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HAPPY LIFE-EXPECTANCY

*A comprehensive measure of quality-of-life in nations*¹

(Accepted 25 October, 1996)

ABSTRACT. One of the aims of social indicator research is to develop a comprehensive measure of quality-of-life in nations that is analogous to GNP in economic indicator research. For that purpose, several multi dimensional indexes have been proposed. In addition to economic performance, these also acknowledge the nation's success in matters like schooling and social equality. The most current indicator of this type is the 'Human Development Index'. In this approach QOL is measured by input; the degree to which society provides conditions deemed beneficial ('presumed' QOL). The basic problem is that one never knows to what extent the cherished provisions are really good for people.

An alternative is measuring QOL in nations by output, and consider how well people actually flourish in the country. This 'apparent' QOL can be measured by the degree to which citizens live long and happily. This conception is operationalized by combining registration based estimates of length-of-life, with survey data on subjective appreciation-of-life. Life-expectancy in years is multiplied by average happiness on a 0-1 scale. The product is named 'Happy Life-Expectancy' (HLE), and can be interpreted as the number of years the average citizen in a country lives happily at a certain time.

HLE was assessed in 48 nations in the early 1990's. It appears to be highest in North-West European nations (about 60) and lowest in Africa (below 35).

HLE scores are systematically higher in nations that are most affluent, free, educated, and tolerant. Together, these country-characteristics explain 70% of the statistical variance in HLE. Yet HLE is not significantly related to unemployment, state welfare and income equality, nor to religiousness and trust in institutions. HLE does not differ either with military dominance and population pressure.

The conclusion is that HLE qualifies as the envisioned comprehensive social indicator. It has both clear substantive meaning (happy life-years) and theoretical significance (ultimate output measure). HLE differentiates well. Its correlations fit most assumptions about required input, but also challenge some. The indicator is likely to have political appeal.

1. INTRODUCTION

In the first half of this century, quality-of-life in nations was largely measured by the material level of living. The higher that level in a

Criteria for QOL in nations	Examples of QOL indexes			
	Index of Social Progress (ISP) (Estes 1964)	Index of well-being (Kacapyr 1996)	Quality-of-life index (Narrot 1984)	Human Development Index (HDI) (UNDP 1995)
Economic affluence	x	x		x
State welfare	x		x	
Education	x		x	x
Public health	x		x	x
Social equality	x			(x) ³
Peacefulness	x	x	x	
Physical habitability	x	x		
Social stability	x		x	
Cultural diversity	x		x	
Lifestyle		x		

Exhibit 1. Some current measures of quality-of-life in nations.

country, the better the life of its citizens was presumed to be. As such, quality-of-life was measured by GNP related measures, currently by 'real' GDP per head.

This materialistic conception of QOL was never unquestioned, but criticism long remained marginal. Yet in the 1960's, the opinion climate changed. Saturation levels were reached and the ecological limits of economic growth came in view. This gave rise to a call for broader indicators of quality-of-life, which materialized in the so called 'Social Indicator' movement. The name of 'social' indicators signifies that the mere economic performance does not suffice.

From its beginning, one of the aims of Social Indicators Research was to develop a social equivalent to the economist's GNP. Several measures have been proposed since.

1.1 Current measures of Quality-of-Life in nations

Though social indicators research arose from discontent with economic indicators, most alternative measures do involve material 'level of living'. They add further criteria. The new social indicators of quality-of-life differ in the criteria which they add and how many. Exhibit 1 provides an illustrative overview. Similar indicators of this kind have been proposed by Drenowski (1974), Liu (1977), Mootz (1990) and Slottje (1991), to mention a few.

As yet, none of these indicators reached acceptance comparable to GNP, neither in the realm of politics, nor in the scientific world.

The Human Development Index is still the most accepted one in this class, but it is also the least different.

1.2 Problems with these measures

The reason for this lack of success is not only found in the continued dominance of materialist views, but also in several weaknesses of this generation of indicators.

Arbitrary selection

The most evident weakness is the selection of aspects of QOL. There is difference in number of aspects and in content of aspects involved.

As we can see in exhibit 1, the Human Development Index suffices with 3 aspects, whereas the Index of Social Progress involves 11. Estes tried to include as much information as available in national statistics. Yet is more better? Should we include all things ever associated with QOL? Obviously inclusiveness goes at the cost of substantive meaning.

Yet selection requires choice, and choice for one aspect or another is difficult to argument. The example of divorce may illustrate the problem. Divorce-rate is part of the indexes of Naroll and Estes, but does not figure in the other indexes. Should it be included? Divorce is clearly no fun and has several negative consequences for affected children and society. Yet dissolution of unsuccessful marriages has advantages as well, particularly in highly individualized societies.

Arbitrary weights

Next to the question whether divorce rate should be counted positive or negative, there is the question whether it is more or less important than other items in the index. For instance: is divorce-rate more important than murder-rate, or less important than GNP?

Still another problem is that relative importance is mostly not the same everywhere. As suggested, the effects of divorce may be more positive in highly individualized societies. That means that its weight should in fact be variable.

Current indexes do not acknowledge such complications. They simply count items either positive or negative, and give items the same weight, irrespective of the situation of the nation. In the Human Development Index for instance, schooling counts equally strong as GNP.

Limited universal relevance of items

This brings us a more fundamental problem: Most items do not have the same significance across culture and time.

Some of the items in current QOL-indexes seem to be valued everywhere. For instance 'economic prosperity' and 'high life-expectancy', though even on these matters there is difference in degree of adherence. However, on many further points disagreement prevails. For example on women's rights. Several countries see that as a sign of decay (like divorce) rather than as quality-of-life.

One can discount that problem by saying that value-free measurement of QOL is not possible, and admit that one measures the quality of the world's countries by current Western values. Yet, the political use of the indicator is clearly limited by such disagreements.

Still another problem is that most of the items tend to loose significance over time. This is for instance the case with 'education', which seems subject to the law of diminishing utility. Schooling for everybody is clearly better than mass-illiteracy, but should we call the quality-of-life in a society better if 50% of its citizens receives university education rather than 15%? Possibly over-education can even reduce the quality-of-life. Likewise, gains in economic affluence become less relevant when society becomes more affluent.⁴ In fact, items appear on the QOL-list if they are problematic at some point in history, and should therefore be omitted if no longer pressing.

One can dispose of the problem by saying that present day indicators suit present day problems. Still it is preferable to have an indicator that allows comparison over time. How else can we judge whether QOL improves or not?

No clear meaning of sum-scores

GDP per head has a clear substantive meaning. It indicates the amount of goods and services the average citizen can purchase. The indicator may labor some technical imperfections, but it is at least clear as to what it is about.

That is not the case with current 'social' indexes of QOL. The sum-scores reflect the degree to which different notions about the good society are met, but not which notions precisely. They reflect mixed *qualities* rather than one *quality*. In other words: these measures provide a 'quality profile', but not 'inclusive value'.

Some of the indexes are in fact more specific and equate quality-of-life more or less with 'modernity'. They measure in fact the degree to which characteristics of dominant Western society are present in a nation. This may be apt when the aim is to monitor how the nation is doing in catching up. Yet it is misleading to call that 'quality-of-life'. Modernization should not be equated with the good life. One of the very reasons for QOL-measurement is checking whether 'social progress' leads us to a better life.

Mixing up means and ends

The most fundamental problem with this generation of QOL-indicators is that they involve criteria of a different order. They do not distinguish between means and ends, nor between societal input and societal output. This can be illustrated with the two items that are part of most indexes: 'economic affluence' and 'life-expectancy'.

Economic affluence can hardly be seen as an end in itself. Command over goods and services may be instrumental in creating a good life, but does not constitute the good life itself. On the other hand, life-expectancy is typically an endvalue. We want to live long because we value life in itself.

In the same vein, supply with goods and services can be seen as a societal 'input', and life-expectancy as 'output'. In the following paragraphs I will argue that quality-of-life in a nation can be better measured by output than by input.

Shoveling means and ends on one heap is not only theoretically unsatisfactory, but also reduces the political relevance of these measures. Policy-makers must know two things: to what extent instrumental policy-aims are realized, and whether success in that contributes to higher goals. Sum-scores that mix up these matters do not inform about either. The label of 'quality-of-life' bears the suggestion that some final end is indicated. Yet in practice the items in the indexes are issues on the political agenda. As such these measures say more about advancement in the course taken than about the merits of that heading.

2. CONCEPTIONS OF QUALITY-OF-LIFE IN NATIONS

The core of the problem with these measures lies at the conceptual level. If we are not clear about what we mean with QOL, we will

never have sensible measures of it. Let us therefore consider the various notions involved.

A first thing then is to distinguish between quality *of* nations and quality-of-life *in* nations. In other words: between conceptions of the 'good society' and conceptions of the 'good life'. These notions are related, and even overlap to some extent. Yet they are not the same.

2.1 Quality *of* nations

Current standards for the quality *of* nations can be summarized in four clusters: 1) stability-criteria, 2) productivity-criteria, 3) ideal-criteria and 4) criteria of habitability. The latter is also referred to as 'quality-of-life *in* nations'.

System-stability

Standards of the good society concern first of all the presence of a stable social fabric. Without society there can be no good society. Applied to nations, this criterion requires that there is order and continuity in the country. In this respect, the quality of many new African nations is currently judged poor.

It is clear that every nation at least needs some stability. Once past a minimum level, preference for more stability or less is a matter of taste. In present day Western societies, conservatives complain about the fast pace of change, while modernists see too much continuity.

The criterion of stability has many aspects (e.g. predictability, constancy) and can be applied on various subsystems (e.g. political system, kinship system). Hence a nation may be stable in some respects, but not in others. This is one of the reasons why there are no comprehensive measures of social stability in nations.

Productivity

Nations are also judged by their yields. In the current discourse the emphasis is on economic productivity. The greater the quantity, quality and variety of the goods and services it generates, the better the country. In this respect East Asian countries are seen to do well, while Western nations are seen to lose their edge. Economic productivity of nations is typically measured by GNP.

Though mostly used for market products, the criterion can also be applied to non-market services, such as family support for the aged

on the basis of normative reciprocity. Non-monetary productivity is not reflected by calculations of GNP, and only partly by estimates of 'real' GDP.

In a longer view, the productivity criterion is also applied to inventions, not only technical and scientific discoveries, but also innovations in arts and in social organization. In this respect we think more of early Greek civilization than of the Viking's productivity. This latter kind of productivity is not well reflected in GNP either.

Ideal-expression

Another class of criteria concerns the degree to which a nation realizes certain values. Early writings on the Good Society emphasized individual lifestyle values, such as 'bravery', 'modesty' and religious 'devotion'. The quality of a society was deemed higher, the more it emphasized such values, and the more its members actually lived accordingly. This view is still dominant in present day 'fundamentalist' thinking. Modern notions focus more on social organization. Nations are currently judged by the degree to which they allow 'political freedom', respect 'civil rights' and realize 'social equality'.

In this genre, there are as many criteria as there are ideologies. Though innumerable in principle, the actual variation in values endorsed is limited. Present day world-society witnesses a growing ideological consensus around Humanist values (Naroll, 1984: ch 2). In fact, there is a strong movement to canonize such values as 'Universal Human Rights'. Some of these notions of quality have been made measurable. In the following paragraphs we meet with indicators of nation-performance with respect to freedom, justice and equality.

Livability

The last category of criteria concerns the nation's quality as a habitat. 'Livability' or 'habitability' of a country is also referred to as 'quality-of-life in the nation'.⁵

Concept. 'Livability' of a nation can be defined as *the degree to which its provisions and requirements fit with the needs and capacities of its citizens*. A nation is not well livable if, for instance, it fails to meet minimal needs for food, safety and contacts. It is also unlivable

if its structure is too complex to handle for most citizens, or if its morals require the impossible.

Human needs and capacities are to a great extent given by nature. Socialization typically modifies and cultivates parts of our innate possibilities. There are thus limits to human adaptability, which societies cannot ignore. Where bio-physiological needs are concerned this is rather evident. Any society must provide 'food' and 'shelter'. The existence of bio-psychological needs is less obvious, but no less true. Societies must also provide a sense of 'security', 'identity' and 'meaning'.

To some extent societies can mould their members to their provisions. A society that provides little security can socialize to psychological hardiness, and therefore be still reasonably livable for its members. Such compensation through socialization is not an automatism however; unsafe societies tend to breed vulnerable people.

Social evolution does not guarantee that all societies are highly livable. Extremely unlivable societies probably tend to extinction; either because their members die out, or because they desert. However, societies that provide only poor livability do not always have fewer survival chances. Low livability can instigate wars of conquest, or mobilize economic effort. Badly livable societies can therefore become dominant. Critics of modernity claim that is typically the case with present day nation states. Yet there are also anthropological reports of 'primitive' societies that are badly livable (Edgerton, 1992).

Difference with other quality concepts. The criterion of quality-of-life *in* the nation (livability) overlaps to some extent with the earlier mentioned criteria of quality *of* the nation. Good life for its citizens requires at least some order and continuity in the nation, a minimum of productivity and some congruence between ideal and reality. For that reason, the two quality concepts are often equated.

Yet, a nation can fail to provide a good life to its citizens in spite of high performance on the other quality criteria. In some nations, social stability is enforced by brute repression. Such nations are typically not very livable. This was the case with former East-European nations. Likewise, highly productive societies can wear

their members out. Several social critics see that happen in Japan and the USA (f.e. Schor, 1991). Lastly, the demands implied in some ideals seem to exceed human possibilities. This is illustrated in the failure of 19th century utopian 'communes'. It appeared hard to live with the ideals one lived up to. In the present century the Russian and Chinese revolutions even more spectacularly demonstrated that ideology can be unlivable.

2.2 Quality-of-life *in* nations

Quality-of-life *in* nations was specified as livability of nations. Livability of a nation was defined as the *fit* of its provisions and requirements to needs and capacities of its citizens. That match cannot be observed as such: the degree to which it exists must be derived from observations of other things.

There are two ways to estimate quality-of-life in a nation. One way is to assess the presence of preconditions deemed likely to produce a fit. This involves assumptions about fit-likeness of living conditions. The focus in this approach is on societal *input*.

The other way is to observe how people actually flourish in the nation, and attribute good functioning to good fit. The focus is than on societal *output*.

An analogy may illustrate the matter: the case of 'fertility' of the soil. If we want to know whether some piece of land is well suited for growing grain ('livable for grain'), we can estimate the input that soil provides or consider the output it has yielded earlier.

In the input approach, we consider the structure of the soil, its percentage of moisture, the minerals it contains, etc. Because we know fairly well what grain needs and to what conditions it can adapt, we can then estimate the fit reasonably well, that is: predict how well grain will grow on that soil.

In the output approach we consider the harvest; either by retrieving information on earlier crops or by trying. We then look at the quantity and quality of the grain harvested.

Through the ages, fertility of land has been established by finding through experience (output). Only fairly recently did we gather sufficient knowledge on a limited number of plants to specify their necessary living conditions in advance (input).

The living conditions of grain can now be specified reasonably well. Needs and capacities of that species are rather clear cut and have been discovered by controlled experimentation. The necessary living conditions for humans can less easily be specified however. Not only is the human organism more complicated and many-sided than grain is, but also are humans much more adaptable. In fact, a major biological specialization of the human species is its unspecialism, combined with a capacity for learning. Therefore, the possible variation in livable societies for humans is greater than the possible variation in fruitful soils for grain. Controlled experimentation is hardly possible with humans and human societies. Hence it is also more difficult to discover basic human needs and capacities.

Let us keep these problems in mind and now consider current estimates of quality-of-life in nations.

Input approach: 'presumed' quality-of-life

As we have seen in the introductory paragraph, most measures of quality-of-life in nations assess presence of conditions such as material affluence, schooling, political freedom and social equality. The common assumption is that more of such conditions fits human nature better than less. There are at least two problems with this approach:

The first problem is that the assumed fit is highly questionable in most cases. Consider the example of economic affluence: Does a rich society provide a better fit with individual needs and capacities than a not so rich society? Though people typically 'want' to improve their material standard of living, it is doubtful that they really 'need' to. It is also uncertain whether a rich society challenges human capacities more optimally than one not so rich. In fact, the human species has developed in material conditions that would be judged as poor by present day standards.

The second problem in this approach is the assumption that more of such conditions always denote better quality-of-life. Let us consider the case of social stability. A minimum level of stability is certainly required, too much change frustrates needs for safety and overcharges adaptive capacities. However, a society without any change is not likely to fit either: it will frustrate the need for novelty and leave adaptive capacities under-utilized.

An evident way to avoid these problems is to depart from a well established theory about human needs and capacities and to specify the social conditions that are required to fit with these. This is called the *basic need approach*. Though better in principle, it has brought us little further.

A first problem on this track is that there is no well established theory about human needs and capacities. There is much speculation on this matter, some of which is rather plausible, but little empirical proof. Methodologically, it is extremely difficult to demonstrate what people 'really' need and can.

The currently most cited theory is Maslow's (1964) need hierarchy. According to this theory the most pressing need in human life is to overcome some basic deficiencies: first organic deficiencies such as hunger, and next socio-psychological needs like safety, belonging and esteem. Beyond these 'deficiency needs', 'growth needs' would prevail. That means that people need meaningful challenges that fit their capacities and involve ongoing development.

At the level of deficiency needs, this theory allows some specification of necessary living conditions. The gratification of organic needs requires that there is a production system that provides 'food' and 'shelter'. Required minimum levels can be fairly well specified in this case. Things become more difficult where the socio-psychological needs are concerned. There is much variation in the way societies provide 'safety', 'belongingness' and 'esteem', and it is difficult to define minima or compare performance. What is for instance the minimum required degree of belongingness? Are these needs better gratified in the traditional stem family than in the modern nuclear family? Things become even more complicated where 'growth needs' are concerned, which concern the use and development of capacities. These needs are too varied to allow the specification of satisfiers. At best one can say that gratification of such needs requires a considerable degree of 'freedom' and 'variety' in society (Veenhoven, 1996b). Again it is hardly possible to indicate minimum and maximum levels.

In fact, current input indicators have little scientific ground. The assumptions about the good life rather root in bad experience and in ideology. Present QOL indicators typically reflect Western remem-

brance of poverty and inequality. Positively they reflect Western Enlightened creed.

Output approach: 'apparent' quality-of-life

By lack of a theory from which we can deduct necessary living conditions, we must therefore resort to the other approach and assess inductively what societal conditions appear to be livable. The question is than how livability manifests itself.

The flourishing of plants or animals in a given ecological environment is usually measured by their functioning as apparent in growth, adequacy of behavior and absence of disease. Successful procreation is also seen as a sign of good functioning.

Can the flourishing of humans in a social environment be measured by the same criteria? To some extent yes. Human thriving also manifests physically, particularly in good health and a long life. Therefore, we can induce the quality-of-life in a nation from the *health* of its citizens.

The flourishing of humans involves more than biological functioning alone. Unlike plants and animals, humans can reflect on themselves and their situation. Their suit to society is therefore also reflected in their judgments. As such we can also infer quality-of-life in a nation from the citizen's *appraisals* of life.

The two approaches to the measurement of quality-of-life in nations are summarized in exhibit 2. In the next paragraphs we shall consider the manifestations of apparent quality-of-life in more detail. First we shall review current measures of 'health' and 'appraisal', and then propose a new measure that combines both.

3. CURRENT INDICATORS OF APPARENT QUALITY-OF-LIFE IN NATIONS

Inferring quality-of-life from 'health' and 'appraisal of life' is less easy than it seems. What do these terms mean precisely? Can these matters be measured, in principle and in practice? In this paragraph I will review current indicators and their usefulness for this purpose. The review is summarized in exhibit 3. It will appear that only a few indicators qualify.

QUALITY-OF LIFE IN NATION (or <i>livability of nation</i>)		
<i>unobserved concept</i>	fit between provisions and requirements of society and needs and capacities of citizens	
	INPUT-indicators:	OUTPUT-indicators
	Presence of conditions deemed likely to fit with citizens' needs and capa- cities, such as:	Flourishing of citizens as apparent in average:
<i>observable manifestations</i>	<ul style="list-style-type: none"> • economic affluence f.e. GNP • political freedom f.e. legal rights • social equality f.e. income equality • access to knowledge f.e. literacy rate • etc..... 	<ul style="list-style-type: none"> • good health - physical - mental • positive appraisal of life
<i>comprehensive indicators</i>	various sum-scores: f.e. HDI f.e. ISP	Happy Life-Expectancy

Exhibit 2. Indicators of livability: summary scheme.

3.1 Measures of 'health' in nations

As in the case of plants and animals, the flourishing of humans can be judged by their bio-physiological functioning; in other words by their 'health'. We cannot say that somebody lives well if s/he is weak, impaired or ill and certainly not if s/he is dead. The concept of health covers biological functioning at large. Specific health concepts concern specific aspects of human functioning.

Measures of physical health

The analogy with flourishing of plants applies best where mere bio-physiological functioning is concerned, also called 'physical health'. Physical health of organisms can be defined in two ways: firstly by absence of disease or impairment, secondly by signs of good functioning, such as energy or resilience. The former aspect of bio-physiological functioning is referred to as 'negative health', the latter as 'positive health'. The less negative and the more positive the physical health of citizens, the more livable the country apparently is.

Negative health can be measured by the incidence and severity of impairments and disease. That sounds again easier than it is. Medical statistics say more about medical consumption than about illness. The available figures on illness are typically limited to 'incidence' and do not inform us about 'severity'. Moreover, medical statistics typically concern 'specific' health defects and mostly allow no view on the 'overall' health situation in a country. Some attempts have been made to characterize overall health in nations, but unfortunately these are as yet not sufficiently standardized to allow international comparison.

Positive health can be measured by performance tests and by subjective reports about feelings of health. The latter indicators typically concern overall health. In several Western nations periodical health surveys monitor health feelings. Though the items used are quite diverse, some do allow international comparison in a sizable number of nations. At this moment the best source is the subjective health item in the World Value Survey (WVS2).

Life-expectancy. The citizen's health can also be measured by their longevity. The number of years people live is assessed on the basis of civil registration. This is no problem for the generations that have passed away. For the living we must do with estimates. Life-expectancy is estimated on the basis of observed death rates in age groups. Average length of life in a country is commonly expressed in life-expectancy at birth.

The quality of data on life-expectancy is quite good. Most present day nations have fairly reliable mortality statistics. These statistics

show considerable differences between present day nation states. Life-expectancy is currently lowest in Upper Volta (about 30) and highest in Japan (79.5). Because mortality statistics cover considerable time periods, they also show progress and decline: for instance a drop in life-expectancy in the former second world (communist) countries in the 1970's, and a rise in first world nations (UN, 1995).

Healthy life-expectancy. Long living is not necessarily healthy living. Life-expectancy may be high in a nation, but average health low. Extra years may be bought at the cost of a lot of illness. Therefore, health in nations is measured by the average number of years people live free from chronic illness (Robine & Ritchie, 1991).

Healthy life-expectancy has been measured in different ways. As yet, there is little comparable nation data on this matter.

Measures of mental health

Instead of focusing on 'bio-physiological' functioning, one can also consider the adequacy of 'socio-psychological' functioning. This is what commonly is referred to as 'mental health'. When used in the context of livability, the reasoning is that the better a society fits with human needs and possibilities, the less it drives its members mad.

There is nothing wrong with this idea, but there are great problems in its operationalization. It is not easy to establish who is mentally 'ill' or not. Cross national comparison is hampered by differences in manifestations of psychological disturbance, as well as in definition and registration. This limits the use of this indicator to countries which are culturally similar.

Comparable national data on this matter is scarce, and limited in fact to the Western world. The data that is available concern 'negative' mental health: that is incidence of psychological disturbances. As in the case of physical health, most figures are on curation rather than on disturbance as such. Again morbidity statistics do not reflect 'overall' mental health, but the incidence of specific syndromes such as depression, anxiety and stress. A good review of data and its limitations can be found in Murphy (1982).

As in the case of physical health, the best indicators of overall mental health in a given country come from survey studies. Most health surveys inquire about psychological complaints and compute

<i>manifestations of human thriving</i>	<i>substantive significance</i>	<i>comparability across nations</i>	<i>availability of data</i>
Health			
Physical health			
• medical consumption	--	+	+
• prevalence of disease	+	±	+
• subjective health	+	+	+
• life-expectancy	+	++	++
• healthy life-expectancy	++	±	±
Mental health			
• curative consumption	--	--	±
• prevalence of disturbances	+	±	--
Appraisal of life			
Behavioral manifestations of malaise			
• Despair			
• suicide	±	+	++
• escapism	±	--	±
• Protest and desert			
• protest behaviors	--	--	--
• migration	±	±	±
Avowed appraisals			
• Experiences of ill-being			
• alienation	±	±	--
• anxiety, depression, stress	+	±	±
• Overall well-being			
• mood level	++	+	+
• contentment	+	+	+
• overall happiness	+	+	+

++ = very good + = good ± = insufficient -- = bad

Exhibit 3. Indicators of apparent quality-of-life in nations.

sum scores on the basis of these. Unfortunately, there is as yet too little uniformity in the data for meaningful comparison between countries.

3.2 Measures of 'life appraisal' in nations

Next to mere 'functioning', the thriving of humans can also be inferred from their 'appraisals'. Humans can apprehend their situation. Like other higher animals (but unlike plants) they experience affects. These affective appraisals are highly indicative for the quality-of-life. The very biological function of these faculties is to

lead the organism to the best suited conditions.⁶ Positive affect is generally indicative of good adaptation. Contrary to other animals humans are also able to appraise their situation cognitively. Positive judgement of life is generally indicative of good adaptation as well.

The degree to which inhabitants of a nation appraise their life positively can be assessed in different ways: indirectly by inferring from their behaviors and directly by asking how they feel about their life. For long social scientists have preferred the former method. By now it is clear that only the latter is viable for this purpose.

Behavioral manifestations of malaise

Traditionally, the quality-of-life in a nation was measured by the incidence of behaviors deemed indicative of despair. The more such behaviors observed, the less livable the country was supposed to be.

This approach does not require that people are fully aware of their malaise. Behavioral reactions can be affect driven or subconscious. Therefore, similar indicators are used for estimating well-being in animals. Aggression and self infliction are often mentioned as indicative of despair in captive animals. Among wild animals migration can sometimes be seen as a manifestation of discomfort in their earlier habitat.

Despair

Quality of life in nations has been measured by various manifestations of despair: mostly deviant behaviors such as use of drugs, aggression and excessive risk-taking, but also non-offensive behaviors such as religious retreat. The problem with this approach is that these behaviors are at best partly linked to livability of society, and probably not equally much in all societies at all times.

Still, there is little doubt that *suicide* mostly signifies great personal despair. Hence suicide rates are often used as an indicator of quality-of-life in nations. This tradition dates back to Durkheim (1897). In this vein, the continuous rise of suicide in Western nations in the 20th century has been interpreted as showing that modernization reduced the quality-of-life.

There is probably some truth in the idea that low livability gives itself away in high suicide rates. Yet it is also clear that the incidence of suicide depends on many other things as well. In traditional

societies such as Japan, suicide was in some situations a moral obligation. In present day Western society, suicide rates may rise because it is no longer taboo and because medical technology postpones natural death. It is also possible that modern people are less willing to endure suffering. As in the case of other despair behaviors, these effects are not equally great in all societies at all times.

Nevertheless, suicide is often used to assess quality of life in nations. This is probably due to the fact that suicide is well documented. In most countries this cause of death has been systematically registered since long. Though the accuracy of registration varies somewhat between countries and through time, the data seem well comparable. The best available statistics are prepared by the World Health Organization (WHO, 1987). These data show sizable differences. Around 1980 mortality by suicide was greatest in Hungary (± 460 per million) and lowest in the Philippines (± 9 per million).

Protest

The quality-of-life in nations is also seen to reflect in protest-behaviors, in purposive political action (protest demonstrations, protest voting, etc), as well as in undirected rioting. In this line, the student revolts of the 1960's have been interpreted as showing declining quality-of-life in modern nations. Here again the problem is that these behaviors do not necessarily reflect personal dissatisfaction with life. One can be quite happy, but still be concerned about social injustice. Studies on participants in the 1960's student rebellion illustrate that point (Keniston, 1968). In fact, personal satisfaction may even facilitate engagement in social issues. Still another thing is that protests are typically concerned with specific aspects of society, and are therefore not very indicative of overall satisfaction with life.

It is not easy to compare the incidence of protests and mass support across nations. The available figures seem to say more about registration than reality.

Desert

Emigration seems more indicative of quality-of-life in the nation. The decision to leave the country involves an overall evaluation of life in it, and that evaluation is likely to be negative; leaving hearth and home is not easy. In this vein, Ziegler & Britton (1981) showed

that living conditions in emigration countries are typically poor. Yet, emigration may say more about opportunity to settle abroad than about the quality-of-life in the country. Also, expectations about a better life elsewhere do not necessarily mean that the quality-of-life in one's home country is poor. Further, emigration is not always due to dissatisfaction with life. Part of the migrants seek new horizons for positive reasons, and often migration comes about more or less unintendedly by involvement in love or work.

Migration is a well documented phenomenon, and the figures are fairly comparable across nations.

Self reported appraisals

Though higher animals have the faculty of experience, they are typically unable to reflect on that experience and communicate it. We humans can. We can appraise how we feel about life and can communicate the estimate. Therefore, human appraisals can in principle be assessed by interrogation.

Research has shown this is practically possible as well. Though self reports could be distorted in various ways, present interrogation techniques seem to measure it reasonably valid and reliable. On that basis a survey research tradition established since the 1960's.

Like in the earlier tradition of measuring quality-of-life by behavioral manifestations of malaise, the research on self reported appraisal started with despondencies as well. In the course of time emphasis shifted from specific patterns of experienced 'ill-being' to global subjective 'well-being'.⁶

Experienced ill-beings

In the sociological literature the concept of 'alienation' is commonly mentioned as state of ill-being that indicates poor quality-of-life. In Social Psychology and Social-Medicine the concepts like 'anxiety', 'stress' and 'depression' are more common. Though currently used, these indicators are too specific to characterize the degree to which people thrive encompassingly. The concepts denote only negative experience, and not positive experience. Yet in this context it is the balance of positive and negative experience that counts. Moreover, the concepts concern specific kinds of mental discomfort, rather than overall suffering.

Alienation is seen as something that results from a lack of fit between ways of life provided by a society and human potentials. That condition is believed to manifest in individual feelings of powerlessness and meaninglessness. There are many variations in this theme, some of which come close to conceptions of mental health.

The incidence of subjective alienation in a society can be measured by means of surveys. Several questionnaires have been developed for that purpose. The currently most used is the Seeman Alienation Scale (Seeman, 1975). A major limitation of all these measures is that they do not involve a general judgement of life, but rather describe dissatisfaction in a cluster of life-aspects. Therefore, it is better not to use them for assessing overall quality-of-life.

In spite of much theorizing about alienation and society, there is little comparative data. Even if we might want to judge livability of nations by the alienation of its citizens, we simply cannot.

Anxiety, depression and stress. Above, these phenomena were already mentioned as manifestations of mental health. In that context, the concepts denoted impairment in the first place. In this context, the emphasis is on discomfort.

Like alienation, these mental states are seen as outcomes of poor fit between individual and society. Depression is commonly explained by lack of meaningful tasks and relationships, while anxiety and stress are often mentioned as a results of too high social demands. Though there is probably some truth in that, we should realize that these discomforts can also occur in an otherwise good life. For instance, life in a dynamic nation may yield much satisfaction, though at the cost of some anxiety.

Prevalence of these kinds of mental ill-being is mostly assessed by survey research. There is a wealth of questionnaires on these matters, some of which are reported to have good psychometric qualities. Still, there is doubt about the comparability of such scores across time and culture. Report of such discomforts may be somewhat higher where they are more recognized and accepted. For instance, the slight rise in depression reported in the USA (Lane, 1996) could be due to greater awareness of mental ailments.

There is a lot of data on these matters of psychological ill-being. Yet the available data allow little opportunity for cross-national comparison. The few cross-national studies that did involve a sizable number of nations is limited to specific groups, such as employees or students. So again, it is simply not possible to measure the livability of nations in this way.

Overall happiness

Assessing the appraisal of life in a nation requires that the total of experienced well-being is estimated. This sum of experience is denoted by the concept of 'happiness'. Happiness is a person's overall evaluation of his/her life as-a-whole.

Concept. In this context it is worth distinguishing between judgments about 'society' and judgments about ones 'life in that society'. A society that is judged positively by its citizens is not necessarily a very livable one. The judgement can concern aspects that are very prominent in public discourse, but have little relevance for the actual enjoyment of life. Also, basically dissatisfied people can still be positive about their society, because they are unaware of its shortcomings and attribute their misery to other matters. The degree to which people flourish in a society can thus best be measured by how they evaluate their own life, in other words by their *personal satisfaction*.

Personal satisfaction judgments can concern 'aspects-of-life', or one's 'life-as-a-whole'. Satisfaction with specific aspects of life such as 'work', 'marriage' or 'governments' says little about the general livability of a society. Most citizens may be satisfied with their work, but still be unhappy because their society offers little more. Also they can be satisfied with most aspects of life, but nevertheless judge their life-as-a-whole negatively; for instance because they miss something essential in it, i.e. 'freedom'. Still another complication is that aspects of life are not equally important in all societies at all times. 'Work' for instance is less central in most third world countries than in the homelands of the Protestant Ethic. For these reasons the focus is here on '*overall*' personal satisfaction.

When we appraise how much we appreciate the life we live, we seem to use two sources of information, we estimate our typical affective experience to assess how well we feel generally (hedonic

level of affect) and at the cognitive level we compare 'life as it is' with standards of 'how life should be' (contentment). The former affective source of information seems generally more important than the latter cognitive one (Veenhoven, 1996a: 33–35). The word happiness is commonly used for these 'subtotals' as well as for the comprehensive appraisal. I use the terms 'overall happiness' or 'life-satisfaction' for the last judgement and refer to the affective and cognitive sub-appraisals as respectively 'hedonic level of affect' and 'contentment'. Elsewhere, these concepts are delineated in more detail (Veenhoven, 1984: ch 2).

Measures. All these variants of happiness can be measured by self-report. Various questions have been developed for that purpose. For a review of items and scales see Veenhoven (1984: ch 4). The most commonly used item is the single question: "Taking all together, how happy would you say you are? Very happy, fairly happy, not too happy or not at all happy?" Another current question is how 'satisfied' one is with one's life-as-a-whole. Hedonic level is often measured by the ten item Affect Balance Scale (Bradburn, 1969), which concerns occurrence of specific positive and negative affects in the past few weeks. This latter method seems best suited for cross-national comparison.⁸

Since the 1970's, happiness serves as a core variable in 'Quality-of-Life surveys' in many developed nations. In the reports, happiness is often presented as an indicator of livability, the happier the inhabitants are on average, the more livable the nation or region is presumed to be.

There is now a growing body of data on average happiness in nations.⁹ Presently there are comparable surveys in some fifty nations. The data are brought together in the World Database of Happiness (Veenhoven, 1992).

3.3 Measuring happiness in nations

Though currently used, these measures are much criticized. Three main objections are raised, which all imply that self reports of happiness provide no good basis for estimating livability of nations. If true, these objections would be fatal to the new indicator proposed in this paper. Therefore I will now review that criticism in more

detail. For more elaborate discussions of the measurement problems involved here see: Diener (1995), Headey & Wearing (1992) Saris et al. (1996), and Veenhoven (1993, 1996a).

Validity of happiness self reports

The first objection is that responses to questions about happiness do not adequately reflect how people really feel about their life. Several reasons have been suggested.

One of the misgivings is that most people have no opinion about their happiness. They would be more aware of how happy they are expected to be, and report that instead. Though this may happen incidentally, it appears not to be the rule. Most people know quite well whether or not they enjoy life. Eight out of ten Americans think of it every week. Responses on questions about happiness tend to be prompt. Non-response on these items is low; both absolutely ($\pm 1\%$) and relatively to other attitudinal questions. 'Don't know' responses are infrequent as well.

A related assertion is that respondents mix up how satisfied they actually are, with how satisfied other people think they are, given their life-situation. If so, people considered to be well off would typically report to be happy, and people regarded as disadvantaged should avow themselves unhappy. That pattern does occur, but it is not general. For instance, in The Netherlands good education is seen as required for a good life, but the best educated appear slightly less happy.

Another objection concerns the presence of systematic bias in responses. It is assumed that questions on happiness are interpreted correctly, but that the responses are often false. People who are actually dissatisfied with their life would answer that they are contented. Both ego-defense and social-desirability are said to cause such distortions. This bias is seen to manifest itself in over-report of happiness; most people claiming to be happy, and most perceiving themselves as happier than average. Another indication of bias is seen in the finding that psycho-somatic complaints are not uncommon among the happy. These observations are correct, but the findings allow other interpretations as well. Firstly, the fact that more people say to be happy does not imply over-report. It is quite possible that most people are truly satisfied with life. When living conditions are not too bad, this is in fact quite probable. Secondly, there are also good

reasons why most people think that they are more satisfied than average. One such reason is that we underestimate happiness of our fellow-man, because misery is more salient than prosperity. Thirdly, the occurrence of head-aches and worries among the satisfied does not prove response distortion. Life can be a sore trial some times, but still be satisfying on a balance. The proof of the pudding is in demonstrating the response distortion itself. Some clinical studies have tried to do so by comparing responses to single direct questions with ratings based on depth interviews and projective tests. The results are generally not much different from responses to single direct question posed by an anonymous interviewer.

Elsewhere the surmised flaws of self reported happiness have been checked in more detail. See Veenhoven (1984: chapter 3) and Headey & Wearing (1992: ch 3). None of them was corroborated as yet.

Significance of average happiness

The second objection is are that happiness does not reflect real quality of life. This objection has two variants: one variant holds that happiness is merely a matter of perceived advantage and the other that it is a mere matter of outlook.

Relative? The first variant holds that happiness judgements draw on comparison *within* the nation, and can therefore not meaningfully compared *across* nations. This view is based on the theory that happiness results from social comparison. Some often cited investigations claim support for this theory. Easterlin (1974) saw the theory proved by his observation that happiness is as high in poor countries as it is in rich countries. Brickman et al. (1978) claim proof in their observation that lottery-winners are no more satisfied with life than paralysed accident victims. Elsewhere, I scrutinized these sensational claims (Veenhoven, 1991, 1995). The results of that enquiry can be summarized as follows:

First of all, average happiness is clearly not the same in poor and rich nations. Neither are accident victims equally satisfied as lottery winners. The differences may be smaller than one might have thought, but they exist undeniably.

Some other implications of theory that happiness is relative failed an empirical test as well. One such implication is that changes in living-conditions, to the better or the worse, do not have a lasting effect on happiness. However, there is good evidence that we do not adjust to everything; for instance, we don't adjust to the misfortune of having a handicapped child or the loss of a spouse.

Another implication is that earlier hardship favors later happiness. This hypothesis does not fit the data either. For example, survivors of the Holocaust were found to be less satisfied with life than Israelis of the same age who got off scot-free.

A last empirical check to be mentioned is the correlation with income. The theory that happiness is relative predicts a strong correlation in all countries, irrespective of their wealth. Income is a salient criterion for social comparison, and we compare typically with compatriots. Again, the prediction is not confirmed by the data. The correlation is high in poor countries but low in rich ones.

The theory that happiness is 'relative' assumes that happiness is a purely cognitive matter and does not acknowledge affective experience. It focusses on 'wants' and neglects 'needs'. Contrary to wants, needs are not relative. An alternative 'affective' theory is that we infer happiness from how we feel generally. If we feel fine, we gather that we must be satisfied. If we feel lousy most of the time we conclude we must be dissatisfied. Unlike conscious comparisons between ideal and reality, affects are largely unreasoned experiences, that probably signal the degree to which basic needs are met. The evidence for this theory is mounting. It denotes that happiness ratings reflect something universal, that can be meaningfully compared cross-culturally.

Folklore? A second variant of the insignificance objection is that happiness reflects the dominant view-on-life, rather than actual quality-of-life in a country. In this view, happiness-ratings reflect local 'folklore'. Comparing happiness reports would hence be equating apples and pears.

The theory of happiness behind this argument is cognitive as well. Happiness is seen as a judgement that depends on socially constructed frames of reference, which are supposed to be culturally unique. This relativistic theory found support in unexpected differ-

ences in average happiness between nations, such as low happiness in France and the high level in the USA. The idea was also nourished by the finding that average happiness remained at the same level in postwar USA, in spite of a doubling of the national income.

Elsewhere I put this theory to several tests (Veenhoven, 1992b: 66–79, 1994, 1995). One implicated hypothesis is that differences in average happiness are unrelated to variation in objective quality of life. Five such differences were considered: economic affluence, social equality, political freedom and intellectual development. These nation-characteristics explained 78% of the differences in average happiness in a 28 nation set. Further, there are examples of change in average happiness following improvement and decline of quality-of-life in the country.

I also considered the residual variances in regression charts. If French national character would tend to understate happiness and the American way to overstatement, we can expect to find the French less happy than predicted on the basis of objective welfare and Americans more happy than their situation justifies. No such patterns appeared.

Still another test involved the analysis of happiness among migrants. If happiness reflects the quality of the conditions one lives in, the happiness of migrants in a country must be close to the level of autochthons. If happiness were a matter of socialized outlook, the happiness of migrants should be closer to the level in their motherland. The former prediction appeared true, the latter not.

Comparability of happiness across countries

Methodological objections involve various claims about differential distortion in responses to questions about happiness. Several of these assertions have been tested empirically (Veenhoven 1993, 1996a). Again, the results are negative as yet.

The most common objection holds that differences in language hinder comparison. Words like 'happiness' and 'satisfaction' would not have the same connotations in different tongues. Questions using such terms would therefore measure slightly different matters. That hypothesis was checked by comparing the rank-orders produced by three kinds of questions on the overall appreciation of life-as-a-whole: a question about 'happiness', a question about 'satisfaction' with life and a question that invites to a rating between 'best-' and

'worst possible life'. The rank-orders appeared to be almost identical. Next, responses on questions on happiness and satisfaction in two bi-lingual countries were compared. This did not show linguistic bias either.

A second objection is that responses to questions are distorted by social desirability, and that such biases differ across cultures. One of the manifestations would be more avowal of happiness in countries where happiness ranks high in the value-hierarchy. That latter claim was inspected by checking whether reported happiness is indeed higher in countries where hedonic values are most endorsed. This appeared not to be the case. As a second check, it was also inspected whether reports of general happiness deviate more from feelings in the past few weeks in these countries; the former measure being more vulnerable for desirability distortion than the latter. This appeared not to be the case either.

A third claim is that convention in communication distort the answers dissimilarly in different countries. For instance, collectivistic orientation would discourage 'very' satisfied responses, because modest self-presentation is more appropriate within that cultural context. This latter hypothesis was tested by comparing happiness in countries differing in value-collectivism, but found no effect in the predicted direction. The hypothesis failed several other tests as well.

A related claim holds that happiness is a typical Western concept. Unfamiliarity with it in non-Western nations is said to involve several effects; responses would be more haphazard, and uncertainty would press to choice for middle categories on response scales, which results in relatively low average scores. If so, more 'don't know' and 'no answer' responses can be expected in non-Western nations. However, that appeared not to be the case. The frequency of these responses is about 1% in all parts of the world.

All these claims imply that there will be little relationship between average happiness rating and real characteristics of the nations. Yet we have seen that country differences in economic prosperity, freedom, equality and schooling explained 78% of the differences in reported happiness.

Possibly, there are some other distortions. Time will learn. For the time being, it seems that self reports of overall happiness can be meaningfully compared across nations.

4. NEW SUMMARY-MEASURE OF APPARENT QUALITY-OF-LIFE IN NATIONS

In recapitulation, quality-of-life in nations is measured in two ways: 1), by presence of conditions deemed beneficial, such as affluence, freedom, learning, etc (assumed QOL), and 2) by the degree to which citizens thrive, as manifested in their health and happiness (apparent QOL). We have seen encompassing measures of assumed quality-of-life, the multi dimensional indexes which we reviewed in the introductory paragraph. As yet, we did not meet with a comprehensive measure of apparent quality-of-life. This paper proposes such a measure.

4.1 Notion of long and happy living

The 'apparent' livability of a nation can be measured by the degree to which its citizens live long and happily. The longer and happier the citizens live, the better the provisions and requirements of society apparently fit with their needs and capacities.

An evident advantage to measuring quality-of-life by longevity alone is that the subjects' appraisal of life is acknowledged. People may live long, but not happily. For instance, in a repressive nation where healthy lifestyle is enforced, or where blind medical technology stretches life too long. Likewise, an advantage to measuring quality-of-life by happiness alone is that the length-of-life is taken into account. People may live happy in a culture of irresponsible hedonism, where they indulge in drugs and risky sensations, but they won't enjoy that life very long.

In fairy tales the happy end is commonly described by the phrase 'and they lived long and happily ever after'. This phrase reflects common conviction that the good life manifests in a long and happy life. In this conception, that individual level notion of quality-of-life is aggregated to the nation level. Instead of the fairy tales hero, we consider the average citizen.

4.2 Operationalisation in 'Happy Life-Expectancy' (HLE)

Empirical assessment requires information on average length-of-life and on average appreciation-of-life in the country. As noted, this information is available from two sources: 1) civil registration of death, and 2) survey data on happiness. On the basis of registrations of death we can estimate how long people live in a nation at a certain time. These data are of an 'objective' nature, only an outsider can assess how long one lived. Surveys allow an estimate of how happy people are on average. This data is of a 'subjective' kind. Only the oneself knows whether one is happy or not. Combined, these sources of information can tell us how long and happily people live in a country.

Analogous to 'healthy' life-expectancy, this combination can be labeled as 'happy life-expectancy'. In line with custom I will abbreviate to 'HLE'. The idea of such an analogous measure was developed with Anton Kunst (Kunst et al. 1990).

Computation

'Healthy' life-expectancy is usually computed by deducting expected years in bad health from expected years of life, both estimates based on age specific information.¹⁰ Here 'happy' life-expectancy is computed by multiplying 'standard' life-expectancy in years with average happiness as expressed on a scale ranging from zero to one. In formula:

Happy life-expectancy = standard life-expectancy × 0–1 happiness.

Suppose that life-expectancy in a country is 50 years, and that the average score on a 0 to 10 step happiness scale is 5. Converted to a 0–1 scale, the happiness score is than 0,5. The product of 50 and 0,5 is 25. So happy life-expectancy in that country is 25 years. This example characterizes most of the poor nations in the present day world.

If life-expectancy is 80 years and average happiness 8, happy life-expectancy is 64 years ($80 \times 0,8$). This example characterizes the most livable nations in the present day world.

Range

Theoretically, this indicator has a broad variation. Happy life-expectancy is zero if nobody can live in the country at all, and will be endless if society is ideal and its inhabitants immortal.

The practical range will be between about 20 and 75 years. Presently at least, life-expectancy at birth in nations varies between 30 and 80, whereas average happiness is seldom lower than 0,4 on a 0 to 1 scale and seldom higher than 0,8.

Happy life-expectancy will always be lower than standard life-expectancy. It can equal real length of life only if everybody is perfectly happy in the country (score 1 on scale 0 to 1). This is clearly not possible. The highest level of happiness ever observed is 0,8 (Iceland 1990), which is probably close to the maximum.

Interpretation

High happy life-expectancy means that citizens live both long and happily, low happy life-expectancy implies that the life of the average citizen is short and miserable. Medium values of happy life-expectancy in a country can mean three things: 1) both moderate length-of-life and moderate appreciation-of-life, 2) long but unhappy life, and 3) short but happy life. In this measure these three situations are treated alike.

Metaphorically, the scores can be interpreted as the number of happy years the nation affords its citizens.

Practical requirements

Actual measurement of HLE requires that data on both happiness and life-expectancy is available for a sufficient number of nations. Another condition is that these components involve distinct information.

Availability of data. Availability is no problem for life-expectancy. This is known for all present day nations, and on a lot of countries there are also time-series which date back to more than a century (UN 1995).

Data on average happiness in nations is less abundant. Survey-research is relatively recent, and items on happiness appeared only until the 1970's. Still there are some 50 nations of which we know present happiness, and on a dozen we have time-series of one or

more decades (World Database of Happiness). For the moment, that suffices for an exploration. In the coming decades happiness surveys will probably get established in most of the world's nations.

Differentiation of components. At the conceptual level there is a clear difference between life-expectancy and happiness, but does that difference appear at the empirical level as well? If life-expectancy and happiness coincide completely, we shall not get wiser by combining them.

A look at the available data shows good differentiation. See exhibit 4. On the left, the case of Nigeria (WAN) demonstrates that low length-of-life can go together with reasonable appreciation-of-life. To the right below, the Eastern European nations illustrate that the reverse occurs as well. Right on top we see that the nations with the highest life-expectancy (typically the developed nations) differ considerably in average happiness.

5. FIRST DATA ON HAPPY LIFE-EXPECTANCY

Life-expectancy in nations can be computed in several ways. The variant used here is life-expectancy at birth. This implies that infant mortality has a considerable effect.¹¹ Data were obtained from the Un Demographic Yearbook (UN 1993, table 21).

Happiness in nations can be assessed in different ways as well. As we have seen above, the most currently used question is a single item about how 'happy' one would say one is. Average scores on that question are available for 48 nations.¹² Average life-satisfaction is available for 42 nations, and Affect Balance (the best choice) only for 39 nations. High intercorrelations suggest that these three indicators measure essentially the same thing.¹³ Hence I will use the best available one for this exploration, that is: the happiness item.

The data are presented on appendix 1. The first and the second column present respectively standard life-expectancy and average happiness in these countries in the early 1990's. The third column displays the inclusive score of 'happy life-expectancy' (HLE).

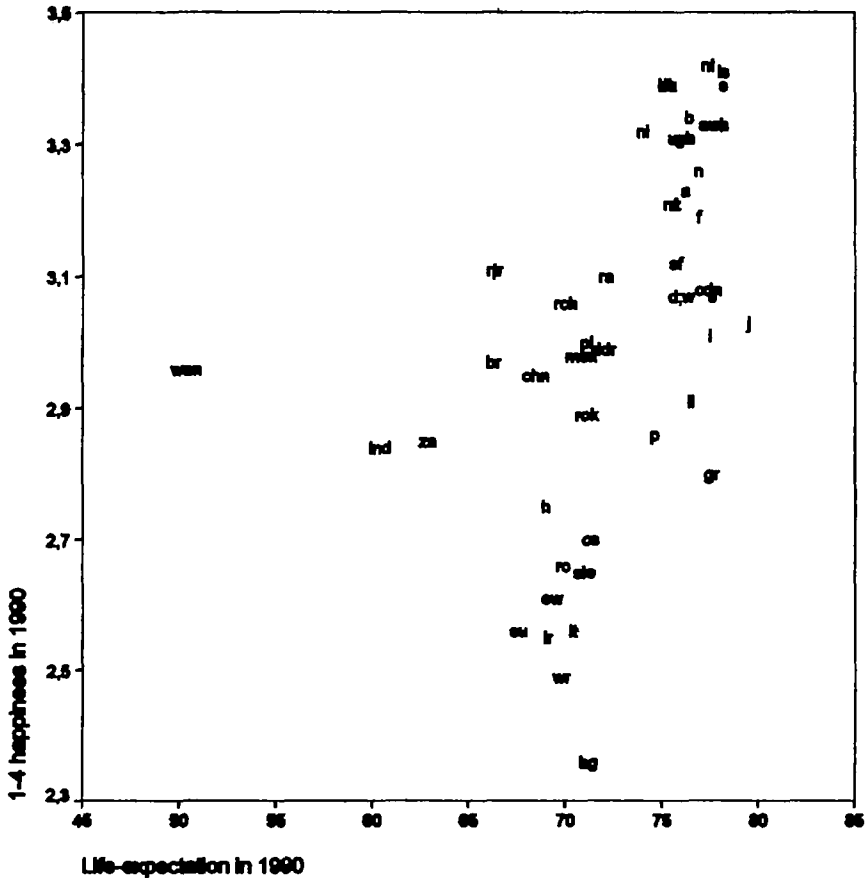


Exhibit 4. Plot of average length-of-life by appreciation-of-life in 48 nations early 1990's.

5.1 Level of happy life-expectancy in 48 nations early 1990's

The bardiagram in exhibit 5 presents the nations in order of their HLE score.

The lowest scores appear in the two least developed nations in this set, that is in India and Nigeria, and in the formerly communist East European nations of Bulgaria and Belarus (White Russia).

The highest scores are observed in rich West European nations, in particular in Iceland, the Netherlands, Sweden and Switzerland. Australia also qualifies well on the fifth place in this rankorder.

In the middle we see four categories of nations. Firstly, the luckier East-European countries, such as former East Germany and Poland.

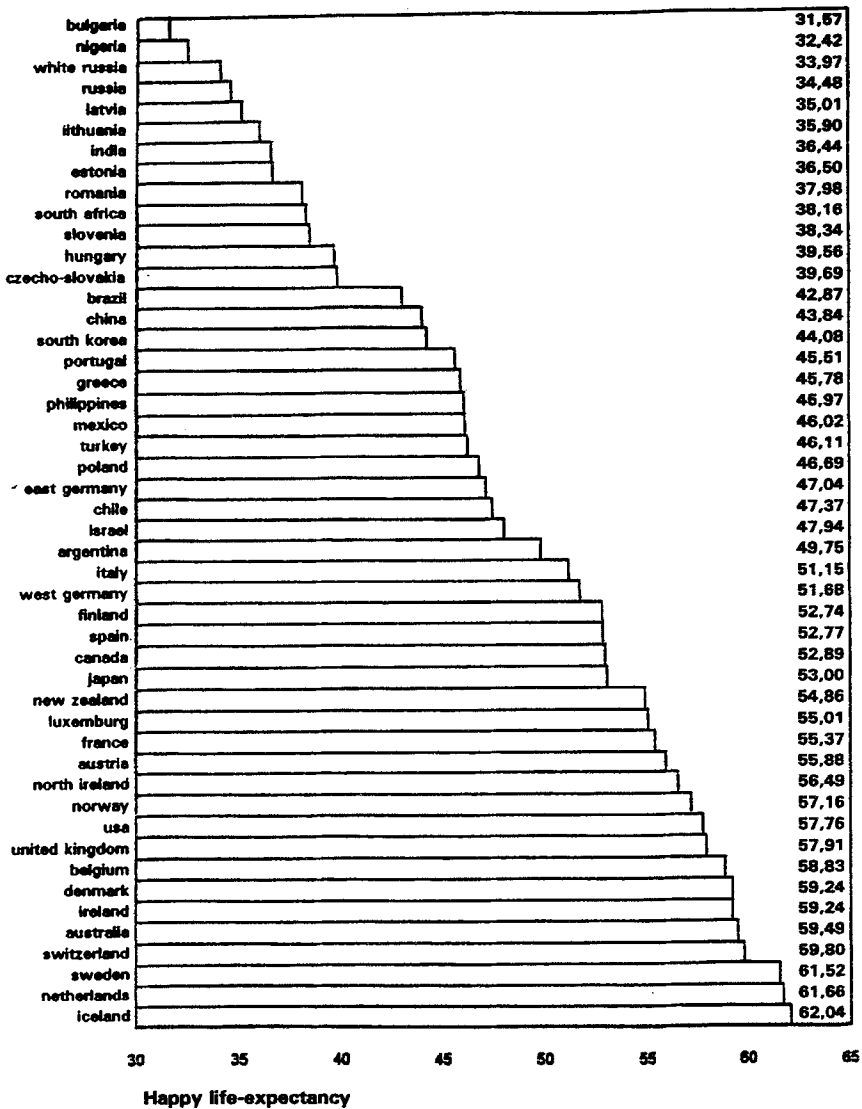


Exhibit 5. Happy Life-Expectancy in 48 nations 1990.

Secondly, the economically expanding East Asian nations such as South Korea and Japan. Thirdly, the Latin American nations Brazil, Mexico, Chile and Argentina.¹⁴ A last category in the middle of the distribution is lagging West-European nations such as West-Germany and Spain.

<i>nation characteristics</i>	<i>correlation with HLE</i>		<i>N</i>
	<i>zero order</i>	<i>affluence controlled</i>	
Material affluence			
Income per head:			
* purchasing power 1989	+.78**	--	43
Standard of living			
* malnutrition: % < 2500 calories	-.41*	+.07	42
* % without safe water	-.65**	-.13	39
* rooms per dwelling	+.46*	+.04	42
Security			
Physical safety			
* murder rate; medical registration	-.48**	-.32	39
* lethal accidents: medical registration	-.67**	-.55**	39
* maternal deaths	-.38*	-.20	47
Legal security			
* incidence of corruption	-.81**	-.46*	35
Social security			
* state expenditures in % GDP	+.57	+.15	34
Freedom			
Political freedom			
* respect of political rights	+.55**	+.14	47
* respect of civil rights	+.60**	+.18	47
Personal freedom			
* of marriage: acceptance divorce	+.35	+.16	42
* of procreation: abortion available	+.32	-.07	38
* of sexuality: acceptance of homosexuality	+.72**	+.38*	42
* to dispose of own life: acceptance suicide	+.43*	+.16	42
Self-perceived freedom			
* in life	+.49**	+.25	42
* at work	+.67**	+.54**	41
Combined freedom factor	+.73**	+.37*	39
Social equality			
Income inequality			
* dispersion in income statistics	-.10	+.07	41
* dispersion in self rated family income	-.17	+.05	40
Gender inequality			
* woman empowerment index	-.68**	-.19	37

Cultural climate			
Knowledge			
• Education			
• % literate	+ .45**	+ .21	47
• school enrolment ratio	+ .37	+ .43*	38
Information			
• newspapers pc	+ .46*	— .04	32
• TV receivers pc	+ .57**	— .18	42
Beliefs			
• belief in God	+ .24	+ .30	37
• religious identification	+ .11	+ .12	41
• religious participation	— .03	+ .14	38
Value orientation			
• individualism	+ .74**	+ .53	32
• power distance	— .63**	— .33	32
• masculinity	— .13	— .40	32
• uncertainty avoidance	— .28	— .36	32
Social climate			
Tolerance			
• negative attitudes to social categories	— .67**	— .43*	38
Trust			
• trust in family	+ .27	+ .32	42
• trust in compatriots	+ .11	+ .25	42
• trust in institutions	— .05	+ .14	30
Social participation			
• in work: unemployment	+ .40**	+ .41*	42
• in voluntary associations: memberships	+ .53**	+ .22	34
Peacefulness			
• military dominance in society	— .19	— .27	41
• military expenditure	— .16	— .18	41
Population pressure			
Population density	— .03	+ .04	42
Population growth	+ .16	— .07	39
Modernization			
Urbanization	+ .57**	+ .24	40
Industrialization	— .74**	— .24	30
Informatization	+ .80**	+ .18	42
Individualization	+ .68**	+ .12	38

Exhibit 6. Correlates of Happy Life-Expectancy in 48 nations 1990.

The range in this nation set is between 30 and 60 'happy years'. Probably the top of the present day world is better represented than the bottom in this collection.

5.2 Correlates of happy life-expectancy

The next question is of course whether these differences in 'apparent' quality-of-life in nations have any correspondence with the earlier mentioned notions of 'assumed' quality-of-life. Is HLE higher in the nations that perform best on these standards? To answer that question we inspected the statistical relationship of happy life-expectancy with various nation-characteristics that are currently seen as required for a good life. From the limited number of indicators that are available for this nation set we selected the ones that denote cherished traits the most.

Separate correlates

Variables and findings are presented in exhibit 6. The first column in that exhibit denotes the nation characteristics considered. Detail about source and measurement is presented in appendix 2. Correlations with happy life-expectancy are presented in the columns 2 and 3, in column 2 the zero order correlations and in column 3 partial correlations that control the effect of economic development as measured by GDP. The last column mentions the number of nations involved in these correlations. Due to missing values, the numbers differ considerably. As a result, the nation-set differs somewhat from variable to variable.

Expected relationships

A first look at exhibit 6 shows that several assumptions about livability features of nations are confirmed. Happy life-expectancy is indeed higher in the nations where people live most securely, and where the material level of living is highest. This is in agreement with common 'materialist' assumptions.

Happy life-expectancy is also higher in the most free and individualistic nations, which is in line with 'liberal' expectation. The observed relationships with enlightenment and tolerance fit liberal view as well.

HLE is also higher in the more equal nations, at least where gender equality and educational homogeneity are concerned. This confirms current 'egalitarian' expectations.

Further, we see a positive correlation with participation in voluntary organisations, which supports 'communitarian' assumptions about livability. Yet we will see below that other findings are contrary to that view.

These most livable nations are typically the most modern nations in the present day world. This will be no surprise for believers in progress, though it will annoy prophets of doom.

Unexpected relationships

Yet there are also findings that do not fit current assumptions.

Firstly, HLE is not related to social security and income equality. This is contrary to common 'egalitarian' assumption. Even more surprising in that context is the positive relationship with unemployment. This effect is caused by the former communist countries, where employment was still high at the time of the investigation. When these cases are omitted, we see no relationship. This may mean that unemployment has some positive consequences which balance out the negative ones.¹⁵

Further we do not see significant correlations with the measures of trust and religiousness. This is contrary to current 'communitarian' thinking.

Noteworthy is also that HLE is not lower in nations characterized by military dominance and population pressure. Apparently, we can live with these conditions.

Control by economic affluence

Several correlations are reduced to insignificance when economic prosperity is controlled. This is the case with social security, political freedom, social equality, social participation and trust. That can mean that these societal qualities have no independent effect, but it is also possible that this control procedure is too severe, in that common variance with economic prosperity is not necessarily all caused by that matter.

In one case there is evidence that the partial correlations are valid. This is the case of 'social security'. Cross temporal data have shown that life-expectancy and happiness did not rise more in the nations

were state-welfare expanded most since the 1950's (Veenhoven & Ouweneel 1994).

Probably, the observed correlations do not fully reflect the true effectsizes. The measures are far from perfect, therefore the correlations will be reduced by error.

Shape of relationships

Next to the size of these statistical relationships, we also considered their shape. In the case of economic prosperity we found a convex pattern, which is indicative of diminishing returns. The scattergram is presented on exhibit 7. Similar shapes were observed in the relationship of HLE with urbanization, informatization and safety.

Most of the patterns are more or less linear, for instance in the case of freedom. See exhibit 8. Linear relationships were also observed with gender equality, schooling, social participation and tolerance. This suggests that these societal qualities have not yet reached saturation levels.

Causality

One must realize that positive correlations do not prove that these nation qualities are conducive to long and happy living. The statistical relationships can also reflect effects of the latter on the former. For instance, a healthy and happy labor force is likely to generate more economic prosperity. Though it is unlikely that all correlations are fully caused that way, the real benefits of these alleged nation virtues could be more modest than the correlations suggest.

Joint correlation

Due to missing values we could not assess the joint effect of all the variables in exhibit 6. The best we could do was compute variance explained by seven variables in 26 nations. These variables are: income per head, social security, political freedom, literacy and gender equality. Together these variables explained 70% of the variance in HLE in this dataset.

The same variables explain even more variance in standard life-expectancy alone (84%), but less in happiness separately (36%). When we consider rich nations apart, a different picture emerges.

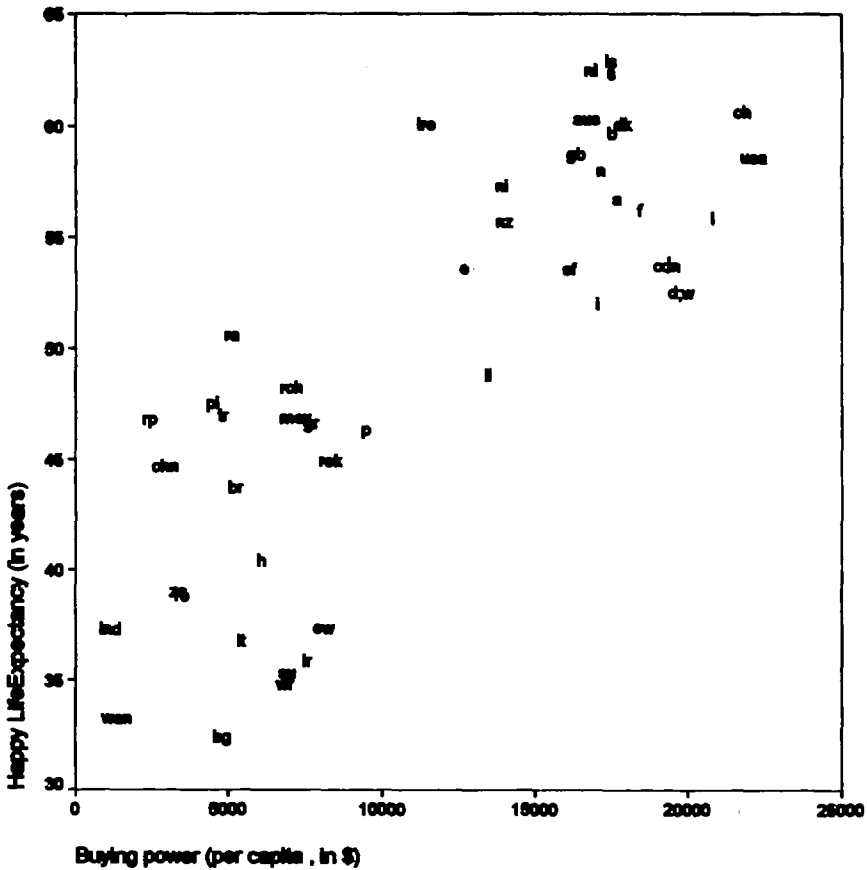


Exhibit 7. Plot of economic affluence and Happy Life-Expectancy in 46 nations early 1990's.

In that subset, the variables differentiate better with happy-life-expectancy than with mere life-expectancy.¹⁶

Significance for QOL-measurement

These first results beg for a substantive explanation and for an exploration of political consequences. Yet that would lead us too far. Let us therefore leave that matter for the moment, and focus on the implications for measuring quality-of-life in nations.

The first conclusion is that many notions of 'assumed' quality-of-life coincide more or less with 'apparent quality-of-life'. This would suggest that current QOL-indexes measure about the

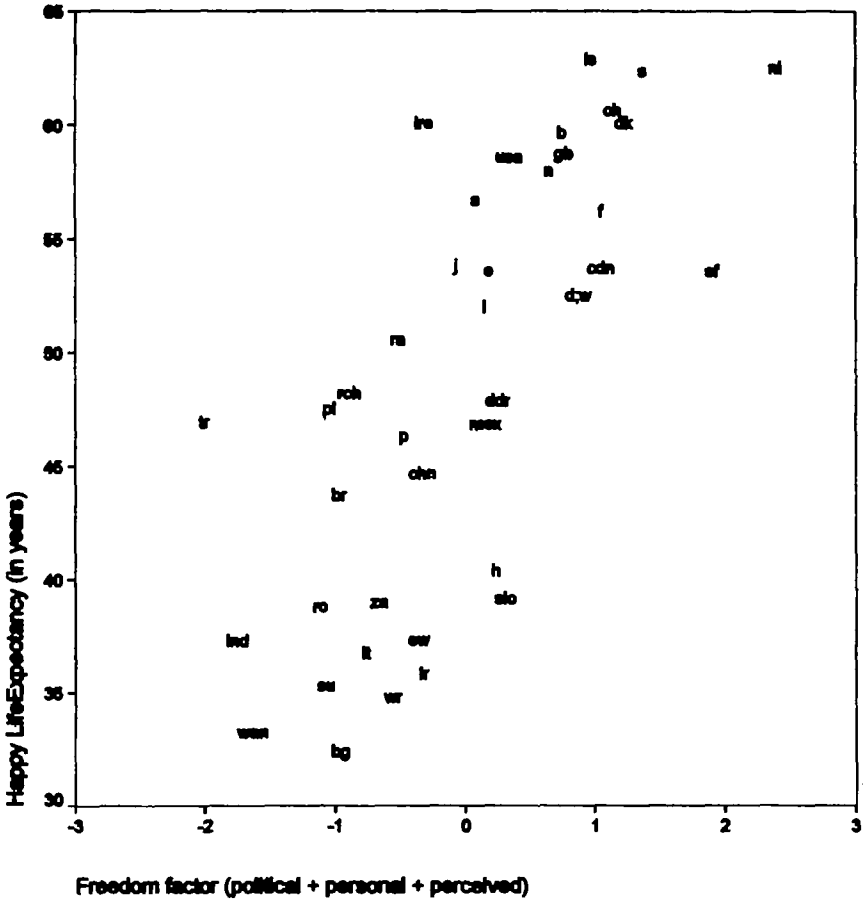


Exhibit 8. Plot of economic affluence and Happy Life-Expectancy in 47 nation 1990.

same as the newly proposed HLE. Yet in other respects they work out differently:

The second lesson is that not everything deemed beneficial does contribute to a longer and happier life. HLE appeared unrelated to state welfare effort, income equality and unemployment. It was neither related to military dominance and population pressure. This means that part of the items in current QOL-indexes reflect conceptions of the good life that have little relation with the reality of human thriving.

The third point is that the relationships that do exist are not all linear. We found convex patterns in the relationships with economic

affluence, urbanization, informatization and safety. This underlines the earlier point that ever more of the good is not always better.

The forth thing to note is that not all correlations are equally strong. For instance, personal freedom seems more conducive to long and happy living than income equality. This underscores the earlier objection that current QOL-indexes do not acknowledge differences in importance of the merits they list.

6. USEFULNESS OF HLE

We started this paper with the quest for a comprehensive indicator of quality-of-life in nations. Is HLE the promised measure? Does it qualify as an equivalent to economist's GNP? Is it better than current QOL-indexes? Let us summarize its theoretical relevance, political appeal and practical usability, and recapitulate the differences with current QOL-indexes.

6.1 Theoretical bearing

HLE is a well interpretable indicator. Contrary to current QOL-indexes, it measures a clear phenomenon, that represents a specific quality concept in a comprehensive way.

Clear denotation

HLE measures the degree to which people live long and happily in a country at a certain time. As such the indicator has a clear substantive meaning.

This is not the case with current QOL-indexes. These reflect the degree to which some bunch of desiderata is met. Interpretation differs with contents of the bunch and is always uncertain.

Conceptually specific

The degree to which citizens live long and happily in a country denotes a specific conception of quality-of-life *in* society. It manifests societal output in 'apparent' livability.

Current QOL-indexes are conceptually less specific. Most do not distinguish between quality *of* society and quality-of-life *in* society. The few that claim to focus quality-of-life 'in' nations, still mingle items on 'input' and 'output', or 'assumed' and 'apparent' livability.

The correlations in exhibit 6 showed that happy life-expectancy measures something different indeed. Though most of the assumed nation-qualities correlated well with happy life-expectancy, some did not. For instance not income equality, and unemployment.

Inclusive

Long and happy living of citizens is an all-encompassing manifestation of this specific quality-of-life concept. Happy life-expectancy is hence a comprehensive measure of 'apparent' livability.

Current QOL-indexes do not cover a conception inclusively. They typically provide a convenience sample of features deemed indicative of something good.

6.2 Directional meaning

As happy life-expectancy measures societal 'output' specifically, it does not mix means and ends. Therefore it provides more ground for policy evaluation.

Focus on ends

Happy life-expectancy denotes the degree to which endvalues are realized in society, and does not involve means. As such it is well suited to evaluate long term effects of social policy.

Current QOL-indexes typically mix means and ends, such as 'healthcare' and 'health'. In policy-evaluations this leads into contamination. When means are in the effect-measure, the measures indicates at best to what extent the instrumental goals are achieved. Not whether that serves any ultimate end.

Gauge for means

As happy life-expectancy is a measure of 'apparent' quality-of-life specifically, it can be used to calibrate notions of 'assumed' quality-of-life. As such it can inform social policy about the best means to create a livable society.

In exhibit 6 we have seen correlations between happy life-expectancy and several nation-characteristics believed to be beneficial. Happy life-expectancy was indeed positively related to most of these, but not in equal terms. For instance, it related more to gender equality than to income equality. This is worth knowing in setting priorities.

Some of the believed features of livability were not related to happy life-expectancy at all, for instance not unemployment. So enforcing full employment will probably not add to long and happy living of the citizens, even though it may still be desirable from other points of view.

Current QOL-indexes do not allow a reality correction of assumptions about the good life, because they are partly based on presumption themselves. Therefore they are of little help in selecting the best ways to a more livable society. At best they indicate success in the way followed.

6.3 Political appeal

The end values happy life-expectancy refers to are fairly universally recognized and endorsed. Their appeal is likely to grow in the future.

Universal value

Long and happy living is a widely appreciated value. This appears not only in preference for tales that conclude this way, but also in the results of survey studies. Health and happiness are typically the most mentioned end values. There are good reasons to assume that adherence to these values is more or less implied in the human condition. Glorification of death and suffering may exist everywhere, but is mostly marginal. Happy life-expectancy appeals to the vast majority.

Upcoming value

The attractiveness of long and happy living is even likely to become greater in the future. Growing individualization adds to the value attributed to personal health and happiness.

On the other hand, the traditional deficit measures loose relevance in the course of social progress. The more money, education and freedom we get, the less the attraction of more of the same is. A related development is that public demand diversifies when the most common deficiencies are satiated. This leads to more encompassing notions of progress as well. One of the manifestations of this trend is value shift to 'post materialism' in Western society (Inglehart, 1990).

6.4 Metric quality

Next to its theoretical and political relevance, HLE seems to have good metric properties. The indicator combines good substantive validity, with good differential- and good concurrent validity.

Substantive validity

Happy life-expectancy is presumed to reflect the degree to which people live long and happily in a country. There is little reason to doubt it does. The life-expectancy component can hardly measure anything else than real longevity. At its worst it can measure that matter imperfectly, but the problem is then reliability rather than validity. There are more qualms about the validity of the happiness component. However, we have seen in section 2.3 that none of the misgivings has been proven true as yet.

Discriminative validity

Happy life-expectancy differentiates well. As we have seen in exhibit 5, happy life-expectancy varies between 32 and 62 in this nationset. Probably, scores below 32 could be observed in some countries that are not included in this dataset. Differentiation is not haphazard, but systematic.

Concurrent validity

The correlations in exhibit 6 showed sensible relationships with some nation qualities. The better the living conditions in a country, the higher the happy life-expectancy. Together, affluence, literacy, freedom and gender equality explained 70% of the variance in happy life-expectancy in nations. This indicates substantive relevance as well.

6.5 Limitations

HLE is a longterm output measure, which is not bound to specific inputs. As such it is of little help in daily piecemeal decision making. Next to this substantive limitation there is the practical problem that data on happiness are limited as yet.

Substantive limitations

The strengths of HLE are also limitations. Because it is a long term measure, it reacts slowly. Because it is an ultimate output measure, it tell us little about required input.

HLE reacts slowly, because environmental change affects life-expectancy typically in the long run, at least if no disaster is involved. The happiness component is probably more sensitive to change, but still happiness levels tend to be fairly stable. So, decreasing livability of society will manifest in HLE only with considerable delay. As such it is more analogous to climate change than to the weather.

A related problem is that the reason for changes in HLE will not always be obvious. Because it is an ultimate output measure, it tells us little about required input. As many effects can possibly be involved, there will always be discussion on why livability changes the way it does.

Consequently, the measure is not suited for early warning or for choosing between specific policy options. Its strength is in the evaluation in retrospect.

Data shortage

At this moment, a more practical problem is in the required data on average happiness. The data-quality is less than ideal, and the quantity is still limited. Not only is the number of countries small as yet, but also is there as yet little sight on the development of timeseries.

7. CONCLUSION

Quality-of-life in nations can be assessed by prevalence of conditions deemed beneficial (assumed quality-of-life) and by the degree to which citizens thrive (apparent quality-of-life). The former conception is more problematic than the latter.

Flourishing of people in a nation manifests most completely in the degree to which they live long and happily. This can be measured comprehensively by combining registration data on length-of-life with survey data on appreciation-of-life in nations. The resulting scores of 'happy life-expectancy' provide a useful social indicator.

Appendix 1. Table of life-expectancy, happiness and happy life-expectancy in 48 nations early 1990's

<i>Nation</i>		<i>Average length of life in years</i>	<i>Average appreciation of life scale 0 to 1</i>	<i>Happy life expectancy 'happy years'</i>
<i>code</i>	<i>name</i>			
RA	Argentina	72,10	0,690*	49,75
AUS	Australia	77,60	0,767	59,49
A	Austria	76,20	0,733	55,88
WY	Belarus (White Russia)	69,80	0,487	33,97
B	Belgium	76,40	0,770	58,83
BR	Brazil	66,30	0,647	42,87
GB	Britain	76,20	0,760	57,91
BG	Bulgaria	71,20	0,443	31,57
CND	Canada	77,40	0,683	52,89
RCH	Chile	70,00	0,678*	47,37
CN	China	68,50	0,640*	43,84
CZ	Czecho Slovakia (former)	71,30	0,557	39,69
DK	Denmark	75,30	0,787	59,24
EW	Estonia	69,30	0,527	36,50
SF	Finland	75,70	0,697	52,74
F	France	76,90	0,720	55,37
DW	Germany (former West)	76,00	0,680	51,68
DDR	Germany (former East)	72,00	0,653	47,04
G	Greece	77,60	0,590	45,78
H	Hungary	69,00	0,573	39,56
IS	Iceland	78,20	0,793	62,04
IND	India	60,40	0,603*	36,44
IRL	Ireland	75,30	0,787	59,24
IL	Israel	76,50	0,627	47,94
I	Italy	77,50	0,660	51,15
J	Japan	79,50	0,666	53,00
LR	Latvia	69,10	0,508	35,01

Appendix 1. Continued

<i>Nation</i>		<i>Average length of life in years</i>	<i>Average appreciation of life scale 0 to 1</i>	<i>Happy life expectancy 'happy years'</i>
<i>code</i>	<i>name</i>			
LT	Lithuania	70,40	0,497	35,90
L	Luxembourg	75,70	0,727	55,01
MEX	Mexico	70,80	0,650	46,02
NI	Northern Ireland	74,00	0,763	56,49
NZ	New Zealand	75,50	0,722	54,86
NL	Netherlands	77,40	0,797	61,66
WAN	Nigeria	50,40	0,643	32,42
N	Norway	76,90	0,743	57,16
RP	Philippines	66,30	0,693	45,97
PL	Poland	71,10	0,657	46,69
P	Portugal	74,60	0,610	45,51
RO	Romania	69,90	0,543	37,98
SU	Russia	67,60	0,510	34,48
ZA	South Africa	62,90	0,607	38,16
ROK	South Korea	71,10	0,620	44,08
SLO	Slovenia	71,00	0,540	38,34
SP	Spain	77,60	0,680	52,77
S	Sweden	78,20	0,787	61,52
CH	Switzerland	78,00	0,767	59,80
TR	Turkey	66,50	0,693*	46,11
US	United States of America	76,00	0,760	57,76

Life-expectancy: Data from UN Demographic Yearbook 1993

Happiness: Data from World Database of Happiness (update 1996), tables 1.1.1a and 1.1.1b

* Probably too high. Score based on samples in which poor rural population was under represented

Appendix 2. Nation characteristics used in correlational analysis

VARIABLES Characteristic	Measurement	N	SOURCE
Affluence			
<i>Income per head</i>			
Real GDP p/c 1989	purchasing power p/c	43	Human Development Report 1992 table 1 ¹⁷
<i>Standard of living</i>			
Malnutrition	daily calories, degree < 2500 ¹⁸	42	World bank Atlas 1995
No safe water	% without access to safe water ¹⁹	38	Kurian 1992 table 192
Electricity	% homes with electricity	32	Kurian 1992 table 194
Living space	rooms per dwelling ²⁰	40	Kurian 1992 table 185 Kurian 1992 table 183
Security			
<i>Physical safety</i>			
Murder rate	medical registration of cause of death	39	UN Demographic Yearbook 1993 table 21
Lethal accidents	medical registration of cause of death	39	UN Demographic Yearbook 1993 table 21
Maternal deaths	medical registration of cause of death	47	PAI 1995 table 17
<i>Legal security</i>			
Corruption	ratings by businessmen and journalists	34	Transparency International 1995
<i>Social security (state-welfare)</i>			
Welfare rights	index of entitlement (1980)	18	Esping-Anderson 1990 table 2.2
Welfare expenditures	% GDP on social security (1989)	34	ILO 1996 table 3

Appendix 2. Continued		N	SOURCE
VARIABLES	Measurement		
Characteristic			
Freedom			
<i>Political freedom</i>			Karminycky 1995
Political rights	expert ratings: - 9 item index: f.e. free elections	47	
Civil rights	- 11 item index: f.e. free press	47	
<i>Personal freedom</i>			
Freedom of marriage			
* public acceptance of:			
* divorce	public opinion; single survey question	42	World Values Study 2, item 310
Freedom of sexuality			
* public acceptance of:			
* homosexuality	public opinion; single survey question	42	World Values Study 2, item 307
* prostitution	public opinion; single survey question	42	World Values Study 2, item 308
Freedom of reproduction			
* legal/practical restrictions to:			
* abortion	expert rating of restrictive policy	37	PAI 1995
Freedom to dispose over ones own life			
* public acceptance of:			
* suicide	public opinion, single survey question	40	World Values Study 2, item 313
<i>Perceived freedom</i>			
Perceived general freedom in life	public opinion, single survey question	42	World Values Survey 2, item 95
Perceived freedom at work	public opinion, single survey question	41	World values Survey 2, item 117
<i>Combined freedom factor</i>	political + personal + perceived	39	

Appendix 2. Continued

VARIABLES	N	SOURCE
<i>Characteristic</i>		
<i>Social equality</i>		
<i>Income inequality</i>		
Dispersion of income		income statistics
* ratio highest 20% to lowest 20%	41	Human Development Report 1995 table 12
Dispersion of reported family incomes		
* standard deviation	40	World Values Study 2, item 363 ²¹
<i>Gender-equality</i>		
3 item 'Gender Empowerment Measure'	35	Human Development Report 1995 table 3.5
<i>Class-difference</i>		
Education-homogamy		survey data on education of spouse
	27	Smits et al. 1996: 48
<i>Cultural climate</i>		
<i>Knowledge</i>		
Education		
* literacy; % illiterate	47	World Development Report 1995 table 1
* school-enrolment ratio	36	World Development report 1995 table 3.1
Information:		
* media attendance ²²		
* reading of newspapers	32	Kurian 1992 table 218
* television watching	42	Kurian 1992 table 214

Appendix 2. Continued

<i>VARIABLES</i> <i>Characteristic</i>	<i>Measurement</i>	<i>N</i>	<i>SOURCE</i>
<i>Beliefs</i>			
Belief in God	public opinion; single survey question	37	World Values Study 2, item 175
<i>Religiosity</i>			
* identify as religious	average response to survey question	41	World Values Study 2, item 151
* religious participation	average response to survey question	38	World Values Study 2, item 147
<i>Values</i>			
<i>Hofstede dimensions</i>			
* individualism	opinion IBM employees	32	Hofstede 1990, table 3.1
* power distance	opinion IBM employees	32	Hofstede 1990, table 2.1
* masculinity	opinion IBM employees	32	Hofstede 1990, table 4.1
* uncertainty avoidance	opinion IBM employees	32	Hofstede 1990, table 5.1
<i>Social climate</i>			
<i>Tolerance</i>			
Rejection of social categories	public opinion; 14 item index	38	World Values Study 2, items 69-82
<i>Trust</i>			
Trust in institutions	public opinion; 15 item index	30	World Values Study 2, items 272-285
<i>Trust in people</i>			
* trust in family	public opinion; single question	40	World Values Study 2, item 340
* trust in compatriots	public opinion; single question	40	World Values Study 2, item 341

Appendix 2. Continued	VARIABLES	Measurement	N	SOURCE
<i>Characteristic</i>				
<i>Social participation</i>				
In voluntary organizations:				
* memberships		survey report: 16 item index	34	World Values Study 2, items 19-36
In work life				
* unemployment		labor force surveys and registrations	42	ILO 1995, table 9
<i>Peacefulness</i>				
Military dominance				
* militarisation of society		soldier/civilian ratio	41	Kurian 1992 table 41
* military expenditure		expenditures in % GDP	41	Kurian 1992 table 43
<i>Modernization</i>				
Urbanization		% population in urban area	41	Kurian 1992 table 18
Industrialization		% earned in agriculture	30	Kurian 1992 table 84
Informatization		telephones per capita	42	Kurian 1992 table 167
Individualism-collectivism		expert rating	38	Diener 1994 table 1
<i>Population pressure</i>				
Population density		persons per square kilometer	42	Kurian 1992 table 17
Population growth		population doubling time in years	38	Kurian 1992 table 28

NOTES

¹ This paper was prepared during my stay at the Wissenschafts Zentrum für Sozialwissenschaft Berlin, Germany. An earlier version was presented at the International Conference on Quality-of-Life at the University of Northern British Columbia, Prince George, Canada, August 1996.

² The study reported in this paper is part of a broader research program on cross-national differences in quality of life at Erasmus University. Other investigators are Joop Ehrhardt, Pietrika Okma, Piet Ouweneel and Peggy Schyns. Anton Kunst added also to this paper by his valuable comments.

³ The Human Development Index is also available in a version with gender equality included, called 'Gender-sensitive HDI'. See Human Development Report 1992 table 1.3.

⁴ The Human Development Index acknowledges declining utility of wealth, by 'discounting' income above average levels (UNDP 1995: 134).

⁵ The phrase 'quality-of-life in nations' has a somewhat broader connotation than 'livability of nations' or 'habitability of the nations'. The latter expressions refer primarily to a fit with the needs of inhabitants. The former expression also denotes moral and esthetical qualities of the citizens' life. As such it is closer to conceptions of 'ideal quality' of society (mentioned third). Here, the term 'quality-of-life in nations' is used in the limited meaning of 'livability' of nations.

⁶ For a discussion of the adaptive functions affect see Morris (1992) and Nesse (1990). Affect and cognition developed only in species that can choose how to live and where. The faculties would be of little use for plants.

⁷ The difference between subjective 'ill-being' and 'well-being' was proposed by Headey & Wearing (1984).

⁸ The Affect Balance Scale (ABS) has at least four advantages in a cross-national context. 1) ABS is less vulnerable for language differences than the single happiness- and satisfaction-items. Because ABS involves 10 items, possible distortions in translation and understanding are likely to neutralize each other. 2) ABS is also less vulnerable for desirability distortion, and therefore also less vulnerable for differential distortion of that kind. ABS inquires about recent affective experience, which a more tangible matter than general happiness and satisfaction. Also is admitting that one felt bad during the last few weeks less threatening than avowing oneself as unhappy. 3) ABS does not require acquaintance with concepts such as 'happiness' or 'satisfaction'. Though single items on happiness do not appear to be vulnerable for these distortions either (Veenhoven 1993, chapter 5), use of ABS is still safer. 4) ABS measures the affective dimension of happiness (hedonic level), which may reflect the fit between individual needs and societal supply better than cognitive appraisals of life (contentment). The latter variant could be more susceptible to cognitive accommodation. Affective appraisal is more direct and 'unreasoned'.

⁹ The first cross-national surveys involving items on satisfaction were initiated in the USA and effected by Gallup International. In 1948, nine western nations were surveyed (Buchanan & Cantril 1953). In 1960 and 1975 world-surveys were performed (Cantril 1965, Gallup 1975). These were once-only projects. Periodic quality-of-life surveys were held in most of the rich nations since the 1970's. Initially, these surveys provided little opportunity for cross-national comparison of satisfaction, because items differed too much. Over the years, the pool of com-

parable items has grown, both as a result of spontaneous consensus and deliberate effort to develop standard questions. In 1991, the International-Social-Survey-Program (ISSP) included the same set of questions on satisfaction in 12 nations. In the early 1980's the first World Value Survey (WVS1), took place in 22 nations. The standard questionnaire of that survey involves three items on happiness. In the early 1990's WVS2 was held in 43 nations. WVS 3 is planned to cover about 75 nations at the turn of the century.

¹⁰ So called 'Sullivan method'. First standard life-expectancy at a certain age of a certain birth-cohort is calculated by means of a conventional life-table. To that end it is estimated how many persons in that cohort will survive until a certain time; e.g. their 70th birthday. On that basis it is calculated how many years are lived by persons in that birth-cohort at a certain age, f.e.: the number of years lived between the 70th and 71th birthday. The total number of years lived over all agegroups equals the life-expectancy. Next it is estimated how many of these years are lived in bad health. To that end, surveydata on prevalence of healthproblems in specific age-categories are used. E.g. if survey data show that of the 70-years old 50% is in bad health, the number of years lived in bad health can be estimated as one half. The total number of years lived in bad health equals the 'unhealthy life-expectancy'. Subtracting this estimate from the standard life-expectancy yields the 'health' life-expectancy.

This method makes sense if the purpose is to estimate the healthy life-expectancy of a particular person at a certain age, which is typically the case in medical research. Yet specification by age is not necessary if the purpose is to estimate general life-expectancy of the population, which is the case here. For our purpose, age specification would be required only if the age composition of the life-table population differed considerably from the age-composition in the survey. For the sake of simplicity I assume that such differences are negligible.

Age specification is also more appropriate in the case of 'health' life-expectancy than in the case of 'happy' life-expectancy. Health does indeed deteriorate with increasing age, but happiness does not (Okma & Veenhoven).

¹¹ One could object that high infant mortality does not really signify poor quality-of-life, because it is fairly natural and sometimes even necessary for avoiding overpopulation. From that point of view one can better depart from life-expectancy at age 5 or so.

In this explorative study I opt for life-expectancy at birth, both because this conceptually the most consequent and because the other way leads into arbitrary choice. Still I acknowledge that this rigor may involve a blow-up of the differences between developed and under-developed nations.

¹² Of the 48 nations of which we know the average report on 'happiness', 42 were surveyed in the context of the World values Study 2. All these surveys involved an identical question, situated in the same place in the questionnaire. The question is: "Taking all things together, would you say you are: very happy, quite happy, not very happy, not at all happy?"

The other 6 cases come from various surveys and involved slightly different rating scales. These cases are: Australia, Greece, Israel, Luxembourg, New Zealand and the Philippines. Scores on these items were transformed to scale 0-10 by means of a Thurstone procedure, and next transformed linearly to scale 1-4. These procedures are described and evaluated in Veenhoven 1993: chapter 7.

Scores on these items were transformed to scale 0–1 by linear transformation.
¹³ In the World Values Study, overall happiness is measured by a single question rated on a 4 step scale, life-satisfaction by a single question rated on a 10 step scale and Affect Balance by a 10 item index. Intercorrelations are: Happiness by Life-satisfaction: + 0.90, Happiness by Affect Balance + 0.61, and Life-satisfaction by Affect Balance + 0.61.

¹⁴ Scores of Argentina, Chile and China may be too high. The happiness scores of these nations are based on samples in which poor rural population was under represented.

¹⁵ One possible positive effect could be that people can shrink from wage-work, when unmotivated or unfit. This effect is likely to be most pronounced in the nations that pair high work demands with good social security.

¹⁶ Among the poor nations these variables explain single life-expectancy better (70%) than single happiness (30%). However among the rich nations they differentiate more on single happiness (44%) than on single life-expectancy (24%). This is comprehensible if we remember exhibit 4, which showed that poor countries differ more in life-expectancy than in happiness, and rich countries more in happiness than in life-expectancy.

¹⁷ Missing values estimated:

* Northern Ireland: between Great Britain and Ireland (\$ 10.600)

* Czecho-Slovakia: like neighbouring East European nations (\$ 7.420)

¹⁸ The amount of daily calories needed is 2500. All countries at or above that level were coded 0. Cases below coded as number less than the required 2500. In this dataset only four countries score below that level (India, China, Nigeria, Philippines).

¹⁹ Data 1980. Some scores seem implausible (Finland 84%, Spain%, Hungary 44%).

²⁰ Square meter per person would seem a better indicator. However, for a lot of nations data on this matter are not available.

²¹ The question about family income was not identical in all countries. In most cases subjects indicated their income on a 10 step scale, where each answer category was defined in a local currency. In a few cases scales of a different length were used (France, USA, Canada, Mexico, South Africa, Czechoslovakia). These were recoded to scale 1–10. In Romania the answer categories were not labeled with monetary values. Respondents indicated their income position from 1 (lowest) to 10 (highest).

In the responses, extremely high incomes cannot be recognized. F.e. in Germany the highest income category is labeled: DM 8.000 or more per month. This reduces the dispersion on this measure.

²² The indicators listed here do not inform about freedom of press. Freedom of press is part of the civil liberty index (see freedom).

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