



Life Satisfaction: the state of knowledge and implications for government

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**This is an analytical paper to provide a basis for discussion.
It is not a statement of Government Policy.**

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Executive Summary

1. There is a large and rapidly growing body of research that investigates what makes people satisfied with their lives. This paper summarises what has been found and suggests how this research may be useful for policy-makers.
2. This research takes as its starting point surveys asking people if they are satisfied with their lives in general. This simple measure of life satisfaction has been found to correlate highly with more sophisticated mental health scales, ratings by others who know the individual, and behavioural measures, such as frequency of smiling.

National differences and trends

3. In Britain and many other developed countries levels of life satisfaction are high and have been either stable or have risen slightly over the last 30 years. However, there have been exceptions: in Denmark the percentage of people who were very satisfied rose from 51% in 1973 to 64% in 2001, but fell in Belgium from 44% to 18%. Most less developed countries have lower levels of life satisfaction than richer nations.

Genes, personality and demographic factors

4. **Genes.** Twin and adoption studies show that genetics play a large role in explaining individual differences in life satisfaction – some people are naturally inclined to be happier than others. The transmission mechanisms are not clear: for example, it may be through people's personalities, abilities, or their health status that life satisfaction is 'inherited'. Genetics cannot explain everything – it cannot account for the large differences in well-being between countries, or the changes in satisfaction experienced by Denmark or Belgium.
5. **Personality and demographics.** Factors which have been found to be associated with life satisfaction include:
 - personality factors such as optimism, extroversion and self-esteem;
 - gender: studies have generally found women report more life satisfaction;
 - age: many studies have found a u-shaped relationship with age, with the young and old more satisfied than the middle aged. Over the last 30 years the life satisfaction of young people has risen in most European societies – except Britain.

Work and economic factors

6. **Income.** People with higher incomes are more satisfied than those with lower incomes, and an increase in personal income does bring higher levels of satisfaction. Researchers have found that a higher level of GDP per capita, and an increase in the rate of economic growth, are both associated with increases in life satisfaction. However, despite large increases in national income (and expenditure) over the last 30 years, levels of life satisfaction have not increased commensurately. Three explanations have

been put forward for the failure of life satisfaction to follow the increases in national income, that:

- the role of hereditary factors might overshadow any effects of income;
- while GDP may have risen, other trends such as rising crime or divorce rates may have had an offsetting impact on life satisfaction; and
- while an increase in an individual's income may increase their satisfaction it may also cause envy and reduce that of others (if people's happiness is determined by relative rather than absolute status) or the increase in satisfaction may be temporary (if people adapt to their new circumstances and their aspirations rise).

7. **Work.** There is a positive relationship between job satisfaction and life satisfaction. A range of factors influence work satisfaction including: personal control, variety, income, job security, skill use, physical security and job demands. Job satisfaction decreased and employees' mental stress increased during the 1990s – particularly in the public sector.
8. **Unemployment.** Being out of work is very damaging to your life satisfaction – though less so if you live in a region with a high unemployment rate; have family members who are also unemployed; or you have been repeatedly unemployed in the recent past. The loss of life satisfaction from the social effects of unemployment is far greater than the loss caused by loss of earnings. In recessions, rising unemployment also affects those who remain in their jobs, reducing their life satisfaction.
9. **Inequality.** High levels of inequality are associated with low levels of life satisfaction in Europe, but not in the USA. This could either be because Europeans favour more equal societies, or because the perception of higher levels of social mobility in the US reduces the unhappiness caused by inequality.

Health and education

10. **Health.** Self-reported health has one of the strongest associations with life satisfaction. Its effect is larger in size than changes in employment or marital status. However, objective health status shows a much weaker relationship with satisfaction suggesting that self-reported health may be biased upwards by a positive outlook on life.
11. **Education.** Research has found very little effect of education upon life satisfaction other than the separate effects of education on income, employment and other economic factors.

Social life, leisure and community relationships

12. **Leisure.** People who exercise, play sport, or work in the garden are more satisfied than those who do not. Religious people are happier than average. It is partly the social aspects of leisure or religion that drive up life satisfaction. It has been estimated in the US that going to monthly club meetings, monthly volunteering, monthly entertaining or bi-weekly church attendance each have the happiness equivalent of a doubling of money income. Having friends, supportive relatives and work mates are all correlated with satisfaction with life overall or with one's job.

13. **Relationships.** The most important relationship is that with one's spouse. Studies have consistently found that married people are happier than those who were never married, divorced, separated or widowed. This relationship holds across cultures and even when income and age are taken into account. This effect is strong: studies suggest that marriage is equivalent to an increase in income of £72,000 per annum. Conversely, divorce, widowhood and separation all reduce life satisfaction.

Freedom and democracy

14. **Governance.** The quality of a country's governance (including stability, control of corruption, and the rule of law) has been found to help explain national differences in wellbeing, other factors having been controlled.

15. **Democracy.** Analysis of the relationship between life satisfaction and democracy has found that, in Switzerland, people are more satisfied in cantons with more referenda and higher levels of direct democracy. Around two thirds of this effect is attributed to the ability to participate in the democratic process, and around one third to the closer match between the wishes of the population and the decisions taken.

The size of the effect of various events on happiness and mental well-being.

16. Attempts have been made to value and quantify the size of the relationship between life satisfaction and various life events. The following table shows, in monetary terms, the effect of various changes in marital, employment and health status (the values are large because of the relatively small effect of income on happiness).¹

Event	Effect size (£ per month) GHQ-12	Effect size (£ per month) happiness
Employment to Unemployment	−£15,000 per month	−£23,000
Single to married	Statistically insignificant.	+£6,000
Married to separated	−£8,000	−£11,000
Married to divorced	−£1,000	Statistically insignificant.
Married to widowed	−£7,000	−£14,000
Health excellent to Health good	−£10,000	−£12,000
Health excellent to Health fair	−£32,000	−£41,000

Policy implications

17. There is a case for state intervention to boost life satisfaction due mainly to evidence of direct impacts on life satisfaction of government activities, together with strong evidence of the dependence of individuals' wellbeing on the actions of others.

18. Less controversial policy implications might include: the use of life satisfaction data to construct quality of life indices; help in marginal policy decision-making; increasing options for democratic involvement; the provision of better information on the life satisfaction consequences of alternative lifestyle choices; for citizens, and stronger support for volunteering and social capital.

19. More controversial and contested implications that have been argued for by some writers include: a higher priority on the economic development of poorer nations, the

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encouragement of a more leisured work-life balance, and a more positive appraisal of public spending and progressive taxation.

Life Satisfaction: the state of knowledge and implications for government

What is the highest of all goods achievable by actions? ...both the general run of man and people of superior refinement say that it is happiness... but with regard to what happiness is, they differ.

[Aristotle, *Nicomachean Ethics*, Book 1, Chapter 4]

I should say that happiness is being where one is and not wanting to be somewhere else.

[Michael Frayn, *A Landing on the Sun*, p.151]

I. Introduction

1. Most societies pursue a range of ends - such as freedom, justice, human development, order or equality. Some give these goals formal expression: *liberté, égalité et fraternité* in France; 'life, liberty and the pursuit of happiness' in the USA: - Bhutan even has a stated goal of Gross National Happiness. This paper introduces research that sheds light on the determinants of one of these goals: life satisfaction.
2. The paper sets out:
 - to introduce the concept of life satisfaction and its measurement;
 - to summarise what is known about what makes people happy;
 - to describe the trends in life satisfaction and patterns – both internationally and within the UK; and
 - to consider some of the possible policy implications of this research.
3. When people are happy, the evidence shows that they tend to be more creative, more pleasant to be with, and even tend to live longer. But most simply happiness, or satisfaction with life, is seen as something that is desirable in itself. If the state can do things to increase life satisfaction – or at least not decrease it – then most people, other things being equal, would see this as desirable.

What do we mean by life satisfaction?

4. Life satisfaction is a subjective, open measure of human welfare. Subjective because in surveys people are simply asked whether they are satisfied with their life as a whole and

open because researchers do not pre-define the components of social welfare – it is up to each individual respondent to judge whether they are satisfied.

5. Related concepts include social welfare, economic well-being, quality of life.* Indicators have been developed to measure these concepts: consumption based measures such as the Index of Social and Economic Welfare, composite indicators such as the Index of Social Health, or scorecard approaches such as the 15 headline indicators of sustainable development used by the UK government. These related measures are explored in more detail in annex 2.

The measurement and interpretation of life satisfaction

6. There are two main approaches used in the research referred to in this paper. The first is simply to ask people whether they are happy or satisfied with their life. A typical question is, “On the whole are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the life you lead?” or “Taken all together, how happy would you say you are: very happy, quite happy, not very happy, not at all happy?”. The other approach is to measure people’s (self-reported) psychological health or mental stress using the widely used General Health Questionnaire 12 (GHQ12) measure. In the GHQ12 measure respondents are asked a series of questions such as “Have you recently: lost much sleep over worry? Felt constantly under strain? Been losing confidence in yourself? Been reasonably happy all things considered?”² To be clear: a rise in a GHQ score is a fall in psychological well-being or a rise in the experience of mental stress (other measures are discussed in annex 1).
7. Several worries have been expressed about this approach. Do answers to survey questions actually measure people’s mental state? Can we compare one person’s answers with those of someone else? When conducting international comparisons do people understand life satisfaction or happiness differently in different languages? These and other methodological concerns are explored below; they show that the research is a lot more reliable than first impressions might suggest.
8. **Do answers to survey questions actually measure people’s mental state?** Some psychologists have regarded surveys with suspicion because of problems such as people giving answers they think are expected of them (social desirability). Economists have generally favoured the use of revealed preferences (e.g. actual consumer purchases) rather than stated preferences (e.g. survey results) when seeking to understand people’s behaviour. However, there are several reasons to believe that responses to questions about life satisfaction correspond with actual states of mind. First, considerable comfort can be taken from the high correlation with other, more elaborate questionnaires such as the GHQ (this is termed convergent validity). Second, friends, partners and relatives judge the subject’s life satisfaction to be similar to the self-reported measure (termed high cross-observer correlation). Third, it has been found that

* *Economic or social welfare* refers to the total well-being of a community. Both can encompass both economic and social aspects of welfare. Where welfare is increasing and this trend is sustainable for each new generation (in particular, where the increase in well being is not dependent upon the depletion of non-renewable resources) this is referred to as *sustainable development*. *Quality of life* is a similar concept to social welfare and is often measured using objective indicators. Life satisfaction is a subjective measure of human welfare where each individual judges their own level of life satisfaction - which could be determined by social, economic, environmental, spiritual and other factors.

those who reply that they are fairly or very satisfied also display this in their other behaviour, such as walking more upright and displaying more genuine smiles.³

9. **Can we compare one person's answers with those of someone else?** Another worry has been the comparability and scalability of the results: one person's "very satisfied" might be another's "satisfied", though in large sample sizes this becomes much less of a problem provided that these differences in interpretation occur fairly randomly.
10. **Can international comparisons be made?** It is possible that linguistic differences in the interpretation of the question make comparison of data across nations and groups meaningless: that *satisfait* and *zufrieden* are not equivalent to *satisfied*. However, this concern has been directly addressed by studies of differences across linguistic sub-groups within nations. These studies have shown that linguistic differences do not account for the marked national differences that have been repeatedly found. For example, German, and French speakers living in Switzerland are all found to report uniformly high life satisfaction – and significantly higher satisfaction than their German and French neighbours over the border. Similarly, French speakers in Belgium show a closer match to their Flemish neighbours than to French speakers in France. Nationality is a stronger predictor of life satisfaction than language.⁴
11. **In which direction does causality lie?** Much of the research relies upon reporting an association between life satisfaction and another factor, say marriage. However correlation is not the same as causation – it could be that marriage causes happiness or that happy people are more likely to get married. While in some cases issues of causality can be addressed through the use of panel data (where the same people are tracked over time) this is not always true of the research summarised in this paper - readers should be aware of the possibility of reverse causality.
12. As we can see from the findings reported below life satisfaction data are found to show highly consistent and very plausible relationships with a host of other variables. It is common sense to assume that unemployment and bad health are associated with lower levels of life satisfaction – and this is indeed what is found – across a wide range of studies using different methods, different surveys and in a wide variety of countries. It is this body of consistent findings that is ultimately the strongest source of validity for life satisfaction as a measure, and that drives growing academic and policy interest in the concept.

II. Evidence

What do we know about life satisfaction?

13. Researchers have conducted a wide variety of studies into the relationships between life satisfaction and a range of other factors. This section reports the findings in six areas:

- cross national differences and trends;
- genetic, personality and demographic factors;
- economic and work factors;
- education and health factors;
- social life and community relationships; and
- government and political factors.

14. The first section is largely descriptive. The subsequent sections attempt to pick apart in more detail the individual, social and economic factors that help to explain variations in life satisfaction.

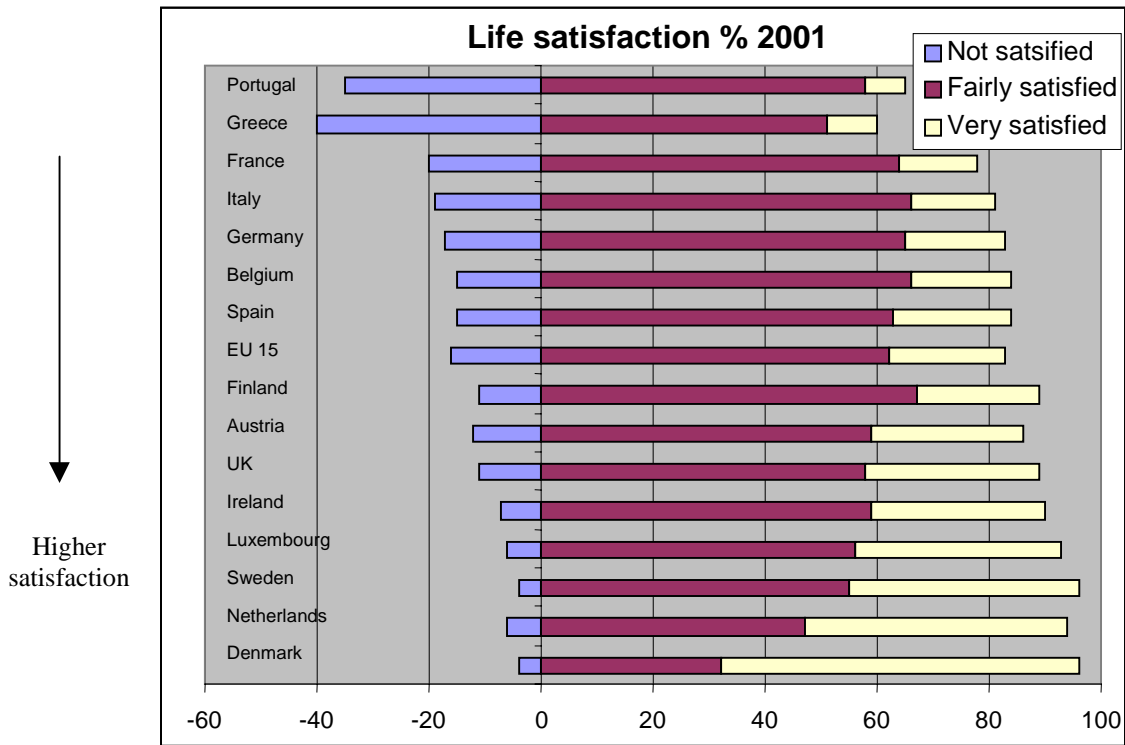
15. These factors, even when combined, do not fully explain why life satisfaction is at one level for one person and at a different level for another. As measured to date these variables can explain between one-third and one-half of variability in life satisfaction at the *individual* level. Some of the unexplained variability will be the result of measurement error; some will result from unmeasured differences in the quality of people's experiences, and some from the interaction between these experiences and their own values or constitutional make-up. On the other hand, the majority of the variability between *nations* can be statistically explained by these factors.⁵

National differences and trends over time

16. Levels of satisfaction vary considerably between countries. This can be seen even within the developed countries of the European Union – where the people in Greece and Portugal are far less satisfied than in other EU member states. The UK is above the European average: with 31% very satisfied, 58% fairly satisfied, and 11% not satisfied.⁶

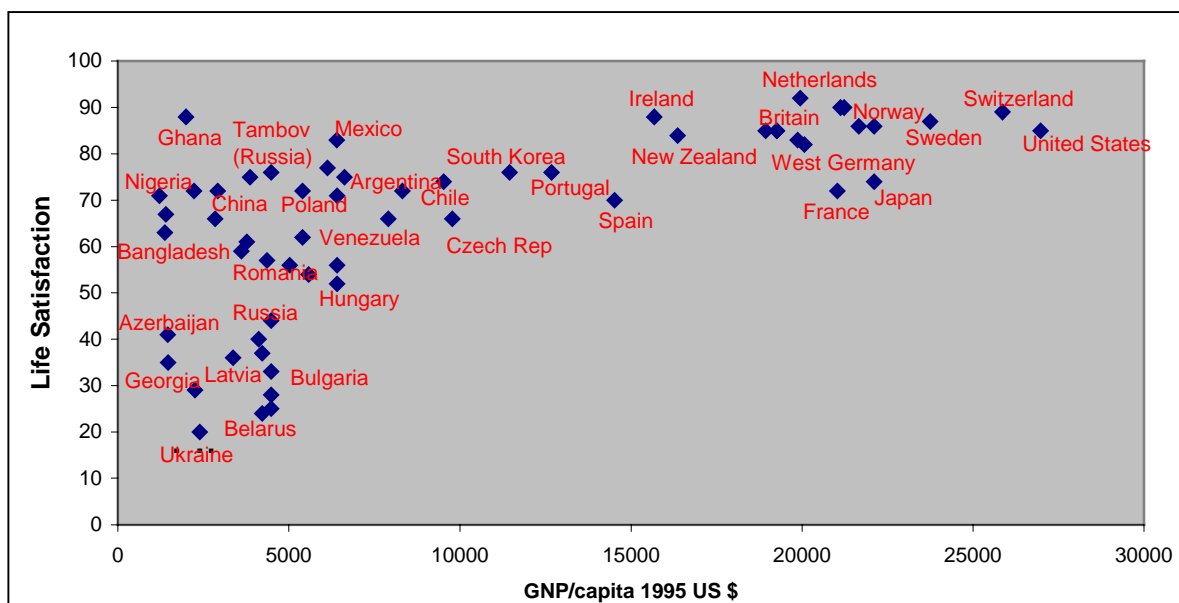
17. Life satisfaction is highest amongst richer countries and those that are historically Protestant, and lowest amongst former Communist states. As can be seen in the chart below there is a clear relationship in developing countries between national income and levels of life satisfaction. This relationship appears to break down once countries reach a certain level of development – roughly the level of wealth that the UK reached in the 1950s.

Chart 1. Life satisfaction in EU member states, 2001, Eurobarometer



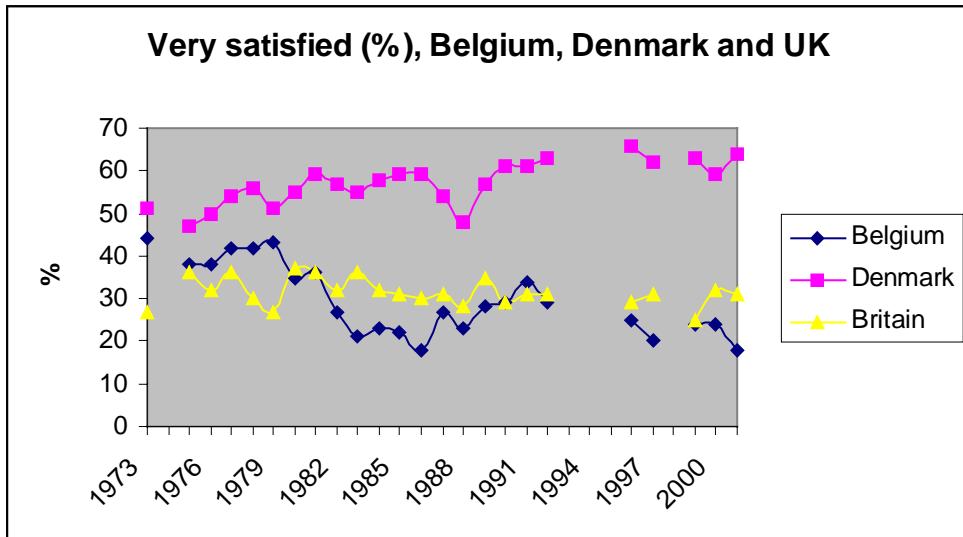
18. As we shall explore in more detail later, differences in income do not explain all of the cross-national differences. For example, countries from the former Soviet Union and its satellites seem to have lower levels of life satisfaction than would be expected for their level of GDP per capita.

Chart 2. Life satisfaction and GDP per capita, various countries.⁷



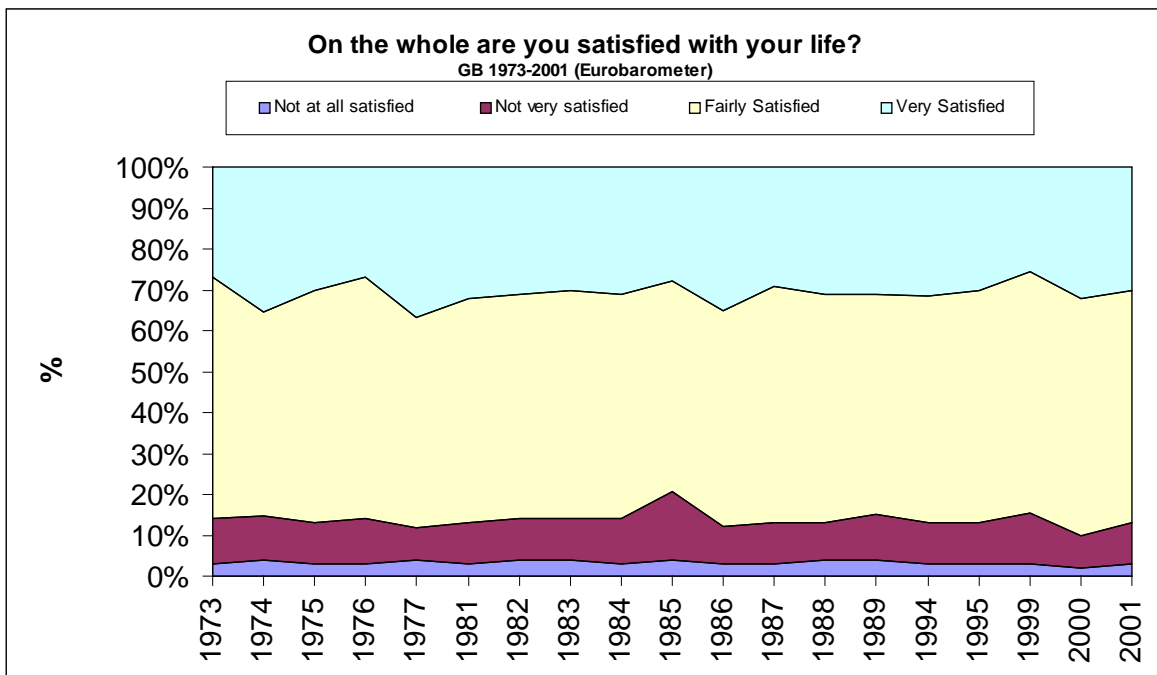
19. Over time, levels of life satisfaction have increased slightly in Europe and the US. Averaging over the years 1973-5 for the nine countries of the EEC, 28% of citizens were very satisfied – by 1995-8 this had risen to 31% for the same countries. Similarly, in 1972 83% of Americans were very or quite happy - by 1996 this had risen to 88%. These general trends hide some interesting variations: the chart below shows how the numbers of people regarding themselves as very satisfied has risen over time in Denmark and declined quite markedly in Belgium (from 44% in 1973 to 18% in 2001).⁸

Chart 3. Per cent very satisfied, Denmark, Belgium and Britain, 1973-2001



20. Within Britain the distribution of people feeling very, fairly, not very or not at all satisfied has remained fairly stable over time.

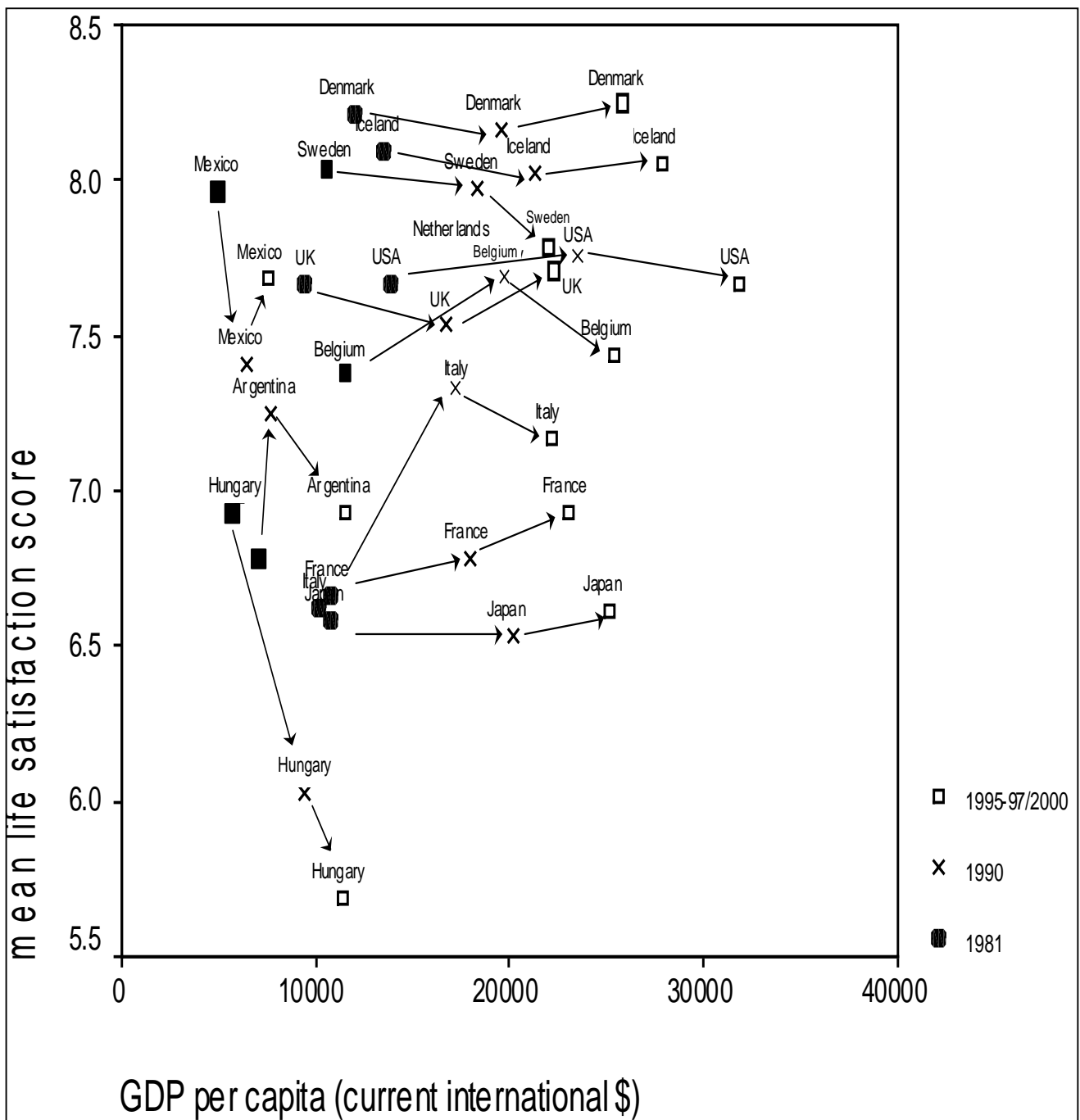
Chart 4. Life satisfaction in Britain 1973-2001⁹



21. Looking outside of Europe, a similar story of mixed trends can be discerned. While most countries saw relatively stable levels of life satisfaction from 1981 to 2000, a minority of countries such as Hungary, Argentina or Mexico saw marked falls or fluctuations in their average life satisfaction levels.

22. These fluctuations do not seem to be the result of changes in economic fortunes (see chart 5). Rather, countries showing marked fluctuations in life satisfaction were generally ones that experienced rapid social and constitutional changes over the period.

Chart 5. Life satisfaction and GDP per capita, various countries 1981-2000¹⁰



Genetic, personality, and demographic factors

Genetic factors

23. There is strong evidence regarding genetic influences on life satisfaction. One early study led to claims that variations in happiness might be as much as 80 per cent determined by individuals' genetic composition. This appeared to indicate that people were largely 'hard-wired' to be happy or miserable, and that how they lived their lives would make little difference to their well-being. Subsequent analyses have shown that the 80 per cent figure was an overestimate, but have confirmed that genes play a significant role in affecting individual wellbeing.
24. Levels of Serotonin and Dopamine in the brain are correlated with reported happiness, and neuroscientists have found that genes seem to play a role in regulating these levels. But the classic evidence for role of genes comes from twin and adoption studies.
25. Studies of twins find that genetically identical twin studies report similar levels of well-being: the correlation in well-being between identical (monozygotic) twins was 0.44 and only 0.08 for non-identical (dizygotic) twins. This result is found even when the twins were raised apart: 0.52 for identical twins and -0.02 for non-identical twins. The twins were examined five to ten years later and it was found that the cross-twin, cross-time correlation was 0.4 for monozygotic twins and 0.07 for dizygotic twins.
26. The original researchers interpreted these results as implying that in the short term roughly 40-50% of well-being is inherited, while perhaps as much as 80% of the stable or base-line differences between people in life satisfaction is heritable.¹¹ Subsequent analyses have moderated these headline figures downwards.¹²
27. The pattern of results from twin studies does not fit a simple linear or 'additive' account. Rather it appears that a complex combination of genes help to affect an individual's on wellbeing. Hence we do not see whole families that are generally happy or sad as a result of sharing a particular 'happiness gene', unlike for hair colour or complexion - though a given family member with a particular combination of genes may be significantly more predisposed to experiencing life as satisfying.
28. Genes cannot explain the marked national differences, nor trends within nations, in life satisfaction reported in the first section. There is no credible evidence that genetic differences across the peoples of Europe could explain, for example, why the British are generally more satisfied with life than the French, Germans or Italians. Similarly, it is completely impossible that changes in the genetic composition of the Danish people over the last 30 years could explain why the Danes appear to have become more satisfied with life, nor why the Belgium people have become less satisfied. Explanations for these national differences must be found elsewhere.

The role of personality

29. Some people simply appear to be happier than others: their personality or constitution predisposes them to happiness. One study found that personality factors had a stronger impact on positive and negative emotions, and on life satisfaction, than situational factors (being in pleasant situations).¹³
30. Personality factors that have been found to be particularly strongly associated with life satisfaction include:
- Optimism
 - Self-esteem
 - Extroversion, especially sociability
 - Intelligence (modest effect)
 - Ability to organise and plan
 - Low neuroticism¹⁴
31. Genetic factors are strongly implicated in some of these personality factors, such as extroversion, neuroticism and intelligence, but others appear to be more strongly affected by upbringing and the social environment, such as self-esteem.

Physical attributes

32. Physical attributes seem to have some impact on our well-being, though this appears to be culturally mediated. In the West physical attractiveness is associated with greater life satisfaction among women – particularly young women, while being tall is associated with greater satisfaction among men.¹⁵

Gender

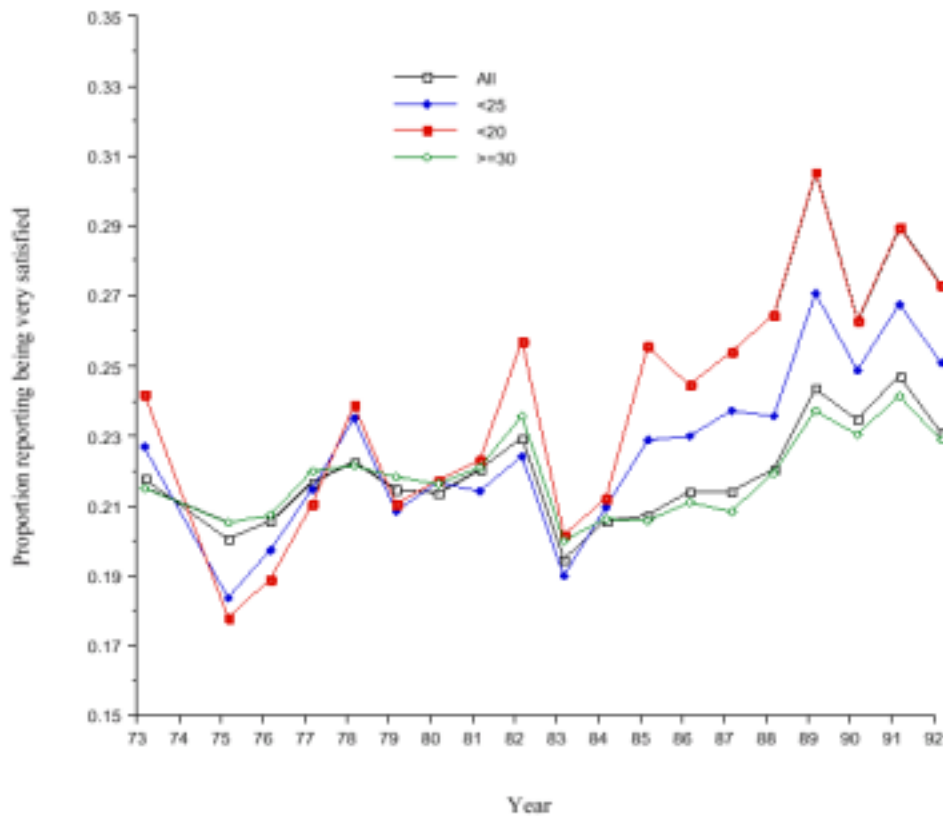
33. Levels of life satisfaction are generally found to be marginally higher among women than men.¹⁶ For example, one study of 16 nations averaged over six years found that 24% of women reported being ‘very happy’ compared with 21% of men.¹⁷ However, women also tend to report higher levels of depression.
34. One explanation of these sex differences is that women either experience or report positive and negative emotions more strongly than men. Another explanation, with growing evidence to back it, is that women are more socially connected and involved than men, resulting in their being more exposed to the satisfactions and disappointments of those near and dear to them.¹⁸

Age

35. The relationship between age and well-being appears modest. Studies averaging large sample sizes have found that on average life satisfaction is highest among the under-25s, falls gradually into middle age (45-55 years) before rising again in later life.¹⁹

36. However, there are significant national differences. For example, in a society like Japan- where old people are accorded great respect – life satisfaction is highest amongst the over 65s. In Hungary, by contrast, the young are the most satisfied and satisfaction is lower amongst older generations.²⁰ Finally, within some nations, such as Denmark and Britain, the difference between age groups is modest throughout the age range. The ‘mid-life dip’, therefore, may largely be an artefact of averaging across large samples, cohorts and contexts and not an inevitable aspect of the lifecycle.

Chart 6. Proportion reporting feeling very satisfied with their lives, EEC 1973-1992, Eurobarometer.²¹



37. The life satisfaction of young Europeans and Americans has been rising modestly since the 1970s (see above). Explanations such as the end of the Cold war, falling discrimination against women and ethnic minorities, changes in patterns of work or education, or the rise of a consumer good sector focused on young people were investigated but rejected. The researchers did find that young people’s satisfaction with their family is the only variable that has been rising over time. They conclude “It may be that young men and women have benefited from society’s recently increased tolerance of those living outside marriage, and from their consequent ability to live in less formal relationships.”²² Only young people in Britain miss out on the trend of rising European life satisfaction.²³

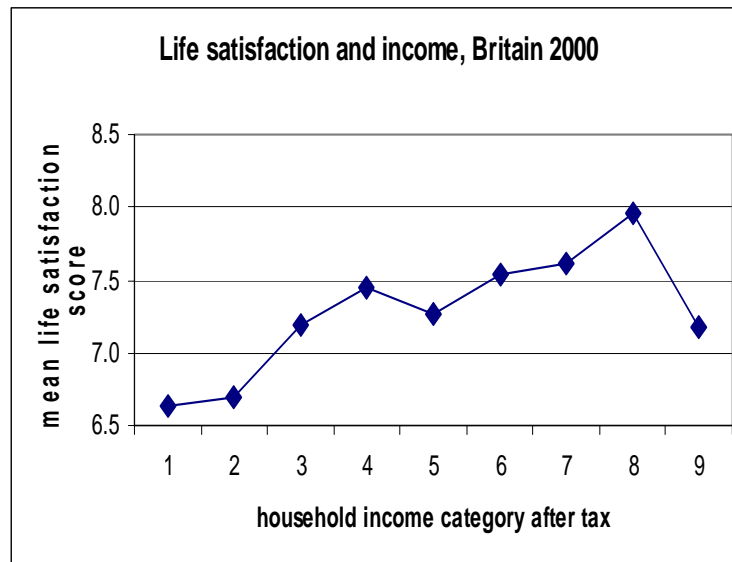
38. Interestingly, over the same period there has been a rise in psychosocial problems in young people, including depression, eating disorders and suicide. This combination might be explained by the increasing importance placed on friendship and close relationships among younger generations. Such relationships are generally a source of personal satisfaction, but can also be a source of personal disappointment.²⁴

Work and economic factors

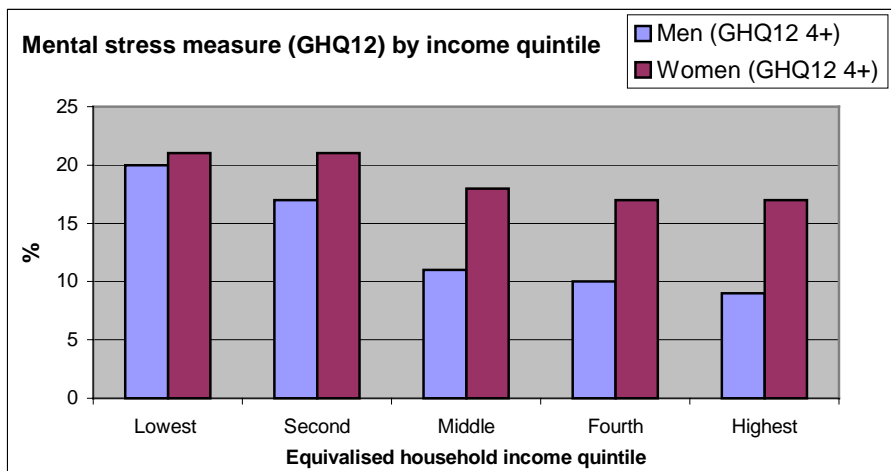
Individual Income

39. When examining life satisfaction and happiness within a country, studies have consistently shown that richer people are happier than those on lower incomes.²⁵ This relationship is even stronger in poorer nations. Chart 7 below shows this effect for the UK where people in higher income categories have higher average levels of life satisfaction. Also fewer people in higher income groups report higher levels of mental stress (using the GHQ12 measure). Studies show that the relationship between income and life satisfaction is both positive and statistically significant.²⁶

*Chart 7. Average levels of life satisfaction by income group, Britain 2000*²⁷



*Chart 8. Proportion of English population suffering from high levels of psychological symptoms (over 4 answers on GHQ12 questionnaire) by income, 1998.*²⁸



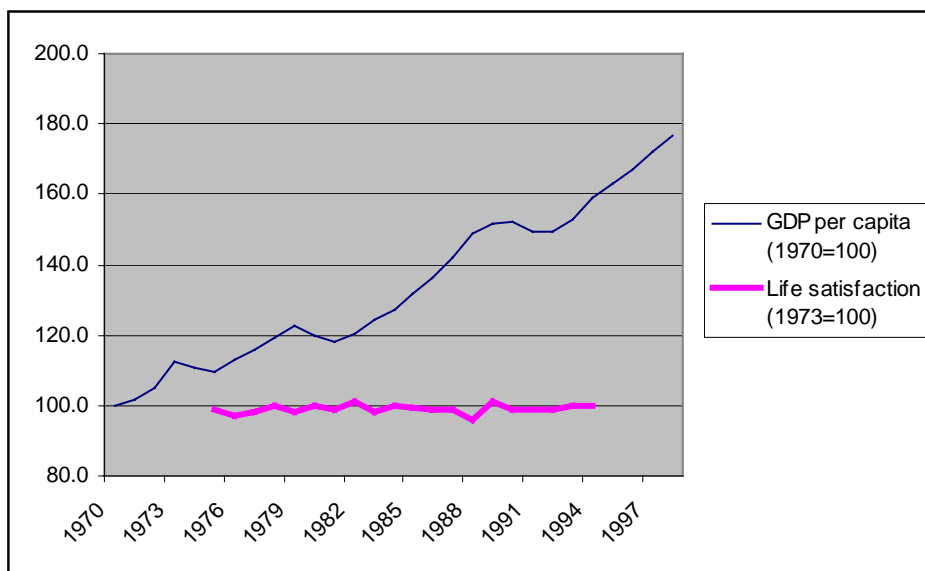
40. Further analysis into this relationship shows that:

- there is some evidence that the relationship is causal i.e. that income causes happiness and not vice versa. British lottery winners and people receiving a legacy report higher mental well being the following year;²⁹
- the size of the positive effect of income is small compared to other factors such as marriage, divorce and unemployment. One British study of the effect of windfalls on happiness, concluded that “approximately £1 million, therefore, would be needed to move someone from close to the bottom of a happiness frequency distribution to close to the top”³⁰
- controlling for other factors such as education and unemployment weakens the relationship between income and life satisfaction;³¹
- some researchers argue that the positive association between happiness and income only holds in the lower part of the income range, at least within wealthier nations, and that the rich gain less from extra income than poorer people.³²

Aggregate national life satisfaction and economic growth

41. The citizens of wealthier nations tend to be significantly more satisfied with their lives than those of poorer nations (see charts 1 and 2 above). This relationship is very much weaker among the wealthier nations – that is those with average incomes of greater than around US\$ 10,000 per annum. Furthermore, the relationship between economic growth and changes in life satisfaction appears weak – and certainly much weaker than would have been expected on the basis of cross-national association between GDP per capita and average life satisfaction.

Chart 9. UK life satisfaction and GDP per capita 1973-1997



42. The chart above shows the relationship between GDP per capita and life satisfaction in the UK since 1973. While household income has risen substantially, the proportion of those who are fairly or very satisfied has risen only marginally and those who are not

very or not at all satisfied have similarly fallen only slightly (from 11% to 10% and 4% to 3% respectively).³³

43. The latest research shows that, when the influence of GDP is isolated from other factors, both the absolute level of GDP and the rate of GDP growth are associated with higher levels of life satisfaction.³⁴

Understanding the paradoxical effects of income

44. These contrasts present something of a paradox. How can it be that the relationship between life satisfaction and GDP per capita is so strong cross-sectionally (i.e. at one point in time), and yet decades of economic growth have led to very modest gains in life satisfaction? A similar paradox can be said to exist at the individual level, with wealthier people being significantly more satisfied, yet general increases in wealth having not driven up average satisfaction. Three broad sets of explanations have been put forward to explain this paradox.

45. First, factors such as genetics or cultural values might hold life satisfaction flat, overpowering the influence of variations in income.

- **Genes.** As already noted, while genes might help to explain the general stability of life satisfaction over time, they cannot explain the large cross-national differences.
- **Cultural variations** offer more promise as an explanation. For example, the high reported levels of life satisfaction in South American countries, despite low GDP per capita, are thought partly to reflect a cultural disposition to life. Similarly, it is possible that the causality may run partly from a positive cultural orientation to life to historic economic success – optimism, or some other cultural variables, could facilitate economic growth.

46. Second, there may be other factors associated with economic growth that offset its positive impact on life satisfaction.

- **The growth of economic ‘bads’.** In this explanation rising levels of aggregate national income do increase levels of life satisfaction but are accompanied by other trends which have an offsetting negative effect. Such trends could include rising rates of crime, unemployment, higher levels of inequality, declining job satisfaction and rising rates of divorce and separation. This explanation is supported by reference to the negative effect on life satisfaction of divorce, separation, unemployment, and the correlation between life satisfaction and job satisfaction.³⁵ This is the implicit conclusion of many researchers who have proposed alternative indicators of national prosperity – indicators that often show little or no growth in recent decades in countries such as the UK and USA (see annex 2).
- **Relative status.** If it is relative income rather than absolute income which makes people more satisfied, then the life satisfaction of an individual will be linked with that of their peers. If an individual’s income rises but those of their peers stays the same, the individual may become more satisfied but envy may reduce the satisfaction of their peers. Alternatively if everyone receives an increase in income no-one’s relative status has changed and thus life satisfaction remains stable. This

hypothesis has been supported by research on British workers that found that it is relative income rather than absolute income that determines *job* satisfaction.³⁶ Other research asked students whether they would prefer to live in world A where you earn \$50k and others earn \$25k or in world B where you earn \$100k and others earn \$250k. Over half of the students chose world A.³⁷ It has been speculated that one of the transmission mechanisms may be the consumption of luxury status goods: buying a BMW causes envy amongst others – reducing their life satisfaction, and also, as more people buy BMWs, the positive life satisfaction effect on the original purchaser wears off. This explanation has great force at the individual level, and can help to explain the modesty of the relationship between economic growth and well-being, but it cannot explain the cross national differences.

47. Third, changing internal frames of reference due to adaptation and changing expectations are thought to help explain the modest impact of increases in wealth at both the individual and national level, though again, it is not clear how they can account for the large cross-national differences.

- **Hedonic adaptation.** As individual incomes rise people adapt to their new circumstances as the novelty of the rise in income wears off: today's luxuries become tomorrow's necessities. This explanation is often supported with reference to investigations of lottery winners and accident victims, whose life satisfaction is reported to be not that different to the average.³⁸ The Gallup poll in the US has for many years asked, "What is the smallest amount of money a family of four needs to get along in this community?" Over time, the answers have risen in line with actual incomes.³⁹
- **Rising aspirations.** As individual incomes rise so do people's aspirations. Emerson summarised this neatly: "Want is a growing giant whom the coat of Have was never large enough to cover."⁴⁰ This explanation has been supported by data which shows that US children start off with similar material aspirations but that, years later, those who had more schooling (and therefore were more likely to have been richer) owned more material items and desired to own more than those with less schooling.⁴¹ Some have explained this relationship in terms of "self-actualisation needs" – that higher income allows, say, foreign travel and therefore permits people to explore themselves.⁴² Others have seen rising aspirations being determined by advertising or through comparisons with friends and neighbours.

48. The indications are that most of these explanations have at least some truth in them. However, it is likely that the reason why few of them appear able to explain the strong cross-sectional association between GDP per capita and life satisfaction – a relationship that is stronger than is predicted by the strength of the relationship between income and satisfaction at the individual level - is that this national level relationship may partly be driven by other non-economic factors, such as the social and political arrangements that characterise advanced societies (see further below).

Work

49. The role of paid work in life satisfaction has been investigated in two ways. A few researchers have investigated the influence of job satisfaction on overall *life*

satisfaction. A far larger body of work has examined the patterns, behaviours and features which lead to *job* satisfaction.

50. As feelings about a job are themselves one component of wider life satisfaction, it is to be expected that there should be a relationship between job-specific well-being and overall life satisfaction. The correlation between these two measures is found to be about +0.35.⁴³ Longitudinal research which examined whether job satisfaction caused life satisfaction or vice versa found a pattern of mutual influence but that that the impact of life satisfaction on job satisfaction was greater than in the other direction.⁴⁴

51. A wide body of research has found that at least 10 features of the work environment give rise to differences in *job* satisfaction:

- Opportunity for personal control
- Opportunity for skill use
- Externally generated goals (job demands, work-family conflict)
- Variety
- Environmental clarity (job security)
- Availability of money
- Physical Security
- Supportive Supervision
- Opportunity for interpersonal contact
- Valued social position⁴⁵

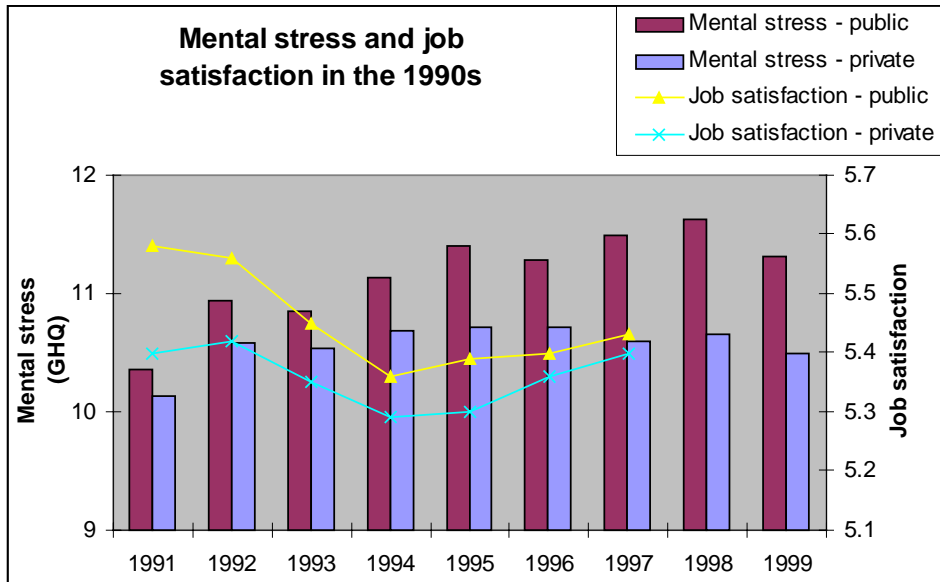
52. Different workers value different features of their job. By analysing people who subsequently quit their jobs Andrew Clark has been able to rank features which are most important. For example, (dis)satisfaction with their ability to use initiative is the most powerful cause of resignation for women and workers under the age of 30.

Table 1. Ranking of job characteristics, as revealed by subsequent quit behaviour, 1992-99⁴⁶

	Most important	Next most important	Insignificant
All	Job security	Pay Initiative Work itself Hours	Promotion Relations
Men	Job security	Pay Hours	Everything else
Women	Initiative	Hours Work itself	Promotion Relations
30 or under	Initiative	Job Security Hours	Everything else
Over 30	Pay Work itself Job security	Hours	Promotion Relations Initiative
Part time	Promotion Hours	Job security Work itself	Relations
Full time	Job security	Pay Initiative	Everything else

53. During the 1990s the job satisfaction of British workers has fallen, while levels of psychological "ill-being" or stress have risen (using the General Health Questionnaire (GHQ) measure). Public sector workers have traditionally had higher job satisfaction and higher levels of mental stress than the private sector. During the 1990s the job satisfaction differential narrowed while the mental stress differential widened.⁴⁷

Chart 10. Psychological symptoms and job satisfaction, Britain in the 1990s.⁴⁸



Recessions and unemployment causes unhappiness

54. While work can bring stress and lead to dissatisfaction with one's life, being out of work has a strong impact on life satisfaction. The unemployed are much less satisfied with their lives than others.⁴⁹ Chart 11 shows that only around 60% of unemployed EU citizens regard themselves as very or fairly happy with their lives – compared to around 80% of employed people, people involved in domestic work and the retired.

Chart 11. European life satisfaction, by employment status 1995-2000⁵⁰



55. Table 2 sets out the level of mental stress (as measured by GHQ12) felt by unemployed British people by their age, level of education, regional unemployment, and length of joblessness. Those with most to lose (those with higher levels of education and the middle aged – who usually are the highest earners) exhibit the most distress. This evidence also suggests that people in regions with high unemployment feel less distressed than those living in areas with low joblessness. This may be because those whose peers are also unemployed feel less distress as people in their peer group are also jobless. Another piece of research that is consistent with this is a study of Edinburgh which found that attempted suicide by unemployed men (relative to unemployed men) is less common in high unemployment parts of the city.⁵¹ Other research has found that the negative effects of unemployment were buffered by having another jobless person in the same household.⁵²

56. Over the long term people also adapt to their situation. It has been estimated that the psychological cost of current unemployment is estimated to be zero for a man who has been unemployed for 60% of the time over the last three years.⁵³

Table 2. Levels of mental distress (GHQ12) by labour market status, 1991⁵⁴

Status	Average mental distress
Unemployed	2.98
Employee	1.45
Self employed	1.54
Higher education (HNC up to degree level)	
- In work	1.48
- Unemployed	3.44
Medium education (GCSE up to A level)	
- In work	1.43
- Unemployed	3.15
Low education (less or no qualifications)	
- In work	1.43
- Unemployed	2.70
Age less than 30	
- In work	1.43
- Unemployed	2.69
Age 30-49	
- In work	1.56
- Unemployed	3.42
Aged over 50	
- In work	1.17
- Unemployed	2.93
Unemployed in	
- Region with above average unemployment	2.81
- Region with below average unemployment	3.15
Unemployment duration	
- above one year	2.74
- below one year	3.13

57. Unemployment reduces the life satisfaction both of the unemployed and the wider population. This may be because of a general preference for low levels of unemployment or it may be that higher levels of unemployment increase feelings of job insecurity. Research on European data suggest that, in a standard sized recession which increases unemployment by 1.5%, to compensate unemployed men for their loss of life satisfaction (and on top of any income loss), they would need to be paid \$3,800 per annum (US 1985 dollars). Members of the public not personally affected by unemployment would need to be compensated by approximately \$200 per year.⁵⁵ Other

This is not a statement of government policy

research on the effect of becoming unemployed in Britain during the 1990s, as indicated in the table below, has found even stronger negative effects associated with moving into unemployment.

Table 3. Size of unemployment effect in monetary terms.⁵⁶

Event	Effect size (£ per month) GHQ-12 equations	Effect size (£ per month) happiness equations.
Employment to Unemployment	–£15,000 per month	–£23,000

58. Evidence that money can help to offset some of the negative effects of unemployment, is that both unemployed and employed are generally somewhat more satisfied in countries with more generous unemployment benefits.⁵⁷ The benefit to those who are employed may be the reduced fear of the financial consequences of unemployment.

59. These results for unemployment echo those of other parts of the life satisfaction literature, in particular that:

- the size of the unhappiness effect of unemployment suggests that the greatest costs come from the loss of social status and the loss of social networks rather than any monetary loss;
- people's relative status is important – being unemployed amongst other unemployed people makes people less unhappy.

Inflation

60. Inflation also reduces people's life satisfaction slightly. It is estimated that to keep an EU citizen's life satisfaction constant they would have to be given approximately £45 per annum for each 1% rise in inflation.⁵⁸

Inequality

61. High levels of inequality are associated with low levels of life satisfaction in Europe, but not in the USA. This could either be because Europeans favour more equal societies, or that the perception of higher levels of social mobility in the USA reduce the unhappiness caused by inequality.⁵⁹ It may also reflect the very different frames of reference of the American poor, many of whom are immigrants or the children of immigrants from much poorer and sometimes oppressive nations.

62. The unhappiness linked to inequality differs between ideological and socio-economic groups. As one would expect, in both Europe and the US people with right wing beliefs are not affected by inequality while those who identify as left wingers are adversely affected. In Europe those on low incomes are strongly affected by inequality while the rich are indifferent. In the US it is the rich who are slightly affected by inequality, while the poor seem unaffected. The fact that the poor in Europe are more strongly affected by inequality than in America suggests that the perception of higher rates of social mobility may play a role in reducing the unhappiness caused by inequality.⁶⁰

Health and Education

Health

63. In many studies health is one of the strongest drivers of overall life satisfaction. The effects of a decline in health status, as can be seen from the table below, is large – larger than changes in marital or employment status.⁶¹ Analysis of the World Values Survey found that, over the long term, a 1% increase in average self-reported health status is associated with just over 1% increase in subjective well-being.⁶²

Table 4. Size of health effects in monetary terms.⁶³

Event	Effect size (£ per month) GHQ-12 equations	Effect size (£ per month) happiness equations.
Health excellent to Health good	-£10,000	-£12,000
Health excellent to Health fair	-£32,000	-£41,000

64. Research on paralysed accident victims found that their levels of life satisfaction were significantly lower than a control group.⁶⁴ However, short-term effects are larger than these long-term outcomes as people adapt to their new health status and find new peer groups. Another study of cancer victims found their life satisfaction was not significantly different than non-patients.⁶⁵

65. It is important to note that it is self reported health status that correlates with life satisfaction rather than objective health status. A longitudinal study failed to find a direct effect of objective health – as measured by indicators of doctor visits or hospitalisation.⁶⁶ Personality differences help to explain this difference between objective and subjective health (see above). Personality influences people’s perceptions of their health status – for example, it has been found that neurotics retrospectively recalled more gastrointestinal and respiratory symptoms than they had previously reported on a daily basis.⁶⁷

Education

66. A variety of studies have often found at most a small correlation between education and life satisfaction. However, it seems that most of the relation can be explained by the fact that the more highly educated tend to have higher incomes, better health and more social capital (see below). Once these factors are controlled for the relationship often drops or disappears.⁶⁸

67. Research into the relationship between education and various measures of subjective well-being in Britain has found:

- Individuals with more education report less psychosomatic symptoms (average GHQ12 scores are lower) but graduates are more stressed than those with intermediate qualifications (A level or FE qualifications). When people with similar incomes and economic status are examined education is still associated with lower symptom levels.
- However, life satisfaction and job satisfaction scores are in general lower for more educated individuals in the UK. While education brings economic gains, comparing

like with like, education is still associated with lower levels of life satisfaction. Similarly education does bring higher pay which contributes to higher job satisfaction, but also longer hours – which reduce satisfaction.⁶⁹

Social life and community relationships

“If you want to be happy for a few hours, get drunk. If you want to be happy for a few years, get a wife. If you want to be happy for ever, get a garden.” Anon.⁷⁰

Leisure

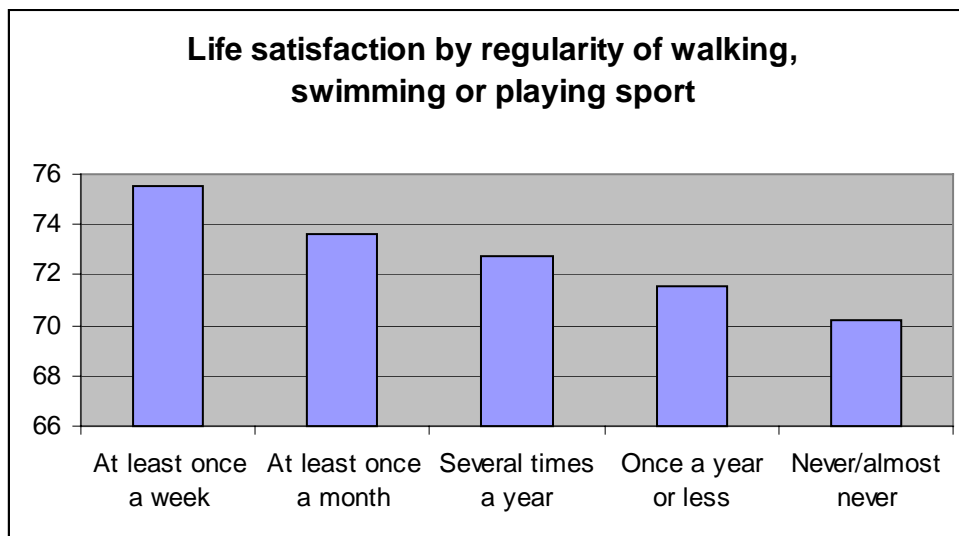
68. Research in the US, although rather dated, found that for most people leisure is a less important source of satisfaction than job, marriage or family, but for a minority leisure is more important. Other surveys have found that happiness is correlated with satisfaction with leisure activities at around +0.40, declining to +0.20 when controlling for employment, social class and other factors.

Table 5. Satisfaction from work and leisure⁷¹

	Employed men (%)	Employed women (%)	Housewives (%)
Work > leisure	49	45	34
Work = leisure	32	36	32
Work < leisure	19	19	34

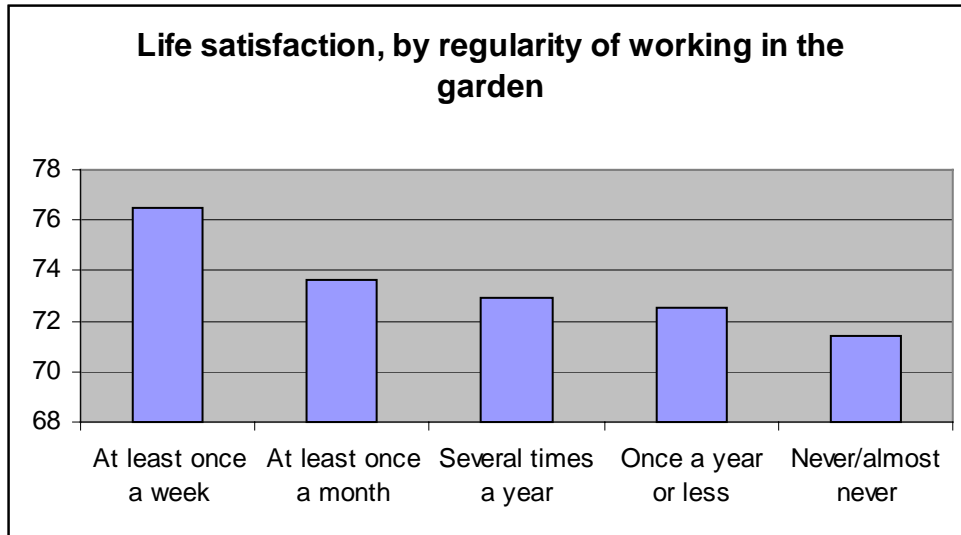
69. When, in 1955, Americans were asked “Which do you prefer more, the hours when you are on your job, or the hours when you are not on your job?” 38% preferred their hours on their job, while 49% preferred their non-working lives. By 1991 this gap had widened so that 68% expressed a preference for leisure as against 18% who preferred their working lives. As satisfaction with leisure was roughly constant during this period this shift in preferences cannot be attributed to better leisure experiences.⁷²

Chart 12. Life satisfaction, by sport and exercise regularity, GB 2001⁷³



70. Clear patterns emerge when life satisfaction is compared with a range of leisure activities. Social activities, sport and exercise, and gardening are all associated with higher levels of life satisfaction. More passive activities such as watching television or going to the cinema are weakly or negatively associated with life satisfaction.

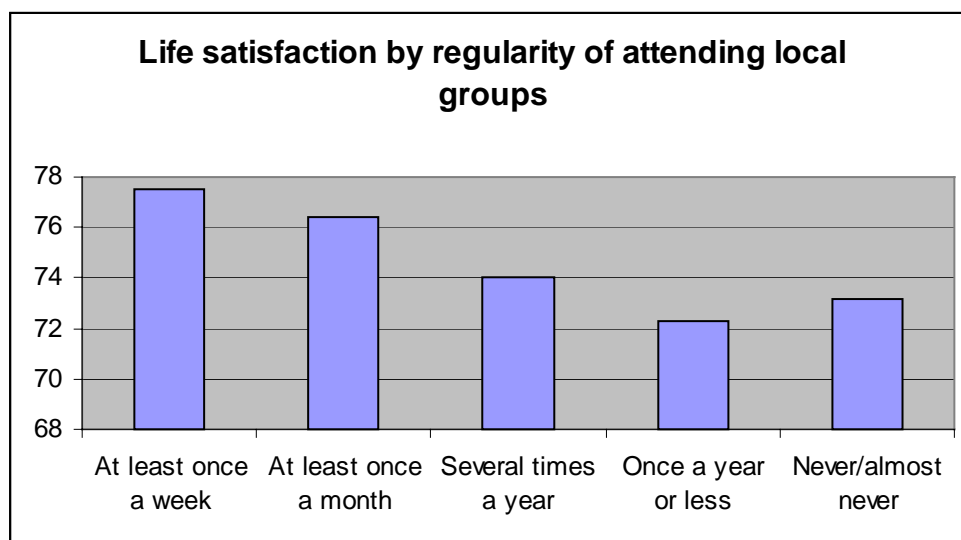
Chart 13. Life satisfaction by regularity of gardening, GB 2001⁷⁴



Community participation

71. There is a large association between social engagement and reported happiness in the US. Monthly club meetings, monthly volunteering, monthly entertaining or bi-weekly church attendance each have the happiness equivalent of a doubling of money income.⁷⁵ A similar pattern can be seen in Britain – where those who are very active in the community are more satisfied than those who never attend local groups.

Chart 14. Life satisfaction and community participation, GB, 2001.⁷⁶



72. Using an index of social capital it has been found that people are happier if their own social capital increases, and if the average level of social capital in their (US) state rises.

By contrast an individual's measure of happiness rises if his or her income is higher but falls if the average income in the state is higher. A similar result has been cross-nationally. This evidence has been used to suggest that people's happiness comes from their relative rather than their absolute income. It also supports the notion that there might be positive externalities from higher levels of social capital.⁷⁷

Trust

73. Preliminary research into the effects of levels of trust on life satisfaction show that those who believe it is wrong to cheat on their taxes and those who believe people can generally be trusted are, on average more satisfied with their lives. It is possible that here the causality runs in both directions – that living in societies with high levels of inter-personal trust causes higher levels of well-being and that more trusting people are more optimistic and satisfied.⁷⁸

Religion

74. Religious people report higher levels of life satisfaction. Research, mostly into Christianity, has found a correlation between life satisfaction measures and religious certainty, strength of one's relationship with the divine, prayer experiences and devotional and participatory aspects of religiosity.⁷⁹ Both the effect of religious belief per se and the social benefits provided by participation in religious activities have independent effects upon life satisfaction.⁸⁰

Relationships

75. One reason why leisure activities are thought to increase well-being is because they allow people to switch off mentally. Another reason has been found to be the social aspects of sport, exercise, community participation and religion. In fact, a consistent theme of research into life satisfaction is that social relationships are very important. Having friends, supportive relatives, work-mates are all correlated with satisfaction either with life overall or with one's job.⁸¹

76. The most important relationship is that with one's spouse. Studies have consistently found that married people are happier than those who were never married, divorced separated or widowed. This relationship holds across cultures and even when income and age are taken into account.⁸² This effect is strong: studies suggest that marriage is equivalent to an increase in income of £72,000 per annum.⁸³ There are two issues on which there is no consensus:

- it is not clear whether men or women benefit more from marriage.
- the causal direction of the relationship is still open to question. There is evidence from studies that follow the same people over time that happy and well-adjusted people are more likely to marry and stay married than other people. However this selection effect is not strong. Many researchers believe that marriage acts as a buffer against financial and emotional turmoil and it is this that causes the increase in life satisfaction.⁸⁴

77. Divorce, separation and widowhood all reduce people's life satisfaction – table 6 shows the size of the effect of the separation, divorce and widowhood. It is possible that the small effect of divorce compared to separation reflects the facts that it is the companionship provided by a partner rather than the legal status that is more important, and that many people who are divorced have already separated and have adapted to their new status.

Table 6. The size of the life satisfaction effect of various life events in monetary terms.⁸⁵

Event	Effect size (£ per month) GHQ-12 equations	Effect size (£ per month) happiness equations.
Single to married	n.s.	+£6000
Married to separated	-£8,000	-£11,000
Married to divorced	-£1,000	n.s.
Married to widowed	-£7,000	-£14,000

78. There has been little research on the effects of cohabitation. One international study found that in individualistic nations unmarried partners were more satisfied than married or single people. In collectivist societies cohabiting people reported lower levels of life satisfaction than the married or single.⁸⁶

Freedom and democracy

Freedom

79. As discussed in paragraphs 41-48 there is a relationship between life satisfaction and GDP per capita, particularly among less developed countries. As economic development is also often accompanied by economic and political freedoms it may be these rather than income *per se* which drives higher levels of life satisfaction. This has been tested by comparing the life satisfaction of a country together with its score on an index of political rights and civil liberties. There is a strong relationship (a correlation of + 0.78) between the index of political freedoms and life satisfaction. However the relationship is not perfect – Russia experienced declining levels of life satisfaction after *perestroika* and the end of Soviet rule, meanwhile China has one of the most authoritarian regimes in the world and enjoys high levels of life satisfaction.

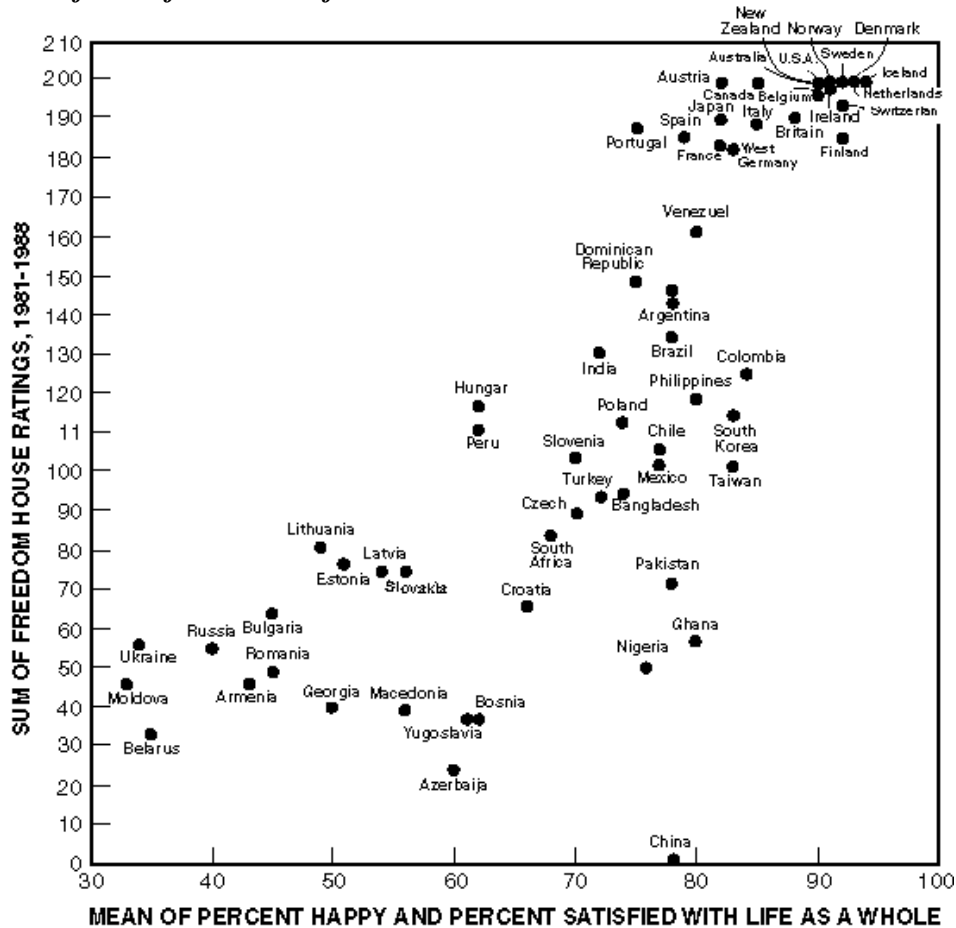
80. The relative importance of political freedoms, industrialisation, and economic growth, the legacies of Protestantism and communism, and educational enrolment has been assessed using statistical techniques. These techniques allow the influence of each variable to be assessed separately: thus although former communist societies are more industrialised and poorer than average we can control for these factors and isolate the effects of communism from the effects of national income growth or industrialisation. One recent cross-national analysis found that (other factors controlled for):

- political freedoms explain some of the variance in life satisfaction but are relatively unimportant compared to other factors;
- even after controlling for levels of industrialisation and lower levels of national income the number of years under communist rule seems to have depressed the life satisfaction of people in those countries;

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- countries with high proportions of the workforce in industry experience lower levels of life satisfaction;
- the positive impact of a Protestant heritage on life satisfaction is mostly, but not entirely, due to the historical fact that Protestant countries developed earlier than other societies and tend to be more wealthy;
- levels of educational enrolments seems to have no impact on well-being;
- levels of national income have the most effect on life satisfaction.⁸⁷

Chart 15. *Life satisfaction and freedom*⁸⁸



81. More detailed research has been carried out on the relationship between political and economic freedoms and life satisfaction. This confirms that, in general, once national wealth is controlled, political freedoms have an insignificant role in driving life satisfaction. However, there is a high correlation between life satisfaction and political freedoms in richer nations. Economic freedoms⁸⁹ are found to be important in explaining average levels of life satisfaction in poorer countries even after controlling for national wealth. No such relationship exists for richer countries. Economic freedoms affect life satisfaction in less developed countries through other routes than economic growth.⁹⁰

Quality of Governance

82. The quality of governance of a country has a substantial implication for life satisfaction (even having controlled for a wide variety of other variables at both the individual and national level). One survey measures the stability, rule of law, regulatory framework and control of corruption in a country and calculates the relationship with life satisfaction. The results imply “substantial well-being benefits from improvements in the quality of governance. For example, an improvement in the quality of government in Belarus (-0.76) to that of Hungary (+0.87) would (if the relationship were causal) increase the average well-being of a citizen of Belarus by more than marriage, by about as much as the combined effect of religious belief and church attendance, and almost as much as moving from the bottom to the top decile in the country’s income distribution.”⁹¹
83. This analysis is supported by within country research on the explanations for distrust between people.⁹² It would seem that public corruption has a powerful influence on wider levels of public trust, not only between the public and officials but more generally. This atmosphere of distrust has a corrosive effect on life satisfaction, possibly because of its effects on everyday relationships and exchanges.

Democracy

84. Analysis of the determinants of life satisfaction in developed countries has shown the importance of political freedoms, including democracy. This finding has been replicated in other, more detailed, research into political institutions in Switzerland. The Swiss report higher levels of life satisfaction where there is a greater degree of direct democracy (referenda).⁹³
85. Switzerland has a federal structure – with many major areas of competence retained by the 26 cantons and almost 2000 municipalities. The use of referenda in major decisions is very common in Switzerland – but differs between canton. For example, there are variations in the number of signatures required to launch an initiative or the threshold level of public expenditure needed to launch a referendum to stop additional spending by the canton. These factors have been brought together in an index of direct democracy.⁹⁴ Research finds that a one point increase in this index of direct democracy raises the share of people indicating that they very satisfied with life by 2.8%. This effect is very large, certainly in comparison to factors such as income. The researchers find no independent, statistically significant, relationship between life satisfaction and decentralisation.
86. The benefits of direct democracy are felt by all groups regardless of gender, education or employment status. However, participation in ballot initiatives and referenda is restricted to Swiss nationals. Foreigners benefit far less than Swiss citizens from direct democracy. The explanation for this is that people benefit in two ways from direct democracy: they gain from taking part in the referenda (procedural utility) and they gain from decisions that more closely accord with their wishes (outcome utility). Comparing the benefits felt by foreigners and that felt by Swiss citizens suggests that two-thirds of the gain in well-being is due to being able to participate in the democratic process.

Discussion

87. A number of common causal themes can be identified across the life satisfaction evidence. These include:

- **Social relationships.** Virtually all researchers have come to the conclusion that social relationships play a large role in determining satisfaction, helping to explain not only the importance of marriage and friendships, but also helping to mediate the effects of unemployment, personality, and national differences.
- **Stress.** Exposure to stressful life events and daily hassles are significant contributors to mental ill-health and are also thought to have some impact on positive mental health. However, it is noteworthy that many positive events are also experienced as stressful – such as getting married – and that the absence of stimulation can also be unpleasant. This implies that the stress-well-being relationship is complex, and certainly non-linear.⁹⁵
- **A sense of personal control.** Believing that we are in control of our lives and what happens to us appears to be important to well-being, an effect that has been demonstrated in numerous laboratory experiments. Sense of control is thought to help explain the effects of relative social position, with people who are lower in a social (or work) hierarchy having less of a sense of control.⁹⁶ This may also mediate positive effects such as from democratic referenda.
- **Aspirations and values.** Many of the relationships described in the literature describe general tendencies and should not be presumed to apply to all people all of the time. It has been argued that people have a hierarchy of needs, with ‘higher needs’ – such as the desire for beauty or intellectual stimulation - resting increasingly on values.⁹⁷ For example, it has been argued that people brought up in conditions of poverty place a higher value on material acquisition, while those brought up in conditions of plenty place greater emphasis on non-material factors such as freedom of speech. This implies that the factors that determine satisfaction will vary between people, and this may help to explain their uneven impact across groups and countries (cf. age and gender).
- **Adaptation.** Psychologists have highlighted the importance of ‘hedonic adaptation’ – that people get used to a given level of comfort. This is most well known as an explanation of the weak relationship between income and satisfaction, but also may apply more generally such as in relation to the impact of health status, education and even relationships. The flip-side of adaptation is that loss of a factor can lead to a marked change in well-being. For example, while the relationship between economic growth and satisfaction is modest, it could be that fall in economic output (and personal incomes) might lead to a sharp drop in well-being.

88. Future research will also need to explore whether the relationships described in the life satisfaction literature also hold for other specific components of well-being. For example, could it be that ‘comfort’ and ‘pleasure’ have different causal routes? Similarly, some have argued that other aspects of well-being such as health, vitality and a sense of fulfilment may be affected by different factors than happiness per se.⁹⁸

III. Policy implications

89. The life satisfaction literature makes for fascinating reading, but what are its policy implications? It should be stressed that the implications and conclusions drawn here are tentative, and are not a statement of government policy.

90. This section is organised around four key questions:

- Is life satisfaction important?
- What is the case for state intervention?
- What are the specific policy implications?
- What are the limitations to life satisfaction as a policy tool and guide?

Is life satisfaction important, and can it be changed?

91. The literature summarised here shows that ‘life satisfaction’ can be reliably measured, and that considerable progress has been made in establishing its causal determinants. There is also good evidence that survey questions measuring life satisfaction are ‘valid’ in the technical sense that they relate closely to other indicators of subjective well-being, such as psychosomatic symptoms; behavioural expressions of wellbeing, such as smiling; and tally with the reports of other people who know the individual (see also annex 1).

92. But evidence of reliability and technical validity does not make something important. Instead this rests on the judgement either that it is important in itself or that it is a route to something else that is important.

93. On the latter, there is some evidence that life satisfaction is an important route to other valued goals. When people are happier, they tend to be more open-minded and creative in their thinking. In contrast, people who are unhappy, stressed or dissatisfied tend to exhibit ‘tunnel vision’ and rigid thinking. Evolutionary psychologists have suggested that these associated patterns of cognition and behaviour help to explain the importance of such positive and negative emotions. While danger and fear cause a narrowing of attention and the drive to fight or flight, feelings of well-being during times of plenty and comfort trigger play, experimentation and learning improving our ability to adapt and survive.⁹⁹ It seems likely that in the modern economy, such patterns of creative thought are more important than ever, and that this is reflected in the efforts of successful employers to ensure that their workers are happy and therefore productive. This concern would not be as relevant in an economy based on repetitive, non-creative factory work.

94. Life satisfaction has been linked to longevity in longitudinal studies that controlled for prior health and health related behaviours. In addition, happier people appear more likely to engage in healthy behaviour, such as exercise. In a closely related literature, job satisfaction has been found to be negatively associated with coronary heart disease and quitting a job, and more generally.¹⁰⁰

95. Life satisfaction may also be important to policymakers because people who are satisfied with life in general are also more likely to feel satisfied with other specific

areas of life, such as public services. Our general mood and outlook on life turns out to affect our perception more generally, even the objective quality of the service or stimuli is identical: the world looks good to people who are happy, and bad to people who are miserable.¹⁰¹ This finding may help to explain why objectively similar public services in relatively poor and deprived areas are typically associated with lower satisfaction ratings than those in more comfortable areas.¹⁰²

Box 1. An experiment: are happy people more creative thinkers?

Forty-four experienced physicians were randomly placed in one of three groups:

- a group that got a small package of sweets;
- a group that read aloud humanist statements about medicine; and
- a control group.

All were then presented with a hard-to-diagnose case of liver disease, and were asked to think aloud as they made their diagnosis. The group with the sweets did best. They considered liver disease earliest and did not succumb to premature closure.

Similar results have been found in other studies from four-year olds upward. When the experimenter first induces a positive mood, subjects tend to show a broadening and increased flexibility of thought, and less fixation on the obvious or 'easy' answer.¹⁰³

96. However, the main point is that life satisfaction is a valued outcome in itself. Indeed, some have argued that life satisfaction is the ultimate yardstick by which the success or failure of governments might be judged.
97. A second prior question for policymakers is whether life satisfaction can be influenced. For example, if satisfaction were entirely determined by genes, such that an individual's satisfaction was as predetermined as their eye colour, then there would be little that anyone could do to affect it. However, the evidence is that life satisfaction *is* affected by many social, economic and institutional factors, and is therefore subject to influence by government action, at least in principle.
98. If we accept that life satisfaction is an important objective and can be influenced, then the literature throws down a fundamental challenge to policymakers. If decades of legislation, economic growth and increased life expectancy have barely affected the life satisfaction of the British people, then what *should* government be doing? And while we may take comfort from the higher life satisfaction of the British compared with the French and the Germans, how *could* we close the 'satisfaction gap' on the Swedes or the Danes?

What is the case for state intervention?

99. The case for state intervention needs to show that the state action will add to life satisfaction beyond that which will result from the summation of individual choices and actions. If the causes of life satisfaction are under individuals' control, then there will be little case for state intervention. For example, if one person's greatest desire in life is art while that of another is steam trains, as long as the state has equipped these

individuals with the capabilities to pursue their desires and the freedom within which to do so, then what further state role is required?

100. In fact, the empirical literature above suggests that individuals have only limited influence over their own well-being. The exact position one takes on this issue rests heavily on detailed interpretation of causal pathways that determine the variables explored. For example, to what extent are individuals generally causally responsible for becoming unemployed, for not trusting others, or for the break-up of their marriages? Clearly, different commentators are unlikely to agree on where causal responsibility is to be drawn. The exact boundaries will depend in any case on the situation one is dealing with. However, it would be difficult to argue against the interpretation that at least large amounts of the variability in these underlying causes lie beyond the control of individuals. Few would argue that our genes, the income and social behaviour of others, the political organisation and trustworthiness of our governments, or the extent of our freedoms lie within the control of single individuals.
101. If many of the factors that are important for individual well-being are beyond the control of individuals, then this begins to set up a case for state intervention, but does not prove one. For example, it is clear that genetics play a significant role in explaining subjective experiences in well being, but short of genetic engineering, this is a variable that is beyond the control of governments too. Equally, recognition that some or many of the determinants of well-being are outside individuals' complete direct control, does not mean that individual choice and personal responsibility are unimportant.
102. There are four types of evidence and argument that together build a potentially powerful case for state interest and direct intervention in relation to individual well-being. These are that:
- **Certain core activities of government have direct impacts on individual wellbeing.** For example, the evidence indicates that government incompetence and corruption appears to have a significant negative impact on wellbeing, even having controlled for a wide variety of other variables.
 - **There is evidence of significant 'externalities' in the determination of individual well-being.** For example, community engagement and social trust appears to have significant *positive* externalities. One person's engagement turns out to be of benefit to all – even for those who prefer to stay at home and watch TV. More controversially, the evidence has been interpreted by some to indicate that an increase in a given individual's income may have significant *negative* externalities on the life satisfaction of others, depending on how it is used. Conspicuous consumption by some people can lead to envy, or frustration, on the part of others.
 - **There appear to be strong interdependencies and therefore collective action problems in the determination of individual well-being.** This point is closely related to the previous point. Even if individuals know that certain behaviours or values are likely to lead to collectively higher or lower well-being, they may not pursue them because of the lack of collective means of deciding on, and acting on this knowledge.
 - **Most controversially, a paternalistic argument has been made by some commentators.** People are known to make systematic errors of judgement about the

factors that will lead to their long-term life satisfaction. For example, people tend to overestimate the pleasure that they will derive from a given purchase or career choice, failing to take account of the habituation that will occur. Similarly, evidence indicates that people tend to overestimate the importance of income for their well-being while underestimating the importance of relationships (see table 7). As in other areas within which the state employs a paternalistic argument, such as in the requirement to wear seat belts, some may argue that the state should help people to make choices that will make them happy. However, such arguments need to be balanced against the strong counter view that people’s expressed preferences should be respected even if they lead people to be unhappy (see discussion of limitations below), and the equally strong counter view that in practice states rarely have the knowledge to make better choices.

Table 7: Perceived and actual importance of sources of satisfaction in everyday life¹⁰⁴

Factor:	mean perceived importance rating	Standardised regression coefficient
Family life	1.46	.41
Marriage	1.44	.36
Financial situation	2.94	.33
Housing	2.10	.30
Job	2.19	.27
Friendship	2.08	.26
Health	1.37	.22
Leisure Activities	2.79	.21

103. These four arguments combine with the literature reviewed above to make a case for state intervention to boost the well-being of individuals, and suggest that in the absence of such action, average life satisfaction may be lower.

What are the specific policy implications?

104. Researchers have begun to move from general reviews of the evidence to a consideration of the policy implications of the life satisfaction literature. The potential implications include changes both in how we conduct policymaking and in the content of policy itself.

Implications for the policymaking process

105. Using life satisfaction as a yardstick should enable us to rank options across very different policy domains, and to quantify non-monetary costs benefits. Furthermore, the literature also indicates that the manner in which the state conducts itself and engages with its citizens also has a direct effect on wellbeing.

- **Life satisfaction data could be used to quantify non-monetary costs and benefits.** For example, if a decision had to be made between alternatives for long-term care, a survey and evaluation could be conducted of the life satisfaction of the elderly and their relatives under different forms of provision. If significantly higher life satisfaction were found to result from one form of care versus another, then this might be chosen as the preferred option.

- **Life satisfaction can be used to choose between government priorities and to structure quality of life indicators.** Projected gains in life satisfaction can be compared across very different policy areas, such as health and education. Policymakers could then use this information to decide which form of spending will lead to the largest increase in satisfaction. This may lead to significant re-weighting of composite indicators (see box 2).¹⁰⁵
- **Democratic involvement.** The option to participate in democratic referenda has a powerful positive effect on life satisfaction, implying that extensions of democratic involvement in government should increase average satisfaction.
- **Competence and corruption of government.** The cross-national evidence indicates that government competence and corruption has a large impact on the wellbeing of the population. It would appear that corruption by public or elected officials has a powerful and corrosive impact on people's expectancies, trust of each other and consequent life satisfaction.¹⁰⁶

Box 2. Improving the measurement of human welfare and progress

One area of relevance to policy is the measures used to assess how well nations and governments are doing. Most measures of welfare and progress are imperfect:

- GDP is sometimes used as a proxy for welfare yet consumption or incomes are not good guides to welfare.
- Alternatives to GDP (e.g. ISEW) are built upon a series of valuations of components (such as the cost of pollution, or the value of housework) which are open to criticism.
- Composite indicators of social trends (e.g. the UN's Human Development Index) are also vulnerable to criticism because the weighting given to the individual indicators is a subjective process.
- Finally a "balanced scorecard" of a range of indicators can be constructed (e.g. the UK's headline indicators of sustainable development). This method is least vulnerable to criticism but sometimes the number of indicators can obscure key messages.

These issues are explored further in annex 2. Many governments around the world are currently looking at alternative measures to provide a framework within which to make sense of policy and spending choices

Less controversial implications

106. The potential policy implications that could be drawn from the life satisfaction literature can be ranked loosely by controversy surrounding them, and the extent to which the evidence base underpinning them is contested. The less controversial conclusions listed in this section generally reinforce existing policy positions.

- **Subsidising community engagement and other social relationships.** Social relationships are arguably the most important factor in explaining differences in life satisfaction, with the possible exception of genes. Community engagement and other forms of social capital also show 'positive externalities' for well-being –

higher engagement leads to higher life satisfaction both for that individual and for others in the community. This has been argued to strengthen the case for public support for social capital and volunteering programmes. In principle a similar case can be made for policies that help to bolster and support successful long-term personal relationships, such as marriage counselling – provided that such policies can be shown to be effective in their own terms.¹⁰⁷

- **Active welfare state policies.** Unemployment has been shown to be associated with markedly lower life satisfaction. Given that most of the negative effect of unemployment on life satisfaction results from the lack of social engagement rather than the loss of income, this may be seen as supporting active welfare policies that prioritise fast-tracking the unemployed back to employment rather than just boosting their financial support.

Box 3. Unemployment

Unemployment significantly lowers levels of life satisfaction. It hits those directly affected particularly hard, but also impacts on the general population. The size of the effect is such that the “compensation” required to keep life satisfaction constant after losing your job dwarfs the monetary loss felt by the unemployed. Employment plays an important role in people’s social lives and also confirms someone’s conformity with social norms – recall that levels of life satisfaction among the unemployed are higher in areas of high unemployment. It has also been found that those who are hurt less by unemployment were somewhat less likely to look for a new job and, over time, were more likely to remain unemployed.¹⁰⁸ These findings have the following implications:

- the scale of the loss of life satisfaction is such that it lends support for active labour market policies, such as the New Deal, which seek to quickly reattach people to the labour market. Finding employment for the jobless should be given a higher priority than increasing the level of benefits received by the short term unemployed;
- this is particularly the case for the long term unemployed and those in unemployment black spots who may be less motivated to look for work as their life satisfaction is higher;
- the research unfortunately does not touch upon wider issues of worklessness – many of the long term unemployed in Europe may be on sickness rather than unemployment benefits.

- **Education for a satisfying life.** Young people – and adults – can be given information and guidance about the factors that drive life satisfaction. Going one step further, mutual respect, cooperative behaviour and volunteering can be encouraged, while deceit, greed and envy could be actively discouraged. This, of course, is already an element in citizenship education and runs as a common theme through many traditional belief systems, but can be argued that a consideration of life satisfaction leads to a similar conclusion from a secular, empirical base.
- **Better information.** There is a growing popular literature intended to help citizens make better informed choices to increase their individual life satisfaction. It can be argued that the state could also do more to provide information to help better inform individuals over their lifestyle choices. For example, StatCan now incorporates life satisfaction measures into all of its major surveys, and the results these generate can be used by people in their everyday lives in much the same way that information

about the causes of ill-health can be used to make lifestyle choices. Should Local Authorities, Higher Education destination surveys, and Labour Force surveys also gather data on life satisfaction to inform people's choices over where to live, what courses to study, and what careers to follow. To date, no major UK surveys explore or map life satisfaction, though Audit Commission proposals for Local government surveys may lead to data being gathered in the future.

More controversial implications

107. A recurrent theme of the life satisfaction literature is that some forms of consumption affect the life satisfaction of others, but that this is not reflected in their costs to consumers. Similarly, there is much debate over what the policy implications are of the relatively weak relationship between economic growth and income.

- **Prioritising economic and social development in poorer nations.** Cross-national comparisons suggest that there are diminishing returns from economic development to life satisfaction. This may be taken to indicate that further economic advancement will have a disproportionately large impact in poorer nations, strengthening the case for policies such as liberalising trade policies in favour of less developed nations.
- **Protection against risk.** There is some cross-national evidence that life satisfaction is raised by more extensive forms of welfare state provision, presumably because the welfare state offers citizens some protection against stressful risks such as unemployment and ill-health. However, this argument rests on relatively slim cross-sectional evidence.
- **The welfare costs of taxation.** There is a large economic literature on the distortionary costs of taxation. The life satisfaction literature suggests, however, that there may be 'externalities' associated with some types of private consumption. This may alter judgements about the level and structure of taxation and public spending.¹⁰⁹
- **The work-leisure balance.** It has been found that while people frequently compare pay, they rarely compare leisure entitlement even though this appears to have a marked impact on their wellbeing. In addition, leisure take-up may suffer from a collective action problem – if I work fewer hours but my colleagues don't, then I will suffer. This argument has been used to support stronger regulation on work-life balance, such as an enforced 4-day week. However, critics argue that this is adequately addressed by individual choice, while others argue that the problem is handled more flexibly and appropriately through progressive taxation.
- **Progressive taxation.** It has been argued that there are strong adaptation effects (people rapidly get used to having a higher standard of living) and also negative impacts on others of higher earnings (other people feel poorer in relative terms). This evidence has been used by a number of prominent writers to argue that progressive taxation is efficient as it chokes off an excessive and mistaken focus on income as a route to higher life satisfaction and reduces the negative externalities of income inequality.¹¹⁰ Key arguments against this position include uncertainties over the causal mediators (is the issue earnings or particular forms of consumption?) and

charges of excessive paternalism (that people should be allowed to work and earn as much as they like, even if it doesn't make them happy).

Positional goods. The specific hypothesis has been made that the reported negative externalities of income may be attributed to conspicuous personal consumption. The argument is made that positional goods, such as luxury cars, powerfully depress the life satisfaction of those who do not have them, and that this negative effect is often larger than the positive effect on the holder of the good. Some authors have used this argument to reinstate the for case luxury goods taxes.¹¹¹ However, at least three arguments have been employed against this proposal: that the evidence base is weak; that an equally plausible case can be made for addressing envy rather than consumption; that what people do with their post-tax income is a matter for them; and that, on a practical level, luxury goods taxes may hold back the growth of new industries whose products are luxuries today but potentially mass market products tomorrow.

What are the limitations of life satisfaction as a policy tool and goal?

108. It is important to recognise some of the limitations of life satisfaction as a tool for policymaking and as a policy goal.

- **Equity.** Technical assessments of how to maximise average life satisfaction do not remove the need to make judgements about the distribution of well-being (social justice). For example, are we prepared to pay a price in our own life satisfaction to raise the satisfaction of developing nations?
- **Sustainability.** Politicians, individuals and society must make judgements about the sustainability of any given course of action – more satisfaction today versus more satisfaction tomorrow. This is both a matter of technical judgement – will a given investment today yield more life satisfaction tomorrow – and also of intergenerational justice – how much weight should we give to the well-being of those that follow us.

- **The knowledge base.** On a practical level, this is a young literature, and many questions remain unanswered, such as about the details of which factors cause life satisfaction and how they interact with each other. The level of knowledge in many areas is not sufficient to make meaningful judgements about which policies might lead to higher or lower life satisfaction, though this could in principle be corrected through future research.
- **Differences in the determinants of well-being across individuals.** What makes one person happy is not necessarily what makes the next person happy. Indeed, the causes of happiness must to some extent be culturally determined. For example, it has been argued that older generations place more value on economic stability while younger generations place more value on political freedoms.¹¹² This suggests caution should be taken about mechanistic or over generalised assumptions about the causes of life satisfaction, and especially about presuming that holds true of one cultural group will also hold true of another.¹¹³
- **Possible conflicts with free will.** Individuals may not select the alternative that will maximise their life satisfaction. For example, most able-bodied people would say that they would rather die than be left unable to move, yet paraplegics express a level of life satisfaction that is only modestly below that of the able-bodied. When there is a large discrepancy between an individual's expressed choice and their likely well-being, which should be respected – should we let people refuse treatment if we know that it is likely that they subsequently have a satisfying life in a wheelchair?

109. These concerns and limitations should warn us off an inflexible and naïve over-application of life satisfaction as a guide to policy. However, these concerns do not undermine the considerable potential impact of the life satisfaction approach to policymaking over quite large margins, and particularly through helping us to quantify non-monetary and neglected costs and benefits.

IV. Conclusion

110. Twenty-five years ago, Fred Hirsch argued that there were 'social limits to growth', by which he meant that in wealthy industrialised nations, further advances in well-being would become increasingly difficult to obtain from private material consumption.¹¹⁴ In the years since, the life satisfaction literature has advanced greatly. It has broadly confirmed Hirsch's theory, but also identified other factors that profoundly affect life satisfaction.

111. A significant proportion of individual differences in life satisfaction can be attributed to genetic and constitutional factors – some people appear to be hard-wired to be happy – but social, economic and institutional factors have been found to affect life satisfaction too. The latter help to account for the very large national differences that have been found in aggregate life satisfaction.

112. Social relationships have a much larger impact on life satisfaction than financial income, at least within wealthy nations such as the UK. This has been seen by many life

satisfaction researchers as presenting a fundamental challenge to measures like GDP per capita and, in everyday life, to the prevalent work-life balance. Other prominent themes running through the literature include: the powerful effects of adaptation; the importance of a sense of control; the existence of large externalities; and the relevance of cultural context.

113. Less controversial policy implications have been argued to be:
 - having regard to life satisfaction data in policy making and in the construction of quality of life indicators;
 - increasing the options for democratic involvement;
 - active welfare policies to help people out of unemployment;
 - stronger support for volunteering and other forms of social capital; and
 - better measurement and information on the life satisfaction consequences of lifestyle choices.

114. More controversial policy implications that have been argued for by some researchers, but that have been or might be more strongly contested, include:
 - prioritising economic development within the poorer nations;
 - a more positive appraisal of public relative to some private spending;
 - stronger measures to encourage a more leisured work-life balance; and
 - a more positive attitude to progressive taxation.

115. While life satisfaction represents a potentially important and radical new tool for policymakers, particularly in comparing across very different policy domains, there are also significant limitations to its use. Aggregate life satisfaction measures do not overcome the need to consider distributional or sustainability issues, albeit within a different metric; the knowledge base remains thin; and the implications of a life satisfaction calculus may sometimes conflict with one based on individual choice.

116. It may be that the single most valuable contribution of the life satisfaction literature is to make more explicit the choices that face both individuals and societies. In this sense, a greater knowledge of the causes of life satisfaction holds up a mirror in which we can see ourselves better, and then together choose a more the type of society and lifestyle that we wish for ourselves and our children.

Annex 1. Alternative measures of subjective well-being

Positive measures.		
Measure	Prevalence	Comments
Happiness. Eg. 'Taking all things together, would you say you are...' ¹¹⁵	24% very happy 55% quite happy 18% not very happy 3% not at all happy (WVS 1995-7)	Easy to answer and to understand. Considered to tap more affective or emotional aspect of well-being. Widely used, but some concerns about translation across cultures, for example in parts of Africa where term is said to be difficult to separate from physical health.
Life satisfaction. Eg: 'On the whole, are you ...satisfied with the life you lead?' ¹¹⁶	21% very satisfied 57% fairly satisfied 16% not very satisfied 5% not at all satisfied 1% don't know/no ans. (Euro-Barometer, 1973-83)	Simple question gives similar distribution to happiness, but considered to tap a more cognitive appraisal. Often used with a 1-10 response set, which has been found to contain less 'noise' in statistical analyses.
Behavioural measures. Eg: frequency of smiling.	Rarely used across whole populations.	
Negative measures.		
Mild psychopathology Eg. The General Health Questionnaire. ¹¹⁷	Common symptoms in previous week include: ¹¹⁸ 27% fatigue 25% sleep problems 22% irritability Typical estimates are that 1 in 5 to 1 in 10 of the general population suffer from an identifiable (mild) form of psychiatric illness at any given time.	Symptoms are added to form an overall score. Scales are typically clinically validated to identify cut-off scores for 'probable cases' – i.e. the point at which the person would be assigned a diagnosis. Sometimes known as the expression of everyday misery, as opposed to full-blown psychopathology (see below).
Serious mental illness	Over a lifetime, around 1 in 10 will suffer from major depression (historically requiring hospitalisation) and 1 in 100 from schizophrenia, the most common form of psychosis.	Although relatively rare, the chronic nature of much serious mental illness means that it has huge social and economic costs. For example, most hospital beds are filled with psychiatric patients, and schizophrenia alone is estimated to cost the equivalent of 2% of GDP. Such illnesses have strong genetic roots, though are often environmentally triggered.
Suicide	Per 100,000 population: 5-30 commit suicide; 10-300 parasuicide; 2500-20,000 suicidal ideation (thoughts of suicide)	Fairly good data on suicide in most industrialised nations, and over long periods in some cases. Far less data on parasuicides (attempts) and even less on suicidal ideation. All are correlated, and show close links to depression

Annex 2: Indicators of Welfare and Progress

Introduction

1. It is a rare nation-state which doesn't aim towards some conception of improvement. Indicators are therefore needed to judge whether a society is making progress – though the end objective to which progress is leading is often disputed. The choice of indicators is often linked with the political choice of societal goals.
2. Three methods have been used in past attempts to measure welfare or progress. First, measures of national *economic* welfare or well-being have been constructed. These are monetary indicators and generally take the form of adjustments to GDP/NNP. Second, composite indicators of both *economic and social* well-being have been constructed. These are non-monetary and generally represent a weighted average of a range of individual indicators of economic or social welfare. Third, a 'scorecard' approach can be taken in which a series of indicators are presented separately.
3. This note sets out:
 - the range of adjustments to GDP/NNP which have been proposed to improve it as an indicator of economic activity and economic welfare;
 - the conceptual frameworks in which composite indices of social and economic well-being are constructed;
 - examples of alternative indicators and scorecards, including the Index of Sustainable Economic Welfare (ISEW), the Genuine Progress Indicator (GPI), the Index of Social Health, the Weighted Index of Social Progress (WISP), Prescott-Allen's Human and Ecosystem Well-being Indices, the Osberg-Sharpe Index of Economic Well-being, and the UK Government's 15 Headline Indicators of Sustainable Development..

Gross Domestic Product and Net National Product

4. Gross Domestic Product (and related measures), were developed in the 1930s and 40s to provide a more complete picture of economic activity. During the Great Depression governments had to rely on extremely partial data such as stock price indices, freight car loadings and incomplete indices of industrial production. The development of Keynesian economics – which lay the blame for the unemployment of the 1930s on deficiencies in aggregate demand, and the requirements of the Second World War led to a need for a more accurate understanding of macro-economic activity. The response was the development of national economic accounts which would provide a more comprehensive picture of output and national incomes.
5. The essentially circular nature of the economy (in an extremely simplified understanding: households provide labour and capital to firms, who produce goods and services which are bought by households and pay rent, wages and profits to households) means that GDP may be viewed in three different, but ultimately equivalent ways. "It may be seen, firstly, as the total of all incomes (wages and profits) from the production of nationally-owned goods and services. Next it may be regarded as the total of all expenditures made either in consuming the finished goods and services or in adding to wealth (less the net costs of international trade). Finally it can be looked at as the sum of the value added by all activities which produce goods and services, that is, their net output."¹¹⁹

6. Gross Domestic Product consists of *Consumption + Gross Investment + (exports-imports)*. Of course, in an open economy foreign firms may operate in the UK – sending income and profits back to their home country. Therefore there will be a discrepancy between the incomes earned in the UK and those which accrue to UK households. Gross National Product (GNP) is the measure used when we wish to adjust for net property income from abroad. Finally, GDP and GNP measure gross measures – investment could be simply replacing existing capital stock rather than adding. A more accurate measure is Net National Product (NNP) – which is calculated by subtracting depreciation from GNP.
7. These measures are generally used for three purposes: as a measure of economic activity; as a measure of the maximum amount that a nation can consume while ensuring that current and future generations can have a similar level of consumption¹²⁰; and finally as a proxy measure of welfare.
8. It is because GDP and NNP measure consumption that it has sometimes been used as a measure of welfare: if consumers purchase goods and services in order to maximise their welfare, then in a perfect market the amount of consumption will reflect the value consumers place upon the goods and services they consume – and hence could be interpreted as a measure of well-being.
9. However economists and others have long recognised that NNP is not an ideal indicator: either for its core purpose – measuring economic activity, or for its secondary and incidental purpose – as a proxy for economic or social welfare. Summarised below are some of the areas where improvements have been suggested in order to improve NNP as a measure of economic activity:
 - measuring the depletion of natural resources (“natural capital”);
 - measuring the value of goods and services produced outside of the market place (such as informal care, housework);
 - reclassification of certain expenditures on education as investment in human capital rather than consumption;
 - intangible/technological capital.

In addition, to improve NNP as a measure of economic or social welfare the following adjustments have been put forward:

- subtracting the value of goods and services which do not contribute to human welfare (congestion, pollution);
- including an assessment of the gain to human welfare achieved from improved longevity;
- weighting NNP to account for the degree of inequality in an economy;

Adjustments to Net National Product: Improving NNP as a Measure of Economic Activity

Measuring the depletion of natural resources

10. Adjusting GDP or GNP for depreciation is important if it is desired to use the indicators as a guide to the ability of the economy to sustain future as well as current consumption. Without such an adjustment the gross measures count investment that firms undertake in order to replace worn out equipment. However, the net measures

(Net National Product or Net Domestic Product) exclude depreciation of natural assets. Thus if a coal mine's drilling equipment wears out over time this depreciation is subtracted from gross investment, but if the coal seam is depleted this is not. Yet both may be necessary for an understanding of the economy's ability to sustain future consumption.

11. Economists and statisticians have therefore attempted to quantify the depletion of non-renewable natural resources while taking into account the discovery of new reserves. In the US (the US alone see discovery as equivalent to depletion) these two processes have largely been offsetting. "The net effect of both discoveries and depletion from 1958 to 1991 was between minus \$2 billion and plus \$1 billion depending on the method used, as compared to an average GDP over this period of \$4,200 billion (in 1992 prices)."¹²¹ In the UK environmental accounts set out monetary values of the consumption of non-renewable energy resources alongside a range of estimated possibilities of the known and undiscovered recoverable oil and gas reserves.¹²² Similar accounts set out information on land and material use – using tonnage and hectares rather than monetary values.
12. Trickier problems are the quantification and valuation of renewable resources (such as timber and water) and environmental assets (such as clean air, or natural habitats). Here proposals for reforming NNP make adjustments based on estimates of the degradation of environmental assets through air, water, soil or noise pollution. Attempts to place a monetary value on such assets (and therefore to cost the use of such resources) usually use a proxy value. For example, the UK ISEW costs the loss of natural habitats by using data on willingness-to-pay valuation techniques coupled with data from the actual price paid by the Royal Society for the Protection of Birds to purchase a 1200 hectare site in 1996.
13. While great progress has been made in calculating the depletion of non-renewable and renewable resources, and in calculating the monetary values of such resources, the statistics are not yet sufficiently robust to be directly incorporated into the system of national accounts. Hence a system of parallel "satellite accounts" are being developed to be considered alongside GDP/NNP. Another satellite account recently developed measures the value of goods and services produced outside of the market-place...

Measuring the production of goods and services outside of the market-place

14. Many goods and services are produced in an economy but are never bought or sold because the goods are produced and consumed within a household, or the services are provided by friends and family members. In order to identify “productive” activities a third-party criterion is used – which activities could be provided by someone else. Caring for a child or a relative clearly could be carried out by another while watching TV could not. The main aspects of unpaid work include:

- care of children, elderly or disabled people;
- some aspects of housing (repair and maintenance by owner occupants);
- some aspects of transport (transport escort services for family and commuting);
- nutrition;
- clothing and laundry services;
- volunteering.

15. Time-use surveys have been used to estimate the amount of time spent on such unpaid work. Then the work is priced according to what it would cost to hire someone to perform that service: thus the market rate of a live in nanny is used to value the childcare provided by parents, friends and family members. The table below sets out the value of household production as calculated by the ONS.¹²³

Value of output of household production, gross value added and net value added by household members in the UK: 2000

	Housing	Tenant services	Transport	Nutrition	Clothing	Laundry services	Child Care	Adult Care	Voluntary activity	Total	GDP minus imputed rent
Output of household production	211,796	50,876	156,731	163,900	1,418	45,977	221,490	13,887	13,167	879,242	
Intermediate consumption	36,059	3,838	34,056	51,514	709	885	996	0	0	128,057	
Input of HH production of Housing	0	0	0	22,893	0	5,723	0	812	0	29,429	
Input of HH production of Tenant services	0	0	0	7,383	0	1,846	0	397	0	9,626	
Rent & utilities (tenants)	0	0	0	4,197	0	1,049	0	225	0	5,472	
Input of HH production of Transport	0	0	0	11,362	0	0	0	0	0	11,362	
Input of HH production of Nutrition	0	0	0	0	0	0	0	1,887	0	1,887	
Value added by households (gross)	175,737	47,038	122,675	66,550	709	36,473	220,494	10,566	13,167	693,409	892,182
Capital consumption	27,144	1,134	21,231	1,614	0	753	0	0	0	51,876	
Value added by households (nett)	148,593	45,904	101,444	64,936	709	35,720	220,494	10,566	13,167	641,533	

Source: HNSA estimates

16. It can be seen that the estimated value of household production (£693,409m) is large: almost reaching the size of the formal economy (£892,182m). Almost half of economic activity takes place outside of the market-place.

Human Capital Investment and Technological Capital

17. Within GDP/NNP all public expenditures on health and education are treated as consumption. Some expenditure on health and education actually contributes to building up human capital and should be treated as investment – while other spending could be treated as defensive expenditure which, arguably, does not contribute to welfare. Adjustments in this area have proved very problematic and have either not been attempted or simple, rather arbitrary changes have been introduced. For example in the ISEW one half of all medical expenditure is treated as “defensive expenditure” and excluded, as is one-half of expenditure on HE – which are assumed to represent pure consumption.¹²⁴
18. Some economists have raised issues around the definition of investment.¹²⁵ While levels of both public and private investment have fallen, the official figures do not include investment in education, research and development, patents, copyrights, and new business practices. Investment in these areas brings productivity gains – as measured in total factor productivity figures. Thus investment figures need to be revised upwards to account for investment in intangible capital.

Adjustments to Net National Product: Improving NNP as a Measure of Economic Welfare

Subtracting the costs of “bads”

19. Some economic activity produces side-effects which do not improve human welfare: e.g. water, air, soil and noise pollution; commuting and/or congestion; automobile accidents. However, “defensive expenditures” designed to counter the effects of such activities are still counted within the standard national accounts frameworks. Thus hospital bills deriving from car accidents and the costs of cleaning up pollution are counted in NNP: useful as a guide to economic activity but not as a measure of human welfare. Those proposing reforms suggest subtracting the costs associated with the production of “bads” from NNP.

Adjusting for the gains associated with increased longevity

20. Traditional income accounting looks at flows of consumption and income but does not consider the length of life nor the quality of the population’s health. Expenditure on health is included within GDP – under personal consumption expenditure for instance. However, it has been suggested that a better attempt to measure the output of the health-care sector and to value this output correctly should be made.¹²⁶ Nordhaus proposes that such adjustments could be made by asking how much consumption the individual would be willing to trade off for improve health status.¹²⁷ As can be seen from the table below life expectancy at birth has increased from 41.3 years in 1870 to 77.1 years in 1998. The imputed gains to economic growth from this trend outweigh growth in conventional GDP through most of the century with the exception of the recent past.¹²⁸ While the author of these figures believes that these figures should be treated with some caution because of the use of estimates of the value of a statistical life, the message is that the national accounts underestimate improvements in the standard of living.

	Life expectancy at birth		GDP Growth	Imputation to growth (adjusted for increased longevity)
1870	41.3	1870–1913	1.0% pa	2.0% pa
1913	53.4	1913–1950	0.8% pa	2.0% pa
1950	69.2	1950–1973	2.4% pa	0.8% pa
1973	72.0	1973-1998	1.8% pa	1.7% pa
1998	77.1			

Adjusting for inequality

21. Proponents of the ISEW and GPI argue that the level of personal consumption in the economy should be re-weighted to take account of the distribution of income. The rationale for this is, in short, that one pound is worth more to the poor than the rich and that the poor receive greater utility from a given level of consumption. (Others make a specific ethical argument that growing income inequality represents a social cost).¹²⁹
22. The actual weight to be given to inequality should depend upon a society's preference for a particular distribution of income – and should use a measure which uses empirical data to measure which level of equality delivers the same level of social welfare as the actual distribution of income. One such method is the Atkinson index – which is used to re-weight consumption in the ISEW. The GPI however simply uses the Geni index (which measures the difference between perfect equality of income and the actual distribution of income).
23. Whether and how to re-weight personal consumption for income inequality is a complex issue. It is possible that recent research examining the effect of income inequality of subjective life satisfaction may inform further work in this area. For example, it has been found that there is an aversion to inequality in Europe, while no such relationship exists in the US.¹³⁰

Examples of measures of economic welfare which build out from GDP

24. Examples of alternative include Nordhaus and Tobin's Measure of Economic Welfare, the Index of Sustainable Economic Welfare and the Genuine Progress Indicator. Short descriptions of the ISEW and GPI are given below.

Index of Sustainable Economic Welfare

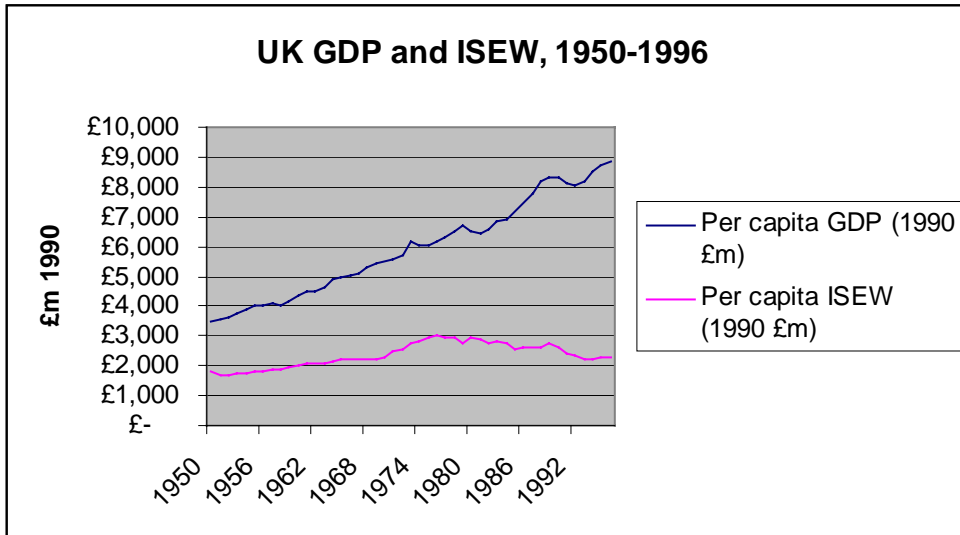
25. The ISEW seeks to build upon GDP – making adjustments so that it better reflects the concept of sustainable economic welfare. It is based upon the personal consumer expenditure and then adjustments are made to take account of the following factors: income inequality, unpaid domestic labour, environmental degradation, depletion of natural resources, long term environmental damage, changes in the (conventional) capital stock and defensive expenditures.

26. A full summary of these adjustments can be seen in the table below which shows the process of adjustment needed to create a ISEW for 1996 (in 1990 pounds). The final ISEW (£131,648m) could be compared with GDP of £520,285m.

Item	Rationale	Direction of adjustment	e.g. 1996 (millions of 1990 pounds)
Consumer expenditure	Basis for the index		374,714
Income inequality	Accounting for the social effects of income distribution	Atkinson Index	0.1433
Adjusted consumer expenditure	New basis adjusted for inequality	Consumer expenditure * (1-Atkinson index)	321,036
Services from domestic labour	Incorporating non-monetarised aspects of the economy	+ve	134,217
Public expenditure on health and education	Adding non-defensive public expenditure	+ve	21,380
Difference between expenditure on durables and service flow	Adjusting for service value of consumer expenditure	-ve	67,912
Private expenditure on health and education	Subtracting defensive expenditures	-ve	6,353
Costs of commuting	Subtracting defensive expenditures	-ve	12,075
Costs of personal pollution control	Subtracting defensive expenditures	-ve	3,403
Costs of car accidents	Subtracting defensive expenditures	-ve	2,102
Costs of water pollution	Subtracting costs of environmental damage	-ve	3,071
Costs of air pollution	Subtracting costs of environmental damage	-ve	19,489
Costs of noise pollution	Subtracting costs of environmental damage	-ve	2,297
Costs of loss of natural habitats	Accounting for loss of natural capital	-ve	3,163
Costs of loss of farmland	Accounting for loss of natural capital	-ve	1,858
Depletion of natural resources	Subtracting costs of environmental damage	-ve	106,063
Costs of climate change	Accounting for long term (future) environmental damage	-ve	77,303
Costs of ozone depletion	Accounting for long term (future) environmental damage	-ve	35,487
Net capital growth	Accounting for increases in human-made capital	-ve	(2,033)
Change in net international position	Accounting for international stability	-ve	(2,374)
ISEW		Total	131,648

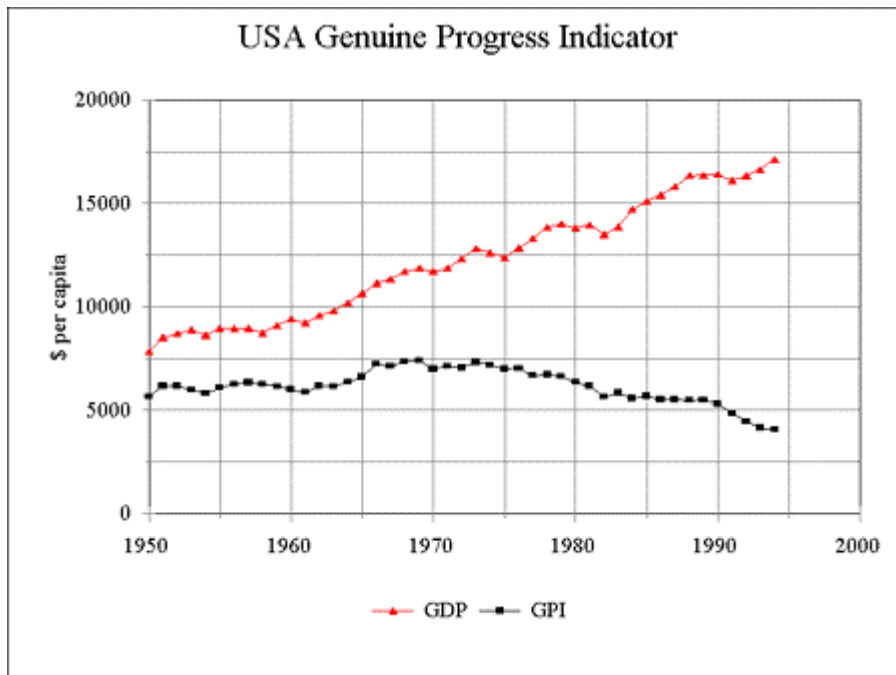
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27. Over time the ISEW and GDP significantly diverge. The chart below compares per capita GDP with per capita ISEW from 1950 to 1996. The conclusion to be drawn from this exercise is that while GDP has grown significantly sustainable economic welfare has not.¹³¹ The ISEW has been calculated for a range of other countries including Austria, Chile, Germany, Italy, Netherlands, Sweden.¹³² In all these countries ISEW is lower than GDP – however, with the exception of Chile, they do not diverge as significantly as the UK.

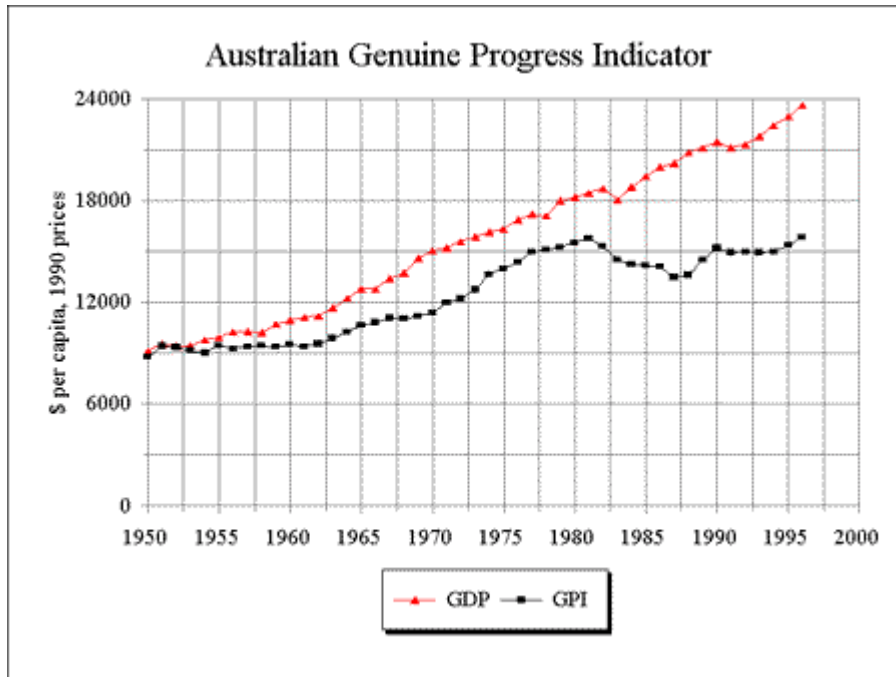


Genuine Progress Indicator

28. In the US and Australia the Genuine Progress Indicator has been developed. It is very similar in concept to the ISEW: using personal consumption as a base and making similar adjustments for inequality, social and environmental costs, and non-market production. Some additions to the ISEW include the value of volunteering, the loss of old growth forests and loss of leisure time. The charts below set out per capita GPI together with per capita GDP for the US and Australia.



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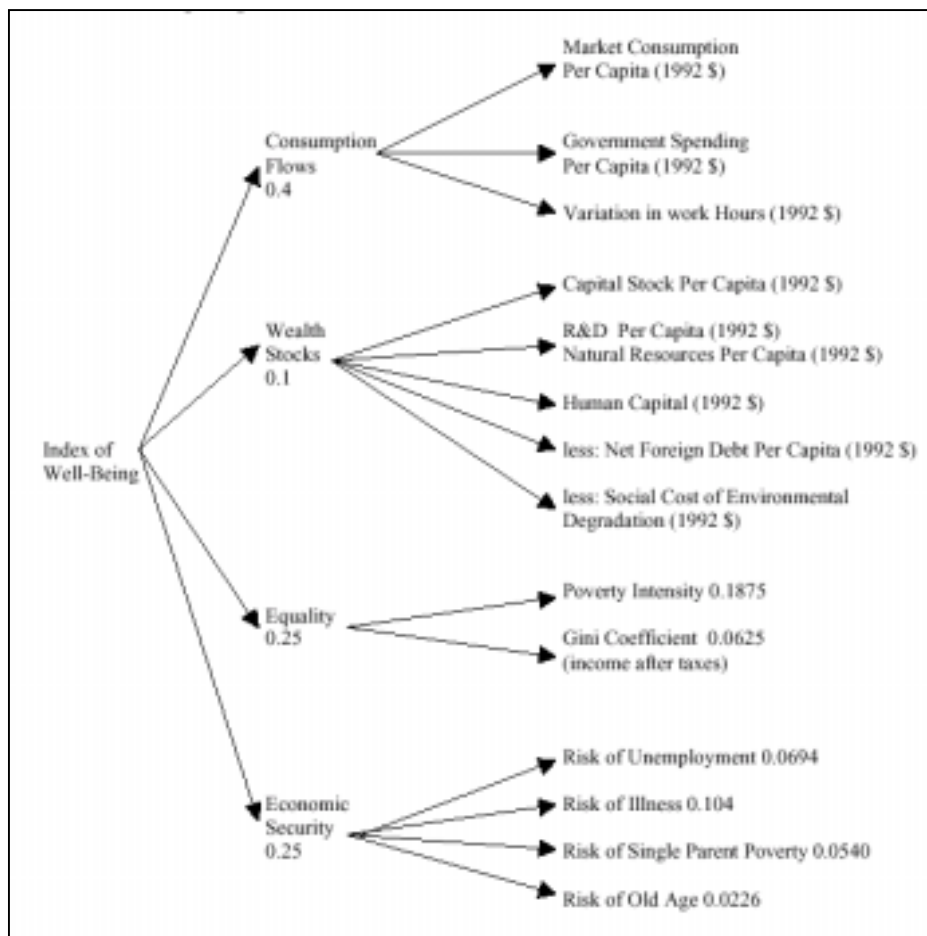
The Construction of Alternative Indices

29. Proposals for measures of welfare which build out from personal consumption and make adjustments to GDP/NNP figures have certain advantages. First, they are developed within a broadly accepted economic framework: while there may be differences, at least proponents and critics are talking the same economic language. Second they are calculated in monetary terms so that they can be directly compared with GDP growth.
30. However, their primary focus tend to be economic rather than social welfare. Moreover their use of money as the primary measure makes it difficult to compare like with unlike – values have to be ascribed to processes, goods and services which have no market pricing. Hence other researchers have attempted to build up composite indices of welfare.
31. Such measures are built up in several stages:
- a conceptual framework is developed to guide the selection of indicators;
 - indicators are chosen to best fit the phenomenon which they are measuring;
 - weights are given to each indicator. This process can either be implicit – sometimes each indicator is given equal weight, or explicit – specific weights are given to each indicator depending upon the values of the organisation constructing the index;
 - the weighted indicators are then aggregated to provide a composite index of welfare.
32. Each stage can be quite an elaborate process and is open to the criticism that the framework, selection and weighting procedures can be arbitrary.
33. Examples of such indices are given below. Osberg and Sharpe have developed an Index of Economic Well-being focused on economic welfare. The Index of Social Health focuses on indicators of social welfare. The Weighted Indicator of Social Progress and the Human Development Index encompasses indicators of both social and economic welfare, while Prescott-Allen's work juxtaposes indicators of Human Well-being against measures of Eco-system Well-being.

Osberg-Sharpe Index of Well-Being

34. This index is based upon indices of consumption, wealth accumulation, inequality and insecurity. One of its main features is its recognition that the weights given to the index will vary depending on the values of the observer. The components and standard weightings of the index are set out in the chart below.

This is not a statement of government policy

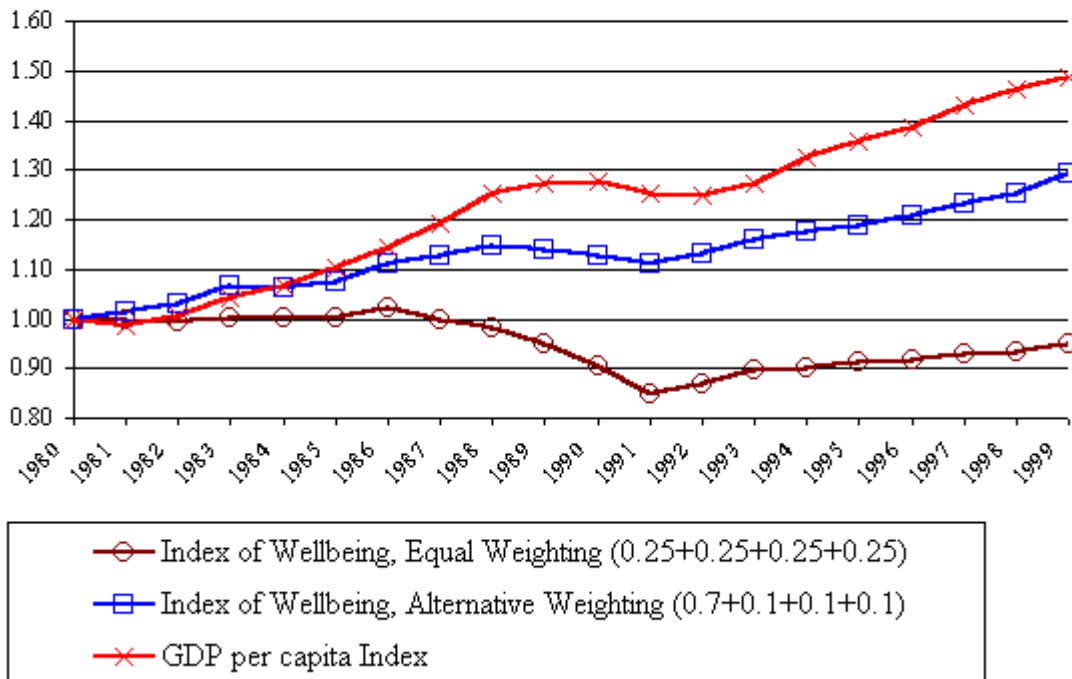


35. Notable components of the IEW include:

- adjustments for increased longevity;
- the use of equivalence scales to account for the “economies of scale” effect of changes in household size on the level of consumption needed;
- adjustments to take account of changes in average annual working hours;
- the inclusion of net debt to foreign as a burden which future generations will have to pay and reduce future consumption.

36. The importance of the weightings given to the individual indices can be seen in the results for the United Kingdom – given in the chart below. Where the four main components are given equal weighting Britain has regressed over time. When consumption flows are given a greater weighting then it appears that the UK has progressed. In either case progress is not as great as suggested by GDP growth.¹³³

United Kingdom



Index of Social Health

37. The ISEW and GPI are attempts to measure the concept of sustainable economic welfare. Other attempts have been made to take a broader look at welfare and measure social trends in addition to economic well-being. These include the Index of Social Health, the Human Development Index and the Weighted International Index of Social Progress.

38. The Fordham Index of Social health is a composite index developed in the US and Canada which brings together 16 indicators on a variety of social indicators which are important for different age groups in the population. The table below sets out the indicators. Grouping the indicators by age groups highlight social trends specific to those age groups. As everyone has the potential to pass through each age group this provides a universal framework which has an intuitive appeal – particularly to the public.

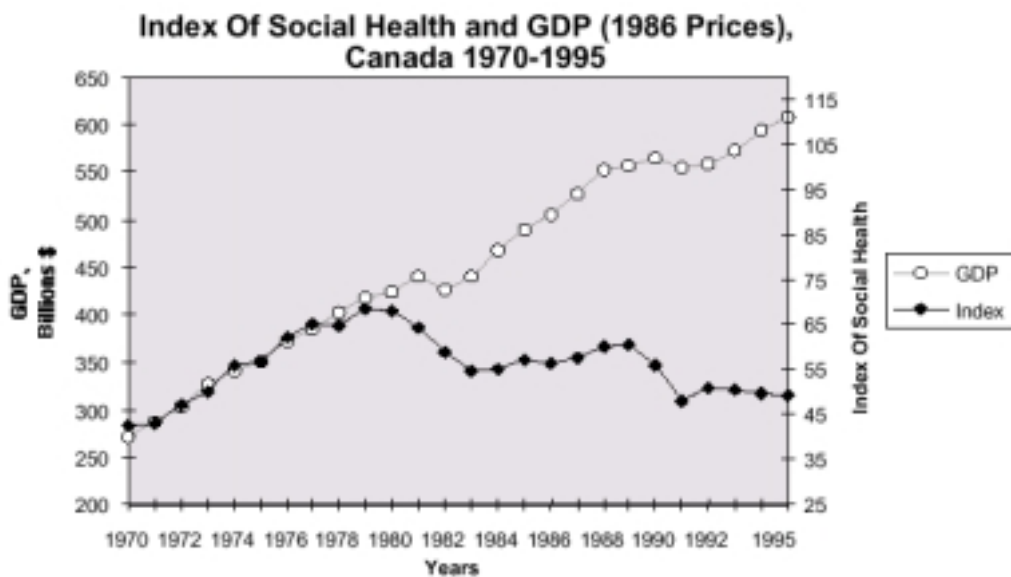
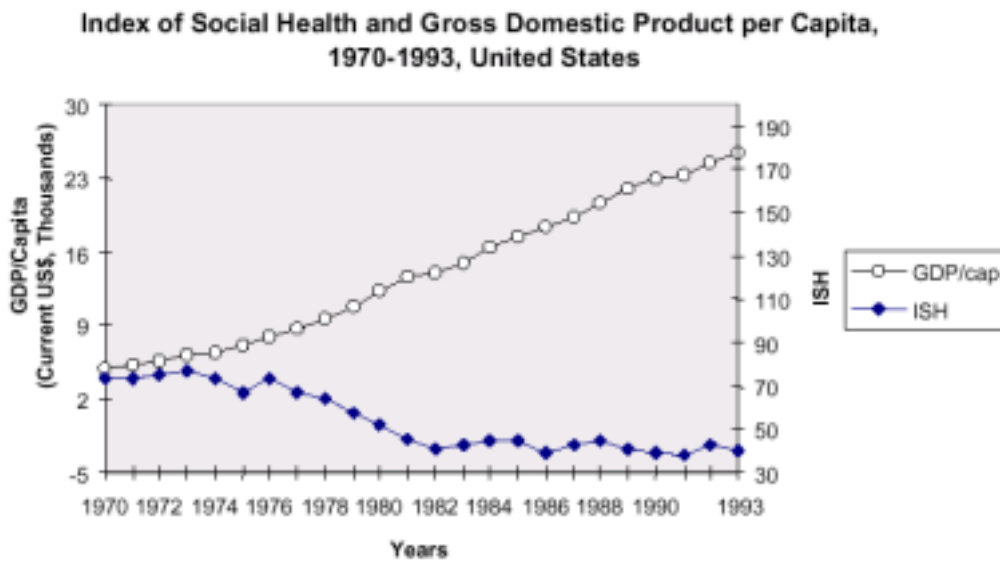
Children	Youth	Adults	Elderly	All ages
<ul style="list-style-type: none"> * Infant Mortality * Child Abuse * Child Poverty 	<ul style="list-style-type: none"> * Teen suicides * Drug Abuse * High School Drop-outs 	<ul style="list-style-type: none"> * Unemployment * Average weekly earnings * Health Insurance coverage 	<ul style="list-style-type: none"> * Persons 65 and over in poverty * Out of pocket health costs for those 65 and over 	<ul style="list-style-type: none"> * Homicides * Alcohol-related fatalities * Food stamp coverage * Access to Affordable Housing * Gap between rich and poor

This is not a statement of government policy

39. The ISH is developed in a three stage process:

- Criteria are applied to the selection of indicators. For example, indicators must have been consistently measured over time; the indicators must have significance across the life span (i.e. dropping out of high school affects later life chances). Combinations of indicators which might co-vary such as inequality *and* poverty – were excluded.¹³⁴
- The ISH attempts to seriously measure “progress”. Each indicator is judged against its best and worst past performance and marked on a 0-10 scale
- The indicators are averaged and expressed as a percentage to derive the aggregate Index of Social Health.

40. Results for the USA and Canada can be seen below.



Human Development Index

41. The United Nations Development Programme have developed a simple composite indicator in order to facilitate comparisons of development between countries. The Human Development Index measures three basic dimensions of human development:

- Longevity as measured by life expectancy at birth
- Knowledge – measured by the adult literacy rate (2/3 weighting) and combined primary, secondary, and tertiary education enrollment ratio (1/3 weighting).
- Prosperity as measured by GDP per capita

42. In 1999 the UNDP published the HDI for 174 countries, with Canada at the top and Sierra Leone at the bottom.

Weighted Index of Social Progress

43. Richard Estes has developed the Weighted Index of Social Progress - updated regularly since 1974. It consists of 46 social indicators grouped into 10 sub-indexes: education, health status, women's status, defense effort, economic, demographic, geography, political participation, cultural diversity and welfare effort. These indicators are listed below:

- School enrolment ratio, first level;
- Per cent grade 1 enrolment completing primary school;
- School enrolment ratio, second level;
- School enrolment ratio, third level;
- Per cent adult illiteracy;
- Per cent GNP in education;
- Rate infant mortality per 1,000 liveborn;
- Population in thousands per physician;
- Life expectancy at 1 year;
- Under 5 years child mortality rates;
- Per capita daily calorie supply as % of requirement;
- Per cent children immunised at age one, DPT;
- Per cent children immunised at age one, Measles;
- Female life expectation at birth;
- Female adult literacy rate;
- Per cent married women using contraception;
- Maternal mortality rate per 100,000 live born;
- Female primary school enrolment as per cent of males;
- Female secondary school enrolment as per cent of males;
- Military expenditures as per cent of GNP;
- Per capita GNP in dollars;
- GNP per capita annual growth rate;
- Real GDP per head;
- Average annual rate of inflation;
- Per capita food production index;
- External public debt as per cent of GNP;
- Total population;
- Crude birth rate per 1,000 population;
- Crude death rate per 1,000 population;
- Rate of population increase;

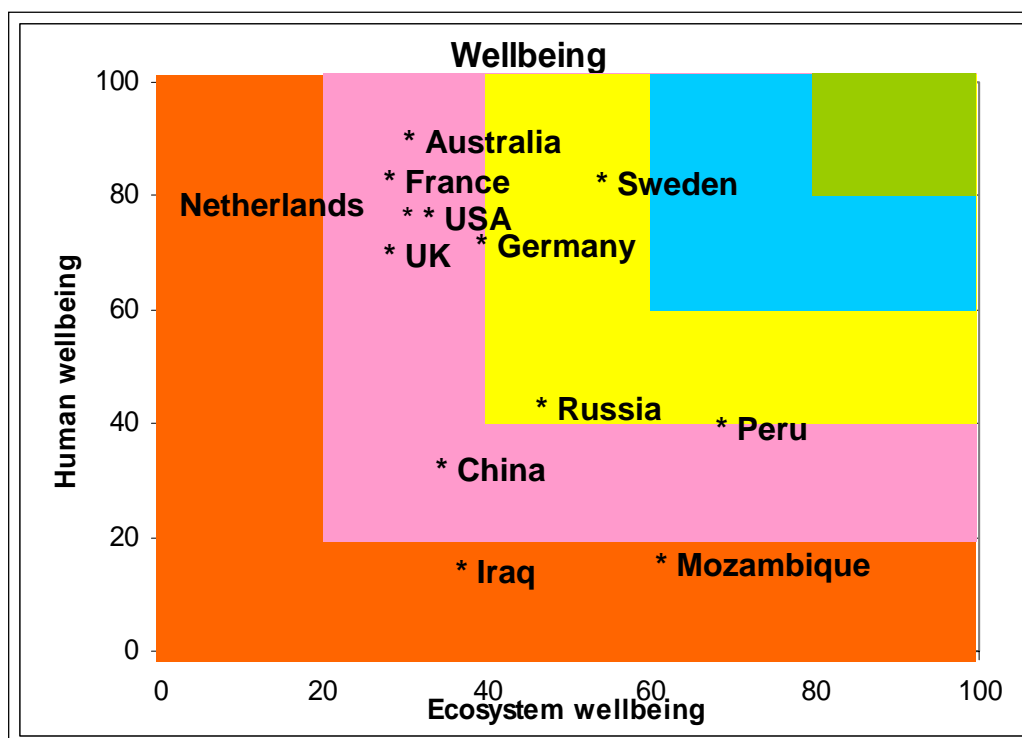
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- Per cent of population under 15 years;
- Per cent of population over 60 years;
- Per cent arable land mass;
- Natural disaster vulnerability index;
- Average annual deaths from natural disasters per million population;
- Violation of political rights index;
- Violations of civil liberties index;
- Composite human suffering index;
- Largest per cent sharing same mother tongue;
- Largest per cent sharing same basic religious belief;
- Largest per cent sharing same or similar racial/ethnic origins;
- Years since first law - old age, invalidity, death;
- Years since first law - sickness and maternity;
- Years since first law - work injury;
- Years since first law - unemployment;
- Years since first law - family allowances.

44. These indicators are then weighted and summed to create a composite indicator for a range of countries. In 1995 the top five were Denmark, Norway, Austria, Sweden and France – Britain was 17th.

Human and Ecosystem Wellbeing Indices

45. Robert Prescott-Allen, in *The Wellbeing of Nations*, has constructed indices of both the well-being humans and of the ecosystem:
- The Human Wellbeing Index (HWI) distills 36 socioeconomic indicators.
 - The Ecosystem Wellbeing Index (EWI) synthesizes 51 environmental indicators.
 - The Wellbeing Index (WI) combines the HWI and EWI on the Barometer of Sustainability, a graphic scale that shows how far each country is from the goal of high levels of human and ecosystem wellbeing. An example can be seen the chart below.



“Scorecard” approach

DEFRA Indicators of Sustainable Development

46. DEFRA produce indicators of sustainable development at several levels:

- Headline indicators are 15 “key” indicators of sustainable development (see diagram below). They are a sub set of the National Indicators.
- National Indicators – around 150 indicators of environmental, social and economic trends;
- Regional indicators have been developed which break down the 15 headline indicators or their proxy by region;
- Local indicators – 29 indicators have been developed for local authorities to use.

47. The 15 headline indicators can be seen in the diagram below.

Assessment for indicator against objective				
		Change since 1970	Change since 1990	Change since Strategy ¹
H1	Economic output	✓	✓	✓
H2	Investment	⊘	⊘	✓
H3	Employment	⊘	⊘	✓
H4	Poverty	✗	⊘	✓
H5	Education	⊘	✓	✓
H6	Health	✓	⊘	⊘
H7	Housing	⊘	⊘	⊘
H8	Crime	✗	Violent	✗
			Vehicle, burglary	✓
H9	Climate change	✓	✓	✓
H10	Air quality	⊘	✓	✓
H11	Road traffic	✗	⊘	⊘
H12	River water quality	✓	✓	✓
H13	Wildlife	✗	Farmland birds	✗
			Woodland birds	✓
H14	Land use	⊘	⊘	✓
H15	Waste	⊘	✗	⊘

Criteria for the Evaluation of Societal Indicators

The International Society for Quality of Life Studies (ISQOLS) has established an international committee to evaluate existing Quality of Life Indexes, with the objective of developing an ISQOLS-sponsored index that builds on the best properties of the current indexes. The committee is chaired by Michael Hagerty of the University of California at Davis.

The committee has developed a list of seven criteria for the evaluation of QOL indexes that are currently being applied by committee members to existing indexes. The criteria are:

- 1) The QOL index have a clear practical purpose, i.e., a public policy purpose;
- 2) The QOL index be grounded in well-established theory;
- 3) The QOL index be reported as a single number, but should be able to be broken down into components, similar to the index of leading economic indicators;
- 4) The QOL index be based on time series to allow the periodic monitoring and control;
- 5) The composite QOL index should be reliable, valid, and sensitive as should be the components making up the composite index;
- 6) The measure should help public policy makers develop and assess programs at the individual level (e.g., physicians and counselors helping individuals in need), the family or household level (e.g., social workers helping families in need), community level (e.g., town governments developing policies and programs that can enhance community QOL), state (or province) level (e.g., state bodies developing policies and programs that can assist residents of the entire state or province), the country level (e.g., national agencies developing policies and programs that can assist citizens of that country), and the international level (e.g., international agencies developing policies and programs that can assist the world citizen and the planet at large).
- 7) The domains covered should have the following properties:
 - (a) In total, the domains must encompass the totality of life experience.
 - (b) Each domain must encompass a substantial but discrete portion of the QOL construct.
 - (c) Each domain must be able to be measured in both objective and subjective dimensions.
 - (d) Each domain within a generic QOL instrument must have relevance for all people.
 - (e) If a specific domain is proposed for a non-generic instrument (e.g., independent living skills) it must be demonstrated to contribute unique variance to the QOL construct beyond the generic domains for the target group.
 - (f) Domains must be potentially neutral, positive or negative in their contribution to the QOL construct. Thus all aspects of disease states and functional status cannot be domains since, in their most positive state where they are absent or maximized, respectively, their contribution to the QOL construct cannot be more than neutral.
 - (g) Domains differ from the dimensions of personality (e.g., extraversion, self-esteem), cognitive processes (e.g., cognitive dissonance) and affect (e.g., joy) in that they cannot be measured objectively.
 - (h) The subjective dimension of each domain has both a cognitive and an affective component. They are measured by questions concerning "satisfaction."¹³⁵

¹ A Simple Statistical Method For Measuring How Life Events Affect Happiness, Andrew Clark and Andrew Oswald, University of Warwick, 2002

² More details about the measurement of life satisfaction can be found in annex X.

³ A Duchenne smile occurs when both the zygomatic major and orbicularis oris facial muscles fire, and human beings identify these as 'genuine' smiles.

⁴ Ronald Inglehart, *Culture Shift in Advanced Industrial Society*, 1990. Of course, there may be some exceptions to this rule. For example, it has been argued that the relatively high level of reported happiness in Nigeria in the World Values survey reflects a linguistic problem.

⁵ For example, Helliwell finds that in a regression that includes a wide range of variables, a little over 25 percent of variance is explained. However, while this includes self-perceived health – a reasonable proxy for optimism – it does not include detailed variables on individual personality and so on. In contrast, GDP per capita alone explains around 50 percent of variance in national averages in life satisfaction. This difference arises largely because national averages iron out all the 'noise' of individual level variation.

⁶ Eurobarometer

⁷ World Values Survey, derived from data in Diener and Suh, and Human Development Report.

⁸ Eurobarometer data

⁹ Eurobarometer data

¹⁰ European Values Survey / World Values Survey. Data analysed by Sally Stares, LSE.

¹¹ Among the twins studied socio-economic status, educational attainment, family income, marital status or religious commitment could not explain more than about 3 per cent of the variance in well being. Dean H Hamer, The Heritability of Happiness, *Nature Genetics*, Vol 14 October 1996. Happiness is a Stochastic Phenomenon, David Lykken and Auke Tellegen, *Psychological Science*, vol 7 no 3 May 1996. Genes, Culture, Democracy and Happiness by Ronald Inglehart and Hans-Dieter Klingemann in (eds) E Diener and EM Suh, *Culture and Subjective Well Being*, 2000.

¹² R Freeman, presentation to LSE conference, September 2002.

¹³ E Diener and RJ Larson, Temporal stability and cross-situational consistency of positive and negative affect. *Journal of Personality and Social Psychology* 1984 47: pp 871-83

¹⁴ Extroversion refers to being outgoing and stimulation seeking, while neuroticism refers to being anxious and 'moody'. For more details see Michael Argyle, *The Psychology of Happiness*, 1987, chapter 6 and Ed Diener and Richard Lucas, *Personality and Subjective Well Being*.

¹⁵ Argyle M., 1987.

¹⁶ The notable exception to the rule is Russia, where women are less happy than men. Also, in South American countries men and women appear to be equally happy.

¹⁷ Inglehart R, 1990.

¹⁸ D Halpern, Social capital, chapter 3, forthcoming.

¹⁹ Note that this is from cross-sectional data, so may also reflect cohort and period effects. See Inglehart, 1990; also Ed Diener, E.M. Suh, R E Lucas, H L Smith, *Subjective Well Being: Three decades of progress*, *Psychological Bulletin* 1999, Vol 125 No 2 pp 276-302.

²⁰ Ronald Inglehart, *Culture Shift in Advanced Industrial Society*, 1990. p. 224.

²¹ Oswald et al *The Rising Well-Being of the Young*

²² *The Rising Well-Being of the Young*, David Blanchflower and Andrew Oswald, NBER conference paper, University of Warwick, 1999.

²³ *The Rising Well-Being of the Young*, David Blanchflower and Andrew Oswald, NBER conference paper, University of Warwick, 1999. p.10.

²⁴ There is a striking parallel to the gender difference in well-being: women's richer relationships lead both to higher satisfaction but also sometimes to vulnerability to being let down by close friends and partners, and sometimes to onerous obligations.

²⁵ (eg. Inglehart, 1990) Is it possible that happier people become richer – i.e. that happiness causes wealth rather than vice versa? Investigations of longitudinal data on the effects of windfalls (lottery wins and inheritances) show that the income does have a causal effect upon life satisfaction. See "Does Money Buy Happiness? A Longitudinal Study Using Data on Windfalls", Andrew Oswald and Jonathan Gardner, March, 2001, University of Warwick Mimeo.

²⁶ See for example, *The macroeconomics of happiness*, Rafael Di Tella, Robert J MacCulloch and Andrew J Oswald, University of Warwick, 2001., *A Simple Statistical Method For Measuring How Life Events Affect Happiness*, Andrew Clark and Andrew Oswald, University of Warwick, 2002, *How's Life? Combining Individual and National Variables to Explain Subjective Well-Being*, John F Helliwell, Department of Economics University of British Columbia.

²⁷ World Values Survey, 2000. Courtesy of Sally Stares, LSE.

²⁸ GHQ12 score (observed and age-standardised), by equivalised household income and sex (men and women aged 16 or over).

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- ²⁹ "Does Money Buy Happiness? A Longitudinal Study Using Data on Windfalls", Andrew Oswald and Jonathan Gardner, March, 2001, University of Warwick Mimeo.
- ³⁰ "Does Money Buy Happiness? A Longitudinal Study Using Data on Windfalls", Andrew Oswald and Jonathan Gardner, March, 2001, University of Warwick Mimeo. Abstract.
- ³¹ Richard A Easterlin Income and Happiness: Towards a Unified Theory, *The Economic Journal* 2001, 111 July, p. 468.
- ³² Causes and correlates of happiness, Michael Argyle, in (eds) Kahnemann, Diener and Schwarz, *Well Being: The Foundations of Hedonic Psychology*, 1999.
- ³³ Eurobarometer, Not shown in graph.
- ³⁴ The macroeconomics of happiness, Rafael Di Tella, Robert J MacCulloch and Andrew J Oswald, University of Warwick, 2001.
- ³⁵ Inequality and Unhappiness: Are Europeans and Americans Different?, Alberto Alesina, Rafael Di Tella, Robert MacCulloch, NBER Working paper 8198, 2001.
- ³⁶ Satisfaction and Comparison Income, Andrew Clark and Andrew Oswald, 1995
- ³⁷ Solnick and Hemengway 1998 Cited in *Rethinking public economics: the implications of rivalry and habit*, Richard Layard, 2002 mimeo London School of Economics.
- ³⁸ Lottery winners and Accident Winner: Is Happiness relative?, Philip Brickman, Dan Coates, Ronnie Janoff-Bulman, *Journal of Personality and Social Psychology*, 1978, Vol. 36, no 8 pp. 917-927. This result has been queried by other researchers.
- ³⁹ Cited in *Rethinking public economics: the implications of rivalry and habit*, Richard Layard, 2002 mimeo London School of Economics.
- ⁴⁰ R W Emerson, *Wealth in The Conduct of Life*, Boston 1860.
- ⁴¹ Richard A Easterlin Income and Happiness: Towards a Unified Theory, *The Economic Journal*, July 2001, 111. It is, of course possible that the causality might be different – that people with higher material aspirations are more likely to become richer.
- ⁴² E Diener and S Oishi, Money and Happiness: Income and Subjective Well Being Across Nations, in (eds) E Diener and EM Suh, *Culture and Subjective Well Being*, 2000.
- ⁴³ Tait, Padgett and Baldwin, 1989, cited in "Well-Being and the workplace," pp. 392-412 in Daniel Kahnman, Ed Diener, and Norbert Schwarz, eds., *Well-Being: The Foundations of Hedonic Psychology*. New York: Russell Sage Foundation.
- ⁴⁴ Judge and Watanabe, Another look at the job-satisfaction – life satisfaction relationship, *Journal of Applied Psychology* 1993, cited in "Well-Being and the workplace," pp. 392-412 in Daniel Kahnman, Ed Diener, and Norbert Schwarz, eds., *Well-Being: The Foundations of Hedonic Psychology*. New York: Russell Sage Foundation.
- ⁴⁵ "Well-Being and the workplace," pp. 392-412 in Daniel Kahnman, Ed Diener, and Norbert Schwarz, eds., *Well-Being: The Foundations of Hedonic Psychology*. New York: Russell Sage Foundation.
- ⁴⁶ BHPS data. Andrew Clark, What really matters in a job? Hedonic measurement using quit data, *labour economics* 2001 no 8 pp223-42
- ⁴⁷ BHPS data derived from Jonathan Gardner and Andrew J Oswald in "What has been happening to the quality of worker's lives in Britain?", Warwick University mimeo 2001.
- ⁴⁸ Oswald and Gardener, What has been happening to the Quality of Worker's Lives in Britain?
- ⁴⁹ Causality. Is it possible that the causality is reversed and that unhappy people are more likely to become unemployed? There is some longitudinal evidence which looks at young people's GHQ scores before and after they left school. Those who found jobs exhibited a large decline in mental distress; those who did not find work showed greatly increased distress scores. MH Banks and PR Jackson Unemployment and risk of minor psychiatric disorder in young people: cross sectional and longitudinal evidence. *Psychological Medicine*, 1982, vol 12 pp 789-798 Cited in *Unhappiness and Unemployment*, Andrew Clark and Andrew Oswald, *The Economic Journal* 1994.
- ⁵⁰ Eurobarometer data
- ⁵¹ Unhappiness and Unemployment, Andrew Clark and Andrew Oswald, *The Economic Journal* May 1994, 104, p.657
- ⁵² A E Clark, The positive externalities of higher unemployment: Evidence from Household data , Working paper Universite d'Orleans, 1998. Cited in "Subjective Well Being: Three decades of progress" Ed Diener, E.M. Suh, R E Lucas, H L Smith, *Psychological Bulletin* 1999, Vol 125 No 2 pp 276-302.
- ⁵³ A Simple Statistical Method For Measuring How Life Events Affect Happiness, Andrew Clark and Andrew Oswald, University of Warwick, 2002.
- ⁵⁴ Derived from *Unhappiness and Unemployment*, Andrew Clark and Andrew Oswald, *The Economic Journal* May 1994, 104. In this research the maximum (most mental distress) score is 12, the median score is 1: over half of the 6000 respondents score zero, 1000 score 1 and 500 score 2.

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- ⁵⁵ The macroeconomics of happiness, Rafael Di Tella, Robert J MacCulloch and Andrew J Oswald, University of Warwick, 2001, p.12. Other research by Andrew Oswald found that the indicative rise in income required to compensate for psychic cost of unemployment required was, at the mean, approximately \$60,000 per annum David Blanchflower and Andrew Oswald. Well-being Over Time in Britain and the USA, NBER Working paper 7487, 2000.
- ⁵⁶ A Simple Statistical Method For Measuring How Life Events Affect Happiness, Andrew Clark and Andrew Oswald, University of Warwick, 2002.
- ⁵⁷ The macroeconomics of happiness, Rafael Di Tella, Robert J MacCulloch and Andrew J Oswald, University of Warwick, 2001, p.19.
- ⁵⁸ The macroeconomics of happiness, Rafael Di Tella, Robert J MacCulloch and Andrew J Oswald, University of Warwick, 2001.
- ⁵⁹ Measured across US states and European countries. Inequality and Unhappiness: Are Europeans and Americans Different?, Alberto Alesina, Rafael Di Tella, Robert MacCulloch, NBER Working paper 8198, 2001.
- ⁶⁰ Inequality and Unhappiness: Are Europeans and Americans Different?, Alberto Alesina, Rafael Di Tella, Robert MacCulloch, NBER Working paper 8198, 2001.
- ⁶¹ A Simple Statistical Method For Measuring How Life Events Affect Happiness, Andrew Clark and Andrew Oswald, University of Warwick, 2002
- ⁶² How's Life? Combining Individual and National Variables to Explain Subjective Well-Being, John F Helliwell, Department of Economics University of British Columbia.
- ⁶³ A Simple Statistical Method For Measuring How Life Events Affect Happiness, Andrew Clark and Andrew Oswald, University of Warwick, 2002.
- ⁶⁴ Lottery winners and Accident Winner: Is Happiness relative?, Philip Brickman, Dan Coates, Ronnie Janoff-Bulman, Journal of Personality and Social Psychology, 1978, Vol. 36, no 8 pp. 917-927.
- ⁶⁵ IS Breetvelt and FSAM van Dam, Under-reporting by cancer patients: The case of response shift, Social science and medicine, 32, 981-987.
- ⁶⁶ Reported in "Subjective Well Being: Three decades of progress" Ed Diener, E.M. Suh, R E Lucas, H L Smith, Psychological Bulletin 1999, Vol 125 No 2 pp 276-302.
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- ⁸³ A Simple Statistical Method For Measuring How Life Events Affect Happiness, Andrew Clark and Andrew Oswald, University of Warwick, 2002. Elsewhere it has been estimated that "a lasting marriage is

worth \$100,000 per annum when compared to being widowed or separated.” David Blanchflower and Andrew Oswald. Well-being Over Time in Britain and the USA, NBER Working paper 7487, 2000.

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Freedom house, Freedom in the World. “Vertical Axis is the sum of the Freedom House ratings for Civil Liberties and Political Rights, from 1981 through 1998. Since these ratings give high scores for low levels of democracy, we reversed polarity by subtracting these sums from 236 (China which had the maximum score of 235, has a score of one after this transformation). Horizontal axis reflects each public’s mean factor score on happiness and overall life satisfaction and subjective well-being. $R=0.78$ and $p=0.0000$.”

⁸⁹ These include security of money (e.g. low inflation) low levels of government intervention (no price controls, little government consumption) freedom to keep what one earns (low marginal tax rates, low transfers and subsidies) and freedom of exchange (low trade taxes, little restraint on capital mobility).

⁹⁰ Freedom and Happiness: A comparative Study in Forty Four Nations in the Early 1990s, by Ruut Veenhoven, in (eds) E Diener and EM Suh, Culture and Subjective Well Being, 2000.

⁹¹ How’s Life? Combining Individual and National Variables to Explain Subjective Well-Being, John F Helliwell, Department of Economics University of British Columbia. p.20.

⁹² Rothstein, B, forthcoming.

⁹³ Happiness, Economy and Institutions, Bruno Frey and Alois Stutzer, the Economic Journal, October 2000 (110), pp 918-938. This paper also investigates the effect of decentralisation. Municipalities also differ in the degree of their autonomy from canton, this autonomy has also been measured in an index of municipal autonomy (1-10). Here a one point increase in this index increases the proportion of people indicating a very high level of life satisfaction increases by 3.3%. However, direct democracy and decentralisation seem to be related and statistical tests reveal that there is no independent, statistically significant relationship between life satisfaction and decentralisation.

⁹⁴ With a range of 1-6 where 1 is low and 6 is high.

⁹⁵ See for example Mirowsky J and Ross CE *Social causes of psychological distress*, 1989.

⁹⁶ See Marmot M et al, Whitehall studies.

⁹⁷ This argument is closely associated with the psychologist Abraham Maslow; see also Inglehart R, *Culture Shift*, 1990.

⁹⁸ Nick Marks, New Economics Foundation, pers comm at SU seminar.

⁹⁹ M Seligman, *Authentic Happiness*, 2003 (in UK)

¹⁰⁰ E Palmore, Predicting Longevity: A Follow Up Controlling For Age, *Journal of Gerontology* 1969; 39; 109-116. SM Saleas, J House, Job Dissatisfaction as a possible risk factor in coronary Heart Disease, *Journal of Chronic Diseases* 1971; 23; 861-873. RB Freeman, Job Dissatisfaction as an Economic Variable, *American Economic Review* 1978; 68; 135-141. Akerlof GA, Rose AK, Yellen JL. Job Switching and Job Satisfaction in the U.S. Labor Market. *Brookings Papers on Economic Activity* 1988; 2: 495-582. Clark AE. What Really Matters in a Job? Hedonic Measurement Using Quit Data. *Labour Economics* 2001; 8: 223-242.

¹⁰¹ See for example Halpern, 1995, p22. Resident’s who were unhappy or depressed rated the same level of objective level of traffic flow outside their houses as higher than those who were happier!

¹⁰² See data from MORI.

¹⁰³ M Seligman, *Authentic Happiness*, 2003 (in UK), chapter 3.

¹⁰⁴ Campbell, Converse and Rodgers 1976

¹⁰⁵ For example, the widely used ‘misery index’ gives equal weight to inflation and unemployment, while the life satisfaction evidence suggests that more weight should be given to unemployment.

¹⁰⁶ See also Aldridge and Halpern, *Social Capital*, 2002; and specific papers by JF Helliwell; La Porta et al; and B Rothstein.

¹⁰⁷ See Aldridge and Halpern for a more considered view on possible policy levers to boost social capital.

¹⁰⁸ Unemployment as a Social Norm: psychological evidence from panel data, Andrew Clark, CNRS, 2001, p20.

¹⁰⁹ See for example arguments made by R Layard, and also by Ng.

¹¹⁰ F Hirsch was an early exponent of this position. More recently a similar argument has been made by Frank and by Layard (forthcoming).

¹¹¹ See Frank, *Luxury Fever*, and also see similar argument made by Ng.

¹¹² R Inglehart, *Culture Shift*, 1990.

¹¹³ This is a point also made by Perri 6.

¹¹⁴ F Hirsch, *Social Limits to Growth*, 1977.

¹¹⁵ This wording is from the World Values survey, first conducted in 1981.

¹¹⁶ This question was used in the Euro-barometer in 1973 and repeated periodically since.

¹¹⁷ Developed by Goldberg (1972). Originally consisted of 60 questions about mild somatic and psychological symptoms, later offered as short 30- and 12-item questionnaires.

¹¹⁸ Meltzer et al, 1994.

¹¹⁹ Sustainable Economic Welfare in the UK, 1950-1996, T Jackson, N Marks, J Ralls and S Stymne, New Economics Foundation, 1998

¹²⁰ Termed Fisherian income in *New Directions in National Economic Accounting*, William Nordhaus, 2000

¹²¹ *New Directions in National Economic Accounting*, William Nordhaus, 2000

¹²² UK Environmental Accounts, ONS 2001

¹²³ Further details and explanatory text can be found at <http://www.statistics.gov.uk/hhsa/hhsa/index.html>

¹²⁴ Sustainable Economic Welfare in the UK, 1950-1996, T Jackson, N Marks, J Ralls and S Stymne, New Economics Foundation, 1998

¹²⁵ See for example, *New Directions in National Economic Accounting*, William Nordhaus, 2000

¹²⁶ *The Health of Nations: The Contribution of Improved Health to Living standards*, William Nordhaus, 2002, Yale University Mimeo.

¹²⁷ *New Directions in National Economic Accounting*, William Nordhaus, 2000

¹²⁸ Adapted from tables 7 and 8 N Crafts, *Britain's Relative Economic Performance 1870-1999*, IEA research monograph 55, 2002

¹²⁹ See for example, Mark Anielski and Jonathan Rowe, *The Genuine Progress Indicator 1998 Update*, 1999, *Redefining Progress*, p. 5.

¹³⁰ *Inequality and Happiness: Are Europeans and Americans Different?* Alberto Alesina, Rafael Di Tella, Robert MacCulloch, NBER WP 8198

¹³¹ Sustainable Economic Welfare in the UK, 1950-1996, T Jackson, N Marks, J Ralls and S Stymne, New Economics Foundation, 1998. ISEW has been calculated for a range of other countries including Austria, Chile, Germany, Italy, Netherlands, Sweden

¹³² See http://www.foe.co.uk/campaigns/sustainable_development/progress/international.html

¹³³ http://www11.hrdc-drhc.gc.ca/edd-doc/ftp/osberg_metric_of_evaluation.shtml

¹³⁴ More detail can be found in Satya Brink and Allen Zeesman, *Measuring Social Well Being: An Index of Social Health for Canada*, 1997.

¹³⁵ *A Survey of Indicators of Economic and Social Well-being*, Andrew Sharpe, Centre for the Study of Living Standards, 1999