

**The frequency of workplace accidents is highest in companies with 10 to 49 employees**

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## The frequency of workplace accidents is highest in companies with 10 to 49 employees

In Finland, the frequency of workplace accidents is, on average, highest in small enterprises with 10–49 employees and lowest in large or micro enterprises. There are differences between industries. For example, in the construction industry, the frequency is much lower in large companies than in smaller companies, and in manufacturing, the frequency decreases as the size of the enterprise grows. In trade, the otherwise stable frequency level increases in large companies.

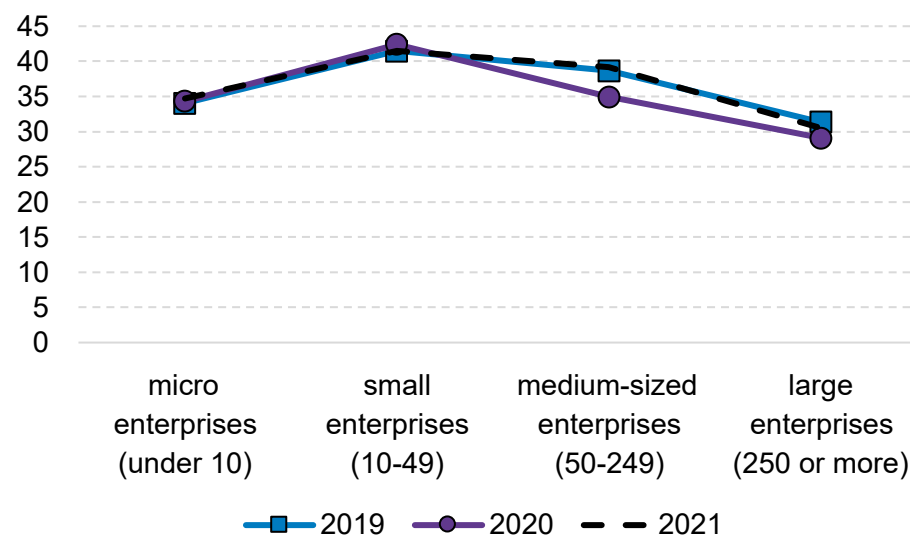
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This analysis examines the frequency of workplace accidents in the Finnish private sector by enterprise size class. The frequency calculation includes employees' workplace accidents in enterprises with a business ID, excluding temporary agency work.

On average, the frequency is highest in small businesses, i.e. companies with 10 to 49 employees. In 2021, the frequency of employees' workplace accidents was 35 in micro enterprises (34 in 2019), 41 in small enterprises (41 in 2019), 39 in medium-sized enterprises (the same as in 2019), and 30 in large enterprises and municipalities (31 in 2019), calculated as occupational accidents per one million hours of work (Figure 1). The year 2020 was exceptional in many respects due to Covid restrictions.

The results are indicative due to the inaccuracy of matching the data. The data and the challenges related to frequency calculation are described in more detail at the end of the analysis.

Figure 1: Frequency of employees' workplace accidents in 2019–2021 in enterprises of different sizes with a business ID, excluding the public sector and temporary agency work (unit: workplace accidents per one million hours worked).

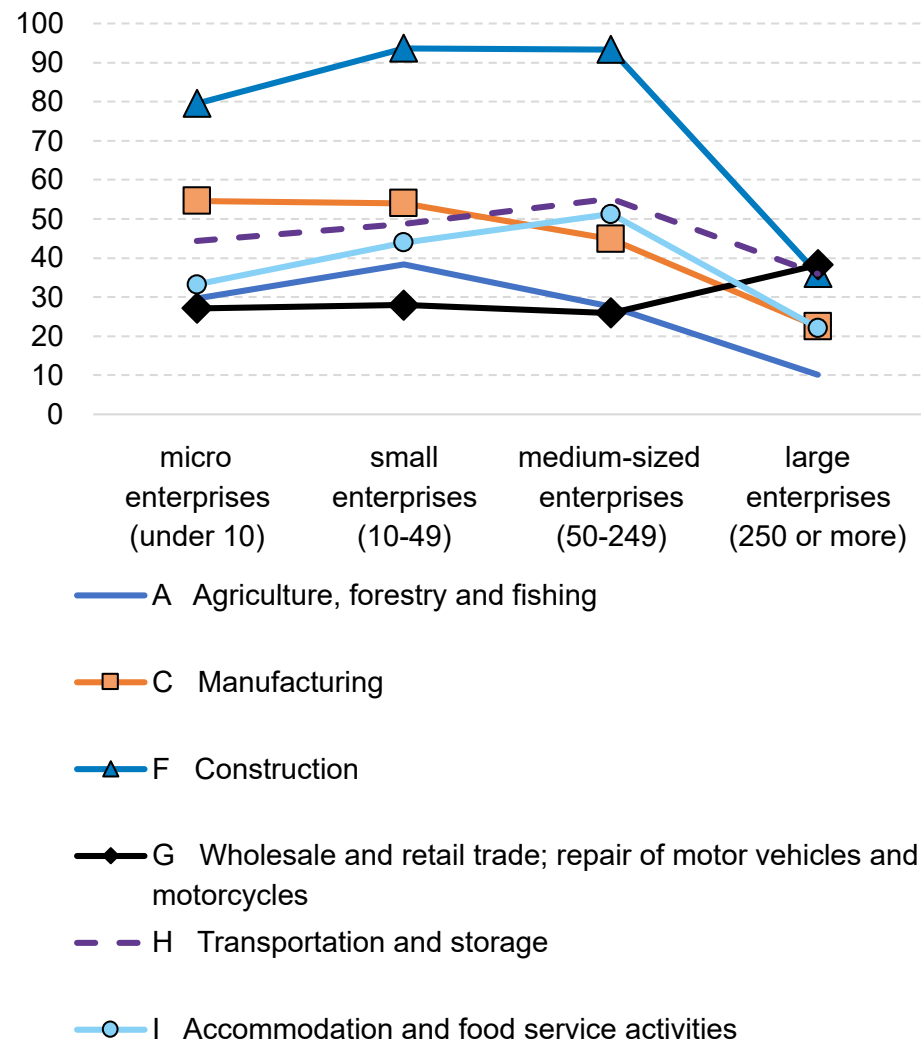


The frequency of workplace accidents by enterprise size was first calculated in 2016. The analysis in 2016 was carried out with data for 2012. The highest frequencies at that time were found in the categories of small business (10–49 employees) and medium-sized business (50–249 employees). Compared to 2019, the frequency profile had decreased for medium-sized enterprises compared to the frequency level of small enterprises.

### Frequency by economic activity and size class in 2021

There are differences between sectors in accident frequency by size class. The frequency could be calculated for eleven main categories of economic activity (Figures 2 and 3). In the construction industry, frequencies are clearly highest in small and medium-sized enterprises and lowest in large enterprises. In manufacturing companies, the frequency is highest in micro enterprises and decreases as the company size increases. In transportation and storage and the accommodation and food-service industry, the frequency is highest in medium-sized companies. In agriculture, forestry and fishing, the highest frequency is in small enterprises. In trade, the frequency appears to be stable in micro, small and medium-sized enterprises, but increases in large enterprises.

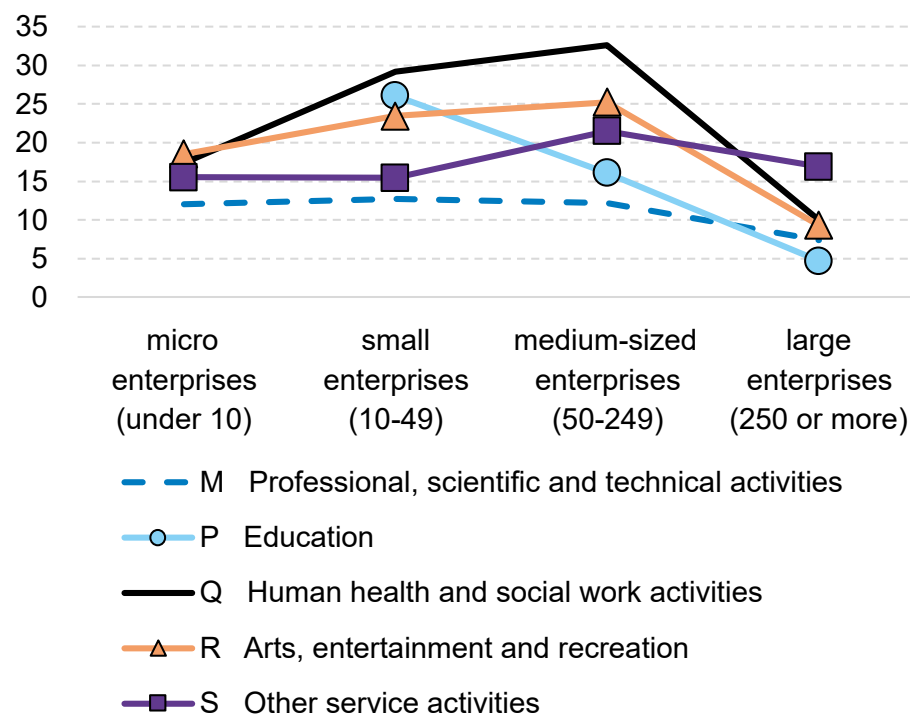
Figure 2: Private sector employees' workplace accident frequencies in 2021 according to the classification of types of economic activities in the main categories A, C, F, G, H and I (unit: workplace accidents per one million hours worked).



The frequency of workplace accidents in the private health and social care sector is highest in medium-sized enterprises and lowest in large and micro enterprises. In the private education sector, the frequency of workplace accidents appears to decrease as the size of the enterprise grows. However, relatively few workplace accidents occur in small private enterprises in the sector, and the number of hours worked in them is close to the threshold enabling the frequency to be calculated by size class. In the arts, entertainment and recreation sector, the highest frequency is found in medium-sized enterprises, although most workplace accidents in the industry occur in micro and large enterprises.

The frequency level in other service activities is lowest in small and micro enterprises and highest in medium-sized enterprises. The frequency level in professional, scientific and technical activities is comparatively low and is the lowest in large enterprises. Around one-half of the hours worked in the sector are performed in large enterprises. The frequency in the information and communication industry could only be calculated for small enterprises (about 6 workplace accidents per million hours worked) and large enterprises (the corresponding frequency is about 2). The number of workplace accidents in this sector is so low that it is not possible to calculate a stable frequency level by size class for one year despite the high number of hours worked.

Figure 3: Private sector employees' workplace accident frequencies in 2021 according to the classification of types of economic activities in the main categories M, P, Q, R and S (unit: workplace accidents per one million hours worked).



## Data used in the analysis and challenges related to calculations

In the frequency calculations by enterprise size, the data source for workplace accidents was the Workers' Compensation Center's register of occupational accidents and diseases, the data source for enterprise size classes was Statistics Finland's Business Register, and the data source for hours worked was Statistics Finland's Labour Force Survey. In the data on workplace accidents, business IDs were linked to size classes by classifications level 1 code for economic activity. The numbers or frequencies of individual business IDs were not examined.

Frequency calculation by company size class is neither accurate nor fully comprehensive. In the following, we will explain some factors whose error impact on the results we have sought to reduce. The data used for the analysis include employers without a specified business ID or whose data are not linked in the data provided by Statistics Finland to the size classes of the variable of classification of types of economic activity. In the data content description of Statistics Finland's Business Register, the variable is defined as follows: "The type classification has been defined for each enterprise based on the number of employees, turnover and/or balance sheet total and group relationship." (Source: [Statistics Finland](#), accessed 21 February 2023, only available in Finnish). Thus, the type classification does not correspond strictly to the

number of employees in the enterprise, but is likely appropriate for examining cases where ownership arrangements allow a small company to benefit from the special expertise of a larger company in occupational safety management, for example.

Start-ups and closures, change of industry, changes in company ownership and changes in the scale of operations are not always shown correctly in the data used in this analysis, as the type classification had to rely on data from the Business Register for 2020, although the data on hours worked and occupational accidents were from 2021. Thus, the most recent changes in the type category for 2021 are not linked to the correct size classes in the workplace accident or workhour data.





In the data, around 1.5 per cent of employees' workplace accidents in 2021 are not linked to any enterprise size class. In the data on hours worked, the corresponding share in 2021 is 17.4%, almost all of which relate to missing business IDs.

It is possible that the missing business IDs largely concern private employers or new businesses, a fairly large part of which could be included as micro enterprises in the calculations. In this case, the frequency in micro enterprises would be much lower. If all the workhours and workplace accidents where the company size class cannot be identified were calculated for 2021 in the size class of micro enterprises, the frequency would be around 14 workplace accidents per one million hours worked. Nevertheless, the coverage of business ID data has improved compared to the analysis published in 2016.

### **The impact of temporary agency work increases the error in frequency calculation by enterprise size**

Temporary agency work is excluded from the analysis. The data on working hours classify the economic activity of temporary agency work according to the economic activity of the client, whereas the data on occupational accidents record the economic activity of the temporary work agency. Consequently, the data do not match correctly in this respect, and the enterprise size class would not correspond to what the economic activity-specific frequency calcu-

lation aims to achieve. In the source data for 2021, temporary agency work accounts for approximately 5.5% of workplace accidents and around 2.4% of working hours.

The calculation has been made using workhour data excluding temporary agency work and without calculating the frequency figure for the industry of temporary agency work. In 2021, around 37 million hours of temporary agency work were performed in large enterprises (or the public sector), around 8 million hours in medium-sized enterprises, around 9 million hours in small enterprises and around 5 million hours in micro enterprises.

### In some main categories of economic activities, the data mainly focus on one size class

In municipalities, both the number of workplace accidents and hours worked are highest in the large enterprise class. Other main categories of economic activities where frequency calculation by size class would only be meaningful for one size class would be:

- electricity, gas, steam and air conditioning supply
- water supply; sewerage, waste management and remediation activities
- financial and insurance activities
- real estate activities

In these industries, either the number of workplace accidents or the total number of hours worked by size class are too small to calculate stable and reliable frequencies by size class. For these industries, the frequency of the entire main category for the economic activity in the annual statistics is the most reliable indicator of the frequency level.

Previously published analysis on the topic: Frequency calculation of employees' occupational accidents by enterprise size (published on 12 May 2016 based on data from 2012), available from [Työtapaturmatieto](#), only available in Finnish.

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The opinions expressed in this analysis report are those of the authors.

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