Triangulation of Subjective Well-Being in the German Socio-Economic Panel Study

David Richter, Richard E. Lucas, & Jürgen Schupp
Reykjavik, July 15, 2015
Subjective Well Being – Triangulation in SOEP-IS

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How satisfied are you with your life, all things considered?

Life satisfaction is only one (important) component of the concept of subjective well-being.

Day Reconstruction Method (DRM) - Background

• Created by Kahneman et al. in 2004 as a new approach to measure daily experiences and subjective well-being.
  • Participants divide their previous day into major activities.
  • Participants rate activities for pleasant and unpleasant feelings.
  • Participants report the time that activities began and ended.

• DRM can be used to:
  • measure which individuals are happier vs. unhappier.
  • to judge how pleasant and unpleasant various activities are.
  • to reflect which situations are more or less pleasant.
  • to assess how time spent in various situations contributes to overall happiness.
Day Reconstruction Method (DRM) - Background

• DRM revealed interesting patterns of well-being
  • To most people their own children are most important but people feel best when their children are not in the same room. (Kahneman et al. 2004)
  • Unemployed persons report much lower general life satisfaction than employed persons but their “net affect” is slightly higher. (Knabe et al., 2010)
Day Reconstruction Method (DRM) - Background

• Pros:
  • Less burdensome than experience-sampling (ESM).
  • Less prone to memory bias inherent in global recall of feelings.

• Open questions:
  • Evidence for reliability and validity is limited.
  • It is uncertain to what degree recall biases are reduced.
  • Sensitivity to changing live circumstances is unknown.
  • Comparison with modern experience-sampling methods using mobile phones needs to be done.
  • DRM seems to be insensitive to find differences in well-being between groups.
DRM & ESM - Procedure

• Reconstruction of previous work day
  [adaptation of DRM by Kahneman et al. 2004 and a replication of 2009 PSID’s supplement on Disability and Use of Time (DUST)]
  • List of 22 activities, two activities per episode possible
  • General rating of pleasantness for every episode
  • Additional ratings of emotions for 3 random episodes

• Data collection in the SOEP Innovation Sample
  • CAPI, Interviewer fills in questionnaire
  • Pretest of procedure in SOEP-IS supplementary sample 2012
  • Application of procedure to full longitudinal SOEP-IS in 2012
  • Comparison with ESM (event sampling) in 2014
Procedure

• What time did you get up yesterday morning?
• What did you do next?
  • What time did the activity start?
  • What time did the activity end?
  • Did you do another activity in addition?
• Was this episode rather pleasant or rather unpleasant?
List of Activities

- way to work, way from work to home
- way to spare time activity, way back home
- work / studying
- shopping
- preparing food
- eating
- washing oneself, taking a bath, brushing teeth, dress
- doing household work
- taking care of children, taking them to school, activities
- meeting with friends
- resting, taking a nap
- relaxing
- intimate relations
- worship, meditation
- watching TV
- reading
- computer/internet
- on the phone
- doing sports
- doctor visits
- gardening
- taking care of pets
Where were you?

- At home
- At work
- Somewhere else

Who was around?

- Nobody
- Spouse
- Friends
- Colleagues
- Clients / customers / pupil / students / patient
- Own children
- Parents / relatives
- Boss / teacher / instructor
- Other person
### DRM & ESM - Procedure

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The Sample (SOEP-IS) in 2012

- 2,050 respondents in 1,265 households
  - Longitudinal information for 403 persons since 1998
  - Longitudinal information for 1,356 persons since 2009
- Mean age = 52.2 years (17 – 95 years), 52.4% female
- Diverse education
  - ISCED0/1/2 = 16.4%, ISCED3 = 51.3%, ISCED4/5/6 = 32.3%
- 53.3% working, 46.7% not working
- 24,117 activities were reported ($M = 11.8$, $Range = 1 – 30$)
- Duration of DRM: $M = 12.3$ minutes ($Range = 1.2 – 61.1$)
The Top Five in Pleasantness

- intimate relations (100%)
- relaxing (99.5%)
- reading (99.3%)
- eating (99.1%)
- worship, meditation (99.0%)

The Least Five in Pleasantness

- doctor visits (57.2%)
- doing household work (79.4%)
- work / studying (86.6%)
- way to / from work (87.5%)
- shopping (91.3%)

Who is around? The impact of different people

- alone (93.1%)
- relatives (95.4%)
- partner (96.4%)
- friends (96.5%)
- children (96.0%)

- boss (88.1%)
- colleagues (87.3%)
- costumers (81.8%)
The Top Five in Happiness
- intimate relations ($M = 5.9$)
- worship, meditation ($M = 5.5$)
- doing sports ($M = 5.3$)
- meeting friends ($M = 5.0$)
- taking care of children ($M = 5.0$)

The Top Five in Stress
- work / studying ($M = 3.0$)
- taking care of children ($M = 2.2$)
- way to / from work ($M = 2.0$)
- shopping ($M = 1.9$)
- on the phone ($M = 1.7$)

The Top Five in Meaning
- worship, meditation ($M = 5.8$)
- doing sports ($M = 3.6$)
- taking care of children ($M = 3.5$)
- work / studying ($M = 3.2$)
- gardening ($M = 3.2$)

The Top Five in Satisfaction
- intimate relations ($M = 5.8$)
- worship, meditation ($M = 5.5$)
- doing sports ($M = 5.4$)
- taking care of pets ($M = 5.2$)
- meeting friends ($M = 5.1$)
The Top Five in Happiness

- intimate relations ($M = 5.9$)
- worship, meditation ($M = 5.5$)
- **doing sports ($M = 5.3$)**
- meeting friends ($M = 5.0$)
- taking care of children ($M = 5.0$)

The Top Five in Stress

- work / studying ($M = 3.0$)
- taking care of children ($M = 2.2$)
- way to / from work ($M = 2.0$)
- shopping ($M = 1.9$)
- on the phone ($M = 1.7$)

The Top Five in Meaning

- worship, meditation ($M = 5.8$)
- **doing sports ($M = 3.6$)**
- taking care of children ($M = 3.5$)
- work / studying ($M = 3.2$)
- gardening ($M = 3.2$)

The Top Five in Satisfaction

- intimate relations ($M = 5.8$)
- worship, meditation ($M = 5.5$)
- **doing sports ($M = 5.4$)**
- taking care of pets ($M = 5.2$)
- meeting friends ($M = 5.1$)
The Top Five in Happiness
- intimate relations ($M = 5.9$)
- worship, meditation ($M = 5.5$)
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- meeting friends ($M = 5.0$)
- taking care of children ($M = 5.0$)

The Top Five in Meaning
- worship, meditation ($M = 5.8$)
- doing sports ($M = 3.6$)
- taking care of children ($M = 3.5$)
- work / studying ($M = 3.2$)
- gardening ($M = 3.2$)

The Top Five in Stress
- work / studying ($M = 3.0$)
- taking care of children ($M = 2.2$)
- way to / from work ($M = 2.0$)
- shopping ($M = 1.9$)
- on the phone ($M = 1.7$)

The Top Five in Satisfaction
- intimate relations ($M = 5.8$)
- worship, meditation ($M = 5.5$)
- doing sports ($M = 5.4$)
- taking care of pets ($M = 5.2$)
- meeting friends ($M = 5.1$)
The Top Five in Happiness

- intimate relations \( (M = 5.9) \)
- worship, meditation \( (M = 5.5) \)
- doing sports \( (M = 5.3) \)
- meeting friends \( (M = 5.0) \)
- taking care of children \( (M = 5.0) \)

The Top Five in Meaning

- worship, meditation \( (M = 5.8) \)
- doing sports \( (M = 3.6) \)
- taking care of children \( (M = 3.5) \)
- work / studying \( (M = 3.2) \)
- gardening \( (M = 3.2) \)

The Top Five in Stress

- work / studying \( (M = 3.0) \)
- taking care of children \( (M = 2.2) \)
- way to / from work \( (M = 2.0) \)
- shopping \( (M = 1.9) \)
- on the phone \( (M = 1.7) \)

The Top Five in Satisfaction

- intimate relations \( (M = 5.8) \)
- worship, meditation \( (M = 5.5) \)
- doing sports \( (M = 5.4) \)
- taking care of pets \( (M = 5.2) \)
- meeting friends \( (M = 5.1) \)
- taking care of children \( (M = 4.9) \)
• Activities are weighted by the time spent in each of them
  -> time-weighted average well being score is calculated

Net Affect = \frac{\text{Sum of Pleasant Minutes Across the Day}}{\text{Sum of Total Minutes Across the Day}}

Net Affect: \( M = 0.92, \ SD = 0.16, \ range = 0.0 - 1.0 \)
Weighted Overall Objective Happiness  / Net Affect

• No gender differences (m: $M = 0.93$, f: $M = 0.92$)
• No (meaningful) effects of marital status
• Small effects of education
  • in school -> worst, higher vocational -> best
• Some effects of employment status
  • Full-time, part-time, and vocational training: $M = 0.90$
  • Marginal employment: $M = 0.92$
  • Part-time employment prior to retirement (0 hours): $M = 0.96$
  • Military service: $M = 0.88$
  • Alternative civilian service: $M = 0.95$
  • Not working: $M = 0.94$ (age < 60: $M = 0.93$, age > 60: $M = 0.94$)
Age Differences in Net Affect

Age in Years

17-26  27-36  37-46  47-56  57-66  67-76  77-86  87-96
$r = .09$

Net Affect & Life Satisfaction

Life Satisfaction Rating (0–10)
Net Affect & Subjective Well-Being

Emotion Rating (1–5)

- Happiness
- Fear
- Anger
- Sadness

r = .07
r = -.07
r = -.14
r = -.07
Net Affect: Stability and Change

- Net Affect:
  - stability is rather low ($r = .16$)
  - differences are big ($M = 0.00$, $SD = 0.20$, $range = -0.97 – 1.00$)

- Little correlated change with life satisfaction
  - $r = .04$

- Little correlated change with subjective well-being
  - Happiness: $r = .03$
  - Fear: $r = -.05$
  - Sadness: $r = -.01$
  - Anger: $r = -.09$
Sequence Index Plots after Clustering the Activities

- Work
- Leisure time
- Chores
- Children
- Eating / Personal hygiene
### Sequence Index Plots after Clustering the Activities

<table>
<thead>
<tr>
<th>Cluster</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>Female</td>
<td>50.7 %</td>
<td>43.8 %</td>
<td>44.7 %</td>
<td>74.1 %</td>
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<tr>
<td>18-30 years</td>
<td>22.0 %</td>
<td>21.4 %</td>
<td>12.4 %</td>
<td>6.0 %</td>
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<tr>
<td>30-60 years</td>
<td>70.1 %</td>
<td>68.8 %</td>
<td>35.0 %</td>
<td>37.6 %</td>
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<tr>
<td>60+ years</td>
<td>7.8 %</td>
<td>9.7 %</td>
<td>52.7 %</td>
<td>56.4 %</td>
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<tr>
<td>Married</td>
<td>54.4 %</td>
<td>53.6 %</td>
<td>57.9 %</td>
<td>65.5 %</td>
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<tr>
<td>Satisfaction</td>
<td>7.51</td>
<td>7.54</td>
<td>7.23</td>
<td>7.32</td>
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<tr>
<td>Pleasantness</td>
<td>91.0 %</td>
<td>90.0 %</td>
<td>95.0 %</td>
<td>93.0 %</td>
</tr>
</tbody>
</table>
ESM – Data Collection 2014

- Realized by the 35 most experienced interviewers.
- About 500 households were contacted.
- 249 individuals finished the data collection.

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<tr>
<th>Day</th>
<th>T1</th>
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- TNS Infratest bought 111 smartphones for the data collection and further use in the SOEP-IS or other SOEP-projects.
• 249 respondents in 176 households
• Mean age = 48.0 years (17 – 81 years), 55.8% female
• Diverse education
  • ISCED0/1/2 = 13.0%, ISCED3 = 56.4%, ISCED4/5/6 = 30.6%
• 53.2% working, 46.8% not working
• 12,730 out of 13,193 “beeps” were successful (96.5%)
  • 61.1% at home, 15.2% at work, 23.2% somewhere else
• Who was around?
  • 33.9% nobody, 28.8% spouse, 8.5% friends, 11.4% colleagues, 2% clients, 13.0% children, 5.4% relatives, 1.1% boss
The Top Five in Pleasantness
- intimate relations (100%, n = 38)
- listening radio/music (100%, 101)
- eating (99.7%, 920)
- drinking coffee (99.5%, 215)
- relaxing (99.1%, 428)

The Least Five in Pleasantness
- doctor visits (37.5%, n = 72)
- doing household (65.2%, 669)
- way to / from work (75.8%, 223)
- work / studying (79.7%, 2286)
- gardening (79.9%, 288)

Who is around? The impact of different people
- alone (88.9%)
- relatives (90.0%)
- partner (93.6%)
- friends (94.9 %)
- children (90.5%)
- boss (84.8%)
- colleagues (82.3%)
- costumers (87.7%)
• Selectivity of ESM participation.
• Compare ratings of DRM episodes with respective ESM ratings.
• Compare ratings of activities from DRM with ratings of activities from ESM.
• Similarities and differences between our data from Germany and data from PSID‘s DUST module.
Thank you for your attention.