*PROBLEM SET LIFE QUALITY AND GLOBAL SOCIAL INDICATORS
Perceptions on Policies and New Directions for Measuring Well-Being

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Exercise I – Answer the questions below

(i) What are the new directions for measuring well-being?

 (iia) Explain the methodology to construct the Human Development Index (HDI). How are the variables normalized and how each component is weighted? What criticism can be made of this methodology? What are its advantages? (iib) Do the same for the Inequality adjusted HDI (IHDI). What distinguishes algebraically the two indicators? (iic) **Do the same for the Millenium Development Goals (MDGs) and the Sustainable Development Goals (SDGs).

(iii) What does the Perceived Human Development Index (PHDI) try to measure and what is its conceptual difference in relation to the HDI?

(iv) How do inner and outer perception components behave with changes in variables such as income and age?

(v) Explain briefly the idea behind the methodology of Principal Components Analysis.

(vi) Based on the analysis of data from Gallup for 2006 and 2007, tell which component of the PHDI is more important to life satisfaction in general and how does its importance change across the life cycle.

(vii) Represent graphically the dynamic relation between Income, Happiness and Aspirations. How the concepts of present and future happiness in a given moment of time, as well as the measurement of present happiness in different moments, can be used to assess this relation?

(viii) **Describe the main conclusions of the Stiglitz-Sen-Fitoussi commission.

(ix) What are the priorities of young Brazilians in relation to the main Sustainable Development Goals (SDGs)? What is the difference between importance, satisfaction and weight in happiness. What is the difference between perceived and measured quality? Apply to the case of education in Brazil.

(x) Explain the methodology for constructing the Multidimensional Poverty Index (MPI). What are its main advantages and flaws?

Exercise II – To think beyond the material given in class...

(i) **Studies show that unemployment affects more negatively the subjective individual well-being at times when aggregate unemployment is lower. Explain why this result is apparently counter-intuitive and give an explanatory hypothesis.

(ii) ****Empirical studies based on subjective questions suggest that, in some societies, for example most Latin American societies, inequality is seen as negative, while in others, such as the United States, inequality is seen as something virtuous to some degree. Give a possible explanation for this result.

Exercise III - Comment, agreeing total, partially or not. If is the case, justify in three or four lines the following propositions (if possible, present a formula or graphic in capsular form to illustrate your answer) (choose 4 items)**:**

(i) *"One of the possible explanations for the Easterlin Paradox is that people's aspirations rose proportionately to income and as a consequence happiness didn't rise over time, besides the big economic growth experience."*

(ii) *" The subjectivist approach for welfare is based on the theoretical framework of choice theory and revealed preference, thereby seeking to make inferences about welfare based exclusively on people's behavior."*

(iii) *"One of the main ideas behind the Economics of Happiness is that well-being can be captured by asking people directly about their life satisfaction."*

(iv) *"The Economics of Happiness approach, or the Subjective Well-Being approach, allow a cardinal analysis of utility, thereby going beyond the objectivist approach."*

(v) *"By asking in a given moment of time present and prospective individuals' satisfaction, it is possible to filter the effect of the variation in aspirations, where it is constant in the temporal comparison realized in a given moment."*

(vi) *The empirical evidence shows that unemployment decreases happiness even when income is constant, which is consistent with the theory of choice between work and leisure.*

(vii) ***The empirical evidence from the Gallup World Poll data for 2006 shows that:*

  a. *The individual present and future life satisfaction show that Brazilians are optimistic about the future and that Brazil strictly follows the international norm that "money brings happiness".*
  b. *Individual and collective (with the country as a whole) present satisfaction show that Brazilians are more positive with their own lives than with the country.*
  c. *Present happiness tends to fall with age.*

(viii) *From the equation below, evaluate the propositions*

$$W = u\left(x^{*}\right) = \int_{0}^{\infty} u(x)w(x)f(x)dx$$

  a. *The literature of subjective happiness seeks to study directly the utility function u(x) from the answers given by the people about their own lives.*
  b. *Traditional literature on welfare studies strictly through the function w(x) how to aggregate people's well-being in a single number.*
  c. *The multidimensional welfare literature transform the vector x in a matrix.*
  d. *The literature of temporal choice can be represented exactly by the equation above.*
  e. *It is possible to incorporate the aggregation across people and across time in a synthetic manner (suggestion: aggregate overtime as well).*

Exercise IV - *Imagine a set of four countries (A, B, C, D) to be compared. In Table I, you will see some of their respective social indicators, for each there is a minimum and maximum values to be considered for calculating the Human Development Index.*

Indicator	Minimum	Maximum	Country's arithmetic mean
Life expectancy (years)	20	85	A: 65
			B: 77
			C: 81
			D: 75
Expected years of schooling (years)	0	18	A: 9
			B: 13
			C: 14
			D: 11
Mean years of schooling (years)	0	15	A: 7
			B: 8
			C: 12
			D: 9
Gross national income per capita (2011 PPP $)	100	75000	A: 15000
			B: 20000
			C: 10000
			D: 27000

a) Rank the four countries for according to their aggregate HDI and for all three dimensions. b) Now, considering in Table below the geometric means of each country's indicator. Calculate the Inequality-Adjusted HDI for each Country and rank them. Is there a re-ranking in comparison with the non-adjusted HDI? Describe your main findings.

Indicator	Country's geometric mean
Life expectancy (years)	A: 60
	B: 75
	C: 80
	D: 65
Expected years of schooling (years)	A: 5
	B: 10
	C: 12
	D: 8
Mean years of schooling (years)	A: 4
	B: 5
	C: 11
	D: 6
Gross national income per capita (2011 PPP $)	A: 7000
	B: 15000
	C: 8000
	D: 13000

Exercise V - Below there is a fictitious city, with 5,700 households. They were separated in 4 groups, with identical characteristics for the multidimensional poverty index (MPI).

		Number of Households			
		500	3000	800	1400
	Individuals per Household	3	2	4	1
	Education				
1	No one has completed 6 years if schooling	0	0	1	0
2	At least one school-age child is not enrolled in school	1	0	1	1
	Health				
1	At least one member is malnourished	0	0	1	0
2	One or more children have died	1	0	0	0
	Living Conditions				
1	No electricity	1	0	0	0
2	No access to clean drinking water	1	1	1	0
3	No access to adequate sanitation	1	0	0	0
4	House has dirt floor	0	0	0	0
5	Household uses "dirty" cooking fuel	0	1	1	1
6	Household has no access to information, mobility of livehood	0	1	1	0

Knowing that each group of indicators (Education, Health and Living Conditions) have 1/3 weight and every indicator has the same weight within group, calculate the Headcount ratio (H), the Intensity of poverty (A) and the overall multidimensional poverty index (MPI) in this city using a cut off criteria of 33% of unmet needs.

Extra) Is the MPI above well suited as a social target? What type of adaptation would be required?