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European Workers' Health and Well-Being: Do gender Gaps Persist Between 2010 and 2015?

Salud y bienestar de los trabajadores europeos. ¿Persisten las diferencias de género entre 2010 y 2015?

María Cruz Merino-Llorente
mariacruz.merino@uva.es
Universidad de Valladolid

Noelia Somarriba Arechavala
marianoelia.somarriba@uva.es
Universidad de Valladolid

Carmen García-Prieto
carmen.garcia.prieto@uva.es
Universidad de Valladolid

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Abstract

After the 2008 crisis, gender gaps in workers' health and well-being have persisted in different EU countries. Using 2010 and 2015 data from the European Working Conditions Survey, this paper estimates synthetic indicators by gender, considering workers' health status as well as environmental, organisational and psychosocial factors at work, by means of the P_2 distance measure.

The study attempts to answer questions such as which countries evidenced the largest and smallest gender gaps in both years and where these gaps widened or narrowed in addition to what mechanisms support these results.

Policies aimed at preventing and addressing occupational risks –in particular, psychosocial risks– would therefore be desirable to reduce these gaps.

Keywords: Health and well-being, gender gap, working and employment conditions, synthetic indicator, European Union countries.

Resumen

Tras la crisis de 2008, las diferencias de género en salud y bienestar de los trabajadores han persistido en los diferentes países de la UE. A partir de los datos de la Encuesta Europea de Condiciones de Trabajo de 2010 y

2015, se estiman indicadores sintéticos por género, mediante la medida de distancia P_2, considerando el estado de salud de los trabajadores y los factores ambientales, organizativos y psicosociales en el trabajo.

El estudio intenta responder a preguntas como qué países mostraron las mayores y menores brechas de género en ambos años y dónde se ampliaron o redujeron, así como qué mecanismos apoyan estos resultados.

Por tanto, serían deseables políticas dirigidas a prevenir y abordar los riesgos laborales, especialmente los psicosociales, para reducir estas brechas.

Palabras clave: salud y bienestar, brecha de género, condiciones de trabajo y empleo, indicador sintético, países de la Unión Europea.

JEL Classification/ Clasificación JEL: C51, I14, J16.

1. Introduction

The health and well-being of workers is a political priority for the European Union (EU), whose aim is to improve working conditions and the working environment in order to protect employees' health and safety at work (European Commission, 2021). This is key to having a healthier and more motivated as well as satisfied workforce (Barnay, 2016), especially in the context of an ageing population. The persistence of gender inequalities in the labour market (unequal distribution in sectors and occupational groups, performing different tasks, and an uneven role in domestic and family duties) can lead to gender differences in working and employment conditions that expose women and men to different health risks (Campos-Serna et al., 2013; Bartoll et al., 2014; Leineweber et al., 2013). The impact of these conditions on workers' health and well-being can be both positive and negative, and to a large extent the sign of the impact depends on what type of conditions these are. In previous works (Eurofound, 2019; Rivera-Torres et al, 2013) a distinction is usually made between viewing work conditions as either resources or as demands. Resources include social resources (such as peer support) or rewards (e.g. job promotion). As regards demands, these can be physical (e.g. working in high temperatures), quantitative (like working at very high speed), or emotional. There are certain differences between male and female workers in the main aspects of job quality, with some of these proving to be significant (Eurofound, 2020). Unfavourable physical factors are related to specific occupations that are more common in male-dominated sectors (e.g. the construction sector). In contrast, emotional demands are more common in female-dominated sectors such as the health sector.

By designing synthetic indicators estimated from a broad set of variables obtained mainly through the European Working Conditions Survey (EWCS) data, this study aims to assess levels of workers´ health and well-being by gender in European countries in 2010 and 2015 in order to explore how gender gaps have evolved in each country. The work also seeks to examine whether the synthetic indicator for male and female workers exhibits a different structure. We expect levels of European workers´ health and well-being to have improved in 2015, consistent with Olsen and Dahl (2007) who show a positive association between gross domestic product and health. Moreover, some studies (Cloutier, 2012; Ficapal-Cusí et al., 2018) have shown how gender differences in job quality during the previous economic boom have lessened. Furthermore, male

and female workers are believed to shape their concept of health and well-being differently, with some indicators differing between the two population groups.

Our work is interesting for the following reasons: firstly, we use the latest data from the EWCS for which information is available at the time of writing (2010 and 2015), covering different economic phases and taking into account a gender perspective. Secondly, we adopt a multidimensional approach, which improves the analysis compared to other unidimensional perspectives (Caroli and Godard, 2016). Finally, studying the persistence of gender gaps and the different configuration of the concept of health and well-being by men and women might help policymakers to determine which measures are to be taken.

This paper is structured as follows. Following on from the background to the issue, the data and the P_2 distance method used are explained, and the variables that will form part of the synthetic indicator are described. In the results section, its structure by gender is shown, furthermore differences in levels and gender gaps by EU countries are examined. Finally, we provide a brief discussion and some conclusions.

2. Background

Shifts in labour markets related to greater flexibility, increased competition and major technological changes have all triggered a deterioration in job quality in most European countries (Gallie, 2017; Fernández-Macías and Bisello, 2020; Merino et al., 2012), which could have an impact on workers' health and well-being.

When researchers study job quality, they mainly distinguish two dimensions: first, intrinsic job characteristics, related to features linked to the tasks to be performed (and which have been developed by the models of Karasek, 1979; Siegrist, 1996; and Bakker and Demerouti, 2007), concerning resources, demands and job control; second, employment quality, which encompasses the conditions and relations of employment (working hours, type of contract…). The association between health and psychosocial working conditions has been studied by some researchers (D'Errico et al., 2022; Marmot, 1998); Bambra et al., 2014). As regards employment quality, it is worth mentioning the works of Van Aerden et al. (2014, 2016) and Vanroelen (2019).

Differences between men and women in exposure to occupational hazard-based job segregation, certain biological differences and unequal burdens inside and outside work have meant that different working conditions impact the health of women and men differently. The review by Campos-Serna et al. (2013) shows that different job status –in terms of gender– may be related to gender differences linked to self-perceived physical and mental health and musculoskeletal symptoms. Cottini (2012) showed how high job intensity and low job autonomy were more harmful to mental health for male workers. However, there was no clear gender health pattern with regard to physical conditions. Padkapayeva et al. (2018) examine the effects of different types and

levels of psychosocial work exposures on workers' job and life stress, affecting their health. Higher levels of supervisor support at work were associated with lower work stress among women, but not among men. Low job control had a direct protective effect on life stress for men but not for women, while high job strain had a direct adverse effect on life stress among women but not among men. Higher job insecurity was more strongly associated with higher life stress among men compared to women. In a recent study, Kjellsson (2021) reported female blue collar workers displayed a greater likelihood of poor self-rated health (SRH), compared both to male counterparts and to women in the other categories. Whereas the inclusion of physical and psychosocial working conditions did not affect the gender gap in SRH for the unskilled working class, the latter can explain part of the gender gap in SRH among skilled workers.

When aiming to study the health and well-being of workers, we are faced with a wide variety of possible definitions and approaches, such as well-being at work, occupational safety and health, or a healthy workplace, among others (Schulte and Vainio, 2010; World Health Organization, 2010; Schulte et al., 2019). In general, all these definitions highlight the multidimensional nature and ambiguity of the concept to be measured. However, it does seem clear that workers' health and well-being are two concepts which are intrinsically linked. Worker well-being –as stated by Chari *et al.* (2018, p. 3)– is "an integrative concept that characterizes quality of life with respect to an individual's health and work-related environmental, organizational, and psychosocial factors". According to this definition, we propose an approach to health measurement from the point of view of workers, based on the National Institute for Occupational Safety and Health's (NIOSH) conceptual framework for worker well-being (Chari et al., 2018), albeit with certain differences. This comprises the following domains:

- Health status includes aspects of the individual's life related to their physical and mental health and well-being. In this paper, we consider self-reported health, mental health (by the WHO-5 well-being index) and health problems.
- Workplace physical environment and safety climate. Exposure to both physical risk factors and demands may lead to serious health hazards for workers and prove detrimental to their well-being (OECD, 2017).
- Organizational and psychosocial work factors refer to aspects of work, such as job control, social capital, working time organization, job insecurity or job promotion. Within this domain, social support at work is one of the most important dimensions of the working environment that contributes to workers' mental well-being and can cushion the negative effects of other job aspects, like high job demands. Moreover, working time quality affects worker's well-being –either negatively or positively (Lee and Kawachi, 2021; Lunau et al., 2014). Perceived job insecurity may have an adverse impact on health and well-being, and is an important predictor of poorer self-rated health (Burgard et al., 2009). Furthermore, high intensity jobs

could lead to work accidents and cause psychological ill health (Stansfeld et al., 1999).

- Job satisfaction provides an insight into how workers perceive and evaluate their jobs, since it reflects both their preferences and expectations concerning different aspects of their work. Low reported job satisfaction is associated with health problems (Faragher et al., 2005).
- In addition to these elements, we consider additional information on the labour market, given that a different labour context might prove to be relevant in workers' expectations and could affect their level of health and well-being. Moreover, these indicators have become increasingly common to capture labour market flexibility and precariousness (Puig-Barrachina et al., 2014).

3. Materials and methods

3.1. Sample and variables

Our study focuses on exploring levels of workers´ health and well-being by gender in all EU countries between 2010 and 2015. By working with a five-year period, it is possible to capture the economic progress of EU countries, which differed due to the different intensity of the financial crisis and the double-dip recession experienced by southern European countries. Our goal is to ascertain whether this had an impact on working conditions and, therefore, on workers´ well-being and health.

The analysis is based on data from the fifth and sixth EWCS, carried out in the first semester of 2010 and 2015, respectively by Eurofound and which offer an overview of the European labour market situation during these years and provide in-depth information on different work-related characteristics. The questionnaires for the two waves are very similar. The sample used is a multi-stage, stratified random sample of the working population in each country, and sample size varies by country. People aged 15 and over, who were in employment at the time of the survey, were interviewed, and the total sample size was 43,816 (in 34 countries), comprising 43,850 interviews (in 35 countries) in 2010 and 2015, respectively. Only the working population of the 28 Member States that made up the EU in 2015 has been considered in this paper. It is important to note the inclusion of Croatia in 2010, although the country did not in fact join the EU until 2013. We also use the EU Labour Force Survey, processed by Eurostat.

Given the complexity of the issue, a multidimensional approach is adopted that addresses workers´ health and well-being. For this, synthetic indicators for EU countries are constructed by gender with 49 simple indicators that have generally been deemed –either positively or negatively– to determine levels of workers' health and well-being (Eurofound, 2019). The indicators considered enable us to show the main features of workers' working environment and their perceptions, as well as health problems, from an aggregate perspective

by countries. Taking into account information on the quality of the working environment and its changes is vital when seeking to understand, among other issues, workers' psychological and physical health and well-being. Since workers' health and well-being are multidimensional concepts, the large number of indicators makes it easier to display all the dimensions, as well as capture gender differences. This large volume of information is not a problem, since the procedure used to design the synthetic indicators eliminates duplicated information, as will be seen below. Table 1 (in the Annex) describes all the variables used in the synthetic indicator and reports their sample means or percentage by gender. In the most partial indicators, higher values denote that it contributes to a better level of health and well-being of the working population, except for the indicators related to working time and labour market indicators.

Table 1 shows some important gender differences in certain indicators. There is a higher percentage of female workers than male workers with health problems (with the exception of injuries), with lower values for psychological well-being and with working hours that align or fit in well or very well with their family and social commitments. However, male workers are more exposed to certain physical risks at work, with the exception of lifting or moving people. They also suffer from higher job intensity but, on the other hand, enjoy greater rewards (job promotion).

3.2. The P_2 distance method

Our aim is to construct a synthetic indicator that measures levels of workers' health and well-being by gender in all EU countries and that examines their situation in 2010 and 2015. The method used for our purpose is the measure of distance P_2, which allows us to make an analysis with a temporal perspective, since the distance between the periods being compared is not too great –as is the case in our study– such that this comparison makes sense (Pena, 1977; Merino et al., 2012). Pena's synthetic distance indicator (DP_2), designed by Pena (1977) is a good tool to devise synthetic indicators, particularly with regard to the aggregation and weighting of simple indicators and when making intertemporal and interspatial comparisons, as we do in this paper.

The synthetic distance DP_2 indicator solves a large number of problems (Somarriba and Pena, 2009), such as the aggregation of variables expressed in different measures, arbitrary weights, and duplication of information. In addition, being a cardinal measurement, it is a distance measurement, which allows us to make comparisons in time and space. These properties make it the ideal measure for the purpose set out in the current research. Another advantage of using the DP_2 method in our analysis is the possibility of studying the impact of each simple indicator, compared to the others, when determining the value of the synthetic indicator, which undoubtedly provides valuable information on how men and women shape their work-related well-being. Some studies have used the P_2 distance measure for the aggregation of variables in several topics, such as health (Ivaldi et al., 2018; Pinillos-Franco and

Somarriba, 2018; Merino-Llorente and Somarriba, 2020), job quality (Merino et al., 2012), quality of life (Somarriba and Zarzosa, 2019) or economic and social cohesion (Rodríguez et al., 2019), among others.

We present this methodology succinctly in order to provide its basic methodological essentials, since it already appears in more detail in the works mentioned above.

The P_2 distance from individual j is defined as follows:

$$DP_2 = \sum_{i=1}^{n} \left\{ \left({}^{d_i}/_{\sigma_i} \right) \left(1 - R^2_{i,i-1,\ldots,1} \right) \right\} \quad (1)$$

with $R_i^2=0$; where $d_i=d_i(r^*)=|x_{ri}-x_{*i}|$ with the reference base $X_*=(x_{*1}, x_{*2},\ldots,x_{*n})$ where:

- n is the number of variables
- X_{ri} is the value of the variable i in individual r
- σ_i is the standard deviation of variable i
- $R^2_{i,i-1,\ldots,1}$ is the coefficient of determination in the regression of X_i over X_{i-1}, X_{i-2}, ..., X_1, already included.

The correction factor $(1-R^2_{i,i-1,\ldots,1})$ indicates the amount of fresh information attributable to each simple indicator. This factor was obtained from the order defined by the linear correlation coefficients corresponding to the final iteration.

The statistical technique used in the current research is a useful tool for evaluating the impact that each simple indicator has on the results. Based on the synthetic indicator's neutrality, each simple indicator is assigned a different weight in the synthetic indicator that depends on the degree of absolute correlation with the resulting synthetic indicator and on the correction factor. In order to ensure that the properties of the synthetic indicator are met, some variables –whose increase implies a deterioration in health and well-being– were multiplied by -1, such that an increase in the value of any variable could mean an improvement.

We calculated two synthetic indicators –one for each gender. To calculate the synthetic indicators, we used the statistical software R and in particular the p2 distance package, detailed information on which may be found at https://cran.r-project.org/web/packages/p2distance/p2distance.pdf.

In our study, we used the same reference base for both years, which would correspond to a theoretical country that has the worst values for all the partial indicators throughout the whole of the period analysed (Merino et al., 2012); that is, all the simple indicators present the minimum value for the period considered. In accordance with this, the DP_2 indicator measures each country's distance vis-à-vis this theoretical country, such that a higher value of the DP_2 would indicate the country presents a better level of health and well-being for its workers. We obtain a synthetic indicator for male workers and another for female workers that enables us to draw comparisons between the European countries being studied. In order to compare them, the values are typified,

and we therefore use standardized values of the synthetic indicator, thereby guaranteeing their comparability. As a result, a territorial ranking both in 2010 and in 2015 is obtained according to standardized levels of workers' health and well-being.

4. Results

4.1. Structure of the synthetic indicator

Table 2 shows the structure of the synthetic indicator for female and male workers, respectively. As previously explained, we can see for each simple indicator its degree of absolute correlation with the synthetic indicator, which determines its order of access to the indicator, and the percentage of new information it provides ($1-R^2$). Analysing this structure will allow us to support the hypothesis that male and female employees configure their health and well-being differently. For women, muscular pains in lower limbs is the most important factor when explaining their health and well-being, and is the one which most correlates with the synthetic indicator and includes all of its information. The second partial indicator introduced –given its absolute correlation– is job satisfaction, which incorporates almost 88% of its information. The following indicators are backache and breathing in smoke, fumes or dust.

In the case of men, access to the job satisfaction variable ranks highest in the synthetic indicator, and includes all of its information. Being exposed to breathing in smoke, fumes or dust, moving heavy loads, and adopting tiring or painful positions are the following main factors, with 58%, 50%, and 57% of new information, respectively.

The proposed system of indicators is adequate in view of the high correction factor values. While in the case of male workers, 77% of the indicators have correction factors greater than 10%, this percentage reaches 83% of the indicators for women. Moreover, eighteen indicators display a significant correlation with the synthetic indicator (over 50%) for male and female workers. Overall, the results reveal an unequal distribution of partial indicators in the structure of the synthetic indicator by gender. The following can be highlighted:

- The key role played by job satisfaction for men and women, given that it could be seen as a factor reflecting the worker's feelings about their job and their work environment (Freeman, 1978).
- The major importance of health problems (including self-perceived health) in the case of women compared to men, for whom the physical environment has a greater weight in the structure.
- A similar prevalence of psychological well-being indicators can be seen for both genders.
- Social environment factors are in the final positions, a fact which is more noticeable in the case of female workers. In our case, their position could be explained because the information regarding the psychosocial dimension is already included in the previous simple indicators.

4.2. Gender differences of the synthetic indicators by country

Table 3 reflects the standardized values of the synthetic health and well-being indicator by gender (VSTW and VSTM are the standardized value for female and male workers, respectively) in order to provide a comparison between them. Also shown is the gender gap of each country, calculated as the difference between the standardized value of male workers´ synthetic indicator and the standardized value of female workers´ synthetic indicator. Positive gender gaps mean that female workers' health levels are lower than those of male workers. The first columns of Table 3 correspond to 2010 data and the rest of the table provides the same information for 2015.

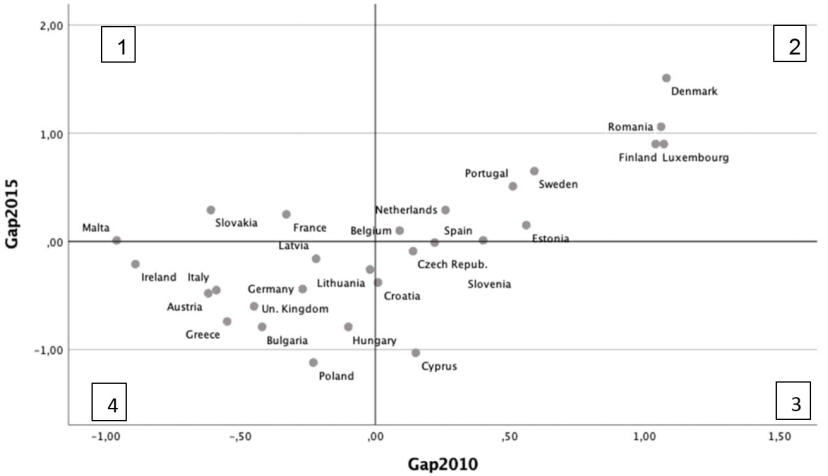
The standardized values of the synthetic indicator allow us to make comparisons of data from different samples (in our case from different variables and different measures of the working population in different EU countries). By subtracting the mean and dividing the result by the standard deviation, a variable with mean 0 and variance 1 is constructed. These new variables are dimensionless measures, reflecting the number of standard deviations by which the value of a country's synthetic indicator deviates from the mean. A positive standardized value thus means the country is above the average, whereas a negative standardized value means it is below it. Higher standardized values of the synthetic indicator mean better levels of worker health and well-being in this country, i.e. levels in this country are above the average of the EU countries as a whole.

As regards how gaps evolved between 2010 and 2015, the pattern followed is not uniform. Nordic countries, Romania, Luxembourg, Estonia, and Portugal mainly showed the largest gender gaps in 2010. Positive gaps (favourable for men) continued to widen in Denmark and Sweden in 2015 although there were decreases in the indicator for both genders. These gaps were maintained in Romania and Portugal (levels were maintained in the first case and improved in the second, for both men and women). In Estonia, Finland, and Luxembourg this gap narrowed (more moderately in the latter two countries) as a result of the more intense improvement for female workers than for male workers.

It should be noted that in Malta, Ireland, Austria, and Slovakia, female workers had better levels than their male peers in 2010. These negative gaps decreased in 2015 –more slightly in Austria. However, they continued to widen in Bulgaria and the United Kingdom. There are very similar levels of the synthetic indicator for male and female workers in Spain, Belgium, Latvia, Lithuania, the Czech Republic, and the Netherlands, such that the gap is close to zero in both years. It is also worth noting that in Cyprus, Hungary, and Poland, negative gaps increased strongly in 2015, starting from different situations in 2010.

Figure 1 shows the scatter plot of the gender gap in 2010 and 2015. When examining the gender gap in the level of our indicator over the period, we can consider the existence of four groups of countries in relation with the sign of the gaps in the two years and its position in the four quadrants of the scatter plot:

Figure 1. Gender gap in levels of workers' health and well-being in 2010 and 2015



Source: Own.

- With negative gaps in 2010 and positive in 2015: France, Malta, and Slovakia (first quadrant).
- With positive gaps in both years: The Netherlands, Portugal, Sweden, Belgium, Denmark, Finland, Luxembourg, Estonia, and Romania (second quadrant).
- With positive gaps in 2010 and negative in 2015: Cyprus, Croatia, the Czech Republic, and Spain (third quadrant).
- Negative gaps in both years: the remaining countries (fourth quadrant).

5. Discussion and conclusions

The effects on health and well-being triggered by economic changes remain unclear (Karanikolos et al., 2013). Some research has centred on psychological determinants, considering the damaging changes in health brought on by stress and risk-taking in times of crisis (Brenner and Mooney, 1983). However, other studies point to positive countercyclical effects in health; on the one hand as a result of changes in lifestyles during economic downturns (Ruhm, 2005) or, on the other hand, indicating that workers work less in downturns and spend more time on healthy activities (Bassanini and Caroli, 2015). In our study –as expected– in most countries there is an improvement in levels of workers' health and well-being over the period analysed, except in Denmark, France, the Netherlands, Sweden, the United Kingdom, Ireland, and Spain.

Given the enormous impact of the financial crisis and the need to fulfill the Stability and Growth Pact, European countries adopted austerity measures from 2010 onwards. In particular, major cutbacks were made in public spending,

which varied between Member States, depending on the intensity of the crisis and the welfare state regime. The largest were made in Spain, Slovakia, Ireland, Hungary, the United Kingdom, and the Baltic countries; in contrast, cuts were smaller in Nordic countries, Belgium, and Germany (Leschke and Jepsen, 2012). They affected mainly women, because the cuts were in certain public services and in several social benefits, which many women need in order to enter the labour market and/or remain in full-time employment. All of this could have affected areas of individuals' well-being and health and would have done little to help combat the causes of health inequalities.

Given that men and women often work in different occupations, it is logical to think that their experiences related to working conditions will differ. It is necessary to take into consideration these differences in experience, which may depend on several aspects, such as cultural, social and economic factors (Pinillos-Franco and Garcïa-Prieto, 2017), and which differ by countries.

As can be seen in our results, job satisfaction plays an important role in the structure of the synthetic indicator –for men and women- in agreement with Faragher *et al.* (2005), who establish a relationship between job satisfaction and mental and physical health. This indicator provides an understanding of how workers see their work. Regarding this type of perception indicators, it is necessary to take into account the problem of subjectivity, since most of the information is reported by workers themselves. This could be influenced by workers' perceptions or preferences (Bassanini and Caroli, 2015) as well as by their circumstances and social characteristics at the time of the interview. Reporting bias cannot therefore be ruled out. In addition to work-related factors, levels of workers' health and well-being depend particularly on non-work-related factors, with the two being interrelated.

Although it is difficult to identify the exact cause of individual cases of musculoskeletal disorders, their prevalence in female workers could be related to stress and work overload, given the need to combine paid and unpaid work (Krantz et al., 2005). This is even more evident in years of public cutbacks, which affected benefits related to the affordability and availability of care services for children and other dependents, such as in the Netherlands (Kushi and McManus, 2018). It might also be related to the nature of certain jobs that tend to be female dominated.

It is worth noting the role of psychological well-being variables in our estimated synthetic indicator for both genders, in line with evidence that recent changes in the nature of work have led to increased psychosocial risks –with serious consequences for workers' health and well-being. The worsening of psychological well-being in more workers in Denmark, France, Ireland, Luxembourg, Malta, United Kingdom, Ireland, and Sweden, which affected only female workers in Belgium, the Netherlands, Austria, and Spain.

There has been an increase in the number of workers reporting job insecurity (Eurofound, 2020), which is a key indicator in the structure of our synthetic indicator, slightly more important in the case of men than women, and which can affect mental well-being (Lunau et al., 2014). This may be related to the

worsening labour market situation in almost all countries in 2015, except in Germany, Estonia, and the United Kingdom.

Given that gender equality is a desirable goal, one might think that this objective has been achieved in several countries with different levels of health and well-being. While some countries reach similar levels for male and female workers in 2010 and in 2015, gender gaps closed in other countries in 2015, either due to improvements in male and female worker levels –albeit unevenly (Estonia and Slovenia)– or due to their deterioration (Ireland) or to uneven performance (Slovakia and Malta). However, notable gaps do still persist in both directions: on the one hand, Luxembourg, Finland, Romania, and Denmark present significant positive gaps; that is, levels of male workers' health and well-being are much higher than those of female workers, while Poland evidences an important negative gap. Future research may be conducted when data from the next wave of the EWCS for 2020 become available.

Job quality has been found to be better in occupations with a similar percentage of male and female workers. However, Dueñas-Fernández and Llorente-Heras (2021) showed that segregation still persists. In this sense, the role of education could be key to reducing sectoral and occupational gender segregation.

Given the different structure of the synthetic indicator by gender, measures should be implemented to assess and address physical risks for male workers, and to improve psychological well-being for all workers.

As the quantitative and emotional demands are considerable, these can be a major setback for work-life balance (Mensah and Adjei, 2020), and measures to reduce them should be implemented to improve mental health and well-being.

Workers' health and well-being, along with a reduction in gender inequalities, are issues which governments should focus on. As stated by Graham et al. (2018, p. 287); "The links between well-being, productivity and health are critical for future sustainability".

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Annex

Table 1. Partial indicators of the synthetic indicator. Definitions and mean in the period 2010-2015

SIMPLE INDICATORS	DEFINITION	MEN	WOMEN
HEALTH STATUS			
Self-reported health	Your health in general is very good and good	77.43%	76.1%
Does your work affect your health?	Your work does not affect your health	58.57%	62.9%
Hearing problems	No hearing problems	92.85%	95.37%
Skin problems	No skin problems	93.29%	90.85%
Backache	No backache	56.04%	53.58%
Muscular pains in shoulders, neck and/or upper limbs	No muscular pains in shoulders, neck and/ or upper limbs	58.58%	53.16%
Muscular pains in lower limbs			
Headache	No muscular pains in lower limbs	68.62%	67.12%
Injuries	No headaches	67.74%	53.69%
Depression	No injuries	89.63%	94.72%
Overall fatigue	No depression	88.42%	84.06%
Other problems	No overall fatigue	63.76%	57.03%
Feeling cheerful	No other health problems	95.95%	95.22%
	I have felt cheerful (more than half of the	84.35%	82.90%
Feeling calm and relaxed	time) over the last two weeks		
Feeling active	I have felt calm and relaxed (more than half	80.10%	75.40%
Waking up feeling fresh	of the time)	81.68%	77.40%
My daily life has been filled	I have felt active (more than half of the time)	74.94%	69.30%
	I woke up feeling fresh (more than half of	80.25%	78.20%
	the time)		
	My daily life has been filled with things that		
	interest me (more than half of the time)		
PHYSICAL ENVIRONMENT (Exposed at work around 1/4 of the time or less)			
Exposure to vibrations	To vibrations.	77.15%	92.91%
Exposure to loud noise	To loud noise	76.19%	87.63%
Exposure to high temperatures	To high temperatures	82.17%	90.50%
Exposure to low temperatures	To low temperatures	82.21%	92.53%
Handling or being in direct contact with infectious materials	To handling materials which can be infectious	93.60%	91.01%
Handling or being in skin contact with chemical products/substances	To handling chemical products	90.89%	91.71%
Breathing in smoke, etc.	To breathing in smoke, etc.	83.49%	95.69%
Breathing in vapours	To breathing in vapours	92.34%	96.14%
Tiring or painful positions	Job involves tiring or painful positions	67.51%	68.83%
Lifting or moving people	Job involves lifting or moving people	96.84%	91.80%
Carrying or moving heavy loads	Job involves carrying or moving heavy loads	75.00%	87.54%
Repetitive hand or arm movements	Your main paid job involves repetitive hand or arm movements	47.45%	46.22%

SIMPLE INDICATORS	DEFINITION	MEN	WOMEN
ORGANIZATIONAL AND PSYCHOSOCIAL WORK FACTORS			
Working at very high speed	Job involves working at very high speed around 1/4 of the time or less	53.65%	54.28%
Working to tight deadlines	Job involves working to tight deadlines around 1/4 of the time or less	49.70%	56.56%
Enough time to get the job done	I always or almost always have enough time to get the job done	76.06%	76.21%
Work stress	I rarely or never experience stress in my work	37.55%	34.28%
Support from colleagues	Your colleagues help and support you always or most of the time	75.55%	75.73%
Support from the manager	Your manager helps and supports you always or most of the time	64.42%	66.14%
Subject to discrimination at work	Not been subjected to adverse social behaviour	89.83%	87.94%
Working more than 10 hours/day	The number of times a month I work more than 10 hours/day	3.21	1.68
Working on Sundays	The number of times a month I work on Sundays	0.75	0.69
Working on Saturdays	The number of times a month I work on Saturdays	1.40	1.20
Working at night	The number of times a month I work at night	1.72	0.92
Working shifts	I work shifts	18.83%	20.04%
Work-life balance	My working hours fit in with family or social commitments outside work well or very well	80.47%	85.03%
Job insecurity	I tend to disagree or strongly disagree about "I might lose my job in the next six months"	64.03%	65.49%
Job promotion	I strongly agree or tend to agree about "my job offers good prospects for career advancement"	38.26%	33.64%
WORK EVALUATION			
Job satisfaction	On the whole, very satisfied and satisfied with working conditions in your main paid job	83.86%	84.30%
LABOUR MARKET			
Unemployment rate	Unemployed persons as a percentage of the labour force	9.4%	9.7%
Long-term unemployment	Unemployed persons for 12 months or more as a percentage of total unemployment	45.9%	41.1%
Temporary employment rate	Temporary employees as a percentage of the total number of employees	12%	13.2%
Involuntary part-time employment	Involuntary part-time employees as a percentage of total part-time employment	36.1%	28.6%

Table 2. Structure of female and male workers' synthetic indicator

Female workers. Partial indicators	|r|	(1-R^2)	Male workers. Partial indicators	|r|	(1-R^2)
Muscular pains in lower limbs	0.797	1	Job satisfaction	0.873	1
Job satisfaction	0.756	0.877	Breathing in smoke	0.785	0.583
Backache	0.700	0.442	Carrying heavy loads	0.758	0.503
Breathing in smoke	0.696	0.625	Tiring or painful positions	0.730	0.571
Feeling cheerful	0.677	0.397	Breathing in vapours	0.720	0.421
Overall fatigue	0.641	0.540	Exposure to low temperatures	0.717	0.372
My daily life has been filled	0.636	0.276	Exposure to vibrations	0.704	0.351
Exposure to loud noise	0.615	0.484	Feeling cheerful	0.686	0.354
Exposure to vibrations	0.611	0.499	My daily life has been filled	0.679	0.260
Headache	0.603	0.283	Work-life balance	0.675	0.404
Feeling calm and relaxed	0.601	0.271	Exposure to loud noise	0.673	0.358
Tiring or painful positions	0.592	0.315	Job insecurity	0.629	0.457
Self-reported health	0.571	0.377	Feeling calm and relaxed	0.617	0.160
Exposure to low temperatures	0.560	0.594	Overall fatigue	0.611	0.543
Work- life balance	0.537	0.359	Muscular pains in lower limbs	0.549	0.466
Breathing in vapours	0.528	0.382	Exposure to high temperatures	0.526	0.251
Carrying heavy loads	0.508	0.428	Unemployment rate	0.509	0.375
Repetitive movements	0.505	0.439	Involuntary part-time employment	0.495	0.283
Working more than 10 hours/day	0.492	0.373	Working on Saturdays	0.480	0.362
Work affects your health	0.481	0.283	Job promotion	0.448	0.335
Job insecurity	0.436	0.247	Working shifts	0.430	0.395
Muscular pains in shoulders	0.428	0.146	Repetitive movements	0.419	0.422
Feeling active	0.419	0.247	Feeling active	0.409	0.205
Unemployment rate	0.414	0.312	Long-term unemployment	0.400	0.314
Involuntary part-time employment	0.403	0.241	Work affects your health	0.387	0.338
Working shifts	0.392	0.523	Backache	0.379	0.192
Enough time to get the job done	0.391	0.299	Hearing problems	0.369	0.174
Working on Saturdays	0.390	0.174	Self-reported health	0.368	0.195
Exposure to high temperatures	0.375	0.231	Handling chemical products	0.330	0.116
Job promotion	0.362	0.167	Enough time to get the job done	0.319	0.188
Waking up feeling fresh	0.360	0.111	Other problems	0.316	0.257
Working on Sundays	0.332	0.044	Skin problems	0.311	0.143
Depression	0.310	0.222	Depression	0.307	0.174
Handling chemical products	0.284	0.151	Headache	0.261	0.202
Long-term unemployment	0.271	0.110	Subject to discrimination at work	0.232	0.132
Working at night	0.251	0.171	Handling infectious materials	0.205	0.237
Subject to discrimination at work	0.166	0.109	Waking up feeling fresh	0.203	0.089
Other problems	0.140	0.077	Working at night	0.191	0.267
Lifting or moving people	0.124	0.077	Working on Sundays	0.180	0.085
Work stress	0.090	0.095	Muscular pains in shoulders	0.152	0.049
Handling infectious materials	0.075	0.075	Support from the manager	0.121	0.119
Working at very high speed	0.074	0.137	Work stress	0.109	0.073
Injuries	0.061	0.114	Working to tight deadlines	0.076	0.081
Temporary employment rate	0.054	0.134	Lifting or moving people	0.056	0.077
Working to tight deadlines	0.051	0.049	Support from colleagues	0.051	0.044

Female workers. Partial indicators	|r|	(1-R^2)	Male workers. Partial indicators	|r|	(1-R^2)
Skin problems	0.035	0.019	Working more than 10 hours/day	0.031	0.047
Hearing problems	0.028	0.037	Working at very high speed	0.009	0.038
Support from the manager	0.025	0.069	Injuries	0.007	0.050
Support from colleagues	0.003	0.013	Temporary employment rate	0.002	0.084

NOTE: |r| is absolute value of the correlation coefficient of each simple indicator with the synthetic indicator and (1-R^2) the percentage of new information from each simple indicator.
Source: Own.

Table 3. Gender gap based on the standardized values of the synthetic indicator in 2010 and 2015

	2010			2015		
	Standardized values of the synthetic indicator			Standardized values of the synthetic indicator		
	Men (VSTM)	Women (VSTW)	Gap	Men (VSTM)	Women (VSTW)	Gap
Austria	0.699	1.322	- 0.624	0.948	1.430	-0.482
Belgium	0.807	0.717	0.089	0.979	0.883	0.096
Bulgaria	-0.987	-0.564	- 0.422	-0.301	0.487	-0.789
Croatia	-1.046	-1.059	0.013	-0.710	-0.334	-0.376
Cyprus	-0.171	-0.324	0.153	-0.976	0.056	-1.033
Czech Repub.	-0.303	-0.440	0.137	1.290	1.377	-0.087
Denmark	2.468	1.388	1.080	1.834	0.329	1.505
Estonia	-1.082	-1.643	-0.561	0.008	-0.144	0.152
Finland	0.459	-0.611	1.070	0.898	-0.006	0.903
France	-1.139	-0.812	-0.327	-1.182	-1.433	0.251
Germany	0.614	0.887	-0.274	1.232	1.674	-0.442
Greece	-2.155	-1.610	-0.546	-1.383	-0.639	-0.745
Hungary	-1.423	-1.325	-0.098	0.372	1.159	-0.788
Ireland	1.025	1.917	-0.892	0.924	1.138	-0.214
Italy	-0.280	0.307	-0.587	0.456	0.908	-0.452
Latvia	-1.595	-1.374	-0.221	-0.496	-0.335	-0.161
Lithuania	-1.640	-1.620	-0.020	-0.237	0.018	-0.255
Luxembourg	0.554	-0.484	1.038	0.691	-0.212	0.904
Malta	-0.118	0.839	-0.956	-0.093	-0.098	0.005
Netherlands	2.169	1.909	0.260	1.496	1.204	0.292
Poland	-0.266	-0.036	-0.230	-1.049	0.067	-1.116
Portugal	-0.524	-1.03	0.506	0.805	0.295	0.510
Romania	-0.643	-1.704	1.062	-0.632	-1.693	1.061
Slovakia	-0.826	-0.213	-0.612	-0.354	-0.644	0.290
Slovenia	-0.705	-1.109	0.404	-0.059	-0.067	0.008
Spain	-0.001	-0.219	0.218	-0.990	-0.985	-0.006
Sweden	0.675	0.083	0.592	0.570	-0.080	0.650
Un. Kingdom	1.034	1.488	-0.454	0.36	0.963	-0.603

NOTE: VSTW is the standardized value of the synthetic health and well-being indicator for female workers and VSTM is the standardized value male workers.
Source: Own.