

Perplexities

April 24, 2008

❖ **My theme:**

- the multidimensionality of utility and well-being

❖ **The Ariely story**

❖ **“Memories of Colostomy”, from Peter Ubel’s group (2006)**

- The value of not having a colostomy
 - 14 months / 10 years for a current patient
 - 44 months / 10 years for previous patient
- No difference whatsoever in current mood

Outline

- 1. The deconstruction of utility**
- 2. Two selves**
- 3. Adaptation and circumstances**
- 4. The role of attention**

1. The deconstruction of utility

Two senses of “utility”

❖ **Decision utility**

- “wantability” – standard usage in economics

❖ **Experienced utility**

- Bentham’s notion – standard usage in philosophy

❖ **Difficulties with decision utility**

- may not correspond to experienced utility
- prospect theory: the carriers of utility are changes
- depends on the reference point: the endowment effect

❖ **Difficulties with experienced utility**

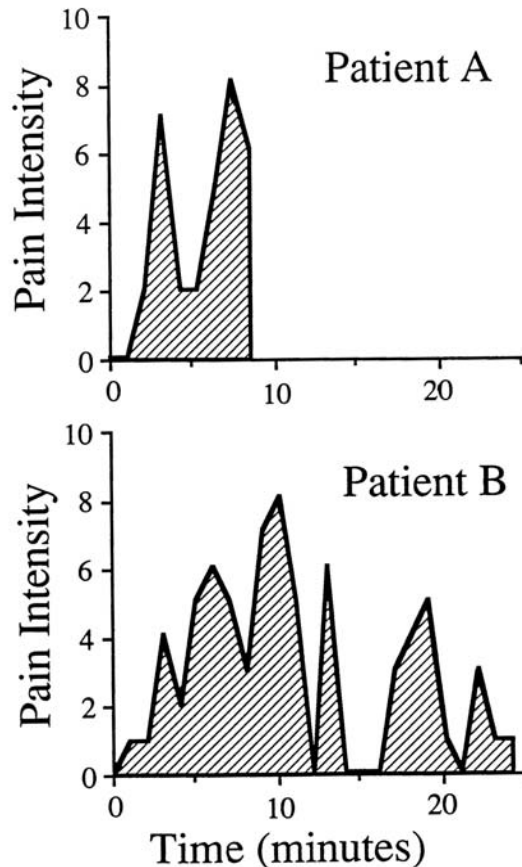
- remembered utility: an imperfect measure of experience
- may not correspond to objective assessments

❖ **Difficulties with predicted utility (*affective forecasting*)**

- attention biases: focusing effect
- incorrect lay theories of experience

The “objective” utility of an episode

Patients undergoing colonoscopy reported their pain every 60 sec.



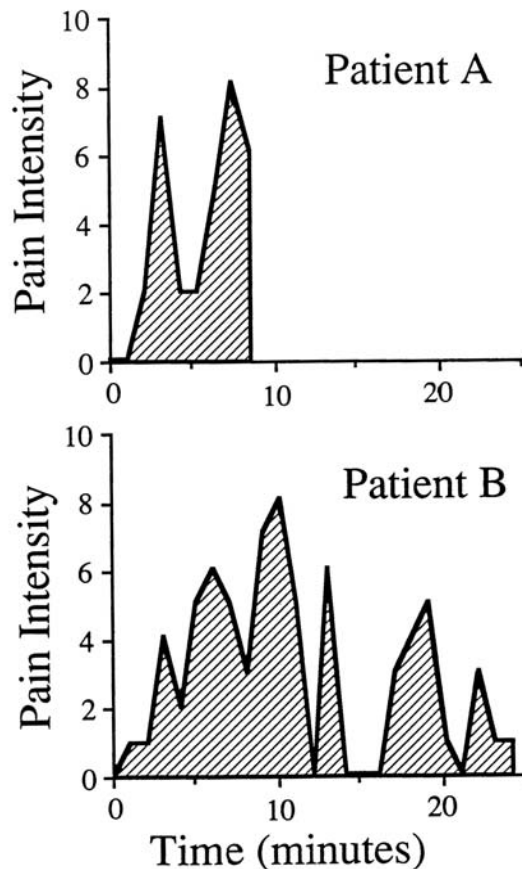
“How much did these patients suffer?”

The question is asked from the perspective of an objective observer

It requires the evaluation of a temporal profile of moment utility

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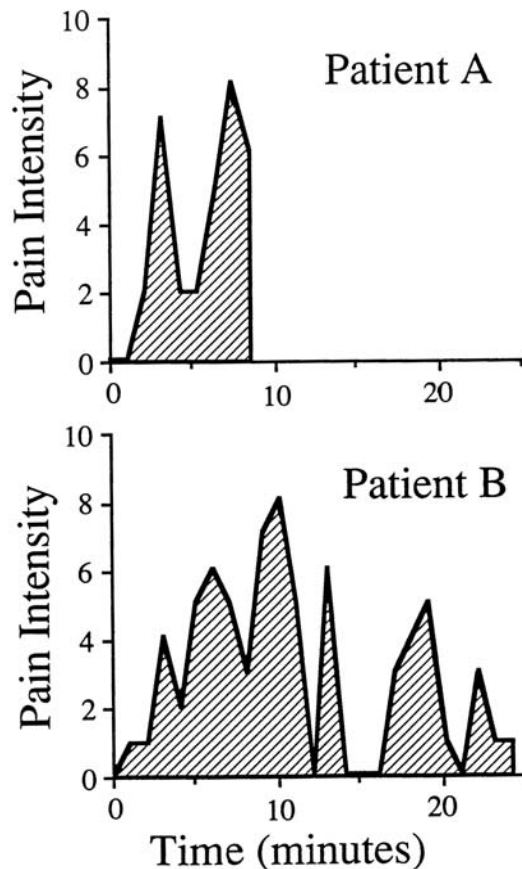
The question is asked from the perspective of an objective observer

It requires the evaluation of a temporal profile of moment utility

Observers agree that B suffered more

The remembered utility of an episode

Patients undergoing colonoscopy reported their pain every 60 sec.



*“How much did these patients **think** they suffered?”*

The question is asked from the subject’s retrospective perspective

Rules of remembered utility

Correlations with Global Ratings of a Colonoscopy

Peak+End .67

Duration of procedure .03

- ❖ “Peak-End Rule”: The episode is evaluated by a composite moment, which gives much weight to Peak pain and to pain at the End
- ❖ “Duration-neglect”

Violations of dominance

Kahneman, Fredrickson et al, 1993: On two trials, separated by seven minutes, participants immerse a hand in cold water until instructed to remove it. Seven minutes after the second trial, they are called for a third trial and are asked which of the two trials they want to repeat.

Short: 60 sec at 14°C

Long: 60 sec at 14°C + 30 sec → 15°C

65-80% prefer Long

This is not an isolated finding

The psychology of duration neglect

❖ The representation of events and stories

- duration neglect is a feature of judgment
- not only memory

❖ The story of “Jen”

- the James Dean effect

❖ Implications for QALYs

- the results do not inspire confidence in people’s ability to perform the TTO task

❖ In affective forecasting tasks

- confuse “being X” with “becoming X”

The neglect of adaptation

(Beruria Cohn, 1999)

Survey participants were asked to estimate the % of time that various classes of persons spend in good, neutral or bad mood, e.g., paraplegics and lottery winners, one month or one year after the event. Respondents were also asked if they knew a case personally

The measure: $\%(\text{good mood}) - \%(\text{bad mood})$

Paraplegics	One month	One year
Know one	-50%	-20%
Don't know one	-41%	-37%
Lottery winners		
Know one	64%	25%
Don't know one	58%	50%

- ❖ People use the emotion associated with “becoming X” as a proxy for the utility of “being X”

2. Two Selves

❖ **The experiencing self**

- ~20,000 3-sec moments in a day
- ~ 100 million in a 70-year life

❖ **The remembering-evaluating self**

- keeps score

❖ **Implications for the study of well-being**

Observations

❖ **The dominance of the remembering self**

- the only perspective we can take in thinking of our life
- Not guaranteed to serve the interests of the experiencing self

❖ **The experiencing self does not have a voice**

- If our remembering self is wrong, there is no recourse
- the remembering self makes the decisions

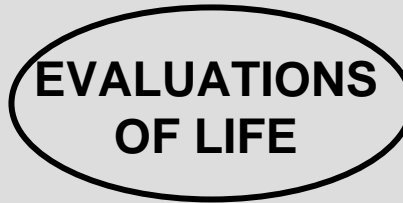
❖ **My position**

- I started out a decade ago favoring the experiencing self
- I now hold an uncomfortable hybrid view

A Hybrid Model of Well-Being

Life satisfaction

Other global judgments
of one's life



$r \sim .50$

A duration-weighted
average of emotional
states



The effects are not symmetric because we spend more time living than thinking about it

A Simplex of Measures

A Simplex of Measures

Life Evaluation

The Ladder of Life

Life Satisfaction

Global Happiness

Affect Yesterday (global)

Affect Yesterday (relived)

Affect Right Now

Experienced Happiness

A Simplex of Measures

Life Evaluation

The Ladder of Life

Life Satisfaction

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Affect Right Now

Experienced Happiness

We must give up the idea that well-being is unidimensional

Measuring experience: the Gold Standard

Life Evaluation

The Ladder of Life

Life Satisfaction

Global Happiness

Affect Yesterday (global)

Affect Yesterday (relived)

Experience sampling **Affect Right Now**

Experienced Happiness

Measuring experience: A compromise

Life Evaluation

The Ladder of Life

Life Satisfaction

Global Happiness

Affect Yesterday (global)

Day Reconstruction **Affect Yesterday (relived)**

Affect Right Now

Experienced Happiness

Measuring experience: A further compromise

Life Evaluation

The Ladder of Life

Life Satisfaction

Global Happiness

New Gallup Polls

Affect Yesterday (global)

Affect Yesterday (relived)

Affect Right Now

Experienced Happiness

The Day-Reconstruction Method (DRM)

❖ **Collaborators:**

- Alan Krueger
- David Schkade
- Arthur Stone
- Norbert Schwarz

and

- Claude Fischler
- Talya Miron-Shatz

❖ **We studied one day in the lives of several thousand women in three countries – what they did during that day, and what their feelings were**

The origin and goal standard of the DRM: Experience sampling

How do you feel right now?

Please rate each feeling on the scale given. A rating of 0 means that you are not experiencing that feeling at all. A rating of 6 means that this feeling is a very important part of the experience.

	Not at all						Very Much
Happy	0	1	2	3	4	5	6
Tense	0	1	2	3	4	5	6

•

Our Procedure

❖ Detailed reconstruction of a day

- Parsed into episodes (typically ~ 15 per day)
- Series of questions about each episode

Were you alone?

no yes

Were you talking with anyone? (check one)

no one person more than one

If you were talking with or interacting with anyone, was it (check all that apply):

spouse, significant other

co-workers

children

customers, students

parents

boss

other relatives

other people not listed

friends

(specify) _____

What were you doing? (Please read the entire list carefully and check all that apply)

commuting, traveling

working

shopping, errands

doing housework

preparing food

child care

talking, conversation

playing

watching television

listening to music

listening to radio

home computer

reading

relaxing

grooming, self care

eating

exercising

walking, taking a walk

making love

rest/sleep

praying

other not listed

(specify) _____

What were you doing? (Please read the entire list carefully and check all that apply)

- | | | |
|---|--|--|
| <input type="checkbox"/> commuting, traveling | <input type="checkbox"/> talking, conversation | <input type="checkbox"/> grooming, self care |
| <input type="checkbox"/> working | <input type="checkbox"/> playing | <input type="checkbox"/> eating |
| <input type="checkbox"/> shopping, errands | <input type="checkbox"/> watching television | <input type="checkbox"/> exercising |
| <input type="checkbox"/> doing housework | <input type="checkbox"/> listening to music | <input type="checkbox"/> walking, taking a walk |
| <input type="checkbox"/> preparing food | <input type="checkbox"/> listening to radio | <input type="checkbox"/> making love |
| <input type="checkbox"/> child care | <input type="checkbox"/> home computer | <input type="checkbox"/> rest/sleep |
| | <input type="checkbox"/> reading | <input type="checkbox"/> praying |
| | <input type="checkbox"/> relaxing | <input type="checkbox"/> other not listed
(specify) _____ |

If you checked several things you were doing at the same time, please circle the one that seemed the most important to you at the time.

What were you doing? (Please read the entire list carefully and check all that apply)

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(specify) _____ |

If you checked several things you were doing at the same time, please circle the one that seemed the most important to you at the time.

The data I report are for **focal** activities

How did you feel during this episode?

Please rate each feeling on the scale given. A rating of 0 means that you did not experience that feeling at all. A rating of 6 means that this feeling was a very important part of the experience. Please circle the number between 0 and 6 that best describes how you felt.

Not at all

Very much

Impatient for it to end . . .	0	1	2	3	4	5	6
Competent / Confident . .	0	1	2	3	4	5	6
Tense / Stressed	0	1	2	3	4	5	6
Happy	0	1	2	3	4	5	6
Depressed/blue	0	1	2	3	4	5	6
Interested / focused	0	1	2	3	4	5	6
Affectionate / friendly	0	1	2	3	4	5	6
Calm / relaxed	0	1	2	3	4	5	6
Irritated / angry	0	1	2	3	4	5	6
Tired	0	1	2	3	4	5	6

A useful measure of misery

U-index = The proportion of time during which negative affect predominates

- ❖ The U-index can be used to describe
 - individuals
 - situations
 - activities

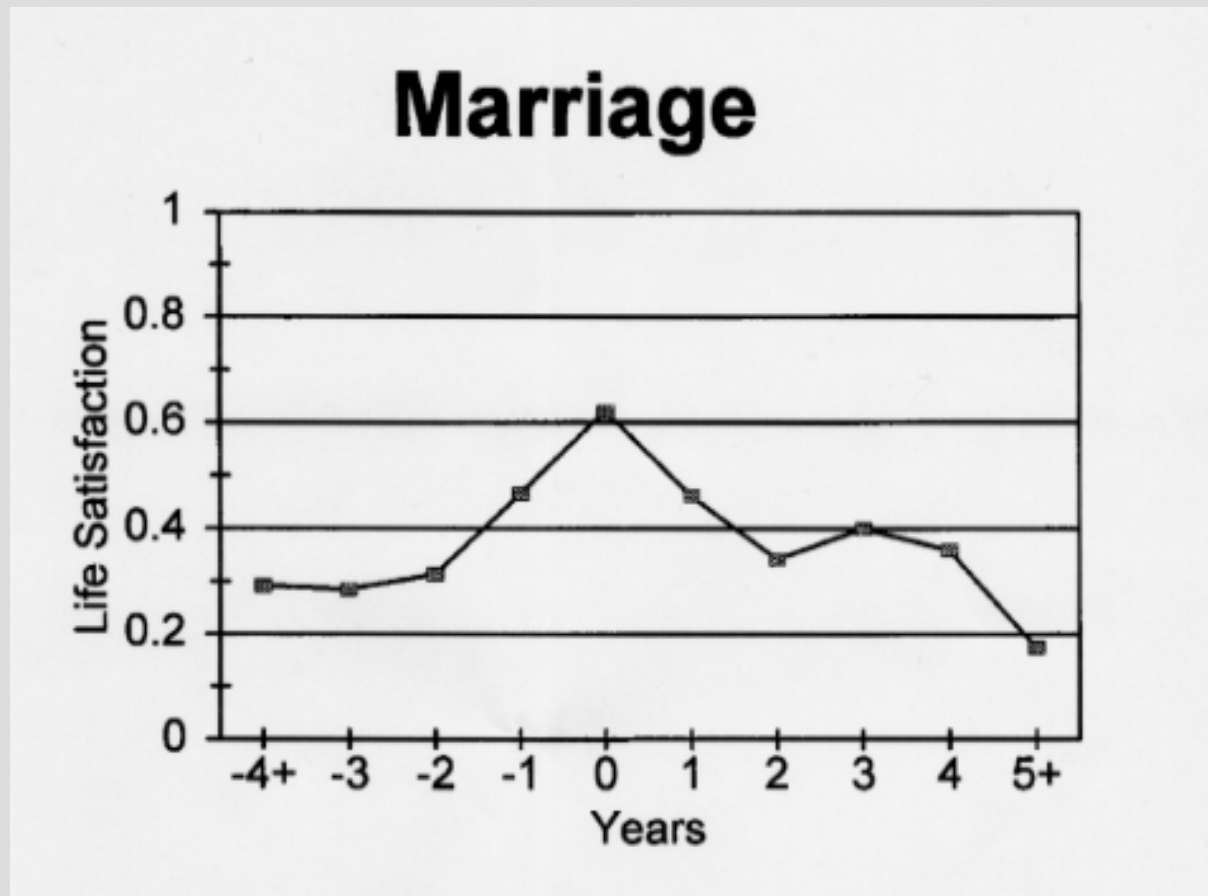
Miscellaneous facts about the U-index

- ❖ Average about 18% among American women
 - 21% on weekdays
 - 14% on weekends
- ❖ International comparisons
 - 16% among French women
 - 14% among Danish women
- ❖ Very uneven distributions
 - Top 10% of people account for almost 40% of total unpleasant-time
 - This is an underestimate of the true inequality
- ❖ Implications for policy
 - Focus on mental illness
 - Focus on improving use of time

- ❖ The U-index is my candidate for measuring the affective burden of disease
- ❖ It is not proposed as a solution to the measurement problem
- ❖ It is offered as a plausible index of a dimension that should not be ignored

4. Adaptation and Circumstances

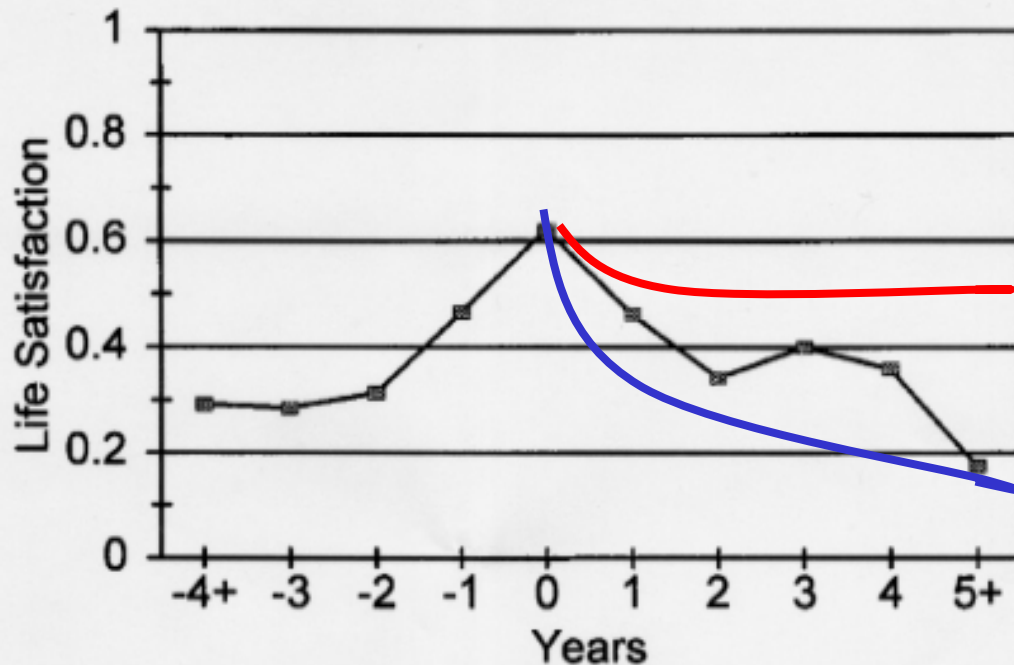
The emblematic result of well-being research



From Clark, Diener and McCulloch, 2001, based on 14 waves of the German Socio-Economic Panel Study (N ~26,000)

Competing interpretations of adaptation

Marriage



Affect adapts less than life satisfaction: Our initial hypothesis

Affect adapts more than life satisfaction: our data suggest this is the case

**Significant regression coefficients
(Beta)
in Daily Poll (USA)**

	Ladder	PA	NA
HaveJob	-0.06		0.06
Age	0.03	0.06	-0.19
Education	0.06	0.02	0.04
Smoker	-0.09	-0.04	0.06
Divorced	-0.06	-0.03	0.03
Income	0.16	0.02	-0.04
SocialTime	0.05	0.16	-0.10
Caregiver	-0.02	-0.03	0.08
Weekend			-0.04
Children	-0.02	-0.02	0.05
Unemployed	-0.06	-0.02	0.07
SickDays	-0.11	-0.14	0.15
Medical access	0.08	0.05	-0.05
# Med conditions	-0.07	-0.10	0.15
Democrat	-0.10	-0.02	0.06

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Democrat	-0.10	-0.02	0.06
Religion	0.04	0.06	-0.01

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Democrat	-0.10	-0.02	0.06

4. The role of attention

The focusing illusion

❖ **Norbert Schwarz and his students:**

➤ “How much pleasure do you get from your car?”

The focusing illusion

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➤ “How much pleasure do you get from your car?”

❖ The other critical question:

➤ “When do you get pleasure from your car?”

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“Nothing in life matters quite as much as you think it does while you are thinking about it”

The focusing illusion

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❖ The other critical question:

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“Nothing in life matters quite as much as you think it does while you are thinking about it”

% of the day in bad mood

Predicted

Household income

below \$20,000 58%

above \$100,000 26%

Difference 32%

% of the day in bad mood

	Predicted	Real
Household income		
below \$20,000	58%	32%
above \$100,000	26%	20%
Difference	32%	12%

% of the day in bad mood

Predicted

For woman over 40

alone 41%

married 28%

Difference 13%

% of the day in bad mood

	Predicted	Real
For woman over 40		
alone	41%	21%
married	28%	23%
Difference	13%	- 2%

Attention and adaptation

- ❖ **A basic characteristic of attention:**
 - it is withdrawn when novelty is lost

Attention and adaptation

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Attention and adaptation

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❖ **Three situations to which people do not adapt**

- chronic pain
- constant noise
- depression

Attention and adaptation

- ❖ **A basic characteristic of attention:**
 - it is withdrawn when novelty is lost
- ❖ **This is one of the basic mechanisms of adaptation**
- ❖ **Three situations to which people do not adapt**
 - chronic pain
 - constant noise
 - depression
- ❖ **Attention involved in all three**

Gallup Daily Poll (N ~ 70,000)

**Did you experience these feelings during
A LOT OF THE DAY yesterday?**

How about Enjoyment
Physical Pain
Worry
Sadness
Stress
Anger
Happiness

Effect of Health State on Affect

(Regression coefficient, age and gender controlled)

DIAGNOSIS	Positive	Negative	Net Affect
High Blood Pressure	-0.04	0.06	-0.10
High Cholesterol	-0.04	0.07	-0.11
Diabetes	-0.06	0.06	-0.12
Depression	-0.17	0.30	-0.47
Heart Attack	-0.06	0.10	-0.16
Asthma	-0.05	0.11	-0.16
YESTERDAY			
Flu	-0.19	0.14	-0.33
Cold	-0.08	0.11	-0.19
Woke up tired	-0.20	0.29	-0.48

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Other observations on attention

Other observations on attention

❖ Influences affective forecasting

- Focus on changes

Other observations on attention

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❖ Influences the experiencing self

- The experience of eating in two countries

Observations on attention

❖ Influences affective forecasting

- Focus on changes

❖ Influences the experiencing self

- The experience of eating in two countries

❖ Influences the remembering self

- Peaks, ends, etc.

How about citizen valuation of QALYs?

- ❖ **Affective forecasting is unlikely to be very good**
- ❖ **Focusing illusion likely**
- ❖ **Inability to process time**

The End

Where are we?

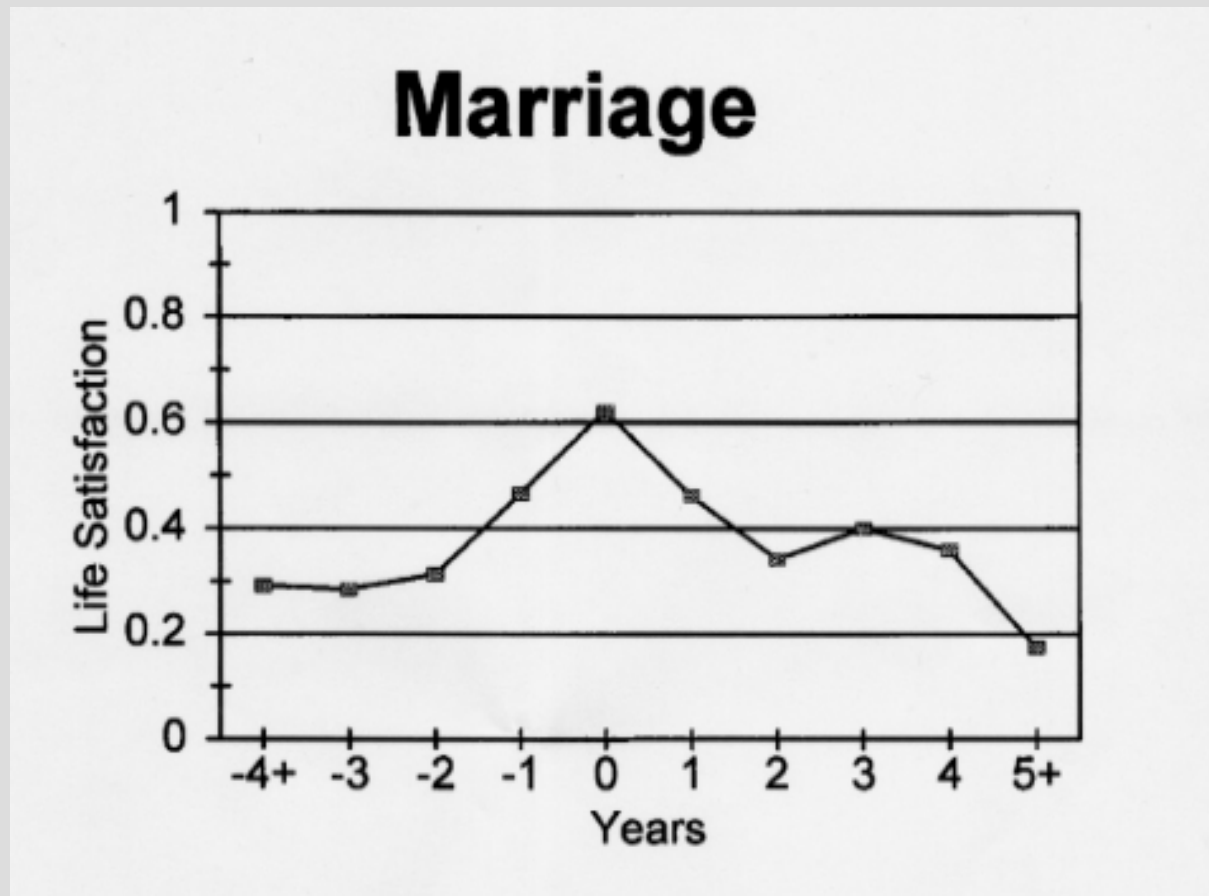
1. **The deconstruction of utility**
2. **Two selves**
3. **The role of attention**

and a large unsolved normative and psychological problem

4. Three embarrassing ex-puzzles

Exaggerating the treadmill

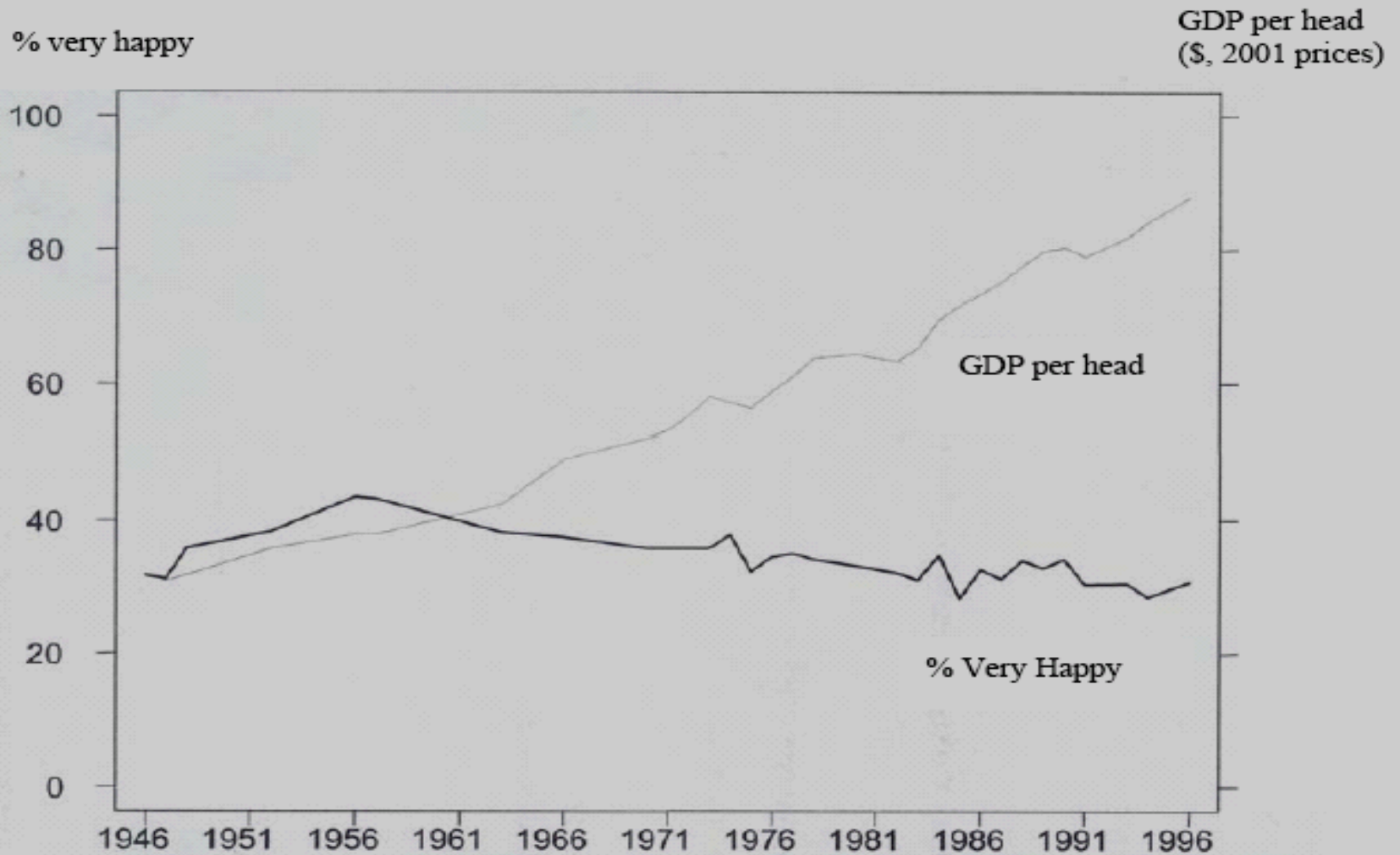
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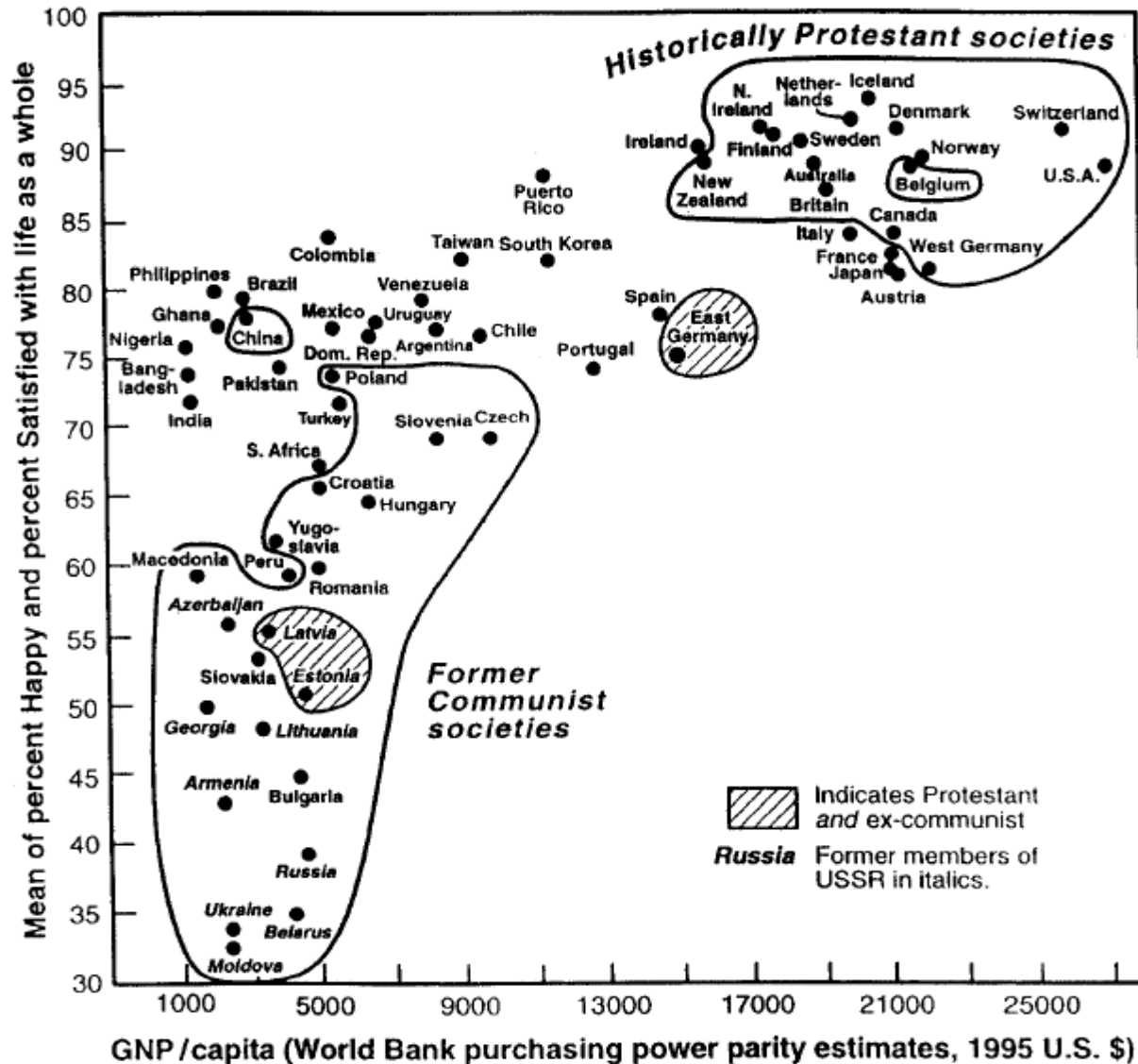
The Easterlin paradox

Income and happiness in the USA



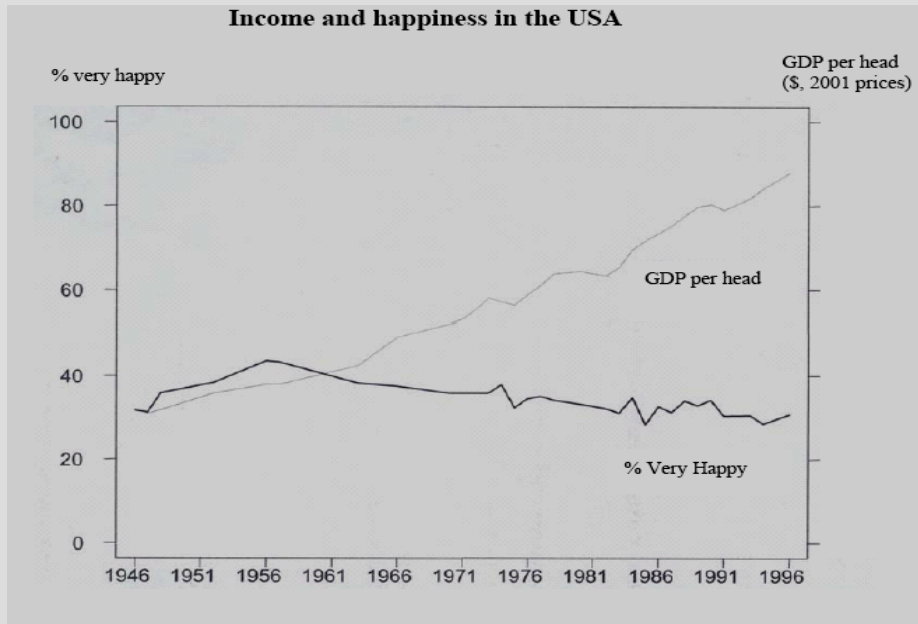
Country differences in WB and GDP

(Ron Inglehart)



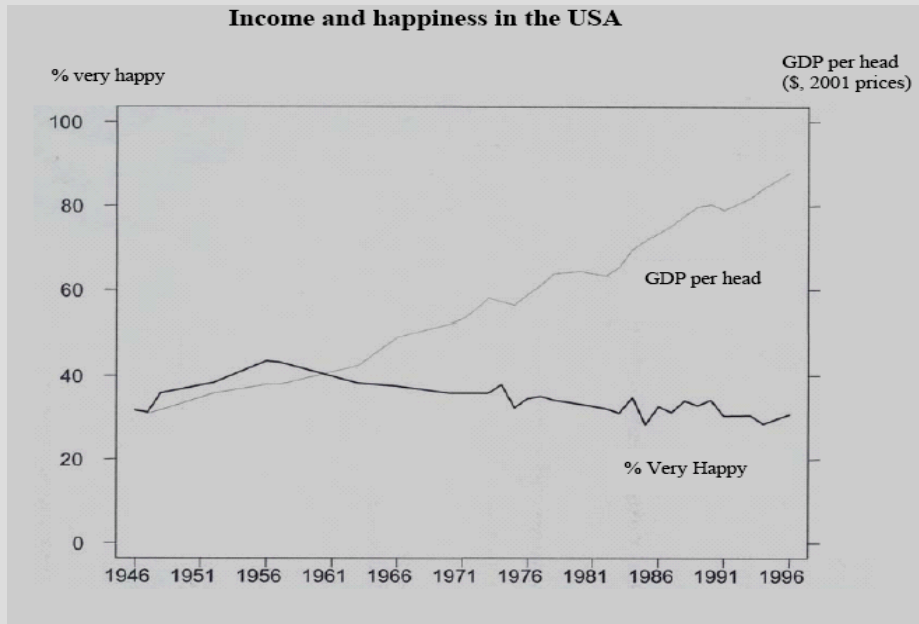
Solutions

The Easterlin paradox



This one is just false as a generalization about prosperous countries

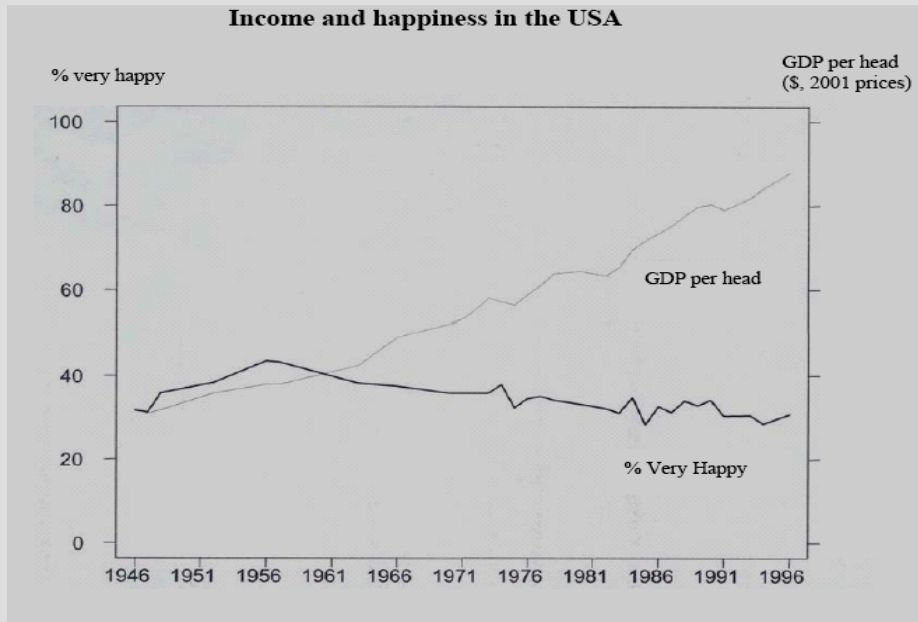
The Easterlin paradox



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Even in the US, it is not found for other measures

The Easterlin paradox



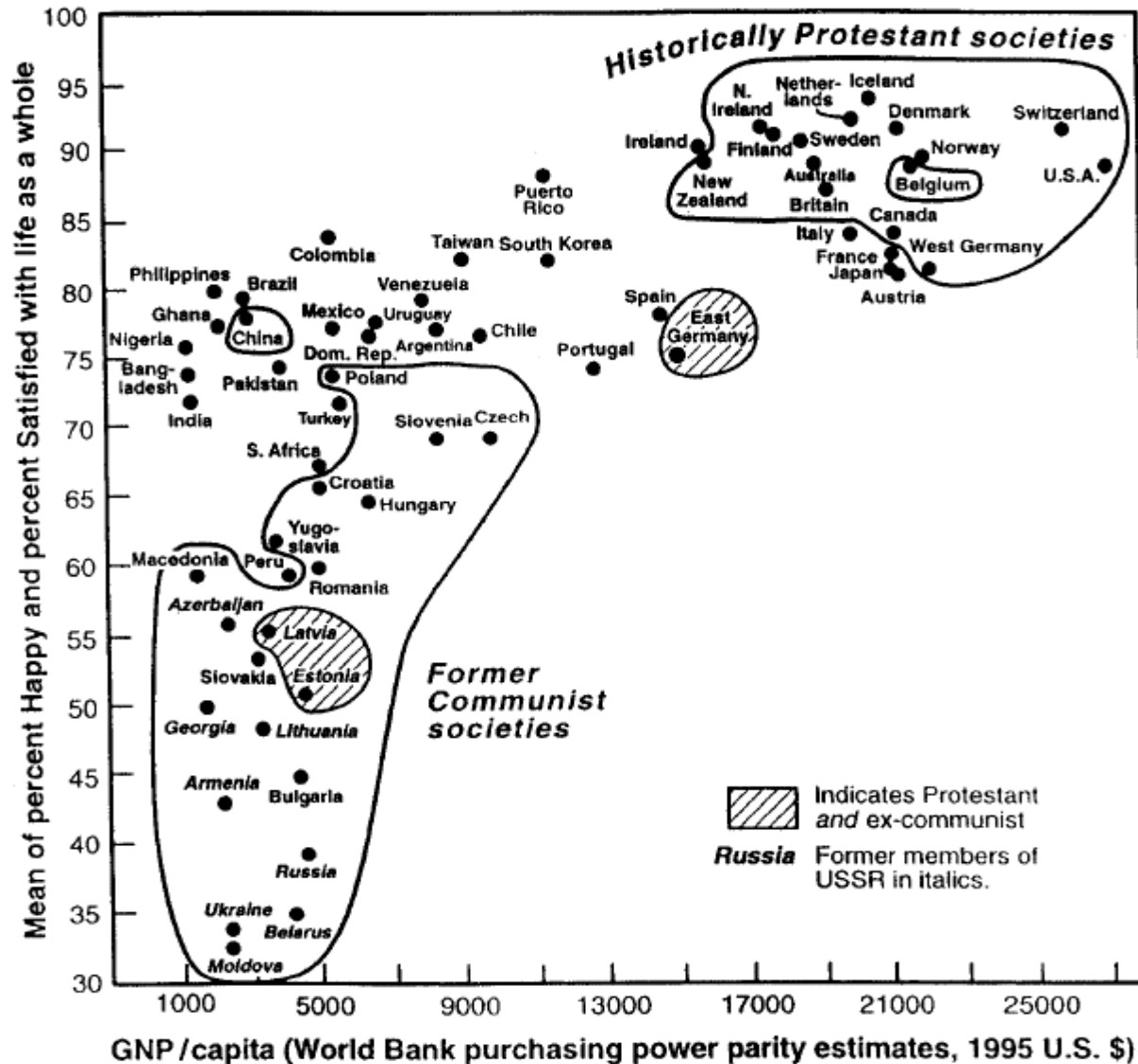
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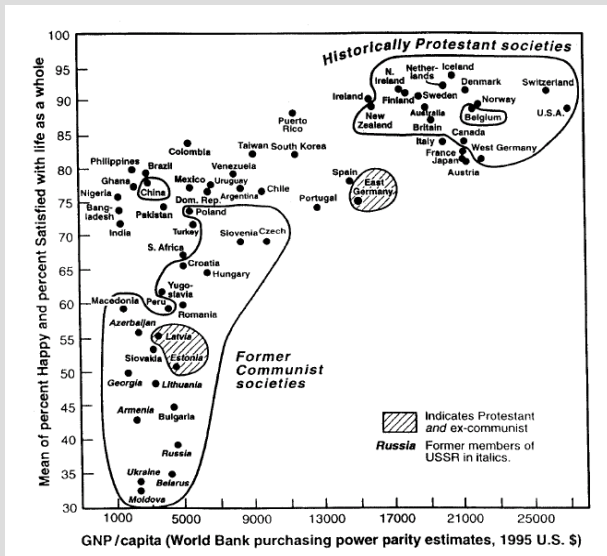
Embarrassing, because we all wanted to believe it

Country differences in WB and GDP

Country differences in WB and GDP



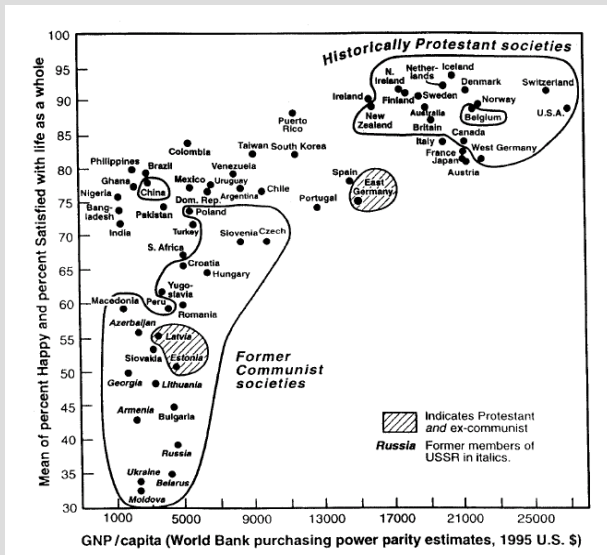
Country differences in WB and GDP



Does this figure really show that income no longer contributes to happiness beyond some amount?

What do we forget?

Country differences in WB and GDP

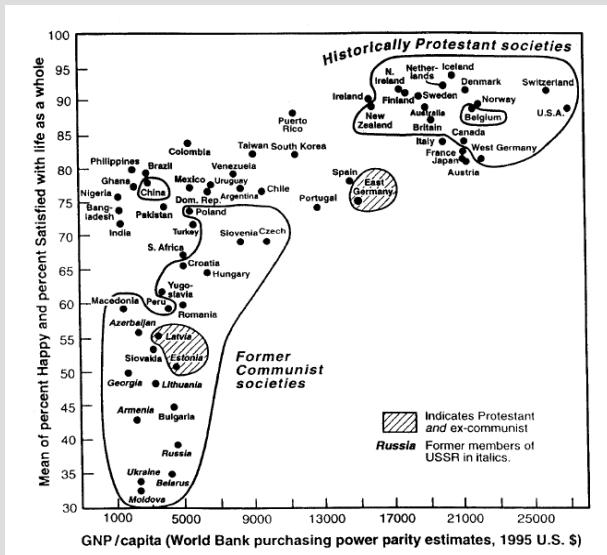


Does this figure really show that income no longer contributes to happiness beyond some amount?

What do we forget?

Weber's law: do we really expect an increase of \$600 in GDP to have the same effect in Switzerland and in Togo?

Country differences in WB and GDP



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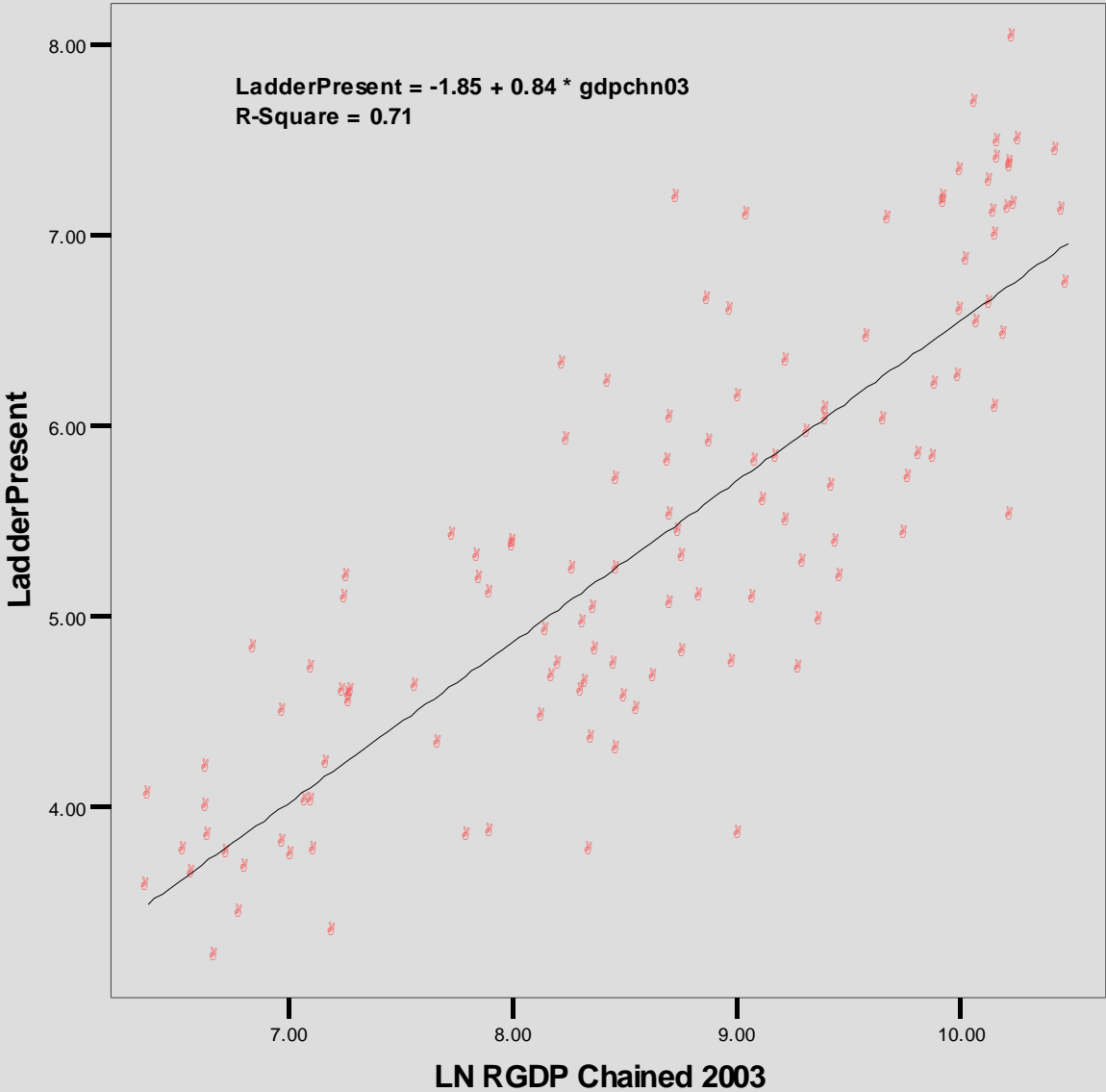
What do we forget?

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The collective blindness (which I shared) is embarrassing

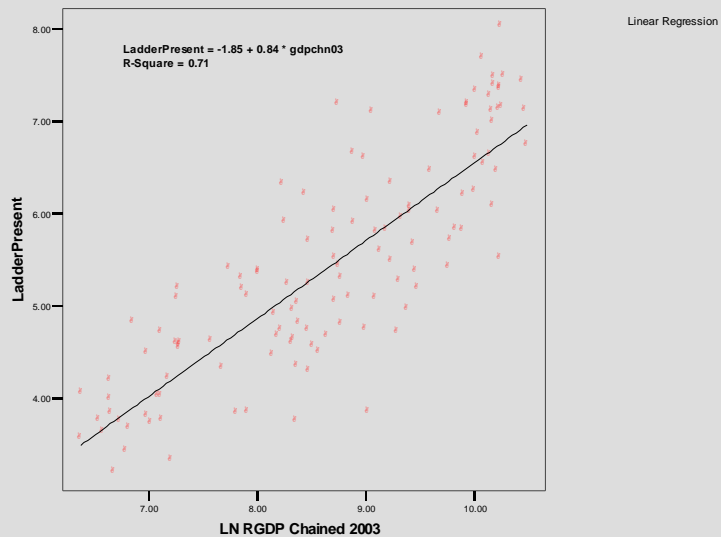
The economist Angus Deaton (2008) carried out the correct analysis on the World Poll

Country differences in WB and log (GDP)



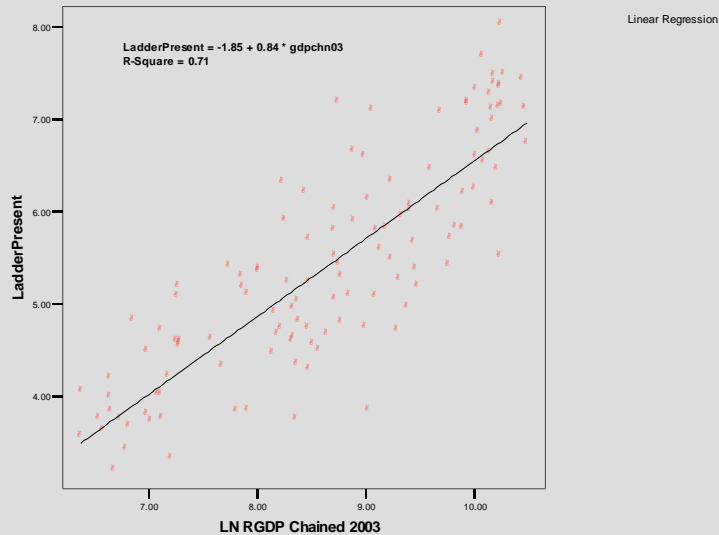
Linear Regression

Country differences in WB and log (GDP)



The correlation between GDP and the average ladder score is .84

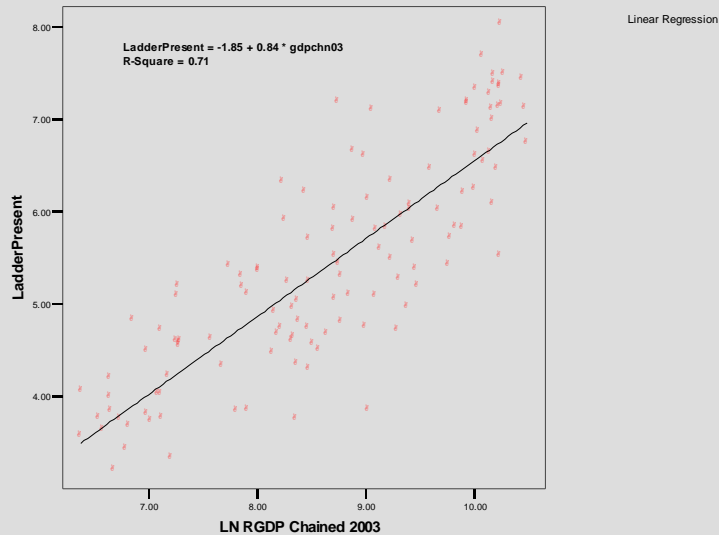
Country differences in WB and log (GDP)



The correlation between GDP and the average ladder score is .84

Over the entire sample, the correlation between individuals' ladder score and the GDP of the country in which they live is .44

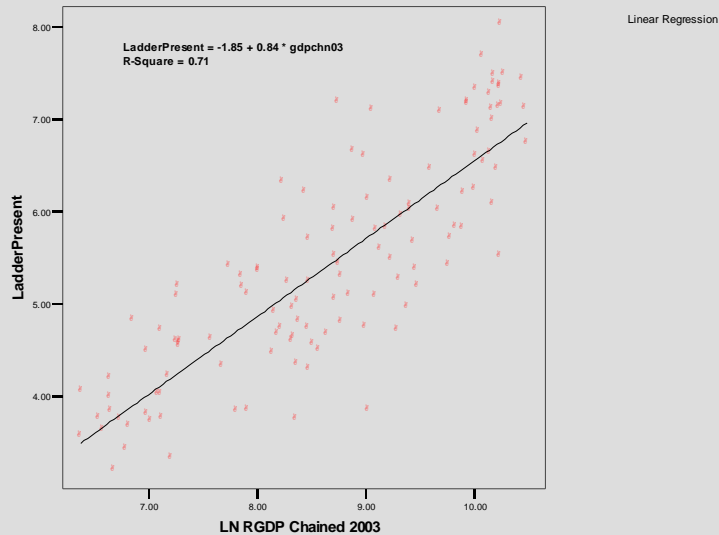
Country differences in WB and log (GDP)



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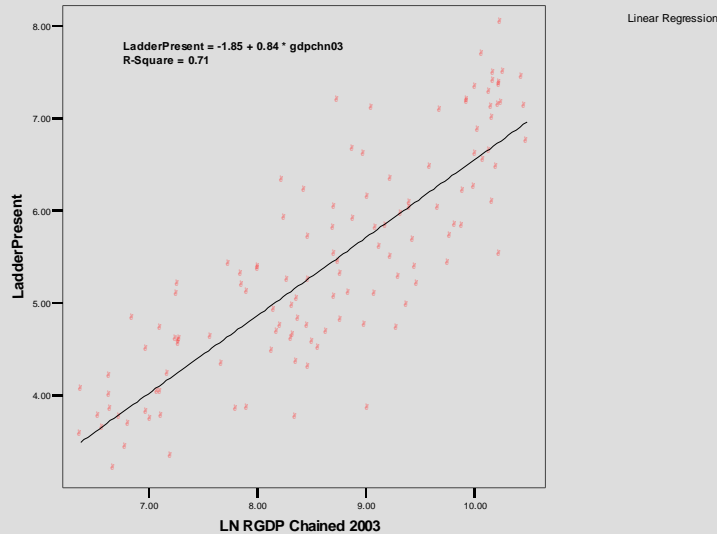


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There is a universal standard for what a good life is

Country differences in WB and log (GDP)



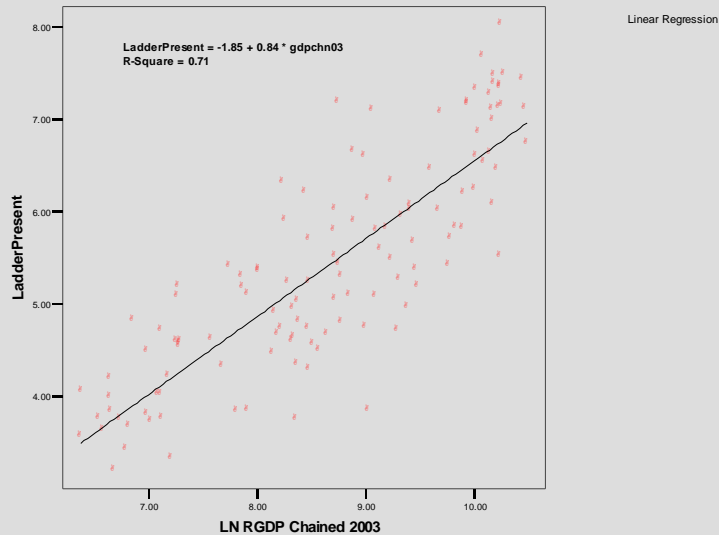
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Local comparisons matter less than all of us thought (except for NA!)

Country differences in WB and log (GDP)



The correlation between GDP and the average ladder score is .84

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There is a universal standard for what a good life is

Local comparisons matter less than all of us thought (except for NA!)

**GDP reflects not only material prosperity, but also social prosperity.
The correlation with an objective index of corruption is -.76.**

Predicting Well-Being of Countries: Standardized Regression Coefficients (Betas)

	Ladder of Life	Positive Affect	Negative Affect
GDP	0.64		
Clean Govt	0.26		
R ²	0.73		

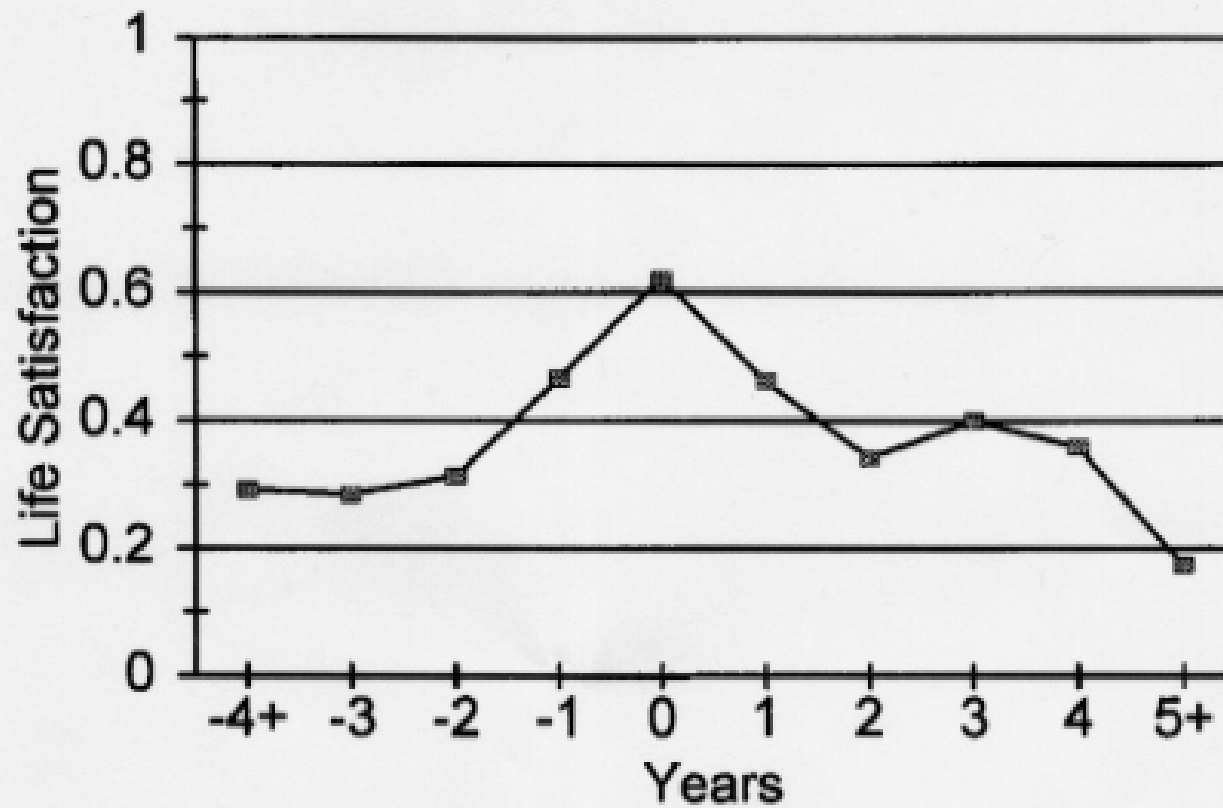
Predicting Well-Being of Countries: Standardized Regression Coefficients (Betas)

	Ladder of Life	Positive Affect	Negative Affect
GDP	0.64	0.02	0.11
Clean Govt	0.26	0.41	-0.47
R ²	0.73	0.18	0.15

A measure of freedom from corruption – proxy for social trust – predicts the **Experienced Happiness** of citizens.

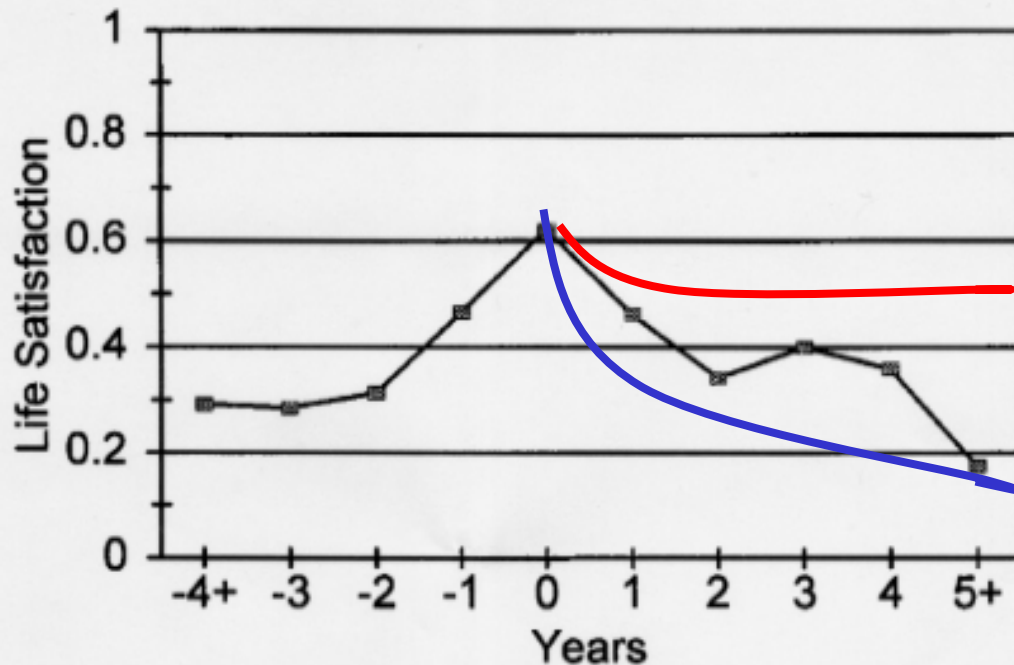
Material prosperity best predicts **Life Evaluation**.

Marriage



Competing interpretations of adaptation

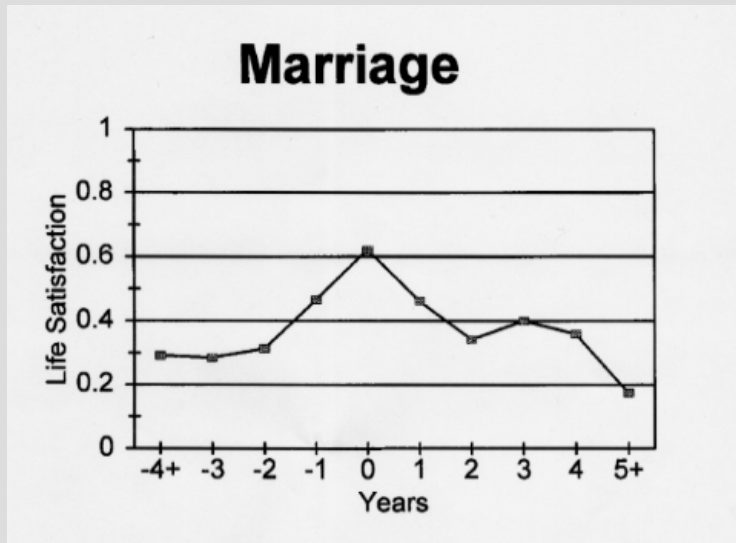
Marriage



Affect adapts less than life satisfaction: Our initial hypothesis

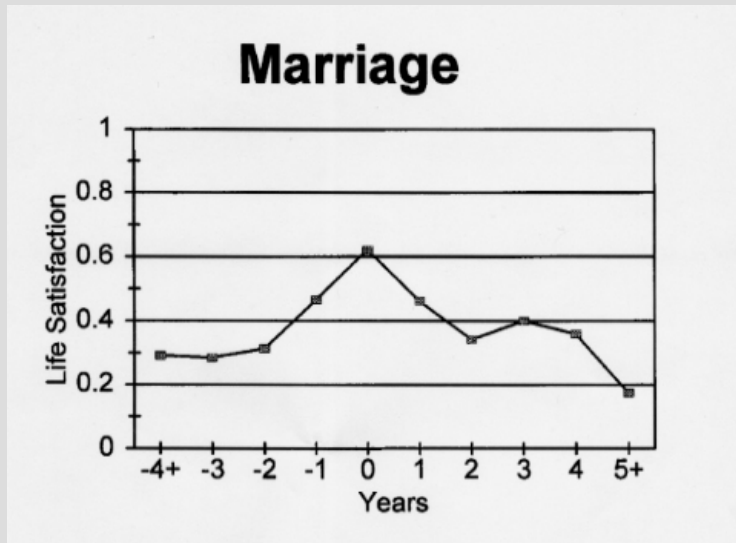
Affect adapts more than life satisfaction: our data suggest this is the case

What needs explaining?



We think the drop requires an explanation

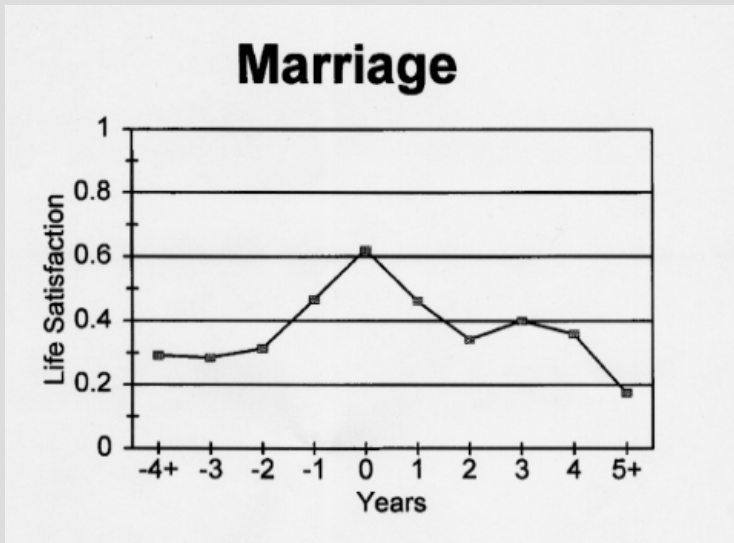
What needs explaining?



We think the drop requires an explanation

But it is the peak that is an aberration

What needs explaining?



We think the drop requires an explanation

But it is the peak that is an aberration

We should compare steady states

In the steady state, there may be no mystery

Time use of women with/without mate

% time

no mate

has mate

Time use of women with/without mate

% time

no mate

has mate

alone

28%

15%

Time use of women with/without mate

% time	no mate	has mate
alone	28%	15%
immediate, nuclear family	17%	38%

Time use of women with/without mate

% time	no mate	has mate
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intimates (friends, family)	16%	3%

Time use of women with/without mate

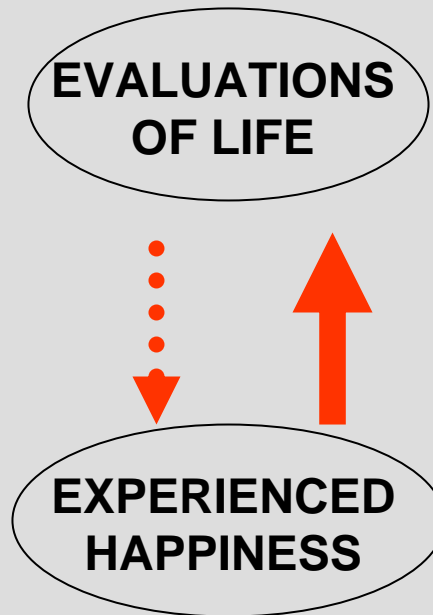
% time	no mate	has mate
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immediate, nuclear family	17%	38%
intimates (friends, family)	16%	3%
compulsory home tasks	23%	31%

Time use of women with/without mate

% time	no mate	has mate
alone	28%	15%
immediate, nuclear family	17%	38%
intimates (friends, family)	16%	3%
compulsory home tasks	23%	31%
discretionary activities	41%	35%

5. A medley of new findings

A Hybrid Model of Well-Being



Significant regression coefficients (Beta) in Daily Poll (USA)

	Ladder	PA	NA
HaveJob	-0.06		0.06
Age	0.03	0.06	-0.19
Education	0.06	0.02	0.04
Smoker	-0.09	-0.04	0.06
Divorced	-0.06	-0.03	0.03
Income	0.16	0.02	-0.04
SocialTime	0.05	0.16	-0.10
Caregiver	-0.02	-0.03	0.08
Weekend			-0.04
Children	-0.02	-0.02	0.05
Unemployed	-0.06	-0.02	0.07
SickDays	-0.11	-0.14	0.15
Medical access	0.08	0.05	-0.05
# Med conditions	-0.07	-0.10	0.15
Democrat	-0.10	-0.02	0.06
Independent	-0.11	-0.03	0.04
Religion	0.04	0.06	-0.01

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Miscellaneous

- ❖ Interactions – the functions of money
- ❖ The U-index
- ❖ Why do American mothers have less fun?
- ❖ The geography of well-being

- ❖ And a large unsolved problem...

Ranking of World Regions by Aspects of Well-Being

	Ladder of Life	Positive Affect	Low Negative
North Europe, Anglo	1	1	1
Southern Europe	2	5	5
East Asia	3	3	2
Eastern Europe, FSU	6	8	6
Latin America	4	2	7
Middle East	5	7	8
South Asia	7	4	3
Africa	8	6	4

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East Asia	China
	Hong Kong
	Japan
	Singapore
	South Korea
	Taiwan
	Total
South Asia	Bangladesh
	Cambodia
	India
	Indonesia
	Laos
	Malaysia
	Myanmar
	Nepal
	Philippines
	Sri Lanka
	Thailand
	Vietnam
	Total

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- ❖ The U-index
- ❖ Why do American mothers have less fun?
- ❖ The geography of well-being

A Hybrid Model of Well-Being

EVALUATIONS
OF LIFE

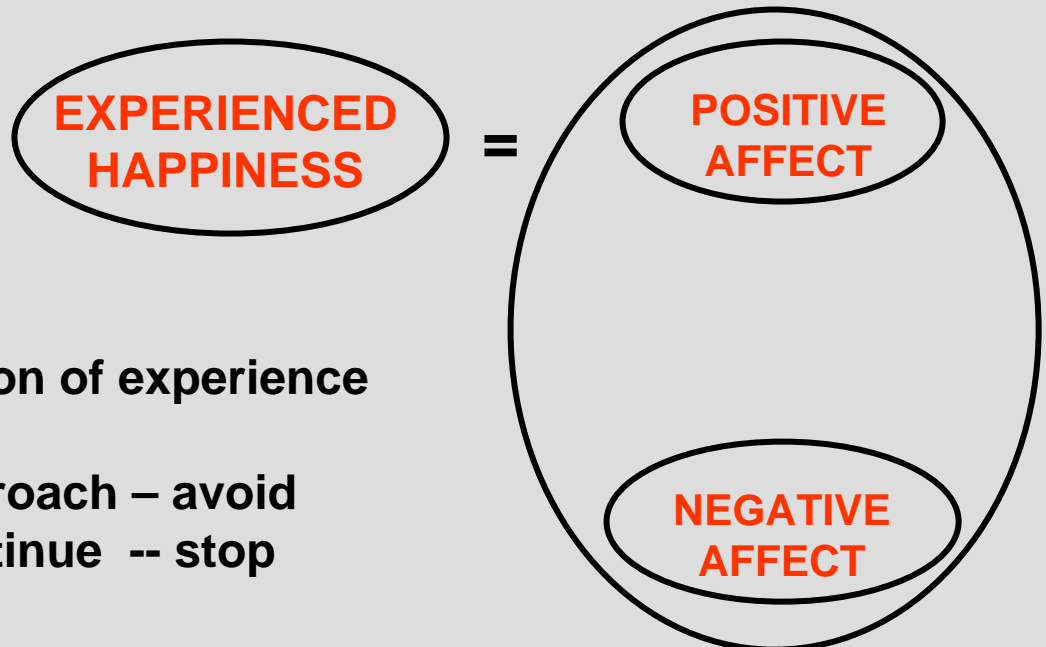
**EXPERIENCED
HAPPINESS**

Duration-weighted average of emotional state

**Duration weighting is highly non-intuitive
We represent episodes by moments**

A Hybrid Model of Well-Being

EVALUATIONS
OF LIFE



The primary dimension of experience

Evaluation

approach – avoid
continue -- stop

A Hybrid Model of Well-Being

EVALUATIONS
OF LIFE

**EXPERIENCED
HAPPINESS**

=

**POSITIVE
AFFECT**

**NEGATIVE
AFFECT**

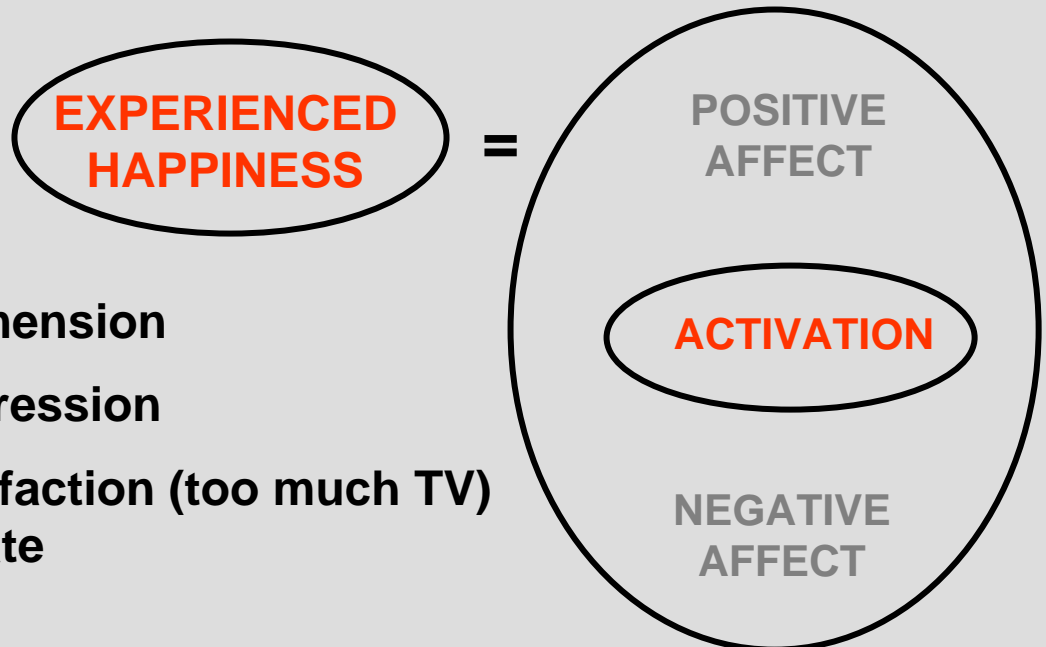
**PA = Happy, friendly, smiled a lot,
well-rested (morning), energetic**

**NA = Sad, depressed, tense, stressed,
angry, worried, physical pain**

$r(\text{PA}, \text{NA}) = \sim -.50$

A Hybrid Model of Well-Being

EVALUATIONS
OF LIFE



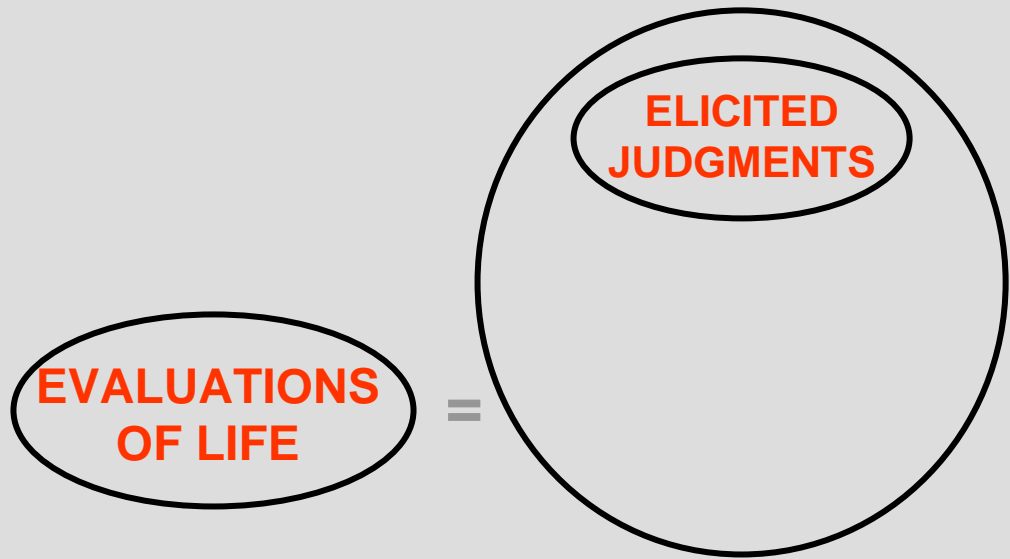
Arousal is an independent dimension

(joy/contentment anxiety/depression)

Low Arousal → Low Life Satisfaction (too much TV)

“Flow” is a high-activation state

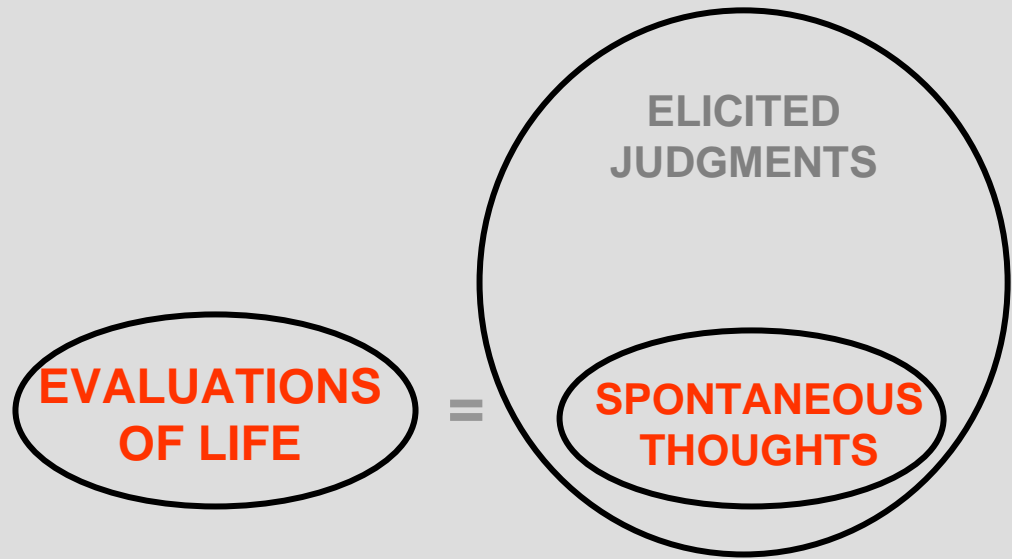
A Hybrid Model of Well-Being



EXPERIENCED
HAPPINESS

- “Where are you on the ladder of life?”
- “How satisfied are you with your life?”
- “How happy are you these days?”

A Hybrid Model of Well-Being



EXPERIENCED
HAPPINESS

“Where are you on the ladder of life?”

“How satisfied are you with your life?”

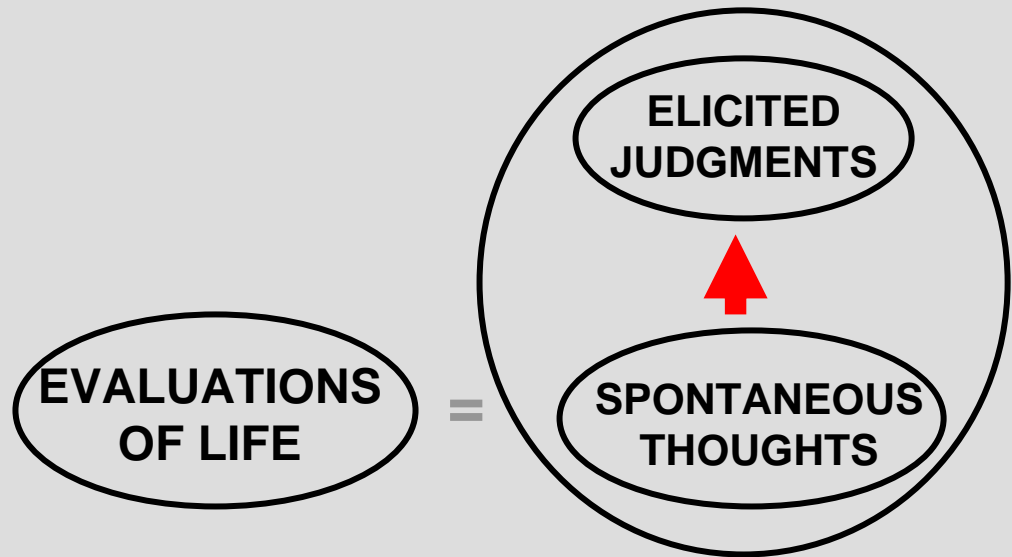
“How happy are you these days?”

“Did you worry about money yesterday?”

“Did you worry about your weight?”

“I did well at work today”

A Hybrid Model of Well-Being



EXPERIENCED
HAPPINESS

**Recurrent worries may have large effects on life satisfaction,
even if they only occur occasionally during the day**

This is one reason why memory does not do duration-weighting

Time trade-off utility (0–1)	.84	.24	.94	.64	.35***	.80	.63	.36***	.75
Life satisfaction (1–7)	4.13	1.70	4.46	1.45	4.21	1.50			
Overall quality of life (0–100)	67.60	24.43	71.32	19.89	72.60	20.67**			
Current health (0–100)	62.51	23.34	63.57	21.25	69.81	22.51***			
Positive mood (1–5)	3.15	0.88	3.06	0.78					
Negative mood (1–5)	1.82	0.73	1.88	0.70					
Where on ladder at present (0–10)	6.11	2.18	6.51	1.91					
Where on ladder 5 years ago (0–10)	6.79	2.62	6.09	2.83*					
Importance of normal bowel function (1–7)	3.63	1.77	4.96	1.64***					

Three Pictures of Water

Some Reflections on a Lecture
By Daniel Kahneman



Picture One



Picture Two



Picture Three

