

From theory to practice: a methodological proposal for operationalising and summarizing the concept of quality of work

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Abstract How to measure the “quality” of work? Answering to this question it is not easy. In point of fact, work profiles determining its quality are numerous, due to different aspects of employment characteristics and individual’s interaction with work. The 2010 Isfol survey on quality of work has operationalized the multidimensional concept of quality of work, on the basis of the theoretical approach by Gallino and La Rosa that considers five dimensions of job quality. Our contribution aims at the description of the methodology through which build composite indicator identifying work quality dimension. The study shows empirically the inability of reducing the concept to a one-dimensional indicator.

1. Theoretical framework

The concept of “quality of work” broadens the concept of “working conditions”, which traditionally has to do with the ergonomic aspects of the workplace and those relating to the worker’s health in the Anglo-Saxon approach. Our concept of “quality of work” is multidimensional. Beside the physical environment and working conditions of the worker’s health, it comprehends: (a) the contractual situation of employees; (b) the objectives and organizational practices of companies; (c) the social climate at workplace, namely, attitudes and needs of workers, correspondence between the worker’s expectations and job’s characteristics, the perception that the employees have,

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in terms of satisfaction of their work and the possibility of developing their skills through vocational training activities.

In literature there is no unambiguous definition of quality of work, which is thus made explicit through the set of dimensions that compose it. In the Italian tradition of studies on working conditions, being Gallino and La Rosa its main authors, the concept of quality of work has been conceptualized through a multidimensional approach. Each of such dimensions is referred to a different category of needs of the individual and the correspondent level of satisfaction (Gallino, 1983; La Rosa, 1998; Isfol, 2004). The dimensions can be identified as follows: the ergonomic dimension; the complexity dimension; the autonomy dimension; the control dimension; the economic dimension. According to this approach, the concept of quality of work is open, namely it recognizes the opportunity of expanding and integrating the dimensions or individual aspects of work. It is characterised also by the absence of a hierarchy between the dimensions, not necessarily correlated and, indeed, mutually independent.

1 A methodological proposal for synthesizing the concept of quality of work

The Third Isfol quality of work survey² was designed from the very beginning with the aim of using a multidimensional concept of quality of work built upon five independent dimensions.

At first, the five dimensions were operationalized in questionnaire's items and thereafter five orthogonal composite indicators were calculated. The methodology used for this purpose is shown in the following section.

Indicators of each dimension of quality of work are calculated empirically as a sum of the variables. Associating an increasing score to each variable in relation to the decreasing "quality" of the specific dimension³ was the first step, after selecting and recoding the variables relating to each dimension⁴. Subsequently, scores associated to

²Isfol carries out a periodical survey aimed at measuring the concept on quality of work in Italy. The survey is conducted every four years and its third round took place in 2010. The project is inspired to the European Working Conditions Survey carried out by the Eurofound. The survey has been conducted in its last round on a 5,000 units sample, and a three-stage sampling design (city, household, individuals) stratifying the units of the first stage. The sample is representative of the Italian employed population aged 15 years and more. In the estimation phase an estimator founded on model-assisted estimation theory, based on regression estimators, was developed. Regarding the estimation problem super-population models (Dorfman et al., 2000) have been used. The constraint system was obtained from the estimates of LFS made by Istat in 2010.

³The score is equal to one in the case of the dichotomic variable and enhances the modality that indicates poor quality of work, while in the case of polythomic variables the weight associated is defined in a rational way.

⁴*Economic dimension* (non standard employment contract; lack of employment contract or payment of social contributions; company that last year has made staff reductions; perception of job insecurity; perception of the possibility of dismissal or salary reduction; low income). *Ergonomic dimension* (lack of computer-use at work; use of machinery/automated systems; heaviness of work in terms of physical effort; stressful job; presence of discrimination against at the workplace; episodes of violation of rights at the workplace; episodes of sexual harassment at the workplace; health risk due to the job; diseases or injuries caused by work; involuntary part-time; night shifts; work on weekends; inflexible working time; difficulties in reconciling work and

each variable have been summed for each dimension. The outcome of such a process has been the building of five synthetic indicators, each representing a different dimension of the quality of work. Variation of indicators depends upon the number and type of variables (dichotomic or polythomous variables).

Since the literature of reference, as described above, considers the dimensions of the quality of work among them conceptually unrelated, a central aspect of the methodology implemented is the assessment of the degree of correlation between composite indicators. Correlation analysis performed shows both the validity of the theoretical conceptualization, and the accuracy of the operationalization, and in particular, those aspects regarding measurement issues, confirming the reduced bond between indicators. The results, in fact, show that any of the dimensions is strongly correlated with the others (Tab. 1). However, in order to make subsequent analysis most accurate, considering each dimension totally uncorrelated with others, synthetic indicators were statistically orthogonal transformed, operationalizing the theoretical paradigm for data analysis. To this purpose, a Principal Components Analyses (PCA) has been carried out in order to extract all of the factors generated. All the information produced by the dimensions built before multivariate analysis has been maintained, with the advantage of having turned the dimensions in orthogonal factors.

Table 1. Pearson's correlation matrix between the dimensions of quality of work

	Economic	Ergonomic	Complexity	Autonomy	Control
Economic	1.000	0.127	0.348	0.259	0.209
Ergonomic		1.000	0.236	0.182	0.114
Complexity			1.000	0.266	0.230
Autonomy				1.000	0.317
Control					1.000

Source: Elaboration on data from Third survey on the quality of work in Italy -Isfol

Table 2. Pearson's correlation matrix between the dimensions of quality of work "rough" and orthogonal factors obtained from PCA

Dimensione	<i>Orthogonal composite indicators</i>				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Economic	0.050	0.089	0.975	0.114	0.163
Ergonomic	0.989	0.044	0.048	0.079	0.106
Complexity	0.113	0.101	0.167	0.115	0.967
Autonomy	0.083	0.151	0.115	0.972	0.114
Control	0.045	0.979	0.088	0.148	0.098

Source: Elaboration based on data from the Third survey on the quality of work in Italy -Isfol

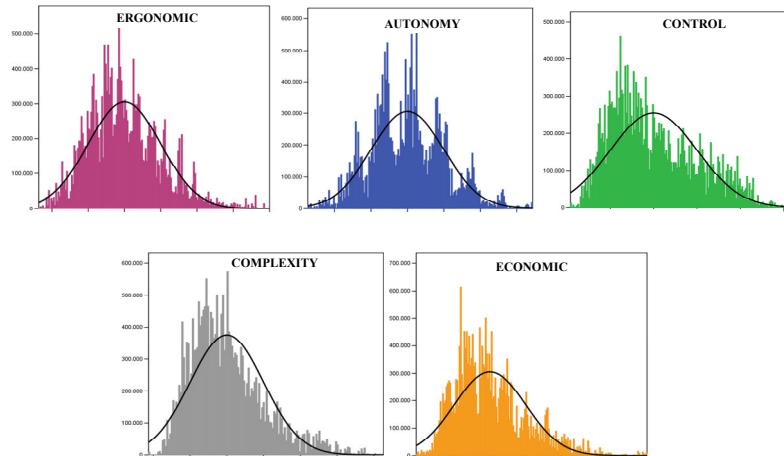
In table 2 the correlation matrix between the original dimensions and factors originating from PCA is displayed. Finally, the five factors, renamed according to the

non-work commitments). *Complexity dimension* (perception of worsening of career development; skills and educational mismatch; lack of training courses in the last year; lack of career development; perception of miss-appreciation at work; lack of motivation). *Autonomy dimension* (prevalence of repetitive tasks; the pace of work depends on the direct monitoring of a supervisor; the work does not respect precise quality standards or does not provide a personal assessment of quality; lack of people to supervise; worsening perception of the autonomy degree). *Control dimension* (unable to choose: strategies and goals to be achieved, work methods and techniques, program of own activities, order of the tasks of work; to work in a team that cannot plan and organize the work; work under direct supervision of a superior; inability to decide: when to take a break or a permit of few hours off work; lack of complex tasks on the job).

maximum correlation, have been normalized by imposing a range of variation between 0 and 100, in a decreasing scale of the quality measured: 0=maximum quality; 100=minimum quality.

Figure 1 shows the frequency distributions of the synthetic indicators orthogonally transformed. Regarding the *economic dimension*, it can be noted that the average value associated to this indicator is estimated at 31.9, the median is estimated at 29.3; 75% of the population taken into consideration ranks below a value of 39.9. Evidence, therefore, is that the distribution is highly asymmetrical, with a large proportion of employees having a low value of the indicator. A similar evidence has been found analysing the *control dimension* (mean = 37.7, median = 33.4, and 75th percentile = 51.2) and, even more evident, in the *complexity dimension* (mean = 33.3, median = 30.8 and 75th percentile = 41.6). In contrast, the *autonomy dimension* is characterized by a more symmetrical frequency distribution, to mean that most of the employed has a synthetic indicator value that focuses on core values of distribution (mean = 44.5, median = 44.4 and 75th percentile = 56.2). The *ergonomic dimension*, finally, has a performance comparable to that of the autonomy dimension (mean = 37.2, median = 35.3 and 75th percentile = 47.0).

Figure 1: Frequency distribution of the work quality dimensions



Source: Elaboration on data from Third survey on the quality of work in Italy -Isfol

References

1. Dorfman, A.H., Royall, R.M., Valliant, R: Finite Population Sampling and Inference: a Prediction Approach, John Wiley & Sons, New York (2000)
2. Gallino, L.: Informatica e qualità del lavoro, Einaudi, Torino (1983)
3. Isfol: La qualità del lavoro in Italia, Temi e Strumenti, Isfol editore (2004)
4. La Rosa, M.: Il problema della qualità del lavoro, In: La Rosa, M.(eds), Il lavoro nella sociologia, Carocci, Roma (1998)