Standardised Incidence rates in ESAW - Accidents at Work

In the Statistics on accidents at work (ESAW) data are yearly collected and disseminated on Eurostat'swebsite of. Apart from the absolute numbers, also indicators of incidence rate and standardized incidence rate are provided.

An incidence rate relates the number of accidents (non-fatal or fatal) to the corresponding working population.

The frequency of accidents at work varies across NACE branches (High risk sectors: Agriculture, Construction or Transport.) and may significantly influence the total national figure. In order to facilitate the comparison across countries, a standardisation process is performed.

For ESAW a "direct standardisation method" is used with weights calculated for the European reference population (EU15). The weights represent the proportion of the reference (working) population[1] in each NACE sector on the total of reference (working) population (all NACE sectors involved).

For each country we calculate firstly for each sector the incidence rate (number of accidents in that sector per working population in that sector; scaled per 100 000).

The standardised incidence rate for the country (total over k sectors) is the weighted sum of the incidence rates per sector.

$$\text{Directly standardised incidence rate} = \sum\left(r_k \times \frac{N_k}{\sum(N_k)}\right)$$

$$= \sum(r_k \times W_k)$$

where:

r_k rate in the k-th NACE sector in the country;

N_k number of persons in the k-th sector of the reference (working) population;

W_k weight for each sector ($W_k = \frac{N_k}{N}$).

See spreadsheets for fatal and non-fatal accidents

[1] Reference (working) population = "**standard population**", working population in EU15.

Table 1: Calculation of Standardised incidence rate: 9 common NACE sectors (NACE Rev. 1.1), country Alfa, reference population 15 countries

NACE sectors	figures	Country Alfa	WORK_POP15 (N_k)	WEIGHT_POP15 (W_k)
missing	workers (1000)	0	0	**0**
	weighted accidents	0		
	incidence rate	0		
	rate * weight_pop15	**0**		
A	workers (1000)	81	**5327**	**0.046**
	weighted accidents	8		
	incidence rate	9.88		
	rate * weight_pop15	**0.457**		
D	workers (1000)	435	**29588**	**0.257**
	weighted accidents	10		
	incidence rate	2.30		
	rate * weight_pop15	**0.590**		
E	workers (1000)	17	**1020**	**0.009**
	weighted accidents	0		
	incidence rate	0		
	rate * weight_pop15	**0**		
F	workers (1000)	195	**14007**	**0.122**
	weighted accidents	13		
	incidence rate	6.67		
	rate * weight_pop15	**0.811**		
G	workers (1000)	417	**23974**	**0.208**
	weighted accidents	3		
	incidence rate	0.72		
	rate * weight_pop15	**0.150**		
H	workers (1000)	82	**7540**	**0.065**
	weighted accidents	1		
	incidence rate	1.22		
	rate * weight_pop15	**0.080**		
I	workers (1000)	163	**9344**	**0.081**
	weighted accidents	11		
	incidence rate	6.75		
	rate * weight_pop15	**0.547**		
J	workers (1000)	86	**5394**	**0.047**
	weighted accidents	1		
	incidence rate	1.16		
	rate * weight_pop15	**0.054**		
K	workers (1000)	273	**19000**	**0.165**
	weighted accidents	5		
	incidence rate	1.83		
	rate * weight_pop15	**0.302**		
Total (9 nace branches)	workers (1000)	1749	**115194**	**1.000**
	weighted accidents	52		
	incidence rate	2.97		
	Standardised incidence rate	**2.97**		