Labour Status and Subjective Well-being

A Partial Ordering Application in Synthesizing Dimensions of Subjective Well-being

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Labour Status and Subjective Well-being

Decent Work and Social Sustainability

Work conditions are very relevant both in term of

Social SUSTAINABILITY

and

Subjective WELL-BEING
Labour status is just one of the aspects of decent work, it concerns the way people define themselves in terms of occupational conditions.

Subjective well-being (SWB) is a multidimensional concept.

The main three dimensions of SWB are (OECD 2013):

- **LIFE SATISFACTION**
- **EUDAIMONIA**
- **EMOTIONAL STATUS**
Subjective Well-being: a Multidimensional Perspective

The different aspects of subjective well-being (life evaluation, affect, eudaimonia) represent distinct constructs

EU-SILC - European Union Statistics on Income and Living Conditions
2013 ad-hoc Module on Subjective Well-being

22 questions

- nine on satisfaction (0-10 scale)  
  **LIFE SATISFACTION**
- one on meaning of life (0-10 scale)  
  **EUDAIMONIA**
- five on affects (1-5)  
  **EMOTIONAL STATUS**

The question about the labour status concerns the self definition of the respondents as employee, unemployed, retired, etc.

10 possible answers
The EU-Silc 2013 Dataset

Labour Status and Subjective Well-being
Analysing relationship between labour status and subjective well-being

- the Poset allows to preserve the multidimensionality of SWB

- the Poset allows to compare the synthetic SWB value between different subgroups
1st Step Poset Applied to Emotional Status

How much of the time, during the past 4 weeks have you been/felt ...

- Very nervous
- Down (in the dumps)
- Calm and Peaceful
- Down-hearted Depressed
- Happy

Poset

3 ordinal modalities
Threshold 22323

Emotional Status (ES)
A Focus on the Emotional Status

Emotional Status

How much of the time, during the past 4 weeks have you been/felt ...

1. All of the time
2. Most of the time
3. Some of the time
4. A little of the time
5. None of the time

a) Very nervous
b) Down (in the dumps)
c) Calm and Peaceful
d) Downhearted and Depressed
e) Happy

These are the questions of the Mental Health Scale in the SF-36 questionnaire, widely adopted in health studies.

John E. Ware et al. (1993), defined SF-36 for the Health Institute of Boston. It consists of eight scales, assessing the benefits of treatments in term of extent to which changes in a patient’s functioning or well-being meet her or his need and expectations.
How Scholars Synthesize Mental Well-being Measures

**Ware et al.**
- Answers are in an ordinal six-step scale
- Items \( a \) and \( b \) are recoded in reverse order (7-xk) in \( ar \) and \( br \)
- Range from 5 to 30

\[
MHI - 5 = (ar + br + c + d + e)
\]

**Ist. M. Negri**
- Adopted the same scale and the same recoding way of Ware et al.
- Range from 1 to 6

\[
MHmean = \left(\frac{ar + br + c + d + e}{5}\right)
\]

**Eurostat**
- Analysing EU-SILC 2013 data, *Mental Well-being* score items \( a \) and \( b \) are recoded in reverse order (6-xk) in \( ar \) and \( br \)
- Items are scored from 0 to 100 (\( ar^l, br^l, c^l, d^l, e^l \))
- Range from 0 to 100

\[
MWB = mean(ar^l + br^l + c^l + d^l + e^l)
\]
Toward a Synthesis of the Emotional Status

Labour Status and Subjective Well-being

Step 1
- Analysing EU-SILC 2013 data
- Items a and b are recoded in reverse order (6-xk) in ar and br

Step 2
- Analysing the relationship among the variables
- Analysis of the Kendall’s Tau-b Correlation Matrix

Step 3
- Recoding variables from 5 to 3 items
- Applying Poset using parsec library on R
- Identifying 217 profiles

Step 4
- Analysing results (id.function, relative severity, relative wealth)
- Comparing synthetic results (poverty gap and wealth gap) between subgroups

Nervous

Down | 0.51
Serene | 0.48 | 0.42
Sad | 0.5 | 0.67 | 0.47
Happy | 0.35 | 0.39 | 0.61 | 0.46

-1 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1

Labour Status and Subjective Well-being
Emotional Status in the Different Subgroups

Labour Status and Subjective Well-being
Emotional Status in the Different Subgroups

Synthetic values of Emotional Status in different labour status subgroups

- Total: Poverty gap 0.47, Wealth gap 0.69
- Employees full time: Poverty gap 0.41, Wealth gap 0.71
- Unemployed: Poverty gap 0.57, Wealth gap 0.61
2nd Step Poset Applied to Subjective Well-being

- Emotional Status (ES)
- Satisfaction for Life as a whole
- Meaning of Life

Poset

3 ordinal modalities
Threshold 223

Subjective Well-being (SWB)
How to Assign a Synthetic Value of ES to Each Profile

First question
Is it possible and proper to assign an Emotional status value to each respondent according to the profile expressed?

Second question
Can we transform the output of the Poset evaluation function into a synthetic variable?

Third question
Can we consider the relative severity or the relative wealth as levels of a synthetic measure (e.g. the Emotional status)?

Fourth question
If so, which information is better to use?
There are many different ways to recode the output of the evaluation function into an ordinal variable, e.g., we can:

• consider the co-level of a Hasse diagram as modalities of an ordinal variable

• assign the minimum level to all profiles scored 1 (id.function or rel.severity) and the maximum level to all profiles scored 0, then divide all intermediate values into quantiles

• consider the output quantity (e.g., rel.severity) as a continuous measure, and round off the measurements to the whole that interests us

All these options imply a distortion of information. I am looking for the most correct way to handle this delicate passage.
Recoding Variables

The variables chosen

<table>
<thead>
<tr>
<th>id. function &amp; relative severity (average value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = 0.67 : 1</td>
</tr>
<tr>
<td>2 = 0.34 : 0.66</td>
</tr>
<tr>
<td>3 = 0 : 0.33</td>
</tr>
</tbody>
</table>

The recoding method

<table>
<thead>
<tr>
<th>The recoding method</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
</tr>
</thead>
<tbody>
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<td>id. function &amp; relative severity (average value)</td>
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<td>3 = 0 : 0.33</td>
</tr>
</tbody>
</table>

Results: Respondents according to Labour status and Emotional status

<table>
<thead>
<tr>
<th>Labour status</th>
<th>ES Low</th>
<th>ES Medium</th>
<th>ES High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployed</td>
<td>668</td>
<td>169</td>
<td>563</td>
</tr>
<tr>
<td>Employees FT</td>
<td>1,369</td>
<td>585</td>
<td>4,122</td>
</tr>
<tr>
<td>All respondents</td>
<td>4,537</td>
<td>1,563</td>
<td>9,253</td>
</tr>
</tbody>
</table>

Labour Status and Subjective Well-being
Step 1
• Analysing the three dimension of Subjective Well-being
• Analysing the relationship among the variables

Step 2
• Recoding variables to 3 items
• Applying POSET using parsec library on R

Step 3
• Analysing results (id.function, rel.severity, rel.wealth gap)
• Comparing synthetic results (poverty gap and wealth gap) between subgroups

Step 4
• Assigning each statistical unit a level of the new variable “SWB” (how many modalities?)
• Analysing distribution of SWB according to Labour status
The Choice of the Way to Recode

Comparing the output of evaluation function applied to the 27 profiles

Labour Status and Subjective Well-being
Comparing Levels of SWB among Different Labour Status

Subjective Well-being 3 levels

Labour Status and Subjective Well-being

Subjective Well-being 4 levels
If we consider the level of identification with the worst condition, corrected according to the severity of this identification, we obtain a different sorting, and a distribution of the profiles more easily interpretable.

\[ SWB = \frac{\text{id. function} + \text{rel. severity}}{2} \]
Final Considerations

There is not a substantial difference in the whole distribution of SWB within population and its subgroups. The differences concern the position of some profiles and then the degree of SWB of respondents, which may change according to the method applied.

As we said, we could also use other values, which consider, eg, the relative wealth or the average rank.

My intent was to share with you some of the questions that emerged during the application of the methodology. I would like to have your suggestions or to know how other scholars solved a similar situation.

Thank you for your attention.