Swedish Agency for Work Environment Expertise

Healthy and good working environment over the last decennium in the Swedish business sector

Summary

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This report aims to shed light on two questions: what was the nature of the working environment in terms of a healthy and good working environment in Sweden over the past ten years, referred to here as the last decennium? And how have structural factors influenced the working environment in terms of a healthy and good working environment over the same period? Four surveys are used to answer the questions, and they delimit the measurement period 2009, 2012, 2015, and 2019–2020. As an introduction, the report describes the state of knowledge with the support of short summaries of some of the most recent reports and knowledge syntheses highlighting health factors and good work. The final discussion compares the factors highlighted in these summaries with the healthy and good work environment indicators used to emphasise the nature of the work environment over the past decennium. The indicators are also compared with those parts of the Swedish Occupational Safety and Health Act (OSH Act) (SFS 1977:1160) that highlight factors for a good working environment.

Healthy and good work environment indicators are needed to follow up the Working Environment Act

Healthy and good work environment indicators are essential for companies to develop their knowledge of their work environment, their employees, and the general development of the company. They are also crucial for monitoring those parts of the Swedish OSH Act that emphasise a healthy and good working environment. However, currently, they are not highlighted in the Swedish OSH statistics. Therefore, the data sets for indicators of a healthy and good working environment at the organisational level should be collected with reporting requirements, as in most surveys aimed at enterprises, i.e., companies and other organisations.

The four surveys cover data from a representative sample of enterprises, i.e., companies and other organisations, the latter also at workplace level. The analysis includes some 6 500 companies. In addition, the surveys also include almost 2,000 other local and central government establishments and other organisations. The four surveys follow the basic principles of independent stratified sampling. They have been subjected to in-depth non-response analyses that show the representativeness of the population of organisations in the Swedish working life at the respective measurement point. The non-response analyses of the first and most recent surveys are limited to companies.

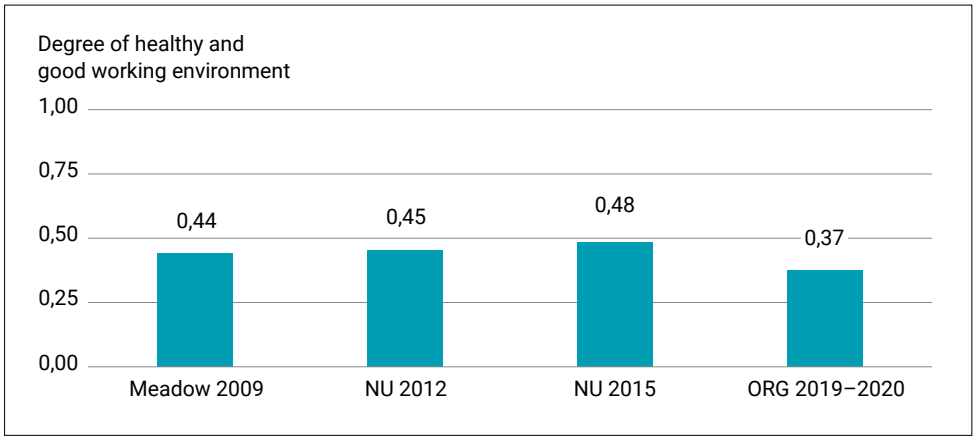
There is potential to further extend the indicators of healthy and good working environment in Sweden with existing data sources (all data in the surveys are not yet fully explored). This is the case for all four surveys, particularly for the most recent survey, 2019–2020. In addition, there is potential to conduct studies on publicly regulated activities based on these data and comparative analyses on publicly regulated activities performed in the private or public sector. The data used from the four surveys are based wholly on data collection guidelines (Meadow Consortium, 2010), which have been shown to provide a sound basis for future development of surveys of the working environment.

Overall indicator for a healthy and good working environment over the decennium

The report highlights *a healthy and good work environment* using an aggregate indicator consisting of three groups of activities for participation/decentralisation, individual learning, and structural learning, the latter including structural conditions for learning and collective learning in the Swedish business sector. The report also presents the three groups of activities constituting sub-indicators. A Healthy and good working environment is measured at four points: 2009, 2012, 2015 and 2019–2020. The results are presented at an aggregate level for the Swedish business sector as well as for five classes of different sizes of companies and several groups of industries (at essentially the highest aggregation level, department level) with help of distribution analysis.

The overall indicator for a healthy and good working environment shows a relatively steady level for the average of the Swedish business sector over the last decennium until the third survey in 2015, see Figure I. However, the level of healthy and good work environment activities for the average Swedish business sector increases slightly in the first three surveys. At the 2015 measurement point, the level reaches just under half of all activities. The measures are standardized and can be between 0 and 1.

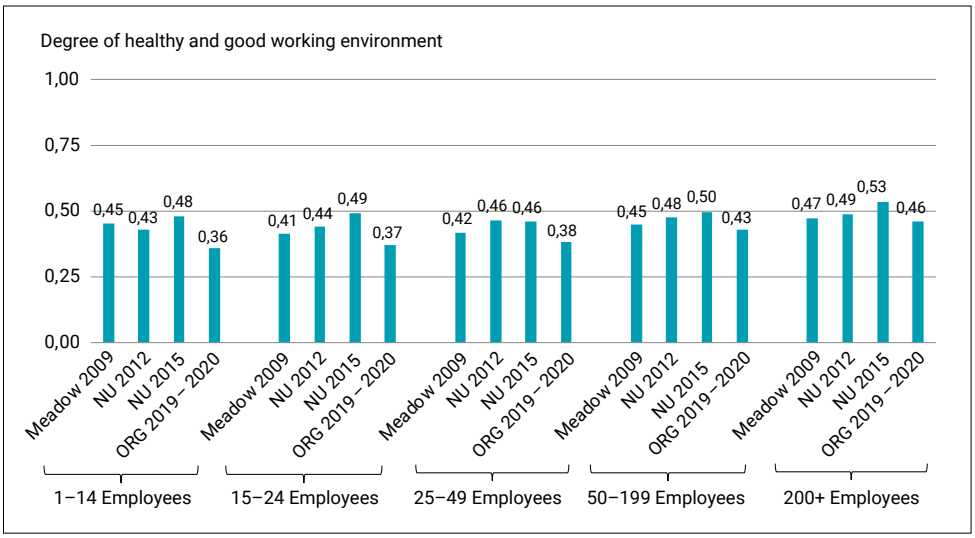
Figure I. Healthy and good working environment in companies on average in the Swedish business sector over the last decennium, at four measurement points, weighted by the share of companies



The results are taken from the reports sub-section *The overall indicator for the working environment* (Diagram 1), in section 3, *Healthy and good working environment in the last decennium, in the Swedish Report.*

The pattern that emerges for the average in the business sector is the relatively even level of the healthy and good working environment over the last decennium at the first three measurement points emergent and included the third survey in 2015. It is also reflected in the presentation of the level of healthy and good working environment by size class. By the third survey (2015), the level had reached around half of all activities in all five size classes. The results also show that, on average, the most size class with the largest companies is the only one where companies have used around half of the activities at all four measurement points, see Figure II.

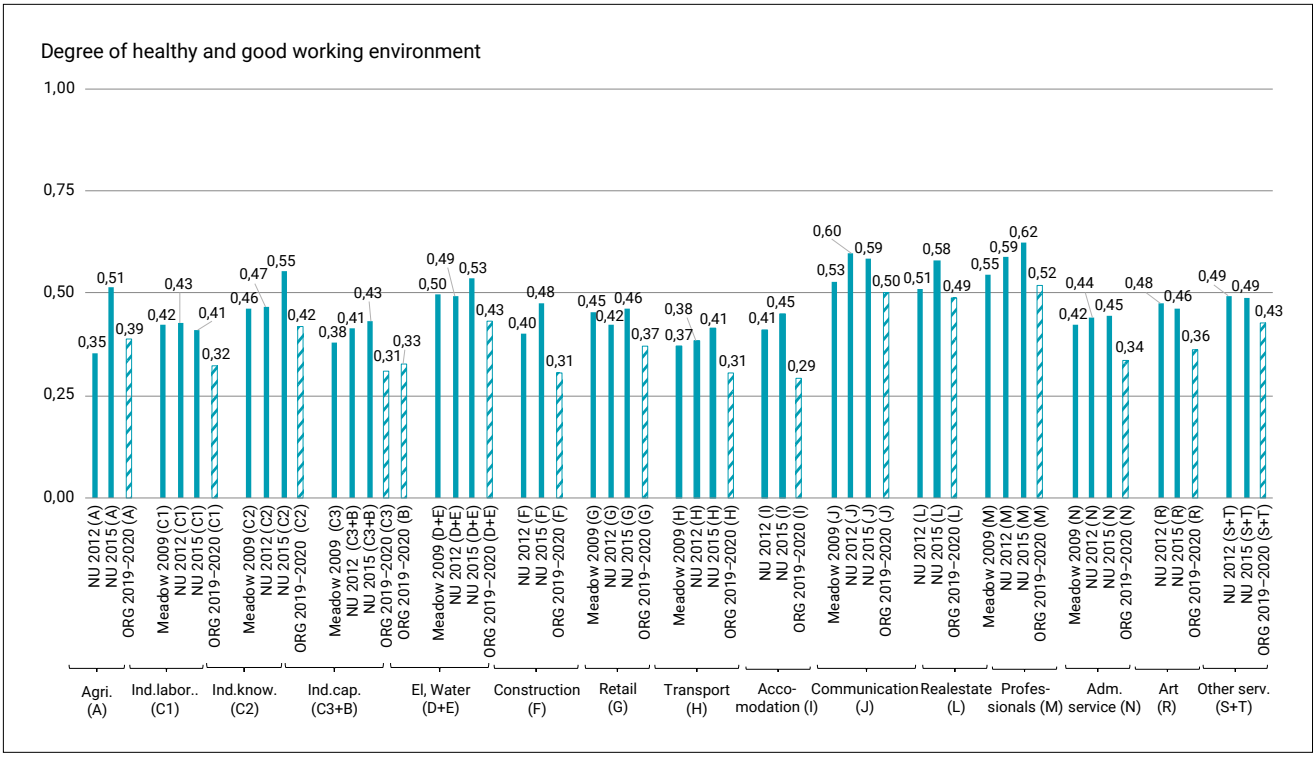
Figure II. The healthy and good working environment in companies by size class in the Swedish business sector over the last decennium, at four measurement points, weighted by the share of companies



The results are taken from the reports sub-section *The overall indicator for the working environment* (Diagram 2), in section 3, *Healthy and good working environment in the last decennium, in the Swedish Report.*

The business sector average patterns are also recurring and reflected in the presentation of a healthy and good working environment in the diverse industries in the sector. A slow increase in healthy and good work environments between 2009 and 2015 can be seen in over half of all industries, in principle in two-thirds, see Figure III. The reporting for each branch of industry ends with the latest survey, 2019–2020. To make it easier for the reader, the bar for the year 2019–2020 has been marked with blue stripes.

Figure III. Healthy and good working environment in companies per industry in Swedish business sector during the last decennium, weighted by proportion of companies



The results are taken from the subsection Participation/decentralization (Diagram 3), in section 3, Healthy and good working environment in the last decennium. For full names of industries, see Table I, in the Executive Summary.

When the company in the analysis represents the distribution of companies per sample group (strata), then some differences in the healthy and good working environment are found at the overall sector level, i.e., the two groups of primary manufacturing production orientation industry and service industry. The group of service companies has slightly higher levels. Suppose the results consider the proportion of employees in each company. Then, the levels even out between the two groups of main production activity. The alternative calculation that includes the proportion of employees in each company is not included in the presentation for industries due to the overload of information in Figure III. However, the two results indicate that the level of the healthy and

good working environment for companies in the different groups of goods and services produced is partly related to the size of the companies, i.e., how many large and small companies are included in the different industries.

The increase in the level up to the third measurement point is also supported by the answers to the second query of the report. See below: *Structural factors with a stronger impact on healthy and good working environment.* The answers to the second question of the report show that the probability of the results being correct (actual) in the structural analysis concerning different contribution at each measurement point is ensured at a high or very high level of significance[4]. Therefore, the conclusion is that the level of activities for a healthy and good working environment for the average Swedish business life increases slightly the first three measurement occasions. A further conclusion regarding the increase in the level of healthy and good working environment over the last decennium up to the third measurement point (2015) is that it is largely independent of the class size of the enterprise and type of industry.

At the latest measurement, 2019–2020, a lower-level shows for all size classes and industries. See also the discussion below on *Three sub-indicators of a healthy and good working environment over the decennium.*

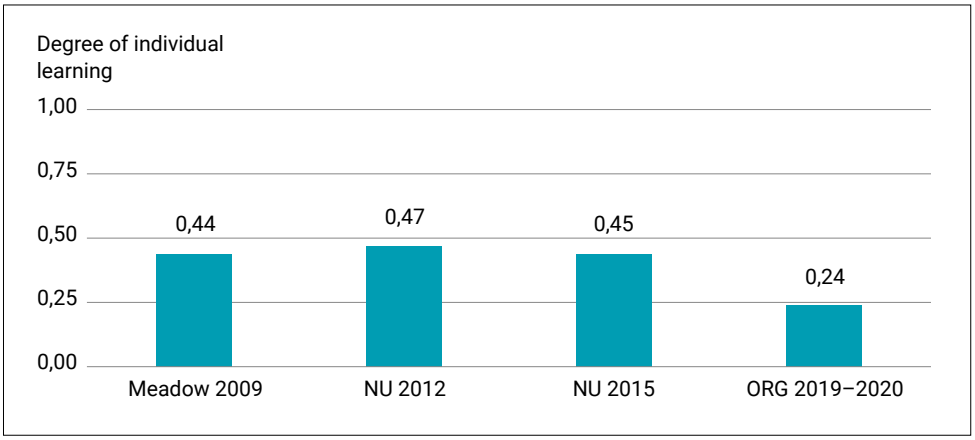
Three sub-indicators of a healthy and good working environment over the decennium

Three sub-indicators – *participation/decentralisation, individual learning at work, and structural learning at work* – define the overall healthy and good work environment indicator. However, the results show differences between the three sub-indicators over the decennium. The measurement dates during the decennium are 2009, 2012, 2015, and 2019–2020.

Individual learning at work shows a similar pattern to the overall indicator over time, i.e., a relatively steady level up to the third survey in 2015. According to the distribution analysis, the average level in the Swedish business sector is relatively high: just below the level of half of all individual learning at work activities used at the first three measurement dates. The latest measurement point, 2019-2020, shows a significantly lower level, a halving, than the previous, see Figure IV.

4 The significance level of the calculations is tested. For example, if a hundred calculations are made based on different samples each time, the results will show errors on average at most five times out of a hundred at what we call the high significance level (five percent significance level), or alternatively show errors one time out of a hundred at what we call the very high significance level (one percent significance level). Social science studies often settle for results that have a significance level of five percent.

Figure IV. Individual learning at work in companies on average in the Swedish business sector over the last decennium, at four measurement points, weighted by the share of companies



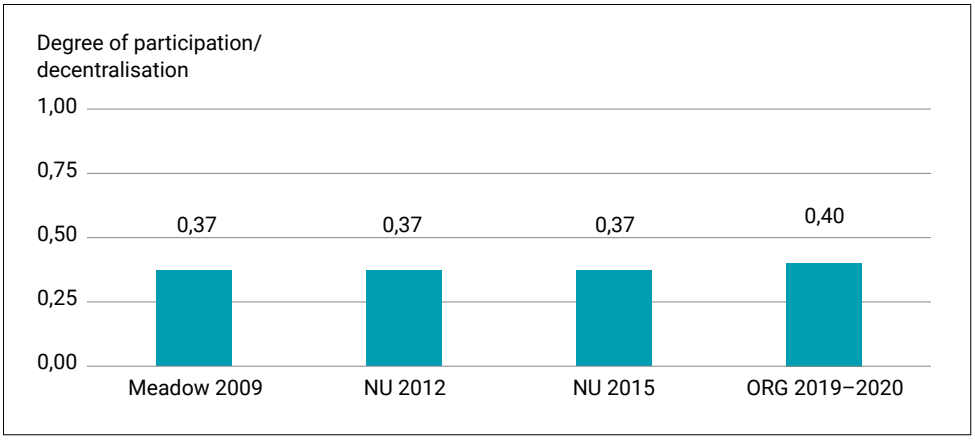
The results are taken from the sub-section *Individual learning* (Diagram 7) in section 3, *Healthy and good working environment in the last decennium, in the Swedish Report.*

The lower level of the indicator, individual learning at work (in 2019–2020), is also part of the explanation for the lower level of the overall indicator at the same measurement point. The pattern of a clear difference between the first three measurements and the most recent one, 2019-2020, is also found in the presentation of size classes and industries over time. The lower level of the individual learning sub-indicator is deficient in most minor company classes.

The explanation for the significantly lower level of individual learning in companies in 2019–2020 is the corona pandemic and the timing of collecting the latest survey in 2020. The collection of data took place during the corona pandemic. The timing of the study has influenced the results. This fact explains the result for the sub-indicator and thus also for the overall indicator of a healthy and good working environment. The corona pandemic has brought about significantly lower individual learning levels in companies. EU statistics for adults participating in education and training in Sweden support this outcome. Such EU statistics show that the level in 2020 is lower than the previous year (2019) in Sweden. A similar pattern is visible for most EU countries (https://ec.europa.eu/eurostat/databrowser/view/TRNG_LFSE_02/default/table?lang=en&category=educ.educ_part.trng.trng_lfs_4w0). In the report's section 6, *Discussion and conclusions*, contains a more comprehensive discussion of the lower level of individual learning in 2019–2020.

Participation/decentralisation shows a relatively even activity level over the decennium at all four measurements. The usage does not reach half of the activities for the sub-indicator at any of the measurement points.However, the analysis indicates some increase in level between the last two measurements, i.e., 2015 and 2019–2020, see Figure V. One explanation for the sub-indicator showing that the increase has also occurred by 2019-2020 may be that high levels of independence and autonomy at work favour remote working (Swedish Work Environment Authority, 2018). This autonomy becomes apparent during the pandemic (Swedish Agency for Work Environment Knowledge, 2022).

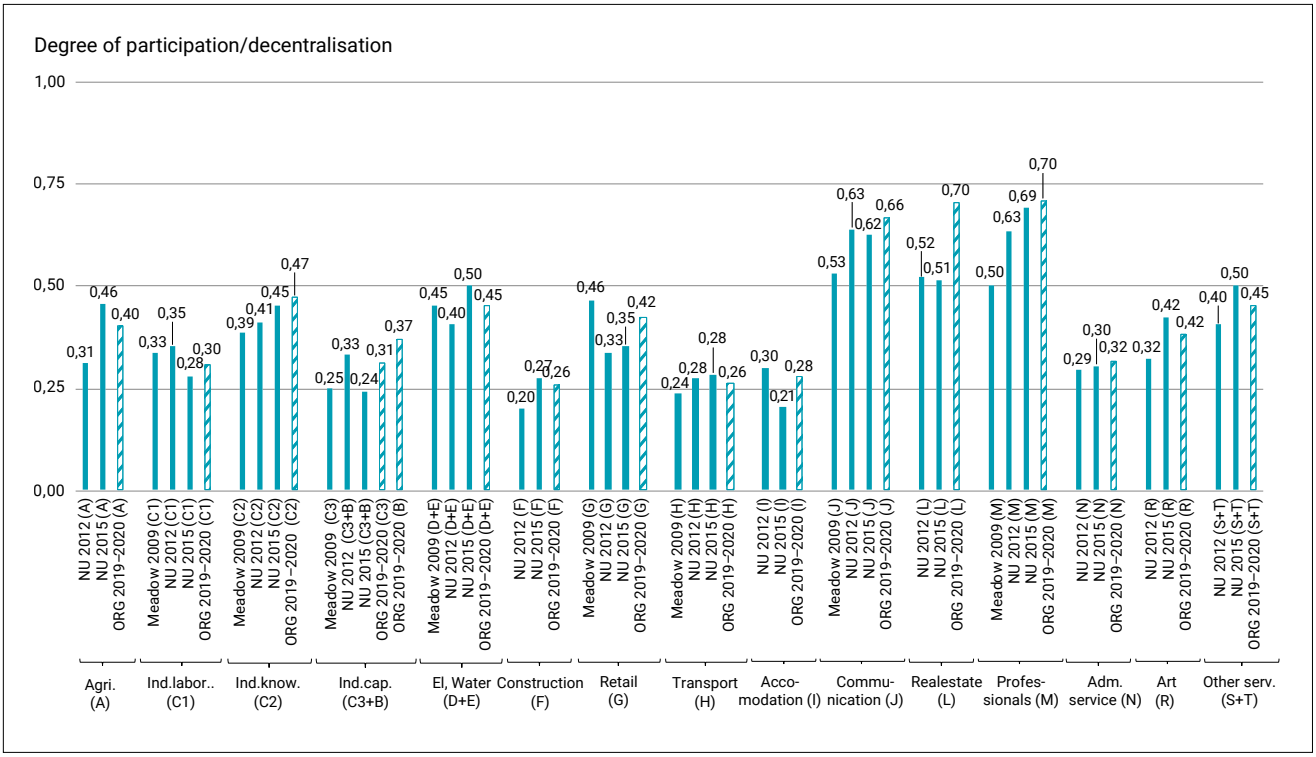
Figure V. Participation/decentralisation in companies on average in the Swedish business sector over the last decennium, at four measurement points, weighted by the share of companies



The results are from the *Participation/decentralisation sub-section* (Diagram 4), in section 3, H*ealthy and good working environment in the last decennium, in the Swedish Report.*

The relatively even level of participation/decentralisation over the decennium in the Swedish Report reflects in the presentation of the different company-size classes. The presence of participation/decentralisation indicates that the various industries are divided into a group with relatively steady levels each year and a second smaller group with some growth each year comprising mainly service industries and knowledge-intensive industry (C2). There are also differences in the average levels of goods and services production, with the levels for some services industries being higher than all other industries at each measurement point. The difference between goods and services production has existed throughout the decennium; see Figure VI. The presentation for each industry ends with the most recent survey, 2019-2020. For the reader's convenience, the 2019–2020 bar is marked with blue stripes.

Figure VI. Participation/decentralisation in companies by industry in the Swedish business sector over the last decennium, at four measurement dates, weighted by the share of companies



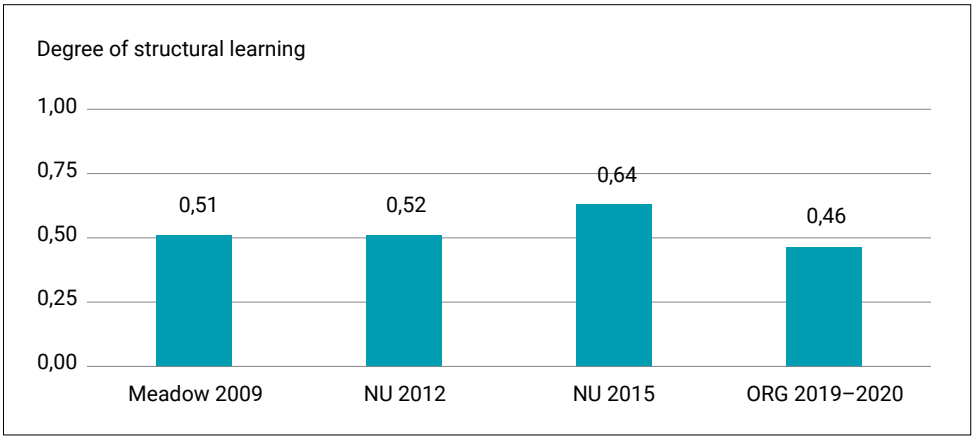
The results are taken from the *Participation/decentralisation sub-section* (Diagram 6), in Section 3, *Healthy and good working environment in the last decennium, in the Swedish Report.* For full names of industries, see Table I (below) in the English Executive Summary.

An overall cautious interpretation is a level increase for the participation/ decentralisation sub-indicator in the business sector over the decennium. Other findings support the understanding that there has been an increase in levels, for example, in the European survey ESENER 2019, which reports an increase in Sweden in terms of participation and employee representation up to 2019 (European Agency for Safety and Health at Work [EU-OSHA], 2019).

Structural learning at work shows a fluctuating level between measurement points over the decennium, see Figure VII. However, the level is generally high. The highest level exhibited means that more than two-thirds of all practices included in the sub-indicator are used, i.e., well over half of all structural learning at work activities are used. This highest level is measured in the 2015 survey. The anomalously higher level in the 2015 measurement is reflected in the reporting of size classes and in the reporting of most all industries.

The 2019–2020 level is lower than the 2015 level. Still, the distribution analysis does not show an apparent clear difference compared to the first two measurement dates of 2009 and 2012 (even less so if the calculation is weighted by the employees' share, see Diagram 10 in Section 3 in the Swedish Report). The level of the last measurement, 2019–2020, may indicate a return to a previously more stable level.

Figure VII. Structural learning at work in companies on average in the Swedish business sector over the last decennium, at four measurement points, weighted by the share of companies



The results are from the sub-section *Structural learning* (Diagram 10), in section 3, *Healthy and good working environment in the last decennium, in the Swedish Report.*

Structural factors with a stronger impact on a healthy and good working environment

A key hypothesis of the structural analyses in this report is that a company's management can significantly influence the ambition for a healthy and good working environment. The results of the report support this assumption.

The structural analyses are based on a regression analysis for the average period (the decennium), and one for each measurement point 2009, 2012, 2015, and 2019–2020. The result for the decennium is presented in Table I.

The analyses aim at explaining the underlying causes of higher or lower levels of the overall indicator for a healthy and good working environment. They also contribute to the interpretation of the distributional analysis results; if significant differences in the levels of work environment between the four measurement points over the last decennium prevail in the structural studies, this strengthens the measured level differences in the distribution analysis.

The analyses include several different structural factors (variables). These factors are the company's main activity (the different industries used in the distribution analysis), an indicator of the company's resources and greater strength and variety of products. They also indicate a more complex production (five different size groups of companies), the level of technology and the difficulty of the work (measured by each company's average formal education level), and the structure of the workforce (gender and average age in each company). The analysis of the decennium average includes a variable for economic situation and social situation, measured by the time of data collection for each survey (2009, 2012, 2015, and 2019–2020).

All categories of structural factors in the model show results with high or very high significance for the decennium average. This can be seen in the table by the fact that most sub-factors are either marked green (positive values with significant results) or red (negative values with significant results). Dark green indicates a very high-level significance (1 percent chance that the result is not true, i.e., chance decides). Light green indicates high significance level (5 percent chance that chance decides). The same applies to negative values: dark red (1 percent significance level) and light pink red (5 percent significance level), and very light pink (10 percent significance level).

Technology level and job difficulty (measured as average formal education level in the company) is the dominant factor in explaining differences between companies' levels of healthy and good work environment given all other structural factors included in the analysis of the decennium average and the analyses at each measurement date. The factor is an average measure of the company's human capital, indicating the level of technology and the difficulty of the work tasks. The conclusion is that the company's own decisions through the choice of technology level and job difficulty and thus the design of work tasks and the need for workers with a certain level of education influence the degree of a healthy and good working environment. It can be described as follows: look at two companies with the same primary production orientation (industry) and, otherwise, the same production conditions. However, if they have different average levels of education, the probability is very high that the company with the highest level of education also has a higher level of a healthy and good working environment. Over the past decennium, the level of education (the level of technology and the design and difficulty of work tasks) has increased in the world of work[5], a change that can be found in all types of industry activities. The calculations also show that the level of education plays an increasingly important role in the level of a healthy and good working environment, at each measurement point 2009, 2012, 2015, and 2019–2020.

The conclusion is that how the company carries out its work is the main factor in improving the working environment and that a company's management can significantly influence the ambition for a healthy and good working environment.

The economic and social situation variable, measured by the time of data collection, also contribute a non-negligible value to explain the level of sound and healthy work environment in calculating the decennium average. The factor indicates the societal situation as it was at each measurement point, mainly measuring pervasive, major societal conditions, such as the state of the economy or/and whether there is a specific condition, such as the corona pandemic, as at the last measurement point. The factor is an indirect indicator of different conditions (states) that prevailed at the first three measurement dates and the fourth measurement date. The result of the calculation for

5 See statistics on educational attainment in Sweden: https://www.scb.se/hitta-statistik/sverige-i-siffror/utbildning-jobb-och-pengar/utbildningsnivan-i-sverige/.

Table I. The impact of structural factors on a healthy and good working environment in the last decennium, weighted by the proportion of companies

		Decenniet	
	DF	Värde	Signifikans-nivå
Structure of the workforce			
Women		0,02	0,03
Average age		0,01	0,05
Technology level and job difficulty			
Formal education level		**0,51**	**< ,0001**
Economic situation business cycle and social situation			
Meadow 2009		0,06	0,05
NU 2012		0,08	< ,0001
NU 2015		0,10	< ,0001
ORG 2019–2020	jmf		–
Size class			
1–14 mployee		-0,03	0,001
15–24 mployee		-0,02	0,002
25–49 mployee		-0,03	0,0004
50–199 mployee	jmf		–
200+ mployee		0,02	0,20
Industry[1)]			
Agriculture, forestry and fishing (A)		0,00	0,94
Mining and quarrying (B)		-0,04	0,54
Labor-intensive manufacturing (C1)		-0,05	0,01
Knowledge-intensive manufacturing (C2)		0,00	0,94
Capital-intensive manufacturing (C3) + Mining and quarrying (B)		-0,05	0,08
Capital-intensive manufacturing(C3)		-0,07	0,01
Electricity, gas, steam and air conditioning supply (D); Water supply; sewerage, waste management and remediation activities (E)		0,01	0,59
Construction industry (F)		-0,05	0,01
Wholesale and retail trade; repair of motor vehicles and motorcycles (G)		-0,04	0,03
Transportation and storage (H)		-0,07	0,001
Accommodation and food service activities (I)		-0,07	0,0003
Information and communication (J)		0,01	0,72
Financial and insurance activities (K)		0,10	0,67
Real estate activities (L)		0,06	0,01
Professional, scientific and technical activities (M)		0,01	0,65
Administrative and support service activities (N)		-0,07	0,005
Arts, entertainment and recreation (R)		-0,06	0,02
Other service activities (S); Activities of households as employers; Undifferentiated goods- and service-producing activities of households for own use (T)	jmf		–
Used observations, companies			**4575**

1) Most industries are at the highest aggregation level, department level, according to Statistical Co-ordination for the Official Statistics of Sweden (MIS) describes a revised version of the Swedish Standard for Industrial Classification – SNI 2007.
The results are taken from the sub-section *Calculations per measurement occasion and for the average over the decennium (Table 3), in section 4, The impact of structural factors on a healthy and good working environment in the Swedish Report.*

the whole decennium (including all four measurement points) is that the variables for the first three measurement points show significantly (positively) higher contributions (values) to a healthy and good working environment compared to the fourth and most recent measurement points. At the fourth measurement time point, it is assumed that the social situation during the corona pandemic and the economic situation at the time of the pandemic are captured. This information also contributes to the interpretation of the distribution analysis differences between levels of the healthy and good working environment over the decennium, i.e., it confirms the lower level of the overall indicator for the healthy and good working environment in 2019–2020.

Industry, i.e., primary production orientation, is a factor that contributes, albeit to a relatively small extent, to explaining differences between levels of healthy and good working environments over the decennium. The industry is the third most crucial structural factor and is estimated to account for one-tenth of the explanation of the decennium average calculation.

The economic and social situation variable (measurement event) can only be included in the average calculation for the whole decennium, not in the totals for each measurement event. This is why the industry is the second most crucial factor for the nature of the working environment in the calculations at each measurement event.

The contribution of the other *production conditions* to explaining differences between companies is small or negligible individually. Still, when they combine, they contribute a bit more to the understanding differences in a healthy and good working environment.

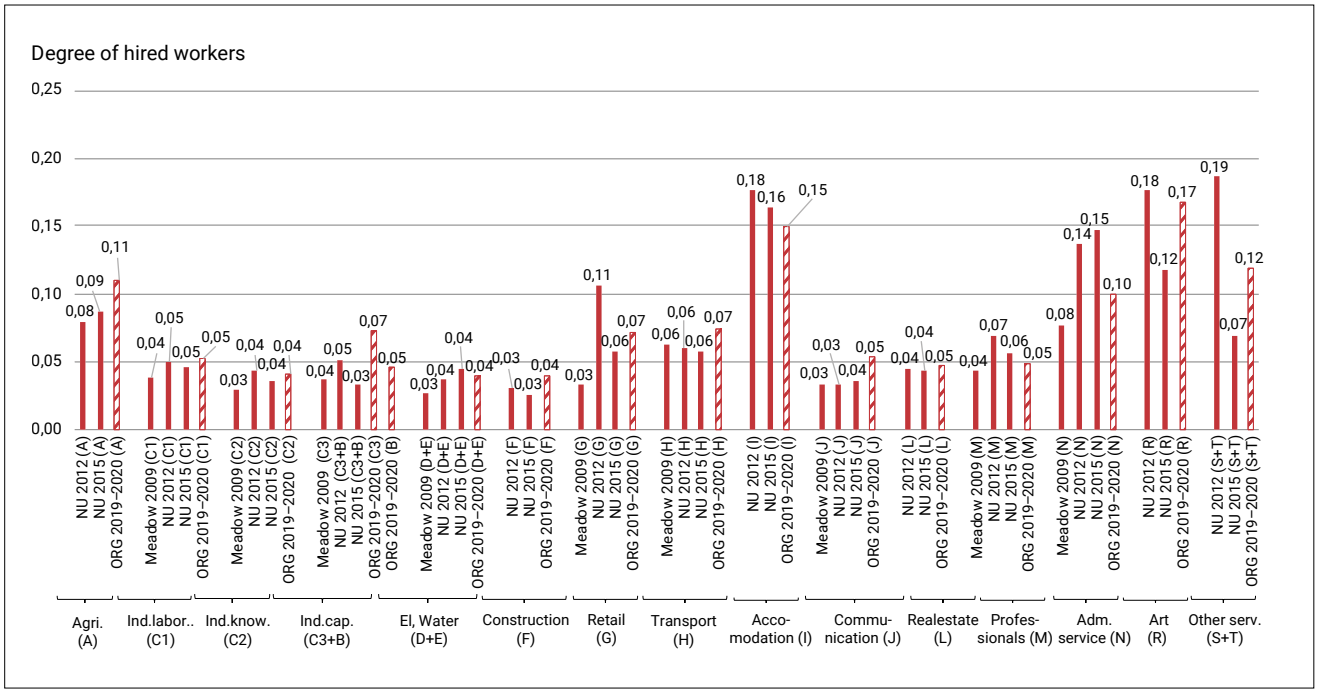
Employment form

The report also describes the form of employment measured as the ratio of temporary workers to permanent full-time employees over the last decennium (2009, 2012, 2015, and 2019–2020). It also describes which of the structural factors in the model have influenced the form of employment. The reason for including the employment form is that it is highlighted as a health factor, at least in some contexts. In a knowledge compilation published by the agency in the context of knowledge on health factors, employment form is highlighted as a flexible perspective on work organisation (Swedish Agency for Work Environment Knowledge, 2020b). In some previous presentations of indicators for flexibility in work organisation and their importance for productivity, an indicator for employment form was included in an extended aggregate indicator for a good work environment (Nylund, 2017). The then extended indicator of a good work environment predicted the level of productivity during the 2009 financial crisis. When the sub-indicator for employment type was not integrated into the extended good work environment indicator, the measure did not predict productivity. These

previous analyses are in line with a salutogenic perspective on the work environment, which implies that the development of people and organisations are interrelated: *'Theories assume that the type of organisation affects the employee and has an impact on his/her work'* (Antonovsky, 1987, cited in Mittelmark & Bauer, 2017, our translation). More commonly, temporary forms of employment are seen as a risk factor, which is also the focus of a knowledge compilation on the future of the work environment (Swedish Agency for Work Environment Knowledge, 2020g).

According to the report's distribution analysis, the Swedish business sector shows a precise level increase (a doubling) in the rate of temporary agency workers in the business sector between 2009 and 2012, with the results indicating a recovery in the level after the financial crisis of 2009. Comparisons with official statistics support this hypothesis (Statistics Sweden, 2020b). All five size classes show an increase in the level. Some service sectors have a much higher than average level of hired labour in companies, see Figure VIII. The results in the figure are presented by industry and in time order. Each group ends with the most recent 2019-2020 survey marked with red stripes.

FIGURE VIII. Hired workers in the companies by industry in the Swedish economy over the last decennium, at four measurement points, weighted by the share of companies



Note: As the levels of numerical flexibility are low compared to the indicators in section 3, the results are presented with a maximum on the vertical axis of 0.25 in the graphs (instead of 1.00). The results are taken from the sub-section *Levels over the last decennium (Diagram 15), in section 5, Employment form in the Swedish Report.*

Two structural factors explain most of the differences in the levels of different forms of employment (agency workers versus full-time employees) in the company:

- A high proportion of women employed in the company is the factor that most influences the level of agency workers. This factor accounts for about half of the explanation of differences given the other explanatory production conditions.

- The primary type of production (as measured by information about the industry) contributes to companies explaining differences in levels (estimated at around a quarter of the explanation) given the other explanatory production conditions.

The structural analyses show that five out of six factors in the model have significantly different results in estimating how they contribute to varying levels of hired labour in companies over the decennium. However, the values of several factors are relatively low, which is also true in the calculation models of each measurement period (2009, 2012, 2015 and 2019-2020), and thus, they are primarily of negligible importance. However, these other factors account for the remaining quarter of the explanation. The results also show that the factor measuring economic situation and social situation (the different measurement dates) does not help to explain differences between the degree of hiring of workers in the company over the decennium in the primary analysis of employment type weighted by the share of companies. This calculation's result for the factor economic situation and social situation is insignificant. When the calculation considers the share of employees in companies, i.e., when the percentage of employees in weights the analysis of the companies, the factor is significant. Nevertheless, this indicates that the degree of hired workers in the company is influenced to some extent by the size of the company.

Indicators of good working environment according to the Swedish OSH Act

This report presents the four composite indicators of a healthy and good working environment used to illustrate the working environment. They are compared with the descriptions of data highlighted in knowledge syntheses and other qualified reports on the state of knowledge on health factors. More than twenty different health factors are highlighted in the description of the state of knowledge. A comparison between the health determinants presented in other reports, compilations and the indicators for a healthy and good working environment was realised. The last decennium in the present report shows that the presented indicators highlight most of the aspects necessary for the summaries of the state of knowledge on the healthy and good working environment. In the comparison, we make a simple assessment of whether

existing data exist, whether it is sufficiently exploited and whether data need to be developed to enable the necessary indicators to be developed. A simple answer to the question of whether data need to be developed is that all data need to be continuously generated. However, the assessment here is that there is data that satisfactorily highlights several of the necessary aspects at the organisational level. Some of the factors can and should be developed through new data. Analyses linking the individual level with the organisational level are absent.

The more than twenty different health factors highlighted in the description of the state of knowledge and the indicators presented for a healthy and good working environment in the report are also compared with those parts of the Swedish occupational safety and health act (OSH Act) (SFS 1977:1160) that highlight factors for a good working environment. The comparison shows that the indicators used in the analysis in the present report also highlight the aspects of a healthy and good working environment highlighted in the Swedish OSH Act. This is also the intention of the indicators for a healthy and good working environment in the report.

In addition, it is also worth mentioning that the last three surveys also include data on work environment management. In the first (2012) of these three, data on work environment management was limited to the paragraphs of the regulations on systematic work environment management (AFS 2001:1). It is the provisions of the Swedish Work Environment Authority on Systematic Work Environment Management, together with General Recommendations on the implementation of the Provisions. For each new survey, data on occupational safety and health management have been developed to include also other strategic OSH act management issues. Work is in progress in the field to highlight and develop knowledge on work environment management, at the Swedish Agency for Work Environment Expertise; see further https://mynak.se/projekt/analys-av-arbetsmiljo-och-arbetsmiljoarbete-2/.