GEOGRAPHY OF HAPPINESS
Configurations of affective and cognitive appraisal of life across nations

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In: International Journal of Happiness and Development,2015, 2 (2) 101-117
ISSN online: 2049-2804

ABSTRACT
When appraising satisfaction with life-as-a-whole, we draw on two sources of information: 1) how well we feel most of the time and 2) to what extent life brings what we want of it. These sub-appraisals are referred to as 'components' of happiness; respectively hedonic level of affect, the affective component, and contentment, the cognitive component. These sub-appraisals do not necessarily go together, one may feel fine but be discontented, or feel bad affectively, while being contented cognitively.

In this paper we explore how these appraisals combine in nations, drawing on data from the Gallup World Poll. The affective component is measured using an affect balance scale based on responses about yesterday's affective experiences. The cognitive component is measured using responses to a question about how close one's present life is to the ideal life one can imagine. Data is available for 133 nations for the years 2006 to 2009.

Scores on both components of happiness tend to go together: r = +.48, but the correlation is far from perfect and differs considerably across nations. Discordant combinations of low affect and medium contentment are found in Eastern Europe, while the reverse is observed in Southern Europe. Discordant combinations of higher affect than contentment appear in Latin America and Africa. Explanations for the differences are explored.

Keywords: Subjective well-being, happiness, cross-cultural, hedonic, contentment

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1. INTRODUCTION

Happiness has long been a subject of philosophical speculation, but it became the subject of empirical research in the social sciences in the second half of the 20th century. To date (2014) some 4000 empirical studies on happiness have been done. All this research is stored in the World Database of Happiness (Veenhoven 2014a).

1.1 Happiness in nations

Of the 4000 empirical studies on happiness some 1000 compare nations. Landmark studies of this kind are reported by Cantril (1965), Inglehart (1977) and Diener et. al. (2010). All scientific publications on this subject are listed in the Bibliography of Happiness[3] (Veenhoven, 2014b).

The findings of this strand of research are also gathered in the World Database of Happiness. Each separate finding is described on a 'finding page' using a standard format and terminology. Some 5000 findings on how happy people are in nations are stored in the collection 'Happiness in Nations' (Veenhoven 2014c) and some hundreds of findings on societal co-variants of happiness are in the collection 'Correlational Findings'[4] (Veenhoven 2014d).

The main conclusions drawn from this research are: 1) average happiness differs widely across nations, 2) these differences are systematic and link to societal characteristics such as economic affluence and quality of government, 3) most of these differences are part of the modernity syndrome, the more developed the nation, the happier its citizens are, 4) average happiness has gone up in most industrialized countries over the last 40 years and probably also in most non-industrialized nations, 5) inequality of happiness within nations is going down.

1.2 Components of happiness

Much of this research is focused on happiness in the sense of overall life-satisfaction. This overall appraisal of life is seen to draw on two sources of information that are called 'components' (Veenhoven 2009): 1) how well one feels most of the time and 2) to what extend one's wants are being met. These components of happiness can be measured separately and therefore it is also possible to assess these in nations. Though possible in principle, such measures were not available until recently. Yet since the start of the Gallup World Poll in 2005 we got data on both components of happiness for most nations of the world. This enables us to explore variations on components of happiness across nations.

1.3 Questions on components of happiness in nations

In that context a first question is which of these two components weights most in the overall evaluation of life and whether the weights differ across cultures. That question has been considered by Rojas and Veenhoven (2012). In the same vein, Clark and Senik (2011) compared the link between life satisfaction and cognitive, hedonic and eudemonic components in 21 European countries and found that these components do not correlate well for all nations.

Another question is to what extent these sub-appraisals of life go together and whether correlations differ across cultures. As yet few studies have compared 'components' of happiness across nations[5]. Can people in a country be contented cognitively, while feeling miserable affectively? Some critics of modernity see the high rates of depression in 'happy' nations as a proof. Likewise, could it be that people in a country are discontented with what they have, but still feel fine affectively? In that line several visitors of poor countries were stuck by the cheerfulness they encountered, a Western stereotype well depicted by Lévi-Strauss (1955). These guesses link up with a wider question of the effect of societal development on happiness. Life-satisfaction is typically higher in developed nations, but is that because modern people feel better or because of a smaller gap between what they want and what they have? As we will see in more detail below that latter question is critical in the moral evaluation of societal development.

1.4 Plan of this paper

We first describe in more detail what we mean by 'happiness' and distinguish between two 'components' of happiness. We then describe how we measure each of these. Using available data for 133 countries, we chart how these components combine per geographical unit and across levels of societal development. Having established these differences of correlation, we explore possible reasons of these differences.

2 HAPPINESS

The word 'happiness' is used in different meanings and we will first explain what meaning we address in this paper. We will then distinguish two 'components' of happiness and explain how these are measured.

2.1 Meanings of the word

In philosophy, the term 'happiness' is often used as an umbrella term, used to denote the good life in a broad sense. Yet the term is also used for specific qualities of life. These latter meanings are charted in Figure 1.

The top-left quadrant of Figure 1 represents the presence of good external living conditions; with the least livable conditions found in 'hell' and most livable conditions in 'paradise'. This definition is central in 'objective' conceptions of happiness, that is; notions of conditions in which humans will thrive. This meaning is a favourite among policy makers.

The top-right quadrant denotes the inner qualities required for dealing with environmental conditions. This definition is central in the 'capability approach' and in the related notions of 'eudemonic happiness'. This meaning is a favourite among educators and therapists.

The bottom-left quadrant denotes the effects of one's life on the environment, for instance how supportive one is to one's fellow humans and what one contributes to human culture. This rather intangible meaning of happiness is a favourite among moralists.

All three these meanings of the word happiness concern an objective notion, and imply that one can be happy without knowing. In contrast the fourth definition is essentially subjective. The bottom-right quadrant of the table denotes quality of life in the eye of the beholder.

Happiness in this meaning is also called 'life satisfaction' or 'subjective well-being'. In this paper we deal with that fourth meaning of the word happiness.

2.2 Definition of happiness

Happiness is defined as *the degree to which someone evaluates the overall quality of his or her present life-as-a-whole positively.* In other words, this is about how much one likes the life one lives. This definition is explained in more detail in Veenhoven (2000).

2.3 Components of happiness

When appraising how much we like the life we live, we draw on two components: 1) how well we feel generally, and 2) how well our life-as-it is compares to standards of how-life-should-be. These sub-appraisals are seen as 'components' of happiness, respectively the *affective component* called 'hedonic level of affect' and the *cognitive component* called 'contentment'. This distinction is discussed in more detail in Veenhoven (2009), who also proposes a theory about difference in the determinants of these components. This distinction is illustrated in Figure 2.

Hedonic level of affect.

Like other animals, humans can feel good or bad, but unlike other animals, we can reflect on that experience, assess how well we feel most of the time and communicate this to others. This is the feeling-based part of happiness. Veenhoven assumes that affective experience draws on gratification of innate needs and infers on this basis that the determinants of hedonic happiness are universal (Veenhoven, 2010).

Contentment

Unlike other animals, humans can also appraise their life cognitively and compare their life as it is with how they want it to be. Wants are typically guided by common standards of the good life and in that sense contentment is likely to be more culturally variable than affect level. This cognitive appraisal of life assumes intellectual capacity and for this reason this concept does not apply to people who lack this capacity, such as young children who cannot yet oversee their life-as-a-whole and thus can have no clear standards in mind.

2.4 Measures of happiness' components

Happiness was defined as the subjective appreciations of one's life as-a-whole. Thus defined, happiness is something we have in mind, and such inner notions can be assessed using questioning. Questions on happiness can be framed in many ways, directly or indirectly, using single or multiple items. An overview of acceptable questions is available in the collection 'Measures of Happiness' of the World Database of Happiness (Veenhoven 2011e). Most of these concern overall life-satisfaction. Below we describe the main measures of the two happiness components.

Measures of hedonic level of affect

There are several ways to ask people to assess how well they feel generally. One way is to invite to a general estimate, for instance with the question: 'How often have you felt happy during the past 6 weeks?" Questions of this kind are coded A-TH (Affect: Time Happy), in the collection of happiness measures.

A second method used to assess happiness is multi-moment assessment and this involves a series of repeated questions such as: "How happy do you feel right now?" Measures of this kind are coded A-ARE, (Affect: Average Repeated Estimates), in the collection 'Measures of Happiness'.

A third approach to assessing hedonic level is to ask first about various specific affects experienced in the recent past, both positive affects such as 'joy' and negative affects such as 'anger'. Next an 'affect balance score' is computed by subtracting reported negative affects from reported positive affects. Measures of this kind are coded A-AB (Affect: Affect Balance) in the collection Measures of Happiness. A common example is the PANAS scale (Watson et al., 1988). A variant of this latter method was used in this study.

Measures of contentment

Contentment can be measured using a global question, such as: "How successful are you in getting what you want from life?" (code C-RW, Contentment: Realize Wants).

A more sophisticated method to assess happiness involves three steps: First respondents are asked to list the things they want from life. Next they rate how successful they are in reaching each of these things. Finally the investigator computes the respondents average success in meeting their wants, eventually weighed by importance. Measures of this kind are coded C-ASG (Contentment: Average Success in Goals) in the collection 'Measures of Happiness.

A variant of the above approach does not ask respondents for personal 'wants', but rather refers to notions of the good life. The first step is to ask people what they think of as the 'best possible life' and next what constitutes the 'worst possible life'. After priming the respondents with these open questions, they are presented with a ladder and asked to imagine that the top of the ladder represents the best possible life that they just had described and that the bottom of the ladder represents their worst concept of the worst possible life. As a last step respondents are asked to rate their present life on the ladder, in some variants of this approach this is done after respondents have been asked to rate their life 5 years ago and how they envisage their life 5 years from now. This method is known as Cantril's (1965) 'ladder of life scale' and is coded C-BW (Contentment: Best Worst) in the collection 'Measures of Happiness'. In this study we used a simplified version of the method that involved only the last step.

3 DATA

The Gallup Organization has been involved in cross-national surveys on happiness since the 1970s (Gallup, 1976). In 2005 Gallup started its 'World Poll', which involves yearly surveys in almost of all the countries of the world. Data are now available for 155 nations for the years 2006 to 2009 (Gallup, 2009). In each country, about 1,000 people were interviewed. In 22 countries of the 155[6], data on at least one of the components is not available, which is why we draw on 133 countries.

In some countries, surveys were held in all the study years (2006, 2007, 2008, 2009) and in some countries data was collected only once in this period. When data on more than one year were available for a country, we took the average[7]. One might wonder about the stability over time of the results. The data on contentment and hedonic level of affect does not allow one to assess stability over time, but we know that overall happiness is stable over time within countries[8]; thus, it is very likely that its subcomponents, contentment and hedonic level of affect also are stable over time.

In 2006 the questionnaire of The Gallup World Poll contained questions on all three happiness variants: a question on overall life-satisfaction, a question on contentment and a series of questions on affect. The results of the Gallup World Poll are not freely available, but some of them can be accessed temporarily on the Gallup World View website https://worldview.gallup.com/.

Among these free data are the average responses in countries to the questions about affect and contentment. We kept track of these reports and entered the findings in our data file 'States of Nations' (Veenhoven, 2014f).

3.1 Questions on hedonic level of affect

The Gallup World Poll contains 14 questions about how the respondent felt yesterday. The first eight are introduced with the following lead question:

"Did you experience the following feelings during a lot of the day yesterday? How about: (a) enjoyment, (b) physical pain, (c) worry, (d) sadness, (e) stress, (f) anger, (g) depression,(h) love.

Respondents were also asked: "*Now please think about yesterday, from the morning until the end of the day. Think of where you were, what you were doing and how you felt:" (i) Did you feel well rested yesterday? (j) Did you smile or laugh a lot yesterday? (k) Did you learn or do something interesting yesterday? (l) Would you like to have more days just like yesterday?(m) Were you proud of something you did yesterday? (n) Were you treated with respect all day yesterday?*

Respondents can answer either 'yes' or 'no' to each of these questions. On its World View website Gallup reports the percentage 'yes' responses to each of these questions in the participating countries. It is on this basis that we computed the average percentage of positive affects reported in each of the countries: (a+h+i+j+k+l+m+n)/8. Likewise, we computed the average percentage of negative affects reported: (b+c+d+e+f+g)/6. As a last step, we subtracted the former percentage from the latter. The resulting affect balance score denotes the degree to which positive affects outweigh negative affects.

It appears that the sum is positive in all countries, which means the percentage of positive affects reported tends to be greater than the percentage of negative affects. The percentages range from 11 (Ethiopia) to 66 (Iceland). This variable is entered in the data file 'States of Nations'[9].

The method above is not suited for measuring the hedonic level of affect of individuals, since yesterday's affect does not always correspond with the typical affect of the individual. Yet this method can be used to measure hedonic level in aggregates, such as nations, since individual variations balance out in big samples.

3.2 Questions on contentment

The single question on contentment in the Gallup World Poll reads as follows: *"Here is a picture of a ladder, suppose that the top represents the best possible life and the bottom the worst possible life. Where on this ladder would you place your current life?" (0 worst possible, 10 best possible).* Average responses differ widely across nations, the highest average is observed in Denmark (8.0) and the lowest in Iraq (3.2). This data is also stored in the data file 'States of Nations'[10].

4 RESULTS

We plotted average affect against average contentment in nations and inspected the extent to which these components of happiness converged or diverged and if we could find any pattern in this mapping.

4.1 Correlation between average affect and contentment in nations

Not surprisingly, scores on the two components of happiness tend to go together, in countries where affect is high, contentment also tends to be high as well; r = +.48. Yet the correlation is far from being perfect. This is in line with the findings of Rojas and Veenhoven (2013). While these authors looked for the contribution to life satisfaction of each of the components, we looked at the way these two components of happiness go together. We looked for similarities in co-variance and recognized clusters of countries in specific geographical areas and sharing a common culture. These clusters are circled in Figure 3.

Geographical clusters

Six geographical areas stand out in Figure 3: one, Western nations, composed of the wealthiest countries; two, former communist countries; three, Latin America; four, Africa; five, Asia and six, Islamic countries. Table 1 presents variance within the different clusters as well as intercluster varaiance. Intercluster variance is superior to intracluster variance and indicates that this set of clusters is relevant.

These clusters cover most of the countries quite well, however, a few countries fall out of their geographical zone. Noticeable outliers are Germany, Spain, Portugal, Chile, Bolivia, Peru and Bulgaria.

Correlation within cultural clusters

We have seen that the general correlation is +.48, but there are large difference in homogeneity of the above-mentioned zones. The correlation coefficients of the different zones are presented in the Table 2 below.

Inter-zone correlations between the two components of happiness range from +.23 (Asia) to +.81 (Latin America). The correlation for Asia (+.23) is lower than the global correlation (+.48), which is not surprising: this area presents the highest heterogeneity among the different zones. The correlations for former communist countries and Africa are more in line with the global correlation (+.38 and +.43). Relatively high correlations appear in the Western countries, Islamic countries and Latin America (respectively +.70, +.78 and +.81).

4.2 Concordance in combinations of affect and contentment in nations

In order to explore patterns of convergence and divergence, we divided the scores on both components of happiness into the tiers 'low', 'medium' and 'high'. This resulted in nine possible combinations, three of which were concordant, e.g. low affect – low contentment, and six of which were discordant, e.g. low affect – medium contentment.

Concordant combinations

Areas where affect and contentment go hand in hand are presented in Figure 4a. The concordant combination 'low-low' was typical of Islamic countries. The concordant combination 'medium-medium' gathered most of the Asian countries, whereas the 'high-high' combination was typical of rich countries, mostly western nations.

Discordant combinations

Area's where affect and contentment diverge are presented in Figure 4b. The combination of low affect and medium contentment appeared to be typical for the former communist nations. The combination of medium affect and low contentment appeared to be characteristic of African countries. The combination of high affect and medium contentment was typical for Latin America. The combination of high affect and low contentment was seen in a few African countries, i.e. Kenya, Mali and Niger. There were no countries where low affect went together with high contentment.

5 DISCUSSION

What does this empirical exploration tell us about happiness? Below we will first interpret the patterns in the light of existing civilizations matrices. Next we will look at these societies from the perspective of needs and wants.

5.1 Why geography makes sense?

Our approach is empirically-driven and most geographical clusters were trivial. The question is why does geography matter so much? Why would geographical clustering make any sense at all? By definition, geographical areas present some continuity and some resemblance, at least more so than with any random remote country, for instance with link to the climate. Because all borders have been more or less porous at some point in history, they also present some continuity; through these pores, different materials (economic, genetic and cultural) have been exchanged. All in all, this means that neighbouring societies are likely to share some resemblance in societal development and cultural environment, more so than with any other country. This is also true for countries with a common culture and a comparable level of development but no g eographic proximity (e.g. United Kingdom and Australia). In general, countries from a common geographical area also present as well some heterogeneity, but as seen in the previous section, not as much as with other areas in average. In particular, societal development and cultures within geographical areas are much closer than they are between geographical areas. Thus, gratification of wants and needs and the way inhabitants answer to those questions are likely to converge to some extent. Below we discuss first, the cultural homogeneity looking at existing classifications and second, we look at societal development using Veenhoven's theory of gratification of needs and wants.

5.2 Link with cultural differences

We identified 6 geographical clusters. Is there a link with clusters as identified in comparative studies of culture? Below we consider three of these.

Inglehart's value zones

Inglehart defines 8 cultures through the study of clusters of values: Africa, South Asia, Confucian, English speaking, Protestant Europe, Catholic Europe, Latin America and Ex-Communist. Probably because of lack of data, an obvious miss is Islamic culture; this would make nine cultures.

At first, we can see that the clusters that appear on the map of happiness are quite in line with Inglehart's classification. Africa, Latin America and ex-communist are the same clusters as the ones that stand out on figure 3. Then, there are slight differences between classifications.

The cluster 'Western nations' we defined correspond to Inglehart's 'Catholic Europe', 'Protestant Europe' and 'Anglo-Saxon countries'. We reckon they are large differences inside our cluster and there would be room to define sub-clusters, although they would be different from Inglehart's classification. Whereas we would define it as the South part of Europe (geographically), Inglehart mainly introduces religion. A good example of difference is Austria; although this is a Catholic country, it clearly does not fit in the Latin Europe sub-group as the hedonic component is higher than this group and is, in our classification clearly in the Protestant group, which also includes Germanic countries. Next, whereas Inglehart makes a distinction between Protestant Europe and English speaking, we reckon that the three sub-groups, 'Protestant Europe', 'Anglo-Saxon countries' and 'Germanic countries' form a homogeneous group, with high scores on both hedonic and cognitive components.

Finally, we define a wide cluster 'Asia' whereas Inglehart's separates 'Confucian countries' from 'South Asia'. When looking at the map of happiness, it is impossible to dissociate Confucian countries from south Asian ones as the overlap is too important to dissociate them.

This is partly due to the high heterogeneity of the two groups and particularly the South Asian one, who gathers countries as different as Vietnam, Armenia, Turkey, India or Israel. Furthermore, it seems wise to split the category South Asia in two parts, one to be added to the Asian group and one to the Islamic group.

Nadoulek's religious civilizations

Nadoulek defines 7 civilizations largely based on religion: Catholic, Protestant, Hindhu, African, Islamic, Asian and Orthodox. The matrices present some similarities in the structure and some noticeable differences. Nadoulek places together Latin America with Latin Europe under 'Catholic' whereas Inglehart has them separately. Both authors divide Asia in two parts, but the Hindhu part of Nadoulek is restricted to two nations (India, Sri Lanka) which are included in the South Asian part of Inglehart together with many countries.

The clusters we identified present some strong similarities with Nadoulek's classification. The groups African and Islamic are identical. Nadoulek's Orthodox group is very close from our ex-communist group except a few differences; for instance Greece is in our Western nation group and not in our ex-communist group, as its happiness configuration is closer to Western nations than to the ex-communist one.

A major difference between Nadoulek's classification and our clusters is the Latin civilization; whereas Nadoulek joins the group of Latin America and Latin Europe under Catholic culture, their happiness is clearly different. In terms of happiness, Latin America and Latin Europe, which is part of the cluster 'Western nations' are completely separated, the former combining high affect level and medium contentment, the other one presenting the reverse pattern. Finally, it integrates as well the Hindu culture as a category on its own; with only two countries (India, Sri Lanka), it is really hard to see if this makes a group on its own. However, it does fit very well in the Asian group. We do not deny it to be a cultural group on its own, but it is hard to isolate it.

Huntington's civilizations

Huntington defines 8 types of civilizations: Western, Orthodox, Islamic, Latin American, Sinic, Hindhu, Buddhist and Japanese (and may be African).

The classification presents some similarities with our clusters; Islamic and Latin American are strictly identical, Orthodox is almost identical to our ex-communist group (as for Nadoulek).

Next, there are some differences. That the African civilization, the oldest civilization, representing 650 million people might not be a civilization according to the author can interrogate us on the validity of his set of civilizations. We do see a clear Black African group consisting of low contentment and medium to high hedonic level of affect. Furthermore, Huntington defines 4 Asian civilizations: Sinic, Hindhu, Buddhist and Japanese. As for Inglehart, we are not able to disentangle different groups within the Asian clusters for different reasons. The overlap between the Sinic and the Buddhist is too wide for us to separate them. As for the Japanese and the Hindhu ones, they consist of respectively one and two countries and those sub-clusters perfectly fit with the wider Asian cluster. Therefore, leave them together does not seem to be a bad idea.

All in all, the clusters that stand out of our happiness study shows a common ground with each of the three classifications of cultures discussed above. This suggests that each civilization has a distinct pattern of happiness.

5.3 Interpretation though the lens of needs and wants

According to Veenhoven (2009) hedonic level of affect draws on the gratification of *needs*, while contentment is a matter of perceived realization of *wants*.

In his theory 'needs' are vital requirements for survival, such as eating, bonding and exercise. Nature seems to have safeguarded the gratification of these needs with affective signals such as hunger, love and zest. These separate signals generalize in the hedonic tone of mood and consequently good mood denotes that all needs are sufficiently met (Veenhoven, 2009). As such, good mood tells us that we are doing well.

In this theory 'needs' should not be equated with 'wants'. Needs are inborn and universal, while 'wants' are acquired and can vary across cultures. One may want things one does not need, or needs things one does not want. Such divergence occurs at the individual level, e.g. a priest who wants to forsake his need for sex, and at the societal level. A common criticism of western society is that it creates wants that do not fit needs. In that line Scitovsky argues that the products we buy do not satisfy (Scitovsky, 1976). Likewise Lane argues that we want wealth, while we need companionship (Lane, 2000).

Explanation of convergence

We have seen above that average affect and contentment go closely together in half of the nations (Figure 4a) Seen in the context of this theory this means that we typically want what we need. If need gratification falls short in a country, people feel bad and are also discontented and if needs are well met in the country, scores on both components of happiness are high.

Explanations of divergences

Yet we have also seen several discordant combinations (figure 4b). If the normal pattern is convergence, how can we explain the divergent cases?

Let us first consider the case of the former communist nations, where the level of affect is low, and contentment is medium. The low level of affect indicates deficient need gratification. This can be an echo of the communist past, which seems to have worked out negatively on intimate networks and to have reduced the capacity of individual to take control of their own lives. This may have thwarted gratification of the needs for companionship, self-respect or self-actualization. Yet much has changed for the better in these countries and for that reason one can imagine that people do not rate their life as 'worst possible', but rather tick the middle of the contentment scale.

In the same vein, how can we explain the situation of the countries with high contentment and medium affect, such as France, Israel, Italy and Germany? It is well possible that these societies with a high level of development fail to meet human needs such as self-esteem or self-realization. Possible explanation for this would be the high power distance that is present in most of these countries (Brulé and Veenhoven 2012) which is likely to thwart the need for 'self-respect'. This explanation fits our findings on the negative effect of vertical teaching practices and authoritarian rearing styles (Brulé and Veenhoven 2014).

How about Africa, where affect is at the medium level, but contentment low? The medium level of affect indicates that need gratification is not too bad in these countries, possibly because of seasoned survival strategies embedded in these cultures. Why then are people not equally contented? Probably because they are aware that life could be better and in particular that their material standard of living could be higher. The low contentment of Africans is then a matter of 'relative deprivation'. Possibly contentment would have been scored at the medium level if Africans were unaware of living conditions elsewhere.

Following this line, the pattern of high affect and medium contentment in Latin America would mean that human needs are fairly well met in Latin American societies, though life falls short on notions of how it could be. It is not easy to grasp why Latin American societies do so well with respect to need-gratification. It has been suggested that the need for social contact is well met in Latin culture, but it is difficult to prove that this really makes a difference. It is easier to understand why contentment is only at the medium level in Latin American countries, the high income inequality found in these countries is likely to foster a sense of relative deprivation in most individuals and across borders the salient example of the United States of America is likely to do the same.

Explanation for absence of low affect-high contentment combination

As we have seen, the combination of high contentment-low affect balance was not found. In the context of this theory that can be interpreted as preponderance of needs over wants. When minimum gratification of needs is at risk, we feel so bad affectively that we cannot comfort ourselves with cognitive accommodation.

Application to differences in components across societal development

Earlier research has shown that overall life-satisfaction tends to be higher in developed nations than in developing ones. This difference appears in strong correlations with various indicators of societal development, such as wealth e.g. Schyns (1998), Layard (2005), Bjornskov (2007), Stanca (2010), democracy e.g. Frey & Stutzer (2002), institutional quality e.g. Ott (2010) and value pattern (e.g. Inglehart (2000**).** In this data set the correlation between overall life-satisfaction and income per capita is +.61.

Let's now consider the correlation with each of the components of happiness: the correlation between income per capita and average affect level is much lower: $r = +.20$. Reversely the correlation with contentment is higher: $r = +.79$, as highlighted by Rojas and Veenhoven (2013). How to make sense of these findings?

At first sight this could mean that the effect of societal development on happiness is a matter of comparison in the first place and that modern society does not do much better in meeting human needs. This interpretation would fit the earlier mentioned qualms about the livability of modern society and the related claim that the higher 'happiness' in modern nations is mere superficial contentment that masks an epidemic of depression. Yet that explanation does not fit the fact that average affect is still higher in the developed nations than in developing ones. This explanation does not fit either with the observation that affect and contentment are highly correlated in developed nations, since this explanation would rather predict a non-correlation or even a negative one.

Rather than denouncing the happiness in developed nations, one could read these data as showing that need-gratification is not so bad in developing nations, though still not so good as it is in developed nations. In this context the discordant combination of affect and contentment in African countries makes sense. People feel not too bad, so their basic needs are reasonably met. Still they know that life could be better and for that reason are not contented. Africans score indeed low on contentment as we have seen in figure 4b and the correlation between affect and contentment is relatively low in nations of low development as shown in table 2.

5.4 What strategy for the delineation of clusters?

The two criteria that are important to delineate proper clusters are: one, maximization of intercluster variance and two, minimization of intracluster variance. Most of the time, these two criteria are contradictory, e.g. when increasing the number of cluster, the intracluster variance increases whereas the intercluster variance decreases. As for now we delineated large clusters, maximizing intercluster variance. The large clusters could be broken down into sub-clusters and that would be a nice work to do in the future. Already, based on our observation, we see potential sub clusters in the western nations one; for instance, we can see 'Latin Europe', 'English speaking' and 'Protestant Europe'. The first one differs from the rest with a middle hedonic level of affect whereas the rest is characterized by a high level.

6 CONCLUSIONS

Life can be appraised on the basis of two components: how well one feels and to what extent one perceives oneself to get what one wants from life. Ratings on these 'components of happiness' differ systematically across nations. As expected, affect and contentment go hand in hand in most cases; yet there is also a cluster of nations in which people are fairly contented but feel bad, i.e. former communist countries, and several clusters of nations where people feel fairly good but are discontented, i.e. Latin America. These differences across geographical clusters correspond to variations in societal characteristics.

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NOTES

[3] Subject section Dd01.02 of that bibliography contains about 500 titles about the prevalence of happiness in nations and subject section F contains some 1,100 publications on societal determinants of happiness

[4] Subject sections N2 to N7

[5] This is reflected in the above-mentioned collection 'Happiness in Nations' of the World Database of Happiness. Among the findings on average happiness in nations, only 8 % are based on measures of affect level and 12% on measures of contentment

[6] Suriname, Western Sahara, Guinea Bissau, Gabon, Lesotho, Swaziland, Somalia, Eritrea, Oman, Bhutan, North Korea, Papua new guinea, New Caledonia, Vanuatu, Fiji, Salomon Islands, Kiribati, Greenland, Hong Kong, Yemen, Guinea, South Georgia and the South Sandwich Islands.

[7] The years and the size of the samples can be accessed at: http://www.worlddatabaseofhappiness.eur.nl/hap_nat/desc_qt.php?qt=92

[8] Trend report for Belgium, Denmark, France, Germany, Greece, Italy, Ireland, Japan, Luxemburg, the Netherlands, Spain, UK, USA are available at: http://www.worlddatabaseofhappiness.eur.nl/hap_nat/findingreports/TrendReport_AverageHappiness.pdf

[9] Variable name: HappinessYesterdayABS_2006.08.

[10] Variable name: HappinessBW11_2006.09

AUTHORS

Gaël Brulé is a PhD student at EHERO (Erasmus Happiness Economics Research Organization) at the Erasmus University of Rotterdam. His main fields of interests are the links between happiness and hierarchy, education, family structures and freedom. He also studies the response styles, i.e. the different ways of responding to happiness questions in different cultures and nations. He is appealed both by the quantitative and qualitative analysis of happiness. He is also the scientific director of the Paris-based think tank La Fabrique Spinoza (The Spinoza Fabric) that aims at promoting happiness in society.

Ruut Veenhoven (1942) studied sociology and is also accredited in social psychology and social-sexuology. He is emeritus-professor of 'social conditions for human happiness' at Erasmus University Rotterdam in the Netherlands and extra-ordinary professor at North-West University in South Africa. Veenhoven's current research is on subjective quality of life. Major publications are: 'Conditions of happiness' (1984), 'Happiness in nations' (1993), 'The four qualities of life' (2000) and 'Greater happiness for a greater number: Is that possible and desirable?' (2010). Veenhoven also published on abortion, love, marriage and parenthood. Veenhoven is director of the World Database of Happiness and founding editor of the Journal of Happiness Studies.

Table 1
Comparison of variance between and within clusters

Intracluster variance	**+.16**
Black Africa	+.20
Asia	+.22
Latin America	+.20
Western nations	+.12
Islamic	+.13
Ex-communist	+.11
Intercluster variance	**+.33**

Table 2
Correlation between average hedonic level of affect and contentment in nations:
Split-up by cultural zone

Cultural zone	**n**	**r**
Black Africa	29	+.43
Asia	25	+.23
Latin America	22	+.74
Western	20	+.70
Islamic	15	+.45
Ex-communist	20	+.38

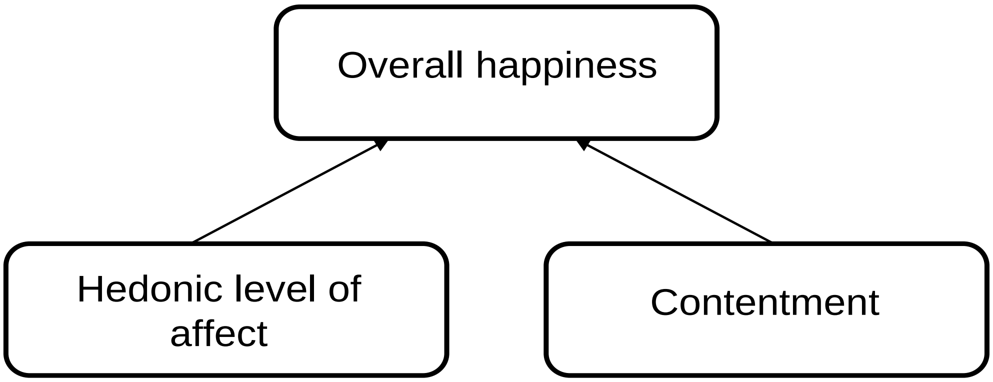
Figure 1
Four qualities of life

	Outer qualities	*Inner qualities*
Life-chances	Livability of environment	Life-ability of the person
Life-results	Utility of life	**Satisfaction with life**

Source: Veenhoven 2000

Figure 2

Overall happiness, i.e. life-satisfaction and its 'components'



Source: Veenhoven 2009

Figure 3:

Average affect balance by average contentment in 133 countries in the world 2006-2009: Configurations

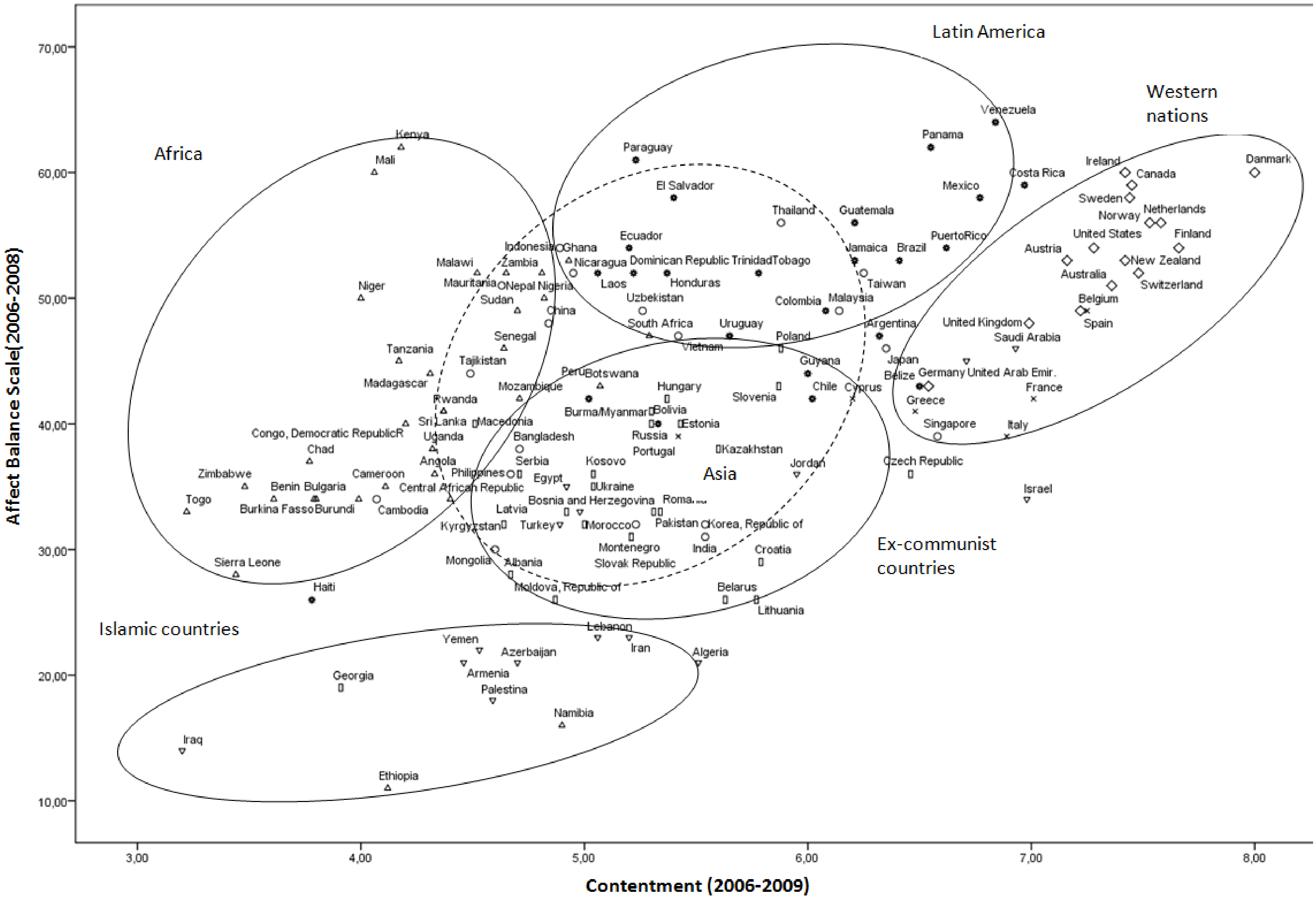


Figure 4a
Concordant combinations

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="3">Hedonic level</td></tr>
<tr><td>Low</td><td>Medium</td><td>High</td></tr>
<tr><td rowspan="3">Contentment</td><td>High</td><td></td><td></td><td>Western nations</td></tr>
<tr><td>Medium</td><td></td><td>Asia</td><td></td></tr>
<tr><td>Low</td><td>Islamic countries</td><td></td><td></td></tr>
</table>

Figure 4b
Discordant combinations

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="3">Hedonic level</td></tr>
<tr><td>Low</td><td>Medium</td><td>High</td></tr>
<tr><td rowspan="3">Contentment</td><td>High</td><td></td><td></td><td></td></tr>
<tr><td>Medium</td><td>Former communist countries</td><td></td><td>Latin America</td></tr>
<tr><td>Low</td><td></td><td colspan="2">Africa</td></tr>
</table>