Description of fatal occupational injury rates in five selected European Union countries: Austria, Finland, France, Spain and Sweden

Fernando G. Benavides a,*, Joan Benach a, Jose Miguel Martínez a, Sira González a

a Occupational Health Research Unit, Department of Health and Experimental Sciences, Pompeu Fabra University, Doctor Aiguader, 80, 08003 Barcelona, Spain

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Abstract

Background: The aim of the paper was to describe occupational injury rates in five selected European Union countries, in order to detect some patterns in rate trends.

Methods: Fatal injury crude rates per country and year for the period were calculated using the number of fatal injuries, and the total of employment from the International Labour Organization database. Log-linear models were adjusted for each country, and annual change percentages were estimated.

Results: Rates have decreased in all selected countries. The magnitude of annual crude rate change percentages vary from $-3.7$ in Spain (1988–2001) to $-6.7$ in Sweden (1993–2001).

Conclusion: The observed fall of fatal occupational injury rates in all selected EU countries, jointly with other developed countries strengthen the hypothesis that trends could be real.

Keywords: Rate trends; Global economy; Occupational surveillance system
1. Introduction

Fatal occupational injuries prevention is a high priority on the occupational health agenda for the 21st century (Benach et al., 2002). The total number of fatal occupational injuries worldwide has been estimated at 335,000 deaths (Takala, 1999). However, some evidences have shown a downward trend in fatal occupational injury rate in developed countries. In USA, rates declined an average of 3.3% annually between 1980 and 1996 (Loomis et al., 2003).

In the European Union (EU), the Eurostat has reported that fatal occupational injury rates declined from 6.1 per 100,000 persons in employment in 1994 to 4.8 in 1999 for the whole EU (Eurostat, 2003). This tendency would be more valuable if it contained data spanning a longer period of time using.

In order to assess this declining pattern in rates trends with data of a longer period of time in the EU countries, we examine fatal occupational injury rates in selected EU countries using the database of the International Labour Organization (ILO), which has been collecting occupational injury data from its member states since the 70's.

2. Methods

The ILO database provides accessible information on the number of fatal occupational injuries and the number of workers for EU countries. This information has not harmonized recording and notification systems, but it is based on a common guidance (International Labour Organization, 2003). The main characteristics of the fatal occupational injury data were reviewed for each one of the European Union (EU-15) countries, except Luxembourg (Table 1). The analysis presented in this paper has focused on countries, such as Austria, Finland, France, Spain and Sweden, which have very similar characteristics in terms of the case source (insurance records which is a compulsory requirement for workers’ compensation), and in which commuting accidents are excluded, and data of occupational injury and employment are available for a long period of time without interruption.

Fatal occupational injury crude rates per country and year were calculated dividing fatal cases by total employment figures, including salaried- and self-employed. Rate trends of each country are represented graphically, starting the year with available data of both injury and employment.

Each series were analyzed through a log-linear model, assuming that fatal cases follow a Poisson distribution (Bailer et al., 1997). After adjusting the model per each country, an annual change rate percentage and their confidence interval at 95% was estimated. The period analysis for each country started the year in which last significant changes in the definition and reporting system was introduced.

3. Results

Rates have decreased in all selected countries (Fig. 1). Even in the case of Sweden where rate was very low at the beginning of the series: 3.6 per 100,000 workers in 1976. Spain shows the highest: 10.4 in 1987. At the end of the series, rates varied between 1.4 in Sweden (2000) and 6.4 in Spain (2001).

1 http://laborsta.ilo.org (accessed on 30.01.03).
The magnitude of annual crude rate change percentages were: −4.9 (confidence interval at 95%: −5.8 to −3.9) in Austria (1987–2001), −3.8 (−6.7 to −0.7) in Finland (1992–2000), −4.2 (−4.7 to −3.8) in France (1975–2000), −3.7 (−4.4 to −2.9) in Spain (1988–2001), and −6.7 (−9.2 to −4.1) in Sweden (1993–2001).

4. Discussion

Results should be interpreted carefully because there are some differences among the countries. In consequence, this study did not make any direct comparisons among them, and it only compared countries with themselves year by year.

Bearing in mind this limitation, the study shows that fatal occupational injury crude rates have clearly declined in these five selected EU countries. These results are consistent with those from the Eurostat (2003), confirming that there is a common downward trend in fatal occupational injury rates in developed countries (Loomis et al., 2003). A study in New Zealand (from 1985 to 1994) and Australia (from 1989 to 1992) is also consistent with this descending trends in this world area (Feyer et al., 2001).

Several hypotheses should be taken into account when trying to understand these findings. First, spurious factors like reported modification criteria or data collection procedure changes could be one of the possible explanations. However, the observed fall of fatal occupational injury rates in all selected EU countries, jointly with other developed countries strengthen the hypothesis that trends could be real.

The improvement of workplace environment or the changes in the economy and distribution of the workforce in EU countries could be significant factors that explain these trends. Data from European surveys on working conditions showed that the prevalence

Table 1
Characteristics of fatal occupational injuries data for European Union countries (except for Luxembourg) available at the ILO databases

<table>
<thead>
<tr>
<th>Country</th>
<th>Fatal cases source</th>
<th>Fatal cases excluded</th>
<th>Available data from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Insurance records</td>
<td>Commuting accidents</td>
<td>1987</td>
</tr>
<tr>
<td>Belgium</td>
<td>Insurance records</td>
<td>Commuting accidents only before 1992</td>
<td>1984</td>
</tr>
<tr>
<td>Denmark</td>
<td>Labour inspection records</td>
<td>Commuting accidents</td>
<td>1983</td>
</tr>
<tr>
<td>Finland</td>
<td>Insurance records</td>
<td>Commuting accidents</td>
<td>1976</td>
</tr>
<tr>
<td>France</td>
<td>Insurance records</td>
<td>Commuting accidents</td>
<td>1975</td>
</tr>
<tr>
<td>Germany</td>
<td>Insurance records</td>
<td>None</td>
<td>1991</td>
</tr>
<tr>
<td>Greece</td>
<td>Insurance records</td>
<td>None</td>
<td>1991</td>
</tr>
<tr>
<td>Ireland</td>
<td>Labour inspection records</td>
<td>Commuting accidents</td>
<td>1986</td>
</tr>
<tr>
<td>Italy</td>
<td>Insurance records</td>
<td>None</td>
<td>1979</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Labour inspection records</td>
<td>Commuting accident</td>
<td>1977b</td>
</tr>
<tr>
<td>Portugal</td>
<td>Insurance records</td>
<td>Commuting accidents</td>
<td>1987c</td>
</tr>
<tr>
<td>Spain</td>
<td>Insurance records</td>
<td>Commuting accidents</td>
<td>1987</td>
</tr>
<tr>
<td>Sweden</td>
<td>Insurance records</td>
<td>Commuting accidents</td>
<td>1976</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Labour inspection records</td>
<td>Commuting accidents and road traffic injuries</td>
<td>1987</td>
</tr>
</tbody>
</table>


a Fatal occupational injury and employment data.
b No data during 1990–1996 period.
c No available data in 1998.
Fig. 1. Rate series in selected EU countries: Austria, Finland, France, Spain, and Sweden. (1) Excluded 146 deaths in one shipping accident in 1994.
of risk factors (like vibrations, heavy loads, repetitive movements, etc.) were similar during the 90’s (Paoli and Merllié, 2001). However, shifts within the labour force from dangerous work (agriculture) toward safer work (services) have been uninterrupted in recent years in EU countries. For instance, from 1994 to 1998 agricultural employment decreased from 5.5% to 4.5%, whereas employment in services increased from 63.8% to 65.5% (Eurostat, 1996, 1999). These hypotheses are not mutually exclusive. As it has been recently pointed out, changes in the structure of the labour force could have contributed to the decline of fatal occupational injury rates in the United States, but explained only 10–15% of the total change (Loomis et al., 2004).

A last hypothesis related with the improvement of emergency services and treatments has to be consider, because post-event strategies could also increase survival contributing to reduce fatal occupational injury rates (Smith, 2001).

More research is needed to assess carefully each one of these hypothesis. In addition, this analysis should be expanded to developing countries since the trends observed here could be in part a consequence of a phenomenon known as “export of hazard” (Herbert and Landrigan, 2000) and our now healthier workplaces hide dangerous jobs in developing countries. Global economic integration would encourage the development of global occupational health information systems as a public health priority (Schulte, 2002).

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References


