Global Earth Observation - Benefit Estimation: Now, Next and Emerging

GEOBENE

Assessing the economic, social and enviromental benefits of the GEO domains

Modelling of the socio-economic and environmental determinants of subjective happiness and well-being

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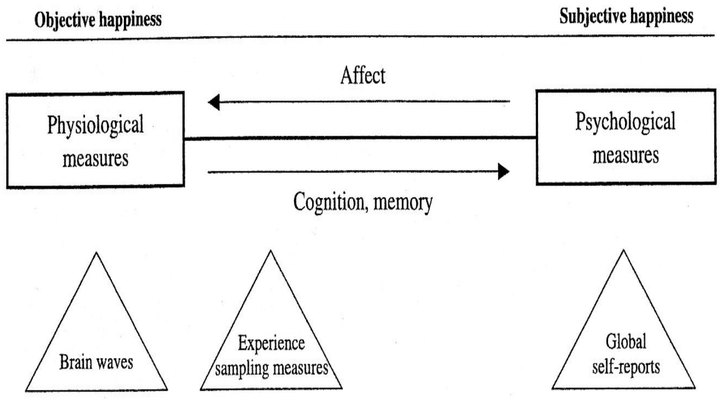
Background

In recent years, there have been numerous attempts to define and measure happiness in various contexts pertaining to a wide range of disciplines, ranging from neuroscience and psychology to philosophy, economics and social policy. Our research attempts to extend past work on the perception of happiness by building and analyzing a database of socio-economic and environmental variables at different levels (individual, household, district and region).

There have been several studies suggesting that happiness can be measured subjectively and objectively (see figure below (after Frey & Stutzer, 2002)), and there have been on-going lively debates over how to measure it.

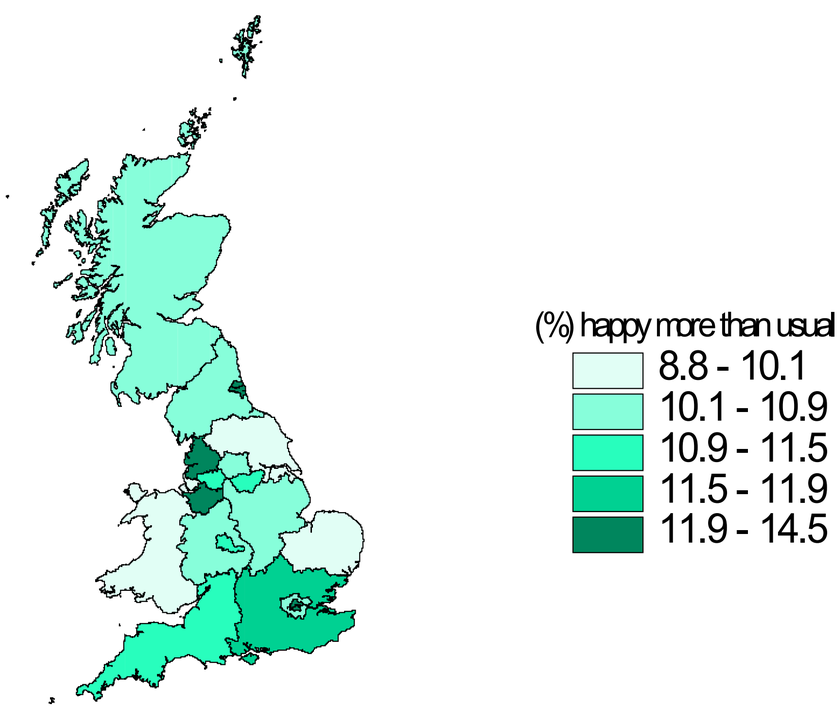


Objectives

This research project aims at developing a comprehensive multi-level framework for the analysis of happiness and well-being by linking socio-economic survey data as well as climate, environmental and wilderness data to determine the extent to which happy or unhappy people congregate in similar places (compositional effects) or whether certain attributes of places cause inhabitants to be happy or unhappy (contextual effects).

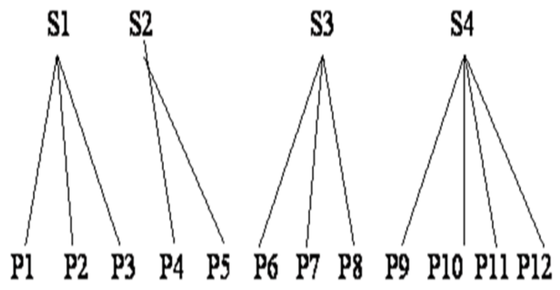
Data and method

Using secondary data it is possible to create maps of subjective happiness and well-being at the geographical levels at which data are available.



The next step in the analysis is to assess the nature and extent of variations in happiness and well-being and to determine the relative importance of the area (district, region), household and individual characteristics.

Multilevel modeling can be used to analyze data at various levels simultaneously, rather than modelling data at a single level.



Socio-economic and demographical determinants

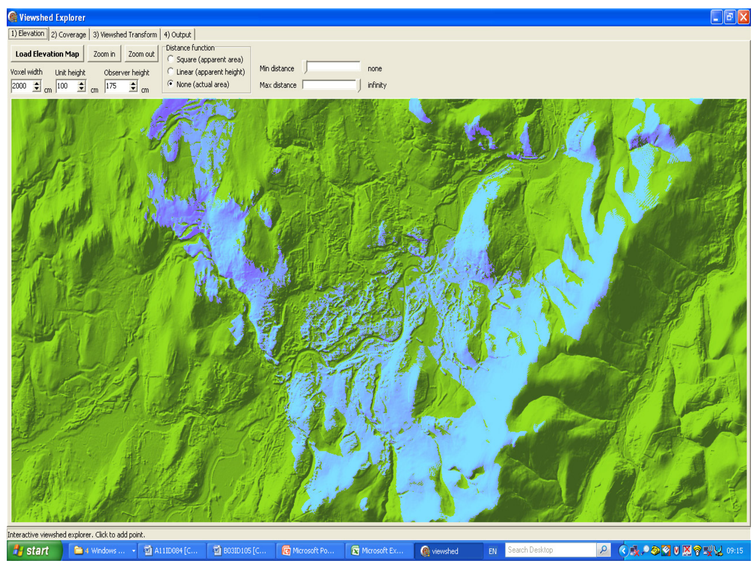
The table below summarises some of the results of multilevel modelling.

Variables, variance component estimates and coefficients (standard error in brackets)	Subjective well-being	General Happiness
Intercept	1.097 (0.117)	0.781 (0.133)
Individual-level variables:		
Age	**-0.034 (0.006)**	**-0.032 (0.006)**
Female	**-0.195 (0.024)**	**-0.086 (0.028)**
Individual income	-0.002 (0.015)	0.000 (0.017)
Health good (reference = health excellent)	**-0.208(0.025)**	**-0.081 (0.028)**
Health fair (reference = health excellent)	**-0.506 (0.035)**	**-0.275 (0.040)**
Health poor (reference = health excellent)	**-0.725 (0.062)**	**-0.426 (0.071)**
Health very poor (reference = health excellent)	**-0846 (0.144)**	**-0.642 (0.162)**
Employment status: unemployed (reference = employed or self employed)	**-0.882 (0.234)**	**-0.690 (0.268)**
Employment status: on maternity leave (reference = employed or self employed)	0.312 (0.280)	**0.736 (0.321)**
Employment status: on maternity leave (reference = employed or self employed)	0.312 (0.280)	**0.736 (0.321)**
Employment status: other job status (reference = employed or self employed)	-0.295 (0.484)	**-1.256(0.554)**
Has lived at current address for more than 5 years (reference = lived at current address for less than 1 year)	**0.100(0.036)**	0.047(0.040)
Unemployment status (individual level) x unemployment rate (district level)	**0.815 (0.235)**	**0.548(0.270)**

The above results pertain to the socio-economic and demographic determinants of well-being and happiness (Ballas & Tranmer, 2008)

The environmental determinants

Our on-going research aims to extend this multi-level modelling framework by adding environmental variables, including visibility and climate data



References

Ballas, D, Fritz, S (2008) *Geographical modelling of happiness and well-being using population surveys and remote sensing data*, paper presented at "Studying, Modeling and Sense Making of Planet Earth" UNESCO-sponsored international conference, Department of Geography, University of the Aegean, Greece, 1-6 June 2008

Ballas, D., Tranmer, M. (2008), *Happy people or happy places? A multilevel modelling approach to the analysis of happiness and well-being*, paper deposited at the arXiv e-print archive, http://eprintweb.org/S/article/stat/0808.1001

Frey, B, Stutzer, A (2002), *Happiness and Economic*s, Princeton University Press, Princeton.

Conclusions

This poster presents a new framework for the combination of secondary socio-economic data and environmental data sets to provide a powerful database for the geographical analysis of subjective happiness and well-being, building on a rapidly growing body of inter-disciplinary research. Future priorities include extending this framework to inform local debates on issues such as green-spaces and the geographical allocation and extent of geographical features that may be affecting happiness and local well-being.