



CLASSIFYING COMPANIES INTO RELATIVE RISK CATEGORIES

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Would it be possible to classify companies into three equal-sized categories based on the size of their accident incidence risk? If so, how much should the number of accidents decrease in the highest risk category to permit companies belonging to it to attain the level of the companies in the medium risk category?

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BACKGROUND

Analyzing the possibility of classifying companies into relative risk categories was prompted by a question raised by Leo Suomaa from the Department of Occupational Safety and Health in the Ministry of Social Affairs and Health. The analysis illustrates how cases of occupational accidents are distributed over various economic activities, and indicates how much the number of accidents would decrease if the previously mentioned transition to the lower risk level could be achieved as a result of the combined efforts of, for instance, industrial engineering, interventions and continuous development in occupational safety. This in turn helps to understand the scale of the issues related to safety at work and partly answers the question "how much more effort should be put into this?"

Awareness of a company's transition into another risk category does not yet help in, for instance, targeting monitoring or guidance. Still, that awareness is useful in setting an objective for the company, provided that monitoring and guidance can be targeted at appropriate workplaces and individuals. Companies belonging to different risk categories are likely to benefit from different

means of support; companies with a high risk benefit the most from monitoring, and those with a medium risk from guidance and learning from forerunning companies. These forerunners in turn gain the most from networks and connections; they can learn from each other and develop innovations, as well as encourage and help to spread information and good practices to the companies belonging to the medium and high risk categories.

It should be noted that this calculation only examines the statistical data collected directly from the workers' compensation insurance (e.g. compensation for medical treatment and disability benefit). The amount of indirect costs from occupational accidents is difficult to estimate and thus excluded from this calculation, due to which the potential savings for the companies and the society are considerably larger than presented here.

One useful tool for estimating the costs of occupational accidents is the Piku-Work Accident Cost Calculator, developed by the Finnish Institute of Occupational Health. It can be found on TTL's website at the following link: <http://piku.ttl.fi/>

IDENTIFYING RESEARCH POSSIBILITIES

This analysis explores the idea of classifying companies into three equal-sized risk categories consisting of companies with a low, medium and high accident incidence risk, respectively. However, companies cannot be classified into these categories based only on the number of occupational accidents; the size of the company, along with other factors, has to be taken into account.

The number of occupational accidents is likely to be higher in a large company than in a small one, since the latter usually employs considerably fewer workers. In addition, the number of different sectors within the company is relevant for the classification (see the Standard Industrial Classification by Statistics Finland).

For the purposes of this analysis, examining small businesses employing only a few workers would be rather fruitless, since even one occupational accident during the whole review period might cause the company to be moved into the highest risk category. Thus it is reasonable to exclude small businesses (total payroll under € 100,000) from this examination.

The analysis only examines the occupational accidents that have occurred to the privately employed (not state or municipal workers) between the years 2005 and 2013. The accidents compensated by TVK (the Finnish Workers' Compensation Center) are excluded from the calculation, because policyholder information and payrolls in these cases are not available. Therefore, the analysis includes approximately 51,000 companies.

RATES NEEDED FOR MEANINGFUL COMPARISON OF COMPANIES

The accident incidence risk of a company is usually illustrated by an accident frequency rate (number of accidents per million hours worked). However, since TVK does not include detailed information on hours of work in statistics, it is not possible to calculate accident frequency rates for the companies individually. In order to take into account all the factors mentioned previously, the accident incidence rates for the companies must be calculated based on the number of accidents, the size of the company and the variety of sectors within the company. The size of a company can be inferred

from the total payroll available in the data, and then the comparable rate can be gained from the ratio of the number of accidents to the payroll.

If a company has employees in multiple sectors (e.g. in office work and installation work), the incidence rate is first calculated for each sector separately. The rate for the whole company is then the weighted average of the rates of the different sectors, with the outcome depending on how the number of accidents is distributed over the sectors.

Once comparable accident incidence rates have been gained, they are used as a basis for classifying the companies into three equal-sized categories of low risk, medium risk and high risk companies, respectively. As a result, each category comprises approximately 17,000 companies.

MOVING COMPANIES FROM ONE CATEGORY INTO ANOTHER

Once every company has an accident incidence rate and all the companies have been divided into three categories based on those rates, every category has a specific maximum rate.

The next step is to figure out the ideal number of occupational accidents at which the companies belonging to a certain risk category should aim to get their incidence rates below the maximum of the category below their own. This can be calculated by adding the number of accidents to the total payrolls in each category respectively. The number can then be calculated by reversing the same formula first used to calculate the accident incidence rates for the companies.

When this ideal number of accidents is subtracted from the number of accidents that have occurred, the result indicates how much the total number of accidents needs to be reduced. When that result is divided by the years of occurrence and the number of companies included in the examination, the result indicates how much the number of accidents needs to be reduced per year and per company. The average compensation indicates how much savings these reductions would bring.

RESULTS

In order for the companies in the high risk category to be moved into the medium risk category, the total number of occupational accidents in that category should decrease by around 13,000 per year. This means that the companies originally in the high risk category should reduce their number of accidents by around 0.8 per year. The yearly savings would be around € 46.1 million in total, and on average € 2,700 per company.

Accordingly, in order for the companies in the medium risk category to be moved into the low risk category, the total number of accidents in that category should decrease by approximately 17,300 per year. The companies originally in the medium risk category should reduce their number of accidents by around 1.0 per year. The yearly savings would be around € 60.7 million in total, and around € 3,600 per company.



High risk companies into medium risk category

- Number of occupational accidents should decrease by around 13,100 per year
- Each company should reduce their number of accidents by around 0.8
- Yearly savings would be around € 46.1 m in total, and on average € 2,700 per company

Medium risk companies into low risk category

- Number of occupational accidents should decrease by around 17,300 per year
- Each company should reduce their number of accidents by around 1.0
- Yearly savings would be around € 60.7 m in total, and on average € 3,600 per company

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The opinions expressed in this analysis are those of the author.

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