

Creating job-quality profiles: A how-to guide

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Job quality profiles: A how-to guide

- In response to interest from members of the Steering Group on Quality of Employment, a subgroup was formed to work on the topic of job quality profiles.
- As part of the activities of the subgroup, a short document providing guidance on how to create job quality profiles was drafted by Canada
 - Comments from UNECE, Finland, and Switzerland were incorporated
- This guide will be available on the Expert group's Wiki page after the meeting



Purpose and requirements

- Premise: quality of employment is not a linear measure that can be effectively captured by a single index (see Eurofound, 2012, p. 15).
 - E.g. jobs that are challenging physically can have good wages and a good social environment
- The goal of job quality profiles is to classify jobs into different clusters based on their common quality of employment features
- Requires a dedicated quality of employment survey **OR** a Labour Force Survey supplement covering **several** quality of employment dimensions.

Eurofound: Job Quality Indices

Physical environment

Posture-related (ergonomic)
Ambient (vibration, noise, temperature)
Biological and chemical

Social environment

Adverse social behaviour
Social support
Management quality

Work intensity

Quantitative demands
Pace determinants and interdependency
Emotional demands

Skills and discretion

Cognitive dimension
Decision latitude
Organisational participation
Training

Working time quality

Duration
Atypical working time
Working time arrangements
Flexibility

Prospects

Employment status
Career prospects
Job security
Downsizing

Earnings



Selection of measures

- Initial treatment of variables
 - Identify variables that represent different dimensions of quality of employment
 - Eurofound job quality dimensions (Eurofound, 2012) is a common starting point.
 - If multiple variables are available for one quality of employment dimension, consider constructing an index.
 - E.g. combining career prospects with job security to create a “prospects” index
 - Verify quality of the index using Cronbach’s alpha or equivalent measures of reliability.
- Select individual indicators or indices based on theory
 - Note: indicators should be at the job level, not the person level



Applying clustering algorithms

- Select appropriate clustering method
- Latent Class Analysis (LCA) or Latent Profile Analysis (LPA)
 - Similar techniques, LCA is for categorical variables and LPA is for continuous variables
 - Preferable for sample surveys, can produce standard errors and fit statistics
 - Possible that a solution fails to achieve the recommended level of fit
- Other clustering algorithms
 - K-means (continuous, requires standardization)
 - Hierarchical clustering (categorical)
 - No clear way to measure the overall quality of the clustering, “forces” cases into clusters



Interpreting the solution

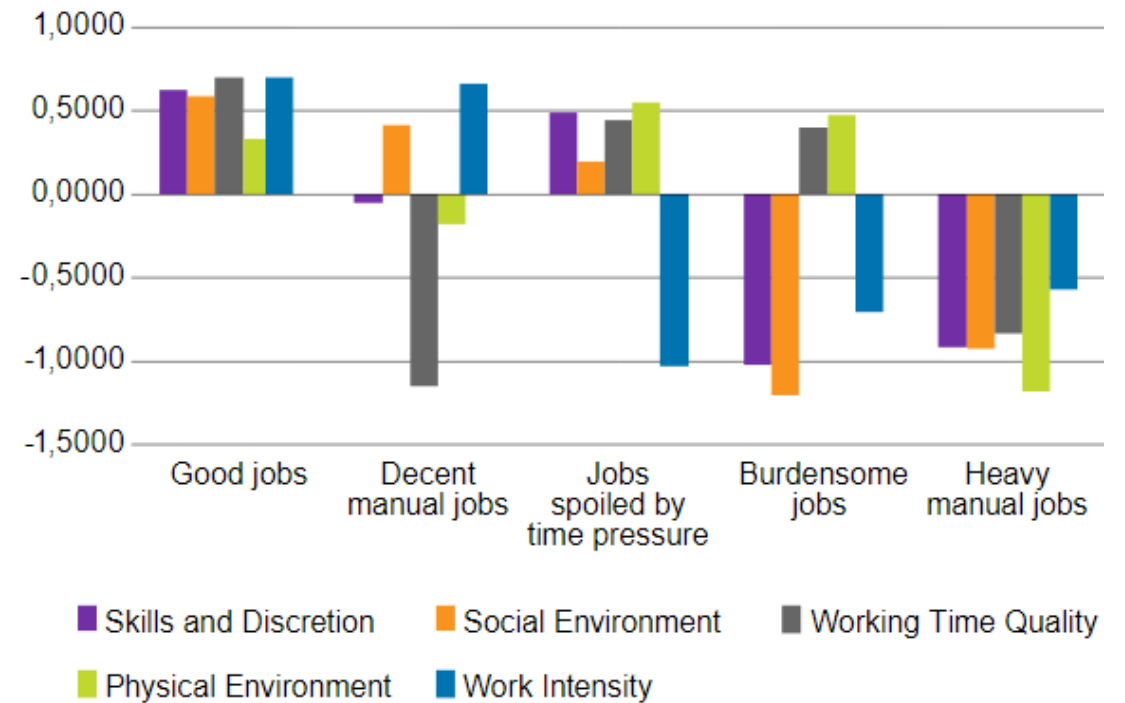
- LCA and LPA models can include covariates
 - E.g. sex and age
- Covariates can predict the probability of having a particular job quality profile based on a person's characteristics (see for example, Chen and Mehdi, 2019)
- Other clustering algorithms directly assign individual cases to clusters, and these can be cross-tabulated with demographic characteristics and other variables.
- Some researchers like to assign labels to job quality clusters.



Example

- Immonen and Sutela (2021)
 - Based on the 2018 Quality of Work Life Survey in Finland
 - Created quality of employment indices similar to Eurofound's job quality indices: **skills and discretion, social environment, flexibility of working time, physical environment, and work intensity**
 - A model with five job quality profiles was found to be the best fit for the data.

Distance of the factors describing the quality of working conditions and the average in different job quality profiles



Source: Statistics Finland, Quality of Work Life Survey 2018

Chart taken from Immonen and Sutela, 2021



Data sources

- European Working Conditions Survey or similar are excellent data sources
- However, many national statistical offices lack dedicated quality of employment surveys.
- Possible solutions: collect a Labour Force Survey (LFS) supplement with at least one representative measure of each quality of employment dimension.
 - Use single indicators rather than indices

Alternative: Apply clustering to aggregate data

- If quality of employment data are available across multiple data sources (e.g. LFS supplements) one option may be to classify **occupations**
 - Calculate average scores for different quality of employment indicators by occupation (e.g. ISCO)
 - Create a database of occupational scores & apply clustering algorithms at the occupational level.
 - Create an identifier variable for the clusters, and merge the cluster identifier back to a representative survey using the occupational code (e.g. LFS)
- Note: experimental approach, see Hardy (2024) for more detailed information

Resources

- Chen, W. & T. Mehdi. (2019). *Assessing Job Quality in Canada: A Multidimensional Approach*. Analytical Studies Branch Research Paper Series. Statistics Canada, Ottawa.
- Eurofound. (2012). *Trends in job quality in Europe*. Publications Office of the European Union, Luxembourg.
- Eurofound. (2017). *Sixth European Working Conditions Survey – Overview report (2017 update)*. Publications Office of the European Union, Luxembourg.
- Hardy, V. (2024) “Using aggregate data to generate job quality profiles”. Presented at the Group of Experts on Quality of Employment. UNECE, Geneva.
- Immonen, J. & H. Sutela. (2021) “Job quality profiles reveal division: men clearly more often in “good jobs” than women”. Statistics Finland, Helsinki. Available at: <https://www.stat.fi/tietotrendit/artikkelit/2021/job-quality-profiles-reveal-division-men-clearly-more-often-in-good-jobs-than-women/>
- Magidson, J. & J. K. Vermunt. (2002) “Latent class models for clustering: A comparison with K-means”, *Canadian Journal of Marketing Research*, Vol. 20.



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