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1 Introduction

The principal policy objective of the Scottish Executive is to increase Scotland's rate of economic growth¹. Yet, as that well-known Scottish economist, Andrew Oswald (1997), points out "Economic performance is not intrinsically interesting. No-one is concerned in a genuine sense about the level of gross national product last year or about next year's exchange rate." The proposition that measures of economic performance are not valued in themselves is very plausible. It is therefore reasonable to ask why economic growth is elevated above all other policy objectives by the Scottish Executive.

Economists' usual response is that growth increases gross national income which in turn leads to increases in "well-being", "welfare" or "life satisfaction" among the population. Growth is therefore a means to an end. It permits higher levels of consumption which in turn leads to higher levels of well-being among the population. Put simply, more growth leads to more haggis (or, better still, more rounds of golf) being consumed, which in turn makes people feel more satisfied with life.

Until recently, economists have tended not to question the link from measures of economic performance to individual well-being or happiness. But with the advent of surveys which question individuals about their views of "life satisfaction" or "happiness", a substantial literature on these links has built up. There is even a world database on happiness. For a summary of this literature, see Oswald (2000) and Blanchflower and Oswald (2004a, 2004b). The question asked in the Eurobarometer survey is fairly typical. Each year respondents are asked the question: On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the life you lead? Even though such questions have been asked for a considerable time in Scotland, there has been no attempt to analyse such data, far less to bring it to an audience of intelligent non-practitioners. This paper is the first to examine these data in detail.

Most of the recent literature has focused on the analysis of subjective measures of well-being. There is however, a wealth of objective indicators of well-being in Scotland other than those that are commonly rehearsed in the economics literature. These relate to issues such as health, crime and lifestyle. For example, if the self-assessed well-being data are meaningful, one might expect to see correlations between these measures and objective measures of mental health, at least at an aggregate level. The paper extends the previous literature to include information on individuals' assessments of their own mental health. It also discusses an extreme manifestation of mental ill-health - suicide.

Economists have largely ignored measures of subjective well-being, preferring to concentrate on

observable outcomes that relate to the consumption of goods and services. They have largely taken the link between higher levels of consumption and higher levels of well-being or welfare on trust. Avoiding research into measures of subjective well-being might be appropriate if these measures were independent of economic phenomena. However, the evidence of many recent studies and of our own research shows that what individuals say about how they feel about life is responsive to both economic and social influences.

Our paper thus reports how Scotland fares in relation both to satisfaction with life and to other indicators of community health and well-being. Its conclusions are generally pessimistic. The self-assessed well-being of Scots is lower than that of the English or Welsh, even after taking into account the differences in the characteristics of the Scots, Irish and Welsh. Scots also suffer from higher levels of self-assessed depression or phobia than those in other parts of Great Britain. This result is particularly driven by outcomes in Strathclyde² and is consistent with the high scores for other measures of social deprivation in this area.

We begin by reviewing some relevant literature. We then look at some descriptive statistics which show how Scotland compares with other areas in respect of subjective well-being and in relation to objective health and welfare-related measures. We construct some models to explain these phenomena in the penultimate section, while the final section draws together some policy lessons from what has gone before.

2 Literature Review

The simplest way to measure well-being is to ask individuals how they feel about their lives. In the literature on subjective well-being, psychologists have traditionally preferred life-satisfaction questions to most others. It is believed that (compared to questions about happiness levels, for example) such questions translate more readily across languages and cultures. Introductions to the psychology literature on the interpretation of well-being data are contained in Campbell (1981) and Argyle (1987). An overview paper written from the economist's perspective is Oswald (1997), while Easterlin (1974) made an early influential contribution.

A number of objections have been raised to the use of data on self-reported well-being. One is that such data are unreliable and of no value in discussions of economic welfare. Another is that they are accurate and reliable guides to comparisons between societies at a single point in time, but that comparisons through time are invalid because individuals' understanding of the language describing happiness or well-being changes and evolves. Of course, this assumes that comparisons

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across cultures are also meaningful, and there are reasons to be cautious about this – for example, the Japanese may view very positive responses to life satisfaction questions as impolite.

However, studies which analyse individual's reports about their level of life satisfaction have found a number of consistent results – both through time and across countries. These include:

2.1 Income

For affluent Western economies, there is a rather weak link between self-reported well-being and income. Income does buy some happiness but much less than most economists would probably have expected – non-money items such as marriage, sex and employment provide a lot of happiness (Blanchflower and Oswald, 2004b). Conversely, divorce and unemployment bring much unhappiness.

2.2 Employment

Employment is a key determinant of self-reported well-being. The self-employed report higher levels of well-being than the employed and in turn than the unemployed. Although not previously discussed in the literature, we are also able to show here that the inactive – those of working age who have lost contact with the labour market - also report lower levels of well-being than the employed. This is an important result for our final policy discussion, bearing in mind that inactivity has grown rapidly in recent years.

2.3 Historical Trends

Even though real per capita income in the UK has more than doubled in the last four decades, British people are not becoming more satisfied with their lives.³ That is, there is no significant upward trend in the responses to the questions about life satisfaction. Increased income does not necessarily buy increased happiness. This result is clearly of relevance to discussions of economic growth.

The literature on the relationship between economic well-being and mental ill-health is less developed. This is not surprising since a fundamental tenet of conventional economic analysis is that consumers behave rationally. Thus, while some studies have attempted to measure the economic costs of mental illness, very few have considered individual characteristics, including economic characteristics, which are associated with self-reported mental ill-health. An exception is Gardner and Oswald (2003), who show that mental well-being has a "U" shaped relationship with education. Those with degrees or relatively low levels of education experience higher rates of mental stress than those with intermediate qualifications. However, for those with similar

incomes and economic status, more education is associated with less stress.

Some may query the subjectivity inherent in analysing self-reported mental stress data, again because respondents may interpret such questions differently through space and time. However, one objectively measurable manifestation of extreme mental ill-health is suicide. The classic paper on the economic interpretation of the increase in youth suicide is Cutler, Glaeser and Norberg (2001). Suicide rates in the US among those aged 15-24 have tripled in the last fifty years. In the past, suicide rates increased with age, but between 1950 and 1990, suicide rates among the elderly in the US fell by 30 per cent.

In the US, youth suicide has not been centred on deprived inner cities although social stresses and drugs appear to be influential. Social interactions are important: teenagers are more likely to attempt suicide if they know someone else who has attempted suicide. This can lead to a "contagion" effect, a particularly poignant example of which is the suicide of thirteen young males during the first seven weeks of 2004 in the Ardoyne district of Belfast.⁴ More relevant to Scotland is the estimate of 26 suicides in the Highlands and Islands during the first five months of 2004.⁵ Given that the Highland and Islands are not particularly deprived and certainly not urbanized, this tragic outcome is certainly consistent with the US evidence that suicide is not necessarily associated with large cities or extremes of poverty. The most important aggregate variable explaining the increase in youth suicide is the increase in the numbers of young men staying at home with a divorced parent. Divorce rates are better predictors of suicide rates than is the share of children staying in single parent families or with stepparents.

When modeling the factors which might explain unsuccessful suicide attempts using micro-data, Cutler et al find that poor interaction with parents and activities such as drug-taking, sex and violence significantly increase the risk that a young person will attempt to commit suicide (unsuccessfully). But establishing the direction of causation among these activities is problematic. However, they are able to show that contagion effects exist: they are able to demonstrate that knowing someone who has committed suicide increases the risk of suicide attempts. Links between physical health and economic outcomes are better understood. Poverty and inequality have long been associated with relatively poor health outcomes (Kawachi et al 1999).

3 Descriptive Statistics

We continue our investigation by establishing some basic social and economic facts about Scotland. Table 1 includes a series of key comparisons

between Scotland and the United Kingdom as a whole.

- a) Scotland's population of just over 5 million is approximately 8.6% of the total UK population of nearly 59 million.
- b) Scotland has an 18% higher standardised mortality rate but a slightly lower infant mortality rate than the UK.
- c) In a general sense, Scottish education is successful at producing qualified adults. Over 59% of pupils achieve 5 or more grades A* at GCSE level or equivalent.
- d) Economic activity rates and employment in Scotland are similar to those of the UK as a whole but the unemployment rate is slightly higher – 6.8% compared with 5.2% for the UK.
- e) Inactivity due to ill health is substantially higher in Scotland. 31.2% of adults below retirement age were inactive due to sickness or disability in Spring 2002, compared with 26.8% in the UK as a whole.
- f) Scotland has a lower rate of business formation than the UK. In 2000, every 10,000 adult Scots set up 28 businesses, while in the UK, the same number of adults typically started 39 businesses.
- g) Absences due to sickness were no different from the UK average of 3.1 per cent of workers in 2000.
- h) Earnings for both men and women are lower in Scotland, as is GDP per capita.
- i) Serious accidents on the roads, despite less congestion and shorter travel- to-work times, are higher in Scotland⁶.
- j) Recorded crime rates are lower in Scotland than in the UK as a whole.
- k) Working days lost due to labor disputes are considerably higher in Scotland than nationally and the gap has widened further since 1997. In 2000, working days lost in Scotland were more than five times the UK average despite relatively similar union membership rates.⁷

Now we consider some of these socio-economic indicators in greater depth.

3.1 Crime

Crime against households in Scotland is low compared with the rest of the UK (Table 2). Data from the relevant British and Scottish Crime Surveys show that, although burglaries are relatively high in Scotland compared to the south of England, Wales and Northern Ireland, both vandalism and vehicle thefts are sharply lower in Scotland than elsewhere. As a result, the rate of offences against households in Scotland, at 2,374 per 10,000 households, is 44 per cent lower than in England and Wales. Table 1 provides further information on the crime rate. Although it has the lowest overall crime rate of 2,374 per 10,000 households Scotland has a very high prison population. Individuals are slightly more

likely to be put in jail in Scotland than in the rest of the UK. There were 6.4 thousand individuals locked up in Scotland in 2002 out of a total of 66 thousand in the UK as a whole. Although the Scottish population comprises only 8.6 per cent of the UK population, the number of prisoners in Scottish jails is 9.6 per cent of the UK total.

3.2 Health

There is a vast array of statistics showing that Scots are relatively unhealthy. Recent investigations have shown that Scots have higher rates of obesity⁸, multiple sclerosis⁹ and asthma¹⁰ than in other parts of the UK and indeed Europe. Diabetes in Scotland is 24 per 100,000 per year in the under 15 year old population and is one of the highest incidence areas in the world. Scottish men and women have the highest premature mortality from coronary heart disease and one of the highest rates of stroke in the Western World. It is estimated that half a million Scots have coronary heart disease, of whom 180,000 require treatment. Table 3 indicates that Scottish death rates are high in diseases such as AIDS, alcohol abuse and chronic liver disease. The incidence of lung cancer is especially high. Colorectal and breast cancer are also more prevalent in Scotland than in England, Wales or Northern Ireland although prostate cancer is less common than elsewhere. More than half of middle-aged Scots are overweight. The middle-aged Scot also has a blood pressure which rates as one of the highest in the Western World. The Scottish Executive acknowledges that the Scottish diet is, next to smoking, the most significant reason for Scotland's poor health record - premature death is twice as likely in Scotland as in many western countries.

3.3 Accidental Deaths, Assaults and Suicide

Tables 3 and 4 confirm that Scotland has high accident rates from road accidents, from falls, from assaults and in general. Deaths from each of these causes are all likely influenced by excessive use of alcohol in Scotland. Scotland has a high suicide rate alongside these other causes of death. In line with the evidence on suicides, Table 4 also indicates that a relatively high proportion of Scots die from mental disorders. In Scotland, suicide rates are much higher for men than women and are especially high for young men ages 15-24. Table 5 shows rates of suicide by age group in 2002, Cutler et al (2001) suggest that the variability of individual welfare has increased through time. This may be the result of family breakdown, with children having less access to family relations as a "buffer" to deal with emotional upheavals. More variability implies more individuals with very low perceptions of their own well-being and consequently more predisposition to attempt suicide. One explanation, which does not work particularly well in Scotland, is the instrumentality argument – that access to the means

of suicide increases its incidence. In the USA, teenagers – especially men - overwhelmingly commit suicide with firearms, yet in Scotland, where access to guns is far more limited, suicide rates are higher than in the USA. There is no evidence to suggest that this is simply a labeling phenomenon – that suicides in the USA are classified differently in the USA than Scotland – it is probably more of an issue in other countries as there is a reticence to call a death a suicide if death benefits are lost and/or if the person cannot receive a church funeral or be buried in a church graveyard.

3.4 Alcohol and Smoking

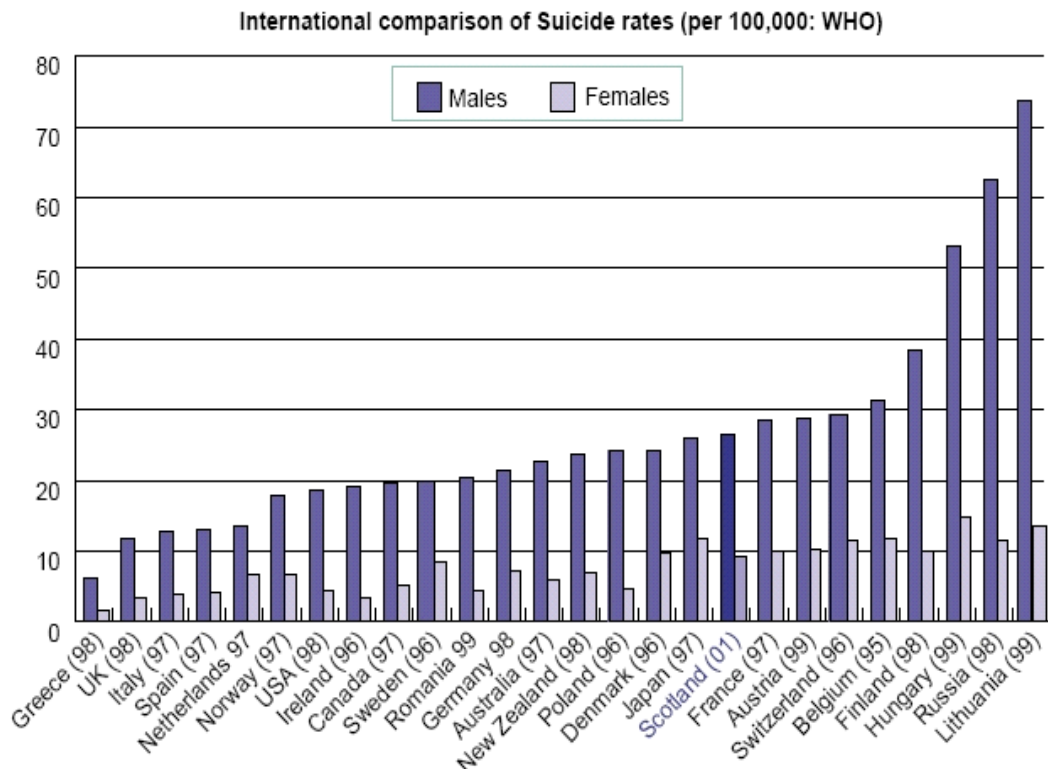
Overindulgence in alcohol and smoking are prevalent in Scotland. Table 6 shows that 29% of men in Scotland drank more than 8 units in the previous week compared with 21% in England 23% in Wales and 27% in Northern Ireland. Females in Scotland also reported drinking slightly more than those in the rest of the UK, but the differences were smaller than was the case for males. Table 7 shows that a higher proportion of both men and women in Scotland are heavy smokers that is they smoke more than 20 cigarettes a day.

3.5 Drugs

There is evidence from Table 3 that Scotland accounts for a considerably higher proportion of

deaths from drug dependence and non-dependent abuse of drugs than is true in the rest of Great Britain. Scotland's share of deaths by this cause has shown a strong increase since 1997-8. According to the Scottish Crime Surveys, however, there has been some decline in the use of drugs in Scotland.¹ It appears that drug misuse, particularly among the younger age groups, increased in the mid 1990s but fell at the end of the 1990s. Looking at use in the last year (the most reliable indicator of change), there was a significant decrease in respondents reporting the use of any drug from 9% to 6.6%. There was also a significant decrease in the proportion of respondents who had ever used drugs, from 22.5% to 19.2%.

These indicators paint a fairly depressing picture of the overall health of the Scottish population. On almost all measures of physical health, Scots fare worse than residents of any other region of the UK and often worse than the rest of Europe. High suicide rates are also indicative of poor states of mental health. Many of the adverse health outcomes are avoidable in the sense that they are the result of lifestyle choices made by Scots. These inevitably reflect societal and cultural pressures but they also result from the economic environment in which Scottish society exists. The labour market is key to this interaction and we now consider how labour market experiences differ between Scotland and other parts of the UK.



Source: General Register Office (Scotland)

4. Econometric Analysis

4.1 The Labour Market

To see how Scots fare in the United Kingdom labour market we conducted an econometric analysis using data from the quarterly Labour Force Surveys for the period November 1997-March 2003. To do this we merged together thirty-one separate quarterly surveys. These provided us with a large, recent dataset in which all of the questions in which we were interested were asked in a consistent fashion. We restricted our analysis to individuals ages 16-69, giving a total sample size of 2,580,908 individuals. We conducted four separate econometric analyses where we examined the rankings of Strathclyde and the Rest of Scotland compared with the other regions in the UK. First, we model hourly wages where the sample is restricted to employees only. Second, we model the probability of an individual being self-employed (relative to being employed). Third, we model the probability of an individual being unemployed (relative to being employed or self-employed). Finally, we model the probability of an individual reporting being 'inactive due to long term sickness or disability' compared with everyone else in our sample.

4.2 Hourly wages

Table 9 reports statistical estimates of the relationship between hourly wages and a set of "explanatory" or "control"¹² variables including age and its square, gender, race, highest qualification controls, industry dummies, year dummies and a series of region controls based on region of work.^{13,14} Column 1 reports results for all workers and has a sample size of 453 thousand while columns 2 and 3 give equivalent estimates for males and females respectively.¹⁵ Earnings in Scotland are relatively high. After allowing for individual controls, hourly earnings in both Strathclyde and the Rest of Scotland rank above Wales and Northern Ireland and a further seven regions including Tyne and Wear as well as the Rest of the Northern region, South Yorkshire, Rest of Yorkshire & Humberside, the South West, the Rest of the North West and the Rest of the West Midlands. The pattern is similar for males. For females, pay in the Rest of Scotland ranks a little lower, now only higher than in six regions plus Wales and Northern Ireland. These results indicate that, for those in work and controlling for their personal characteristics, wages in Scotland are relatively high compared with most of the rest of the UK except the south-east of England. Thus relative to most other parts of the UK, Scots in employment are less likely to be restricted in their range of goods that they consume.

4.3 Self-employment

Table 10 models the probability of a worker reporting that in their main activity they were self-employed. See Blanchflower (2000, 2004) for more on this. The sample is now much larger, including nearly 1.7 million workers. The probability of individuals being self-employed, holding constant a host of their personal characteristics is low in Strathclyde which only ranks above Tyne & Wear and Central London. The probability of being self-employed in the Rest of Scotland is only a little higher. Scots have a relatively low self-employment rate.

4.4 Unemployment

Table 11 models the probability of an individual in the labor force being unemployed¹ and now uses a slightly larger sample than in Table 10 of nearly 1.8 million. The probability of an individual being unemployed, holding constant a host of personal characteristics is higher in Strathclyde than in any other region of the country. The Rest of Scotland fares a little better.

4.5 Inactivity

The next analysis models those who are inactive due to long-term sickness or disability. Table 12, which has a sample size of nearly 2.3 million as it includes the employed, the unemployed and those out of the labour force, tells a further depressing tale. It appears not only are individuals who are members of the labour force more likely to report being unemployed: there is evidence that a disproportionately large number of individuals in Strathclyde have withdrawn from the labour force. Individuals in Strathclyde are disproportionately likely to report being 'inactive due to long term sickness or disability'. These are probably discouraged workers who have failed to escape unemployment and who have been moved onto disability benefits. The extent of inactivity is worrying, which as we will illustrate below, shows up in a number of other ways in these and other data. Bell and Jack (2001) illustrate that inactivity is not randomly distributed across households. There has been a growing incidence of "workless" households in Scotland – where no adult participates in labour market activity.

Although our results are based on very large samples drawn from the Labour Force Survey and on a more robust methodology than a simple comparison of averages, the aspects of the Scottish labour market that we have just discussed are reasonably well known. We now attempt to tie this analysis both to considerations of mental health and to life satisfaction.

4.6 Mental Illness

In the Labour Force Surveys a series of questions are asked about an individual's health and the extent to which any health problems limit that individual's ability to work, to get about and generally how their daily lives are affected. A summary of these health problems are included in the variable *health*, which asks the respondent to identify their most important health problem - the one which affects you the most. Interestingly, over the last seven years there has been a dramatic decline in the proportion of individuals who say they have no problems - from 82% in 1997 to 68% in 2003.¹⁷ There has also been a dramatic increase in a number of the health problems reported, including in the incidence of depression, bad nerves or anxiety. Its (unweighted) incidence has more than doubled since 1997, as is shown below:

1997	0.78%
1998	0.86%
1999	0.95%
2000	1.02%
2001	1.15%
2002	1.36%
2003	1.47%

More disturbing, however, is the high incidence of self-reported depression in Strathclyde, as is clear from Table 13. Phobia, which includes mental illness, or suffer from phobia, panics or other nervous disorders is also highly prevalent in Strathclyde.¹⁸ This finding holds true even after controlling for individual characteristics. Table 14 shows the results of an analysis which estimates the probability that an individual reports being depressed, given their personal characteristics. Tables 15 and 16 present separate results by country for depression and phobias respectively. Thus even after allowing for differences in age, race, gender and level of education, those living in Strathclyde are significantly more likely to report depression.¹⁹ The coefficient is significantly different from that of all other regions and is substantial in magnitude. The effect is present also after allowing for labour market status. As might be expected from life satisfaction results, the unemployed and the inactive are much more likely to report mental illness than the employed. Men are more likely to suffer than women, but those out of the labour force (predominantly women) are more likely to complain of phobias.

Taken together, this evidence suggests a picture of ill health - both physical and mental - in Scotland in general and in Strathclyde in particular. The evidence comes both from objectively measured health outcomes - such as mortality data - and from self-reported health measures. We have also seen that labour market outcomes - such as inactivity and unemployment are linked to health status.

Attributing the direction of causation is extremely difficult with such relationships. This is not an area that we investigate here. However, one point we should make is that a number of the health conditions from which Scots particularly suffer are associated with lifestyle choices. These include drug-taking, alcohol consumption and diet. Such choices are properly of interest to economists as well as to other professional groups. An economist's explanation of why they occur would centre around two possibilities. The first is that Scots are poorly informed about the future implications of the choices they make. This argument is difficult to support since there is no obvious reason why information on the implications of lifestyle choices should be any different in Scotland from the Rest of the UK.

The second is that Scots may discount the future more than people in other parts of the UK. That is, their choices are more dominated by short-term than long-term considerations. If this were the case, then short-run choices that might lead to long-term adverse health consequences might seem rational. Unfortunately, economics is not very adept at explaining why individual discount rates vary. There is an extensive literature on the potential effects of differences in discount rates, but little to explain why they might arise. A plausible proposition is that high discount rates are linked to low self-esteem, which in turn has been linked to other potentially adverse behaviours such as smoking, drinking, drug-taking and obesity.

The final link in our puzzle is to relate the foregoing evidence to information on life satisfaction. That is, we now present some data on how individuals in Scotland respond to questions about how satisfied they are with the life they lead.

4.7 Life satisfaction

Data on life satisfaction are available in a number of sweeps of the Eurobarometer survey. These calibrate many aspects of life experience across member countries of the EU plus Norway for a four year period when it was considering entry to the EU. Data for a shorter number of years for Great Britain was previously examined in Blanchflower and Oswald (2004a). Satisfaction is tabulated below for groups of years both for Great Britain as a whole and for Scotland. It appears from these data that Scots report lower levels of satisfaction than those in Great Britain as a whole. There is also no evidence from Scotland of the recent increase in levels of satisfaction observed in the later period in GB as a whole. This result is driven by high levels of satisfaction reported in 2001 at the peak of the boom where the ILO unemployment rate measure was only 5.0%.

	% not at all satisfied	% not very satisfied	% fairly satisfied	% very satisfied
a) GB				
1973-1977	4	11	54	31
1978-1982	4	10	53	33
1983-1987	4	10	55	31
1988-1992	4	10	55	31
1993-1997	3	10	57	31
1998-2002	2	9	55	35
b) Scotland				
1973-1977	3	12	57	28
1978-1982	2	10	62	26
1983-1987	5	9	61	25
1988-1992	4	11	58	27
1993-1997	4	11	58	27
1998-2002	3	11	58	28

It is also clear from the table that there was no general upward trend in life satisfaction in Scotland between 1973 and 2002. This is true even though there was a substantial increase in material living standards during this period.

The finding that levels of life satisfaction are lower in Scotland than elsewhere are confirmed in Tables 17 and 18. These are based on statistical analyses of the responses to the life satisfaction which we have just discussed. Table 17 reports results for the UK as a whole and includes "controls" for age and its square, gender, schooling, labor market status and a time trend. After allowing for these influences, it is still the case that residing in Scotland has a negative and significant effect on life satisfaction whatever time period is used. Indeed the effect is particularly large in the post-devolution period, 1997-2003. Columns 5 and 6 show the results of estimates for Scotland on its own. These show that the responses are broadly similar for the period 1973-2003 and for the later period 1985-2003. Confirming findings in Blanchflower and Oswald (2004a), the unemployed are especially unhappy. Happiness is also U-shaped in age in Scotland reaching a minimum at around fifty. Males are less happy than females; married people are happier than single people. Individuals who are married are more satisfied than individuals who are living together. Separated individuals are especially miserable.

Finally, we turn to some slightly less depressing evidence. Table 18 is from a much larger sample as it now includes all the EU member countries plus Norway. The findings relating to the way the control variables work as outlined above for Scotland is confirmed here on the much larger sample of over 700,000 individuals. Thus, for

example, being divorced has a negative effect on well-being not just in GB, but throughout Europe. The effect of living in Scotland is significantly negative compared with England and Wales²⁰ also confirming the results in Table 15. Not all is bad, however: seven countries have lower coefficients than Scotland i.e. France (-.96); West Germany (-.44); Italy (-1.01); Greece (-1.25); Portugal (-1.14), Spain (-.75) and East Germany (-1.12). Blanchflower (2001) and Blanchflower and Freeman (1998) found that satisfaction levels in Eastern Europe are especially low.

Thus, even though many of Scotland's health outcomes are worse than the rest of Europe, life satisfaction in Scotland is higher than in many Mediterranean countries as well as France and Germany. Nevertheless, it is clear that on a range of subjective and objective measures of welfare, Scotland is performing relatively poorly compared with the rest of the UK. This outcome may in large part be driven by particularly poor outcomes in the Strathclyde area, which still accounts for roughly half of the Scottish population.

All of the Scandinavian countries score higher than Scotland in the life satisfaction equation. Some of the smaller Scandinavian countries are particularly interesting because they have broadly the same size of population as does Scotland. Figure 1 shows that there were more Scots in 1980 than there were either Danes or Norwegians. But by 2040, it is forecast that Scotland's population will be 827,000 smaller than Denmark's and 650,000 smaller than Norway's²¹. Part of the reason is the lower death rates in these countries from major diseases: they also have lower death rates from homicides and other forms of violence (See Table 19). But does the perceived well-being of the population affect their willingness to have children, their longevity or the demand for migration to Denmark? This is an extremely difficult question to answer – the lags involved may be very long and the causal linkages difficult to disentangle, but this is certainly an area where some research would be useful.

5. Discussion, Conclusions and Policy Lessons

If research on happiness is taken at face value, its effect not only on economic policy, but also on all forms of social and administrative policies is profound. This section reviews some of these issues. We first consider the results from the previous section which show that Scotland's happiness levels are low compared with the Rest of the UK, but high compared with many other countries in Europe. To explain these results, we need to consider influences on happiness outcomes beyond those that we have included in our statistical analysis. First note that although not included in Table 18, countries of the former Soviet bloc consistently report extremely low levels of well-being compared with the countries of Western Europe. This suggests

that there may be a strong institutional impact on individual well-being. North (1990) argues that "institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction".

Frey and Stutzer (2001) provide some interesting findings that seek to clarify the relationship between democratic institutions and happiness. Arguing that people's happiness is influenced by the freedoms that are available to them within the political system in which they live, they suggest that greater freedoms – political, economic and personal – are correlated with greater individual happiness. And in a further piece of research on Swiss cantons, Frey and Stutzer (2000) show a positive relationship between levels of participatory democracy (mainly in the form of local referenda) and self-reported happiness.

Thus perhaps the institutional context has some bearing on Scotland's relatively strong performance in the international happiness regressions. The EU classifies states according to their welfare state regimes; the UK belongs to the "Liberal" category along with Ireland. The "Conservative" states are Austria, Belgium, France, Germany, Luxembourg and the Netherlands, while the "Social Democratic States" comprise Denmark, Finland and Sweden. The remainder are the "Rudimentary Welfare States" of Italy, Greece, Portugal and Spain. States classified as Social Democratic or Liberal tend to have higher levels of happiness than those belonging to the other groups. Of course, one has to be careful about interpreting the causality in these relationships, but it does appear that factors related to social organisation in Scotland (and the rest of the UK) may explain the relatively strong happiness outcome compared with some other EU countries.

Does this argument have any bearing on the contrasts within Scotland, given that democratic structure and welfare provision do not provide a source of independent variation? Does any part of the explanation for adverse outcomes in Strathclyde have to do with specific political outcomes in this area? Strathclyde has had less variation in the party controlling local government in recent decades than other parts of Scotland. This is interesting evidence, but perhaps inconclusive since there are other aspects of Strathclyde's industrial and social history which are also unique within Scotland and which may still have an influence on levels of subjective well being through their historical influences on the cultural and social environment. Nevertheless, if institutions are important as implied by Frey and Stutzer, then it would be interesting to determine whether any significant "devolution" effect on well-being can be detected either in Scotland as a whole, or in Strathclyde specifically. Note however that their argument that increases in "direct democracy" have a positive effect on well-being is based on comparisons between Swiss cantons, where opportunities for individual involvement in democratic processes are

more extensive than in Scotland and in some ways extend beyond the powers available to the Scottish Parliament under devolution. Further research may perhaps shed light on ways in which the Parliament's powers could be extended to strengthen such processes in Scotland. And of course the Parliament has the power to restructure local government so that individuals feel more involved in the processes of regulation and the collection and allocation of resources.

Let's now return to the issue of economic growth. The evidence shows that there has been no general increase in happiness in Western countries even though living standards have increased dramatically in recent decades. Two explanations of this phenomenon have been put forward by Layard (2003). The first is habituation - the process by which humans have evolved to adapt to the circumstances in which they find themselves. Thus for example, paraplegics are only slightly less happy than the population as a whole (Brickman et al 1978). But the same is true of positive outcomes. In the UK, it appears that individuals adjust to rising incomes without any measurable increase in their job satisfaction. Further it seems that we adjust most easily to our possessions. While we are content with other aspects of our lives not changing, we easily tire of our house or car or hi-fi system. Layard (2003) argues that failure to understand the temporary nature of satisfaction from possessions can lead to over-commitment to work.

The second explanation is rivalry - individuals are interested in relative rather than absolute outcomes (Clark and Oswald 1996). Individuals compare their wages with those whom they define as relevant – their "reference group". Recent supporting evidence for this hypothesis can be found in Brown, Gardner, Oswald and Qian (2004). How to define the reference group in which rivalries are assessed is only now beginning to be explored (Blanchflower and Oswald 2004), but Layard argues that extending the reference group may explain why women's happiness in the US has fallen relative to men's because they are now more aware of gender differentials in pay. The strength of these two arguments comes partly from evidence deployed by economists and statisticians using survey data, but it also is in accord with a growing literature on happiness in psychology which is based on experimental results from neuroscience.

Together these arguments suggest that increased growth will not necessarily make Scots happier. Increases in income brought about by economic growth may not increase aggregate happiness because people quickly adjust to their higher income and because while some gain by moving ahead of others in their reference group, their increased happiness will be offset by the declining well-being of those who have fallen behind. Thus even as trenchant a supporter of the market mechanism as Sam Britain has argued:

“But for the more affluent populations of North America and Western Europe, economic growth ... is no longer a sensible objective of policy. It is much better that the growth rate should emerge from peoples own choices.” (Brittan 2001)

Even though such issues are now widely debated elsewhere, this argument has hardly started in Scotland. Further, even if growth is still pursued as a key policy objective, there are different ways in which it can be realized, and in turn these will affect well-being in different ways. Thus increased GDP involves some combination of more workers being employed and/or higher incomes. How would the particular combination of increased employment and higher incomes affect well-being? It is clear from our results that incomes among the employed in Scotland are relatively high compared with other parts of the UK. Increasing incomes among the employed (say by focusing on skills development among those in work) is unlikely to have a substantive effect on average self-reported well-being in Scotland. In contrast, both our results, and an extensive international literature suggest that unemployment and inactivity have a negative impact on well-being and are associated with adverse health outcomes – both physical and mental. Thus, economic growth is likely to have a much more powerful effect on subjective well-being if it brings additional workers into employment, rather than increasing the income of those already in work. The explanation is perhaps psychological. The transition from unemployment or inactivity to employment or self-employment is likely to have a more positive effect on self-esteem than an increase in income. In turn, increased self-esteem may lead to improved mental and physical health as well as to improved perceptions of well-being.

We have argued that policies aimed at reducing the incidence of adverse economic states – such as unemployment or inactivity could have an important impact on well-being. But so too could social and economic policies aimed at avoiding family breakup. The fact that staying at home to look after the family affects well-being negatively (see Table 18) is worrying if increasing fertility rates becomes a priority for the Executive. It is unlikely that short-term policy initiatives can change perceptions of the relative merits of working compared with staying at home with the children.

But the impact on policy of findings relating to human happiness goes well beyond that of questioning whether and how economic growth should be as a principal policy objective. Here are some examples partly drawn from Layard (2003) and Frey and Stutzer (2001):

1. Poverty policy – happiness can be used as a direct measure to determine appropriate

amounts of state support to the poor (Schwarze 2000)

2. Self-employment – our results indicate that self-employment tends to have a positive effect on well-being. Thus an additional reason for promoting policies which advocate self-employment is that self-employment tends to increase happiness.
3. Redistributive taxation – there is strong evidence from evolution that it is relative, rather than absolute, position which matters in “status races”. If this is the case, then redistributive taxation should not adversely influence work incentives. In Scandinavia, where rates of redistributive taxation appear punitive from a UK perspective, rates of productivity are very high and levels of subjective well-being among the highest in the world?
4. Rivalrous behaviours - arguably the advent of mass communications has enabled individuals to compare personal outcomes against others more beautiful, more rich, more talented etc. and this has had an adverse effect on well-being and also contributed to problems such as depression and alcoholism, which we have already discussed. Could this argument also apply to increasing rates of participation in higher education, where those who previously would not have taken a degree become more dissatisfied because their reference group now includes substantial numbers of high-flyers with whom they would not have compared themselves had they not entered higher education? And this argument might also be applied to institutions, where for example, one might argue that league tables are zero-sum games which may have at least as adverse an effect on the morale of those at the bottom of the ranking as they have a positive effect on those at the top.

Analysis of well-being data has a number of particular implications for policy, but is there a more general lesson? Economists have traditionally argued that the overall objective of government should be to maximize social welfare, but they typically retreat from designing policy to achieve this objective because there is no obvious metric for welfare and no means of aggregating it across individuals. But this new evidence suggests that we *can* measure individual well-being, at least approximately. Should the goal of government then be to maximize “social well-being”? The answer has to be negative because we have only solved one part of the problem: we still do not know how to “add” happiness across individuals and therefore Arrow’s impossibility theorem still applies - there is no way to consistently rank alternative policies within a democratic framework. Frey and Stutzer (1999) argue that a more realistic objective would be to direct policy towards designing the institutional structure so as to promote well-being, and the present research seems to imply that one

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way to achieve this would be to make Scotland a more "participatory" democracy.

This paper has shown that there is no clear link between economic growth and increased well-being. But Scotland fares relatively badly across a wide range of objective and subjective measures of health as well as self-reported well-being. How should these influence economic policy? Part of the lesson must be that the economic policy cannot be divorced from social and health policy. It would also be wrong to focus development strategies simply on trying to get the inactive and unemployed back into work, for example. There are linkages between higher incomes in some parts of the economy and the generation of employment in others. Perhaps our arguments should make the Executive think very closely about the example set by countries with similar size populations to that of Scotland, like Norway. It has high income and productivity, inactivity is relatively low, violent death is less common than in Scotland, people are healthy, the population is likely to rise in the next few decades and citizens tend to declare themselves more satisfied with their lives than in almost all other developed countries and certainly more so than in Scotland.

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Endnotes

¹ This policy was agreed in May 2003 by the Liberal-Democrat/Labour coalition. At this time, it was believed that Scotland's growth rate lagged well behind that of the UK as a whole. But data revisions published in 2004 show that differences in growth rates between Scotland and the rest of the UK over the last four decades have been negligible.

² In the sense of the old local authority (regional) definition.

³ See Blanchflower and Oswald 2004a.

⁴ http://news.bbc.co.uk/1/hi/northern_ireland/3494511.stm

⁵ <http://news.scotsman.com/inverness.cfm?id=540042004>

⁶ Travel to work time is available in the LFS each Autumn. Tabulations of usual 'home to work travel time', in minutes, from the September-November 2002 LFS, based on region of work are as follows, (weighted by the grossing factor, *intwt02*).

Tyne & Wear	23.6
South West	21.4
Rest of Northern region	19.0
West Midlands metropolitan	26.4
South Yorkshire	24.2
Rest of West Midlands	20.4
West Yorkshire	24.4
Greater Manchester	25.5

Rest of Yorkshire & Humberside	19.9
Merseyside	22.4
East Midlands	20.9
Rest of North West	21.5
East Anglia	21.2
Wales	19.9
Central London	56.2
Strathclyde	24.4
Inner London (not central)	41.9
Rest of Scotland	23.4
Outer London	31.1
Northern Ireland	21.4
Rest of South East	24.2
United Kingdom	25.4

⁷ According to the Office of National Statistics, based on data from the Labor Force Surveys, in Autumn 2001 public sector union membership rate in Scotland was 59% compared with a rate of 66% for the UK as a whole. The private sector rates were 22% and 19% respectively with overall membership rates of 35% and 29% respectively.

⁸ See Chin and Rona (2001).

⁹ <http://www.themcfox.com/multiple-sclerosis/ms-facts/multiple-sclerosis-facts.htm>

¹⁰ See Masoli et al (2004) in a report presented by the Global Initiative for Asthma (GINA) at the World Asthma meeting in Bangkok, Thailand on February 16th 2004 show that more than a third of 13-14 year olds in Scotland had suffered symptoms of the disease in the last year compared with 30% in England and 34% in Wales. Overall more than 18% of all Scots experience symptoms compared with 17.0% in Wales, 15.3% in England. Switzerland has a rate of 2.3% and Greece 1.9%. The UK has twice as many adults with some degree of asthma (25%) as France (triple the Italian figure). UK children are up to three times more likely to suffer from asthma than children in France, Germany or Italy. The report suggests that more than 1200 people died of asthma in Scotland between 1990 and 1999 of which 43% were under the age of 65.

¹¹ <http://www.scotland.gov.uk/cru/kd01/green/dmis-04.asp>

¹² The coefficients associated with these variables tell us how much (the log of) hourly earnings would change in response to a change of one unit in each of the variables.

¹³ For more on the analysis of hourly wage data in the LFS see Blanchflower and Bryson (2003, 2004).

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14 It is normal practice in economics to model the log of the wage rather than the level – see Blanchflower and Oswald (1994).

16 We use the conventional ILO definition of unemployment.

15 Wage data are only available for employees and for a sub-sample of survey respondents (waves 1 & 5).

17 The main health problems reported in the LFS by year for the UK were as follows (%)

	1997	1998	1999	2000	2001	2002	2003	Total
None	82.4	79.8	78.4	75.4	75.5	69.3	67.5	75.6
Problems or disabilities with arms or hands	1.3	1.3	1.3	1.5	1.3	1.7	1.8	1.4
Problems or disabilities with legs or feet	1.9	2.2	2.3	2.7	2.6	3.5	3.8	2.7
Problems or disabilities with back or neck	3.2	3.7	3.7	4	3.9	4.8	4.9	4
Difficulty in seeing	0.3	0.4	0.4	0.4	0.4	0.6	0.6	0.5
Difficulty in hearing	0.5	0.6	0.6	0.6	0.6	0.7	0.8	0.6
Speech impediment	0	0	0	0	0	0	0.1	0
Severe disfigurement, skin conditions etc	0.5	0.6	0.7	0.7	0.7	0.8	0.9	0.7
Chest, breathing problems asthma etc	2.9	3.4	3.6	3.8	3.7	4.3	4.4	3.7
Heart, blood pressure etc	1.9	2.3	2.7	3.5	3.4	4.8	5.2	3.4
Stomach, liver, kidney,	0.8	1	1.1	1.3	1.3	1.7	1.8	1.3
Diabetes	0.7	0.8	0.9	1.1	1.2	1.4	1.6	1.1
Depression, bad nerves or anxiety	0.8	0.9	1	1	1.2	1.4	1.5	1.1
Epilepsy	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4
Learning difficulties	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.4
Mental illness, phobia, panics etc.	0.4	0.5	0.4	0.5	0.5	0.6	0.5	0.5
Progressive illness n	0.5	0.6	0.6	0.8	0.8	1	1	0.8
Other health problems or disability	1.2	1.3	1.6	2	2	2.6	2.8	1.9

Table 1. Key Statistics		
	Scotland	United Kingdom
Population, 2001 ¹ (thousands)	5,064.20	58,836.70
Percentage aged under 16 ¹	19.2	20.1
Percentage pension age and over ¹	18.6	18.4
Standardised mortality ratio, 2000	118	100
Infant mortality rate, ² 1999-2001	5.4	5.6
Percentage of pupils achieving 5 or more grades A* - at GCSE level or equivalent, 2000	59.3	51
Economic activity rate, ⁵ Spring 2002 (%)	78.5	78.5
Employment rate, ⁵ Spring 2002 (%)	73.1	74.4
ILO unemployment rate, ⁵ Spring 2002 %	6.8	5.2
Average gross weekly earnings: males in full-time employment, April 2001 (£)	448.5	488.2
Average gross weekly earnings: females in full-time employment, April 2001 (£)	342.3	365.5
Gross domestic product, 1999 (£ million)	64,050	771,849
Gross domestic product per head index, 1999 (UK=100)	96.5	100
Average gross weekly household income, 1998-2001 ⁷ (£)	419	480
Average weekly household expenditure, 1998-2001 ⁷ (£)	330.7	365.8
Households in receipt of Income Support/WFTC, ^{4,8} 2000/01 (percentages)	19	16
Total business sites, 2001 (000s)	196.5	2,527.20
Motor cars currently licensed, ³ 2000 (000s)	1,939	25,340
Fatal and serious accidents on roads, ⁴ 2000 (rates per 100,000 population)	64	61
Recorded crime rate, 2001 (notifiable offences per 100,000 population) ⁶	8,248	10,440
Working days lost due to labor disputes ⁹ Days lost per 1,000 employees - 1997	25	10
Days lost per 1,000 employees - 2000	136	25
<p>1. Population figures for 2001 are the first in a new series that are based on the 2001 Census.</p> <p>2. Deaths of infants under 1 year of age per 1,000 live births.</p> <p>3. Totals for the United Kingdom include vehicles where the country of the registered vehicle is unknown or are under disposal, or are from counties unknown within Great Britain.</p> <p>4. Figure for the United Kingdom relates to Great Britain.</p> <p>5. For people of working age, men aged 16 to 64 and women aged 16 to 59.</p> <p>6. Figure for the United Kingdom relates to England and Wales.</p> <p>7. Combined years 1998-99, 1999-2000 and 2000-01.</p> <p>8. In October 1999 Family Credit was replaced by Working Families Tax Credit.</p> <p>9. Source: Office of National Statistics</p>		
Source: http://www.statistics.gov.uk/statbase/ssdataset.asp?vlnk=5874&More=Y		

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	Vandalism	Burglary ³	Vehicle Theft ⁴	All offences ⁵
England and Wales	1,204	442	1,528	3,640
North East	889	621	1,448	3,276
North West	1,317	589	1,943	4,231
Yorkshire and the Humber	1,147	585	1,559	4,165
East Midlands	942	396	1,254	3,093
West Midlands	1,184	467	1,684	3,661
East	1,254	299	1,048	3,134
London	1,455	512	2,141	4,224
South East	1,252	292	1,299	3,273
South West	1,148	395	1,268	3,395
England	1,217	455	1,528	3,664
Wales	999	235	1,534	3,240
Scotland	999	548	385	2,374
Northern Ireland	1,110	272	781	2,485

1. Data for Scotland relate to 1999. Data for Northern Ireland relate to the period 1 September 2000 to 31 August 2001.

2. The vehicle theft risks are based on vehicle-owning households only.

3. The term used in Scotland is housebreaking. The figures include attempts at burglary/housebreaking/

4. Comprises theft of vehicles, thefts from vehicles and associated attempts.

5. Comprises the three individual categories plus thefts of bicycles and other household thefts

Source: British Crime Survey, Home Office; Scottish Crime Survey, Scottish Executive; Northern Ireland Office

	Average 1997-98	Average 2001-02	Change
Total deaths	9.7	9.8	0.1
Deaths from natural causes	9.6	9.7	0.1
Certain infectious and parasitic diseases	11.7	12.3	0.6
AIDS (HIV - disease)	14.7	14.9	0.1
Malignant neoplasm of trachea, bronchus and lung	11.9	12.1	0.3
Alcohol abuse (inc. alcoholic psychosis)	47.2	42.7	-4.5
Drug dependence and non-dependent abuse of drugs	16.6	24.1	7.4
Influenza	16.6	12.6	-4
Mental and behavioural disorders	14.2	14.6	0.4
Malignant neoplasm of trachea, bronchus and lung	11.9	12.1	0.3
Pulmonary diseases	9.5	10.6	1.1
Diseases of the digestive system	10.8	11.6	0.8
Chronic liver disease	15.5	17.1	1.6
Rheumatoid arthritis and juvenile arthritis	10	11.8	1.8
Diseases of the genito-urinary system	11.6	10.9	-0.6
Diseases of the kidney and ureter	14.6	13.8	-0.8
Complications of pregnancy, childbirth etc	10.3	12.6	2.3
Congenital malformations of the circulatory system	40.2	33.7	-6.6
Accidental falls	16.3	18	1.7
Suicide and intentional self-harm	37.2	40.2	3
Event of undetermined intent	46.7	41.6	-5.1

Source: ONS, 'Death by Age, sex and underlying cause', 2002.

		Scotland	England and Wales 2002	Europe
Accidents	M	28	21	21
	F	24	16	10
Transport accidents	M	10	9	9
	F	3	3	3
Falls	M	10	4	4
	F	16	4	2
Poisonings	M	1	2	2
	F	0	1	1
Intentional self-harm	M	20	10	10
	F	6	3	3
Assault	M	4	1	1
	F	1	1	1
Event of undetermined intent	M	8	5	5
	F	3	2	2

Sources: General Register Office Scotland, Office of National Statistics

Age range	Males	Females
	18	8
15-24	38	7
25-34	33	9
35-44	24	8
45-54	19	7
55-64	14	6
65-74	12	3
75-84	9	-

Source: General Register Office (Scotland)

	Scotland	England	Wales	N. Ireland	
Males	Drank nothing last week	25	25	29	47
	Drank up to 4 units last week ²	29	37	30	16
	Drank more than 4 and up to 8 units ²	17	17	18	10
	Drank more than 8 units last week ²	29	21	23	27
Females	Drank nothing last week	41	40	47	62
	Drank up to 3 units last week ²	29	38	29	18
	Drank more than 3 and up to 6 units ²	18	13	13	9
	Drank more than 6 units last week ²	12	9	11	11

Source: Regional Trends

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	Males					Female				
	Smokes <10	Smokes 10-20	Smokes ≥20	Ex Regular Smoker	Never/ Occasional	Smokes <10	Smokes 10-20	Smokes ≥20	Ex Regular Smoker	Never/ Occasional
United Kingdom	7	11	10	27	44	8	11	7	20	54
North East	4	12	11	28	46	5	14	9	18	54
North West	6	14	9	27	44	8	15	7	21	49
Yorkshire & Humber	7	12	11	29	42	7	12	8	21	52
East Midlands	10	8	9	27	46	10	9	5	19	57
West Midlands	6	9	12	26	47	8	11	6	16	59
East	8	11	8	28	45	8	12	3	21	56
London	9	9	12	24	45	10	7	7	18	58
South East	9	10	9	27	44	8	10	5	23	55
South West	7	15	9	29	40	9	10	5	23	53
England	8	11	10	27	44	8	11	6	20	55
Wales	5	12	9	29	46	9	9	6	18	58
Scotland	5	12	13	24	46	8	12	11	21	49
Northern Ireland	4	8	14	37	37	6	11	10	23	50

Source: Source: ONS: General Household Survey, Continuous Household Survey, Northern Ireland and Research Agency.

Age	Last 12 months			Use ever		
	1993	1996	2000	1993	1996	2000
16-19	20	23	18	29	39	29
20-24	25	29	18	35	46	44
25-29	9	13	14	23	34	35
≥30	2	4	3	13	15	13
Total	7	9	7	18	23	19

Source: Scottish Crime Surveys.

	All	Males	Females
Strathclyde	.0167 (2.86)	.0192 (2.21)	.0168 (2.17)
Rest of Scotland	.0027 (0.51)	.0267 (3.32)	-.0151 (2.09)
Wales	-.0125 (2.25)	-.0047 (0.58)	-.0210 (2.86)
Northern Ireland	-.0668 (11.01)	-.0791 (8.78)	-.0566 (7.02)
Rest of North	-.0227 (3.84)	-.0014 (0.16)	-.0424 (5.41)
South Yorkshire	-.0157 (2.44)	-.0108 (1.13)	-.0198 (2.32)
West Yorkshire	.0198 (3.48)	.0309 (3.66)	.0098 (1.30)
Rest of Yorkshire & Humberside	-.0171 (2.84)	.0229 (2.57)	-.0546 (6.80)
East Midlands	.0093 (1.78)	.0327 (4.20)	-.0115 (1.66)
East Anglia	.0289 (5.06)	.0640 (7.58)	-.0033 (0.44)
Central London	.4465 (76.25)	.4395 (51.94)	.4503 (55.97)
Inner London	.2883 (46.88)	.2784 (30.96)	.2919 (35.23)
Outer London	.2090 (38.09)	.2299 (28.26)	.1894 (26.00)
Rest of South East	.1050 (21.55)	.1437 (19.89)	.0720 (11.14)
South West	.0074 (1.45)	.0368 (4.85)	-.0183 (2.70)
West Midlands metropolitan	.0493 (8.87)	.0702 (8.61)	.0296 (3.99)
Rest of West Midlands	-.0044 (0.80)	.0269 (3.28)	-.0297 (4.04)
Greater Manchester	.0329 (5.82)	.0433 (5.17)	.0236 (3.14)
Merseyside	.0059 (0.88)	.0109 (1.08)	.0005 (0.06)
Rest of North West	-.0045 (0.80)	.0126 (1.50)	-.0174 (2.29)
Age	.0667 (190.88)	.0879 (170.01)	.0481 (102.40)
Age ²	-.0007 (168.79)	-.0009 (151.82)	-.0005 (90.00)
Male	.2065 (135.45)	n/a	n/a
Indian, Pakistani, Bangladeshi	-.1320 (27.66)	-.1574 (23.78)	-.0966 (14.15)
Black	-.1271 (21.40)	-.1752 (9.19)	-.0890 (11.60)
Chinese	.1116 (7.61)	-.1537 (6.73)	-.0744 (3.99)
Other races	-.0681 (10.11)	-.1095 (10.95)	-.0274 (3.08)
Schooling dummies	40	40	40
Industry dummies	60	60	60
Year dummies	6	6	6
N	453,198	221,056	232,142
F	3,325.30	1,493.97	1,523.38
Adjusted R ²	0.4465	0.4285	0.4163

Notes: region is based on place of work. Excluded categories Tyne and Wear and white. Ages 16-69. Source: Labor Force Survey: March 1997-November 2003

	All	Males	Females
Strathclyde	.0069 (3.50)	.0132 (3.92)	.0019 (0.88)
Rest of Scotland	.0185 (9.52)	.0185 (5.79)	.0181 (7.87)
Wales	.0416 (19.21)	.0560 (15.63)	.0274 (11.05)
Northern Ireland	.0456 (19.94)	.0686 (18.13)	.0188 (7.41)
Rest of North	.0269 (12.27)	.0350 (9.64)	.0202 (7.95)
South Yorkshire	.0203 (8.80)	.0265 (6.90)	.0143 (5.41)
West Yorkshire	.0178 (8.73)	.0282 (8.22)	.0092 (4.02)
Rest of Yorkshire & Humberside	.0309 (13.88)	.0389 (10.56)	.0239 (9.20)
East Midlands	.0318 (16.03)	.0400 (12.25)	.0238 (10.30)
East Anglia	.0374 (17.45)	.0447 (12.77)	.0301 (11.86)
Central London	-.0123 (6.82)	-.0135 (4.43)	-.0120 (6.00)
Inner London	.0421 (18.51)	.0396 (11.00)	.0426 (15.04)
Outer London	.0535 (24.66)	.0677 (19.17)	.0379 (14.87)
Rest of South East	.0473 (25.08)	.0601 (19.33)	.0338 (15.39)
South West	.0528 (25.56)	.0687 (20.28)	.0361 (15.06)
West Midlands metropolitan	.0137 (6.93)	.0167 (5.10)	.0109 (4.74)
Rest of West Midlands	.0407 (18.99)	.0560 (15.75)	.0253 (10.36)
Greater Manchester	.0184 (9.08)	.0302 (8.82)	.0071 (3.14)
Merseyside	.0177 (7.51)	.0299 (7.46)	.0055 (2.15)
Rest of North West	.0363 (16.80)	.0480 (13.42)	.0246 (9.89)
Age	.0106 (100.20)	.0146 (81.92)	.0077 (63.41)
Age2	-.0000 (72.46)	-.0001 (58.58)	-.0001 (47.22)
Male	.0503 (111.30)	n/a	n/a
Indian, Pakistani, Bangladeshi	.0572 (39.50)	.0912 (39.08)	.0193 (11.49)
Black	-.0188 (11.37)	-.0182 (6.13)	-.0181 (10.85)
Chinese	.0677 (16.14)	.0918 (12.56)	.0401 (9.38)
Other races	.0151 (7.63)	.0322 (9.22)	.0020 (0.98)
N	1,654,461	872,822	781,444
Chi ²	260,000	160,000	65827.7
Pseudo R ²	0.2152	0.2155	0.1702

Notes: region is based on place of work. Excluded categories Tyne and Wear and white. Ages 16-69. Source: Labor Force Survey: March 1997-November 2003. All equations also include 60 industry dummies, 40 schooling dummies and 6 year dummies.

	All	Males	Females
Strathclyde	.0028 (2.28)	.0028 (1.62)	.0026 (1.54)
Rest of Scotland	-.0124 (11.90)	-.0184 (12.94)	-.0051 (3.33)
Wales	-.0135 (12.97)	-.0183 (12.81)	-.0079 (5.19)
Northern Ireland	-.0127 (11.74)	-.0185 (12.67)	-.0066 (4.13)
Rest of North	-.0087 (7.68)	-.0124 (7.88)	-.0045 (2.75)
South Yorkshire	-.0100 (8.18)	-.0133 (7.84)	-.0063 (3.60)
West Yorkshire	-.0190 (18.69)	-.0238 (17.01)	-.0134 (9.00)
Rest of Yorkshire & Humberside	-.0167 (15.16)	-.0209 (13.79)	-.0119 (7.44)
East Midlands	-.0225 (24.80)	-.0301 (24.62)	-.0132 (9.66)
East Anglia	-.0236 (24.18)	-.0312 (23.92)	-.0140 (9.46)
Inner London	-.0033 (2.84)	-.0087 (5.44)	.0028 (1.68)
Outer London	-.0197 (20.95)	-.0269 (21.21)	-.0110 (7.83)
Rest of South East	-.0287 (32.98)	-.0388 (32.74)	-.0167 (12.92)
South West	-.0246 (27.74)	-.0323 (27.07)	-.0150 (11.29)
West Midlands metropolitan	-.0125 (11.93)	-.0177 (12.29)	-.0068 (4.39)
Rest of West Midlands	-.0236 (25.07)	-.0315 (25.11)	-.0135 (9.49)
Greater Manchester	-.0181 (17.67)	-.0225 (15.97)	-.0128 (8.64)
Merseyside	-.0004 (0.36)	.0005 (0.28)	-.0023 (1.24)
Rest of North West	-.0218 (21.82)	-.0277 (20.33)	-.0145 (9.84)
Age	-.0063 (91.91)	-.0077 (79.65)	-.0040 (40.54)
Age2	.0001 (67.05)	.00008 (64.75)	.00002 (20.30)
Male	.0132 (42.29)	n/a	n/a
Indian, Pakistani, Bangladeshi	.0410 (39.47)	.0386 (27.58)	.0435 (28.02)
Black	.0719 (49.06)	.0800 (36.53)	.0621 (32.46)
Chinese	.0165 (5.39)	.0063 (1.46)	.0249 (5.94)
Other races	.0565 (35.29)	.0609 (26.30)	.0496 (23.06)
N	1,771,405	943,955	827,45
Chi ²	64,575.10	39,990.00	25,458.20
Pseudo R ²	0.085	0.0914	0.0795
Notes: region is based on residence. Excluded categories Tyne and Wear and white. Ages 16-69.			
Source: Labor Force Survey: March 1997-November 2003. All equations also include 40 schooling dummies and 6 year dummies.			

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	All	Males	Females
Strathclyde	.0057 (6.29)	.0006 (0.53)	.0117 (8.64)
Rest of Scotland	-.0124 (16.96)	-.0182 (18.74)	-.0053 (4.79)
Wales	.0002 (0.33)	-.0047 (4.19)	.0061 (4.94)
Northern Ireland	-.0060 (7.53)	-.0134 (12.79)	.0027 (2.19)
Rest of North	-.0013 (1.58)	-.0062 (5.38)	.0045 (3.54)
South Yorkshire	-.0063 (7.07)	-.0089 (7.27)	-.0034 (2.66)
West Yorkshire	-.0150 (20.11)	-.0188 (18.65)	-.0104 (9.43)
Rest of Yorkshire & Humberside	-.0201 (27.44)	-.0251 (26.04)	-.0136 (12.15)
East Midlands	-.0196 (30.69)	-.0241 (28.11)	-.0142 (14.73)
East Anglia	-.0229 (34.48)	-.0279 (31.91)	-.0165 (16.11)
Inner London	-.0099 (12.16)	-.0132 (11.74)	-.0061 (5.09)
Outer London	-.0227 (36.13)	-.0278 (33.26)	-.0164 (17.21)
Rest of South East	-.0294 (49.78)	-.0355 (44.18)	-.0223 (25.36)
South West	-.0225 (36.68)	-.0268 (32.37)	-.0173 (18.81)
West Midlands metropolitan	-.0152 (21.23)	-.0211 (22.29)	-.0080 (7.29)
Rest of West Midlands	-.0203 (30.68)	-.0262 (30.40)	-.0127 (12.33)
Greater Manchester	-.0058 (7.21)	-.0103 (9.45)	-.0000 (0.02)
Merseyside	.0021 (2.23)	-.0031 (2.38)	.0083 (5.74)
Rest of North West	-.0115 (15.01)	-.0176 (17.31)	-.0038 (3.21)
Age	.0035 (56.53)	.0023 (26.85)	.00577 (60.33)
Age ²	-.00002 (23.39)	.00006 (1.36)	-.00005 (43.21)
Male	.0094 (38.60)	n/a	n/a
Indian, Pakistani, Bangladeshi	.0114 (15.89)	.0142 (13.31)	.0076 (8.06)
Black	.0034 (3.43)	.0001 (0.07)	-.0054 (4.08)
Chinese	-.0248 (12.92)	-.0276 (9.69)	.0225 (9.00)
Other races	.0073 (6.35)	.0064 (3.72)	.0070 (4.64)
N	2,255,706	1,123,306	1,132,400
Pseudo R ²	0.1661	0.1884	0.1449
Notes: region is based on residence. Ages 16-69. All equations also include 40 schooling dummies and 6 year dummies. Excluded categories Tyne and Wear and white. The variable 'Inecaca' is used to define the dependent variable which is set to 1 if it was in one of the following three categories (09) Inactive - seeking, unavailable, long-term sick or disabled; (16) Inactive - not seeking, would like work, long term sick or disabled; (25) Inactive - not seeking, not like work, long term sick or disabled, zero otherwise.			
Source: Labor Force Survey: March 1997-November 2003			

	Depression	Phobia
Tyne & Wear	1.67	0.6
Rest of Northern Region	1.49	0.51
South Yorkshire	1.57	0.54
West Yorkshire	1.15	0.53
Rest of Yorkshire & Humberside	0.81	0.4
East Midlands	1.02	0.4
East Anglia	0.92	0.41
Inner London	1.12	0.64
Outer London	0.75	0.49
Rest of South East	0.75	0.37
South West	0.82	0.4
West Midlands (Metropolitan)	1.06	0.54
Rest of West Midlands	1	0.42
Greater Manchester	1.3	0.57
Merseyside	1.55	0.56
Rest of North West	1.08	0.43
Wales	1.63	0.58
Strathclyde	1.78	0.73
Rest of Scotland	1.11	0.45
Northern Ireland	1.51	0.52

Notes: Depression includes 'depression, bad nerves or anxiety'. Phobia includes 'mental illness, or suffer from phobia, panics or other nervous disorders'. Responses are drawn from the health variable which reports the main health problem an individual 'which affects you the most' (they can actually report up to 17).

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Table 14. Depression and phobia probits		
	Depression	Phobia
Strathclyde	.0010 (3.03)	.0005 (2.88)
Rest of Scotland	-.0009 (3.03)	.0001 (0.55)
Wales	.0002 (0.76)	.0000 (0.32)
Northern Ireland	-.0010 (3.26)	-.0005 (3.02)
Rest of North	-.0004 (1.35)	-.0002 (1.33)
South Yorkshire	.0000 (0.17)	-.0001 (0.68)
West Yorkshire	-.0008 (2.69)	.0003 (1.90)
Yorkshire & Humber	-.0029 (9.53)	-.0002 (1.65)
East Midlands	-.0014 (5.05)	-.0002 (1.44)
East Anglia	-.0017 (5.31)	.0001 (0.21)
Inner London	-.0013 (4.22)	.0006 (3.43)
Outer London	-.0025 (9.30)	.0005 (3.03)
Rest of South East	-.0026 (10.29)	.0001 (0.16)
South West	-.0022 (8.01)	.0001 (0.82)
West Midlands	-.0016 (5.40)	.0001 (0.98)
Rest of West Midlands	-.0015 (5.03)	-.0000 (0.13)
Greater Manchester	-.0006 (2.03)	.0002 (1.37)
Merseyside	-.0006 (1.68)	-.0002 (1.50)
Rest of North West	-.0013 (4.31)	-.0001 (0.61)
Self-employed	-.0001 (0.53)	-.0002 (2.23)
Govt. training program	.0138 (9.73)	.0081 (9.88)
Unpaid family worker	.0125 (8.81)	.0114 (11.37)
Unemployed	.0189 (49.28)	.0065 (30.39)
Out of Labour Force	.0344 (152.72)	.0191 (114.3)
Age	.0017 (68.46)	.0005 (49.40)
Age2	-.00002 (65.88)	-.000007 (49.53)
Male	.0010 (10.72)	.0014 (30.49)
Time trend (monthly)	.00007 (36.04)	.000009 (9.76)
Black	-.0029 (9.32)	-.00033 (2.46)
Indian etc	-.0036 (18.10)	-.00112 (13.30)
Chinese	-.0052 (8.27)	-.00132 (4.98)
Other race	-.0015 (4.44)	-.00062 (4.49)
N	2,255,706	2,255,706
Chi ²	39,002.10	24,564.40
Pseudo R ²	0.1342	0.1675
Log likelihood	-125,805.96	-61,037.80

Notes: All equations also include 39 highest qualification dummies. Excluded category Tyne & Wear; employee, white. Source: LFS March 1997 - November 2003.

	Scotland	Strathclyde	Wales	N. Ireland	England
Self-employed	-.0024 (2.83)	-.0002 (0.15)	-.0031 (2.50)	-.0008 (0.61)	-.0001 (0.51)
Govt. training Program	.0203 (4.75)	.0313 (4.77)	.0259 (3.24)	.0199 (3.73)	.0137 (8.24)
Unpaid family worker	.0260 (4.32)	.0586 (3.89)	.0310 (3.98)	.0350 (4.39)	.0105 (7.08)
Unemployed	.0225 (17.74)	.0292 (13.82)	.0242 (11.41)	.0126 (6.32)	.0196 (46.61)
OLF	.0489 (57.15)	.0602 (40.84)	.0511 (42.33)	.0403 (33.04)	.0336 (139.81)
Age	.0019 (23.89)	.0024 (18.71)	.0026 (19.93)	.0022 (17.48)	.0016 (61.71)
Age ²	-.00002 (23.82)	-.00003 (18.86)	-.00003 (19.78)	-.00003 (16.25)	-.00002 (59.38)
Male	-.0001 (0.39)	.00005 (0.01)	.0030 (5.94)	.0013 (2.52)	.0012 (12.14)
Time trend (monthly)	.00007 (11.42)	.00008 (7.91)	.00008 (8.29)	.00008 (8.05)	.00007 (32.99)
Black	n/a	n/a	-.0076 (2.35)	.0119 (1.11)	-.0029 (9.93)
Indian etc	-.0037 (3.02)	-.0033 (2.16)	-.0080 (3.54)	n/a	-.0037 (18.50)
Chinese	n/a	n/a	n/a	.0177 (2.06)	-.0053 (8.00)
Other race	-.0064 (3.37)	n/a	-.0054 (2.27)	.0026 (0.37)	-.0015 (4.64)
N	206,341	86,907	106,912	84,861	1,959,667
Chi ²	5,705.20	1,831.40	3,073.60	2,357.50	30,387.40
Pseudo R ²	0.1718	0.2192	0.1573	0.1642	0.1253
Log likelihood	-13,754.40	-3,262.10	-8,231.30	-6,000.90	-106,055.20
Notes: all equations also include 39 highest qualification dummies. Excluded category Tyne & Wear; employee, white.					
Source: LFS March 1997- November 2003.					

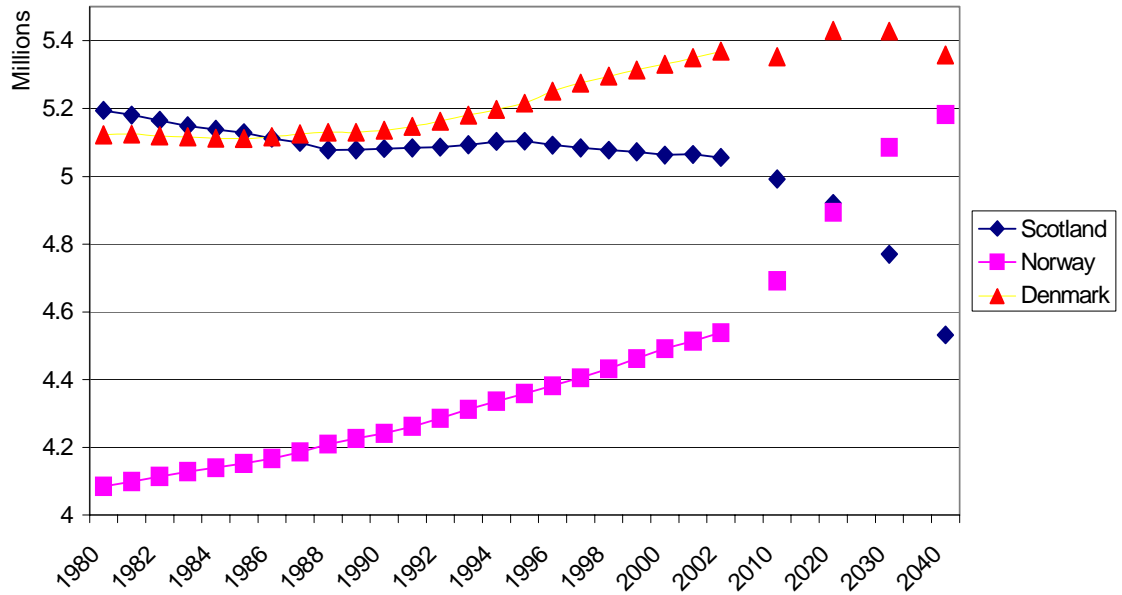
	Scotland	Strathclyde	Wales	N. Ireland	England
Self-employed	.0001 (0.43)	.0004 (0.61)	.0022 (2.65)	-.0002 (0.34)	.0001 (0.43)
Govt. training Program	.0145 (6.00)	.0114 (3.59)	n/a	.0066 (2.38)	.0145 (6.00)
Unpaid family worker	.0341 (7.47)	.0842 (6.65)	.0232 (4.04)		.0341 (7.47)
Unemployed	.0076 (11.40)	.0067 (6.69)	.0064 (5.34)	.0061 (4.95)	.0076 (11.40)
OLF	.0246 (38.26)	.0266 (25.31)	.0243 (25.33)	.0146 (18.74)	.0246 (38.26)
Age	.0005 (17.19)	.0006 (12.69)	.0005 (10.18)	.0006 (8.30)	.0005 (17.19)
Age ²	-.00006 (17.46)	-.000007 (13.20)	-.000007 (10.52)	-.000007 (8.14)	-.000006 (17.46)
Male	.0013 (10.94)	.0016 (8.87)	.0013 (5.83)	.0011 (3.23)	.0013 (10.94)
Time (monthly)	-.00004 (1.81)	-.000006 (1.76)	.000007 (1.90)	.000008 (1.21)	-.000004 (1.81)
Black	.0006 (0.59)	.0035 (1.64)	-.0009 (0.65)	n/a	.0006 (0.59)
Indian etc	-.0014 (3.43)	-.0015 (3.21)	-.0014 (1.45)	n/a	-.0014 (3.43)
Chinese	n/a	n/a	n/a	n/a	n/a
Other race	-.0010 (1.74)	-.0013 (1.59)	.0042 (2.83)	n/a	-.0010 (1.74)
N	206,692	86,907	96,435	82,692	206,692
Chi ²	3,277.31	1,831.40	1,435.20	721.4	3,277.31
Pseudo R ²	0.2054	0.2192	0.1723	0.1218	0.2054
Log likelihood	-6337.7	-3262.1	-3447.4	-2599.7	-6337.7
Notes: all equations also include 39 highest qualification dummies. Excluded category Tyne & Wear; employee, white..					
Source: LFS March 1997- November 2003.					

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	UK 1973-2003	UK 1973-1984	UK 1985-2003	UK 1997-2003	Scotland 1973-2003	Scotland 1985-2003
Scotland	-.1548 (5.63)	-.1604 (3.51)	-.1585 (4.61)	-.2295 (3.13)	n/a	n/a
Wales	-.0015 (0.04)	.1463 (2.10)	-.0687 (1.47)	.0296 (0.28)	n/a	n/a
Northern Ireland	.1484 (8.87)	-.0409 (1.29)	.2201 (11.15)	.0648 (1.72)	n/a	n/a
16-19 years school	-.3794 (16.22)	-.5572 (10.99)	-.3356 (12.52)	-.1821 (3.27)	-.4618 (5.01)	-.3862 (3.49)
>=20 years school	-.1734 (7.80)	-.3421 (6.67)	-.1371 (5.54)	-.0877 (1.80)	-.2736 (3.00)	-.2749 (2.57)
Age	-.0363 (14.02)	-.0294 (5.84)	-.0386 (12.72)	-.0380 (6.00)	-.0489 (4.82)	-.0476 (3.78)
Age squared	.0004 (16.96)	.0004 (7.54)	.0004 (15.18)	.0004 (7.24)	.0005 (5.35)	.0006 (4.07)
Male	-.1682 (10.91)	-.1777 (5.76)	-.1639 (9.18)	-.0774 (2.18)	-.1907 (3.14)	-.2226 (2.99)
Housewife	-.1254 (5.92)	-.0795 (2.05)	-.1480 (5.79)	-.1131 (2.20)	-.2916 (3.55)	-.4095 (3.85)
Student	.0229 (0.61)	-.2755 (3.42)	.0931 (2.19)	.1598 (1.90)	-.0731 (0.49)	-.0769 (0.43)
Unemployed	-1.0835 (36.64)	-1.2730 (8.59)	-1.0466 (31.68)	-.8565 (11.24)	-1.4250 (12.61)	-1.3966 (10.87)
Married	.3592 (16.33)	.1889 (4.38)	.4105 (15.98)	.4313 (7.78)	.4844 (5.75)	.5180 (5.06)
Living together	.0994 (2.47)	-.0761 (0.56)	.1328 (3.10)	.1742 (2.48)	.2745 (1.55)	.1990 (1.04)
Divorce	-.5496 (13.47)	-.8007 (8.44)	-.4912 (10.80)	-.2619 (3.06)	-.2723 (1.67)	-.4008 (2.17)
Separated	-.6011 (10.58)	-.8524 (6.67)	-.5474 (8.61)	-.2746 (2.29)	-.5887 (2.70)	-.6903 (2.78)
Widowed	-.2691 (7.84)	-.4912 (7.46)	-.2019 (5.00)	-.1050 (1.21)	-.1667 (1.32)	-.1152 (0.74)
Retired	-.0538 (2.07)	-.0175 (0.31)	-.0717 (2.43)	-.0326 (0.53)	.0337 (0.34)	.0929 (0.78)
Cut_1	-4.0632	-4.1412	-3.9621	-2.464	-4.4456	-4.3307
Cut_2	-2.5649	-2.686	-2.442	-0.8538	-2.9155	-2.799
Cut_3	0.1892	0.0087	0.3422	1.9377	0.0438	0.1939
N	80,697	22,724	57,973	14,041	5,502	3,469
Chi ²	4,080.90	988.1	3,201.70	573.5	359.3	280.3
Pseudo R ²	0.0245	0.0207	0.0269	0.0205	0.032	0.0395
Log likelihood	-81,377.60	-23,393.80	-57,904.30	13,731.70	-5,443.00	-3,409.10
Excluded categories: England and Wales" <16 years schooling, single, working. Equation also includes a time trend. T-statistics in parentheses. Source: Eurobarometers, 1973-2002. Eurotrends, 1970-1999 plus Eurobarometers # 53.0, 54.1, 55.1, 56.1, 56.2 and 57.1.						

Table 18. European Life Satisfaction Equations				
	1973-2003	1973-1984	1985-2003	1997-2003
Scotland	-.1463 (5.26)	-.1727 (3.74)	-.1437 (4.12)	-.2486 (3.21)
Wales	.1165 (2.98)	.1394 (1.99)	.0969 (2.06)	.3811 (3.60)
Northern Ireland	.1600 (9.41)	-.0462 (1.45)	.2355 (11.70)	-.0129 (0.29)
France	-.9616 (80.07)	-1.0741 (48.58)	-.9196 (64.18)	-.7998 (20.40)
Belgium	-.0241 (1.99)	.0578 (2.62)	-.0676 (4.65)	.3775 (9.51)
Netherlands	.4121 (33.98)	.4756 (21.26)	.3821 (26.43)	-.5032 (12.86)
West Germany	-.4382 (36.76)	-.4709 (21.35)	-.4252 (29.99)	-1.1125 (28.07)
Italy	-1.0131 (84.67)	-1.3387 (60.48)	-.8743 (61.38)	-.9627 (24.54)
Luxembourg	.1739 (11.37)	.2004 (6.34)	.1637 (9.30)	-.4129 (10.35)
Denmark	.9405 (75.66)	1.0163 (44.62)	.9041 (60.70)	-.3511 (8.91)
Eire	.1184 (9.65)	.1897 (8.45)	.0860 (5.86)	.1925 (4.90)
Greece	-1.2517 (95.88)	-1.3380 (45.12)	-1.2240 (82.51)	-.2841 (7.22)
Spain	-.7547 (56.39)		-.7389 (50.76)	-1.1488 (29.16)
Portugal	-1.1352 (84.25)		-1.1195 (76.40)	-.5165 (13.05)
East Germany	-1.1151 (70.57)		-1.1177 (66.36)	-1.3694 (35.06)
Norway	.4877 (18.06)		.5016 (18.16)	n/a
Finland	-.1262 (6.61)		-.1363 (6.80)	-.2975 (7.60)
Sweden	.2821 (14.56)		.2760 (13.59)	.1003 (2.55)
Austria	-.0148 (0.76)		-.0189 (0.93)	-.2835 (7.24)
Time	.0077 (21.34)	.0018 (1.09)	.0124 (20.57)	.0769 (21.94)
16-19 years school	-.4630 (65.01)	-.5041 (30.17)	-.4718 (58.85)	-.5300 (30.50)
>=20 years school	-.1957 (29.31)	-.2332 (13.86)	-.2030 (27.71)	-.2257 (15.25)
Age	-.0453 (48.92)	-.0370 (8.69)	-.0482 (45.82)	-.0489 (22.30)
Age squared	.0005 (51.40)	.0004 (20.62)	.0005 (47.58)	.0005 (23.20)
Male	-.1079 (20.38)	-.1616 (13.37)	-.0953 (16.16)	-.0602 (5.05)
Housewife	-.0325 (4.20)	-.0170 (1.09)	-.0497 (5.52)	-.0876 (4.37)
Student	.0250 (2.27)	-.1140 (4.42)	.0399 (3.25)	-.0016 (0.07)
Unemployed	-.9839 (95.77)	-1.0096 (37.22)	-.9841 (88.25)	-.9014 (36.87)
Married	.3537 (47.42)	.3415 (20.92)	.3583 (42.58)	.4849 (27.13)
Living together	.1906 (15.48)	.0278 (0.79)	.2125 (16.10)	.3133 (13.63)
Divorce	-.3980 (27.64)	-.6093 (15.28)	-.3595 (23.12)	-.1763 (6.12)
Separated	-.5908 (26.23)	-.7308 (13.00)	-.5662 (22.99)	-.2553 (5.37)
Widowed	-.2314 (19.29)	-.3164 (12.42)	-.2083 (15.30)	-.0850 (3.00)
Retired	-.0505 (5.50)	-.0297 (1.43)	-.0530 (5.15)	-.0419 (2.00)
Cut_1	-4.6208	-4.4579	-4.6277	-3.2145
Cut_2	-2.9314	-2.8617	-2.907	-1.3626
Cut_3	-0.1139	-0.0848	-0.0712	1.4458
N	710,025	154,673	546,352	125,611
Chi ²	102,888.60	25,469.90	78,675.10	13,928.60
Pseudo R ²	0.0674	0.0748	0.0664	0.0523
Log likelihood	-711,398.10	-157,424.00	-553,090.90	-1261,57.5
Notes: excluded categories; England and Wales" <16 years schooling, single, working. Equation also includes a time trend. T-statistics in parentheses.				
Source: Eurobarometers, 1973-2002. Eurotrends, 1970-1999 plus Eurobarometers # 53.0, 54.1, 55.1, 56.1, 56.2 and 57.1.				

Figure 1: Population: Scotland, Denmark and Norway 1980-2002, Projections 2010-2040



Causes of Death	Scotland	Norway	Denmark
Homicide and other violent deaths	7	1.2	5.5
Cancers	288.8	233.4	286.4
Heart Disease	444.5	392.5	357.9
All Data for 1999			
Rates Per 100,000 Population			
Source: World Health Organisation			

