ARTICLE

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Comparing fatal work injuries in the United States and the European Union

This article uses workplace safety and health data for calendar year 2010 to compare fatal work injury counts and rates in the United States and the European Union.

In July 2012, at the special session on statistics at the Seventh United States–European Union Joint Conference on Occupational Safety and Health in Brussels, Belgium, representatives from (1) the Bureau of Labor Statistics (BLS) and the Occupational Safety and Health Administration (OSHA), both part of the U.S. Department of Labor; (2) the National Institute for Occupational Safety and Health, part of the U.S. Department of Health and Human Services; and (3) Eurostat, the statistical office of the European Union (EU), discussed the potential for developing comparable data on workplace safety and health. Both the United States and the European Union capture and report data on worker safety, including information on fatal work injuries and nonfatal injuries and illnesses. However, differences in injury definitions, data sources, and collection techniques make data comparisons difficult. The representatives discussed these differences and recognized that the data are most comparable for fatal work injuries. At the close of the Conference, BLS and Eurostat agreed to produce a comparison of work-related fatal injury counts and rates, using data for calendar year 2010. This article summarizes the results of that comparison.[1]

A comparative overview of U.S. and EU data

Fatal work injury data for U.S. workers come from the BLS Census of Fatal Occupational Injuries (CFOI) program, which provides an annual count of all fatal work injuries in the United States. Data are available from 1992 to the present. CFOI data are compiled with the use of multiple sources, including death certificates, coroner reports, OSHA reports, and media reports; each fatal work injury is substantiated by at least two different source documents. On average, four source documents are identified for each fatal work injury. CFOI data provide details about the fatally injured worker (such as age and gender), the worker's employment (such as occupation and industry), and the circumstances of the fatality (such as the source of, and event resulting in, the fatal injury). BLS releases these details in preliminary form in the summer following the year of death and in revised and final form several months later.[2]

Data for EU workers come from the European Statistics on Accidents at Work (ESAW) program and are mainly derived from administrative sources.[3] Data collection started in 1993, with data being produced and published annually. Employers in EU Member States are required to keep a list of occupational accidents resulting in a fatality or in a worker being unfit for work for more than 3 working days. Information collected includes characteristics of the worker (such as age and gender), characteristics of the enterprise (including economic activity and size of the enterprise), and characteristics of the injury (such as type and severity). Details on injury *causes and circumstances*—that is, the direct source of an injury and the sequence of events surrounding it—are similar to CFOI source and event data, but not yet available from all Member States. Of particular interest to the European Union is the concept of deviation, or the way in which the circumstances of an accident differ from a normal work practice.

Member States provide their occupational safety and health data to Eurostat no later than 18 months after the end of the reference year. Because each Member State gathers its data independently, the aggregate data for the European Union include some variation from one country to another. For example, the United Kingdom and Ireland do not supply data on road accidents. In addition, the ESAW data used in this article do not include data from Greece. With the 2011 adoption of a Commission Regulation on ESAW—a regulation that came into effect in 2013—these problems of comparability and lack of information will be gradually resolved.[4]

Data comparability adjustments

BLS used the available data to identify additional differences in the data sources and adjust the U.S. data to make them comparable to the EU data. The adjustments included the following:

- *Excluding from the U.S. data fatal work injuries that occurred more than 1 year after the precipitating event or exposure*. The ESAW data include only deaths that occurred within 1 year of the reference year. By contrast, the CFOI program includes all fatal injuries that meet the definitions of work relationship and are attributable to a work-related event or exposure, regardless of the amount of time between that event or exposure and the worker's death. Although most fatalities occur instantly or within a few days of the event or exposure, the CFOI does include a small number of cases in which the death occurs months or years later.
- *Excluding suicides from the U.S. data*. CFOI data include workplace suicides, whereas EU data do not.

In addition, BLS limited the comparison to private-sector wage and salary workers, thus excluding public-sector workers and the self-employed. Also, the comparison is for the United States as a whole and the European Union as a whole and does not include information on individual U.S. states or individual EU Member States.

The fatality data in this article are presented for the so-called main NACE branches, which are industry aggregates used by the European Union in accordance with the Statistical Classification of Economic Activities in the European Community, an industrial classification system commonly referred to as NACE.[5] Because the U.S. data are classified on the basis of the North American Industry Classification System (NAICS), BLS staff reclassified the U.S. data with the use of a NACE–NAICS crosswalk and supplemental material prepared by Eurostat.[6] In cases with more than one NACE code for a given NAICS code, the supplemental material helped BLS match the descriptions of the industry of interest to an appropriate NACE code. Table 1 presents the main industry branches used in this comparison.[7]

Table 1. NACE industry branches used in the U.S.–EU comparison of fatal work injuries, and associated NAICS industries

NACE main industry code	NACE main industry title	NACE codes	NAICS description	NAICS codes
A	Agriculture, forestry and fishing	01–03	Agriculture, forestry, fishing and hunting	11
C	Manufacturing	10–33	Manufacturing	31–33
D	Electricity, gas, steam and air conditioning supply	35	Utilities	2211–2212, 22132
E	Water supply; sewerage, waste management and remediation activities	36–39	Utilities	22131, 562
F	Construction	41–43	Construction	23
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	45–47	Wholesale trade, retail trade	42, 44–45
H	Transportation and storage	49–53	Transportation and warehousing	48–49
I	Accommodation and food service activities	55–56	Accommodation and food services	72
J	Information and communication	58–63	Information	51
K	Financial and insurance activities	64–66	Finance and insurance	52
L	Real estate activities	68	Real estate and rental and leasing	53
M	Professional, scientific and technical activities	69–75	Professional, scientific, and technical services; management of companies and enterprises	54, 55
N	Administrative and support service activities	77–82	Administrative and support and waste management and remediation services	561

Source: NACE–NAICS crosswalk.

Comparison of fatality counts and rates

Number of fatal occupational injuries. In 2010, the total number of fatal work injuries in the United States, as reported by the CFOI, was 4,690. After BLS implemented the data comparability adjustments described in the previous section, the number of fatalities dropped to 2,910, or 62 percent of the original

count. About 60 percent of the cases excluded from the original count were self-employed workers; public-sector fatalities and suicides accounted for most of the remaining exclusions.

The comparisons for this study are limited to the main industry branches. The total number of fatal work injuries in these branches was 2,530 for the United States and 3,353 for the European Union. Table 2 shows the count of U.S. and EU fatalities, by NACE code. Notable differences in the data include (1) 19.3 percent of cases occurring in the manufacturing industry in the European Union, compared with 14.9 percent of cases in the United States, and (2) 1.4 percent of cases occurring in the "accommodation and food service activities" industry in the European Union, compared with 4.4 percent of cases in the United States.

Table 2. Fatal work injuries in the European Union and the United States, wage and salary workers, private industry, 2010

Industry code and title[(1)]		European Union			United States		
		Count	Percent of total	Rate	Count	Percent of total	Rate
A, C–N	Agriculture; industry and construction (except mining); services of the business economy	3,353	100.0	2.8	2,530	100.0	3.1
A	Agriculture, forestry and fishing	349	10.4	9.4	211	8.3	18.4
C	Manufacturing	648	19.3	2.2	378	14.9	3.3
D	Electricity, gas, steam and air conditioning supply	36	1.1	2.9	24	.9	4.7
E	Water supply; sewerage, waste management and remediation activities	90	2.7	6.0	49	1.9	12.4
F	Construction	887	26.5	7.9	528	20.9	9.6
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	351	10.5	1.4	396	15.7	2.0
H	Transportation and storage	621	18.5	6.8	531	21.0	13.5
I	Accommodation and food service activities	46	1.4	.6	111	4.4	1.0
J	Information and communication	30	.9	.6	35	1.4	1.3
K	Financial and insurance activities	34	1.0	.6	12	.5	.2
L	Real estate activities	16	.5	1.0	38	1.5	2.0
M	Professional, scientific and technical activities	64	1.9	.8	44	1.7	.5
N	Administrative and support service activities	181	5.4	1.8	173	6.8	2.5

Notes:

(1) Industries are classified in accordance with NACE. Data from the United States have been reclassified by NACE codes and therefore differ from previously published data.

Note: EU data are considered estimates. Data for Greece and data for road accidents in the United Kingdom and Ireland are missing. U.S. data are a census, adjusted to match the scope of EU data. Data are updated and final, covering selected industry sectors.

Source: European Statistics on Accidents at Work, BLS Census of Fatal Occupational Injuries, and BLS Quarterly Census of Employment and Wages.

Rates of fatal occupational injuries. Because the number of fatalities is influenced by the size of the labor force, both the United States and the European Union publish information on fatality rates. The European Union computes rates based on employment, and the EU rate for the main industry branches for 2010 was 2.8 fatalities per 100,000 employees. By contrast, BLS computes rates based on hours

worked, with the intention to provide a closer measure of worker exposure to risk. For several years, BLS calculated both employment-based rates and hours-based rates and found that the results were often similar, although differences were evident among certain groups—such as younger and older workers—that tended not to work full-time schedules.[8]

Again, BLS had to adjust the U.S. data to match the concepts and industry classification used in the EU data. BLS matched the employment-based rates in the EU data by compiling employment data and using the NACE–NAICS crosswalk to develop employment denominators by NACE industry that are consistent with the fatality counts. These data resulted in a U.S. rate for the equivalent of the main industry branches of 3.1 fatalities per 100,000 employees.[9] Rates for the main industry branches are included in table 2.

More work is needed

While the United States and the European Union were successful in producing a comparison of aggregate counts and rates for fatal work injuries, readers and data users are cautioned not to draw conclusions about relative workplace safety or risk. This comparison must be considered only as a first step in an attempt to identify and understand differences between U.S. and EU fatal work injuries.

For example, although the employment-based fatality rate for the United States in NACE A (Agriculture, forestry and fishing) is nearly twice the rate for the European Union (see table 2), this does not necessarily mean that all work in this industry branch is more hazardous in the United States than in the European Union. For one thing, it is not possible to compare the circumstances surrounding the fatalities. In addition, as noted earlier, the EU data exclude certain types of cases, such as road accidents in the United Kingdom and Ireland.

In light of these considerations, the main purpose of this effort is to show that a comparison is possible. This work begins a conversation and provides an opportunity to identify areas for further comparisons and research. Future work and collaboration will provide better information about fatal workplace hazards and, ideally, lead to improvements in worker safety and health in both the United States and the European Union.

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Notes

[1] Information on the U.S.–EU Joint Conference on Occupational Safety and Health is available at http://www.useuosh.org/index.html.

[2] CFOI results, along with explanatory material and analytical articles, are available at www.bls.gov/iif. Complete details about BLS procedures used to develop data on fatal work injuries are available in the *BLS handbook of*

methods (U.S. Bureau of Labor Statistics, last updated July 2013); the chapter on BLS occupational safety and health statistics, which includes CFOI information, is available at http://www.bls.gov/opub/hom/pdf/homch9.pdf. Fatal work injury details, such as the source or event, are classified on the basis of the BLS Occupational Injury and Illness Classification System; information about this system is available at http://www.bls.gov/iif/oshoiics.htm.

3 In addition to ESAW data, information on EU workers is available through a periodic Labour Force Survey ad hoc module on accidents at work and other work-related health problems. Data from this survey module are available for 1999 and 2007. ESAW data were used in the comparison presented here.

4 Commission Regulation (EU) No 349/2011 of 11 April 2011 implementing Regulation (EC) No 1338/2008 of the European Parliament and of the Council on Community statistics on public health and health and safety at work, as regards statistics on accidents at work, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:097:0003:0008:EN:PDF.

5 NACE stands for *Nomenclature statistique des activités économiques dans la Communauté européenne*.

6 The NACE–NAICS crosswalk used to reclassify U.S. fatal work injuries is available at http://ec.europa.eu/eurostat/ramon/miscellaneous/index.cfm?TargetUrl=DSP_NACE_2_US_NAICS_2007.

7 The comparisons of fatal work injuries exclude the following NACE branches: B (Mining and quarrying), O (Public administration and defence; compulsory social security), P (Education), R (Arts, entertainment and recreation), Q (Human health and social work activities), S (Other service activities), T (Activities of households as employers), and U (Activities of extraterritorial organisations).

8 Information on the fatal work injury rates used in the CFOI program, and the switch from employment-based rates to hours-based rates, is available at www.bls.gov/opub/mlr/cws/change-to-hours-based-fatality-rates-in-the-census-of-fatal-occupational-injuries.pdf.

9 The source of U.S. employment data for this study is the BLS Quarterly Census of Employment and Wages. Details about this program are available at http://www.bls.gov/cew/. The fatal work injury rate per 100,000 workers is computed as follows: Rate = (Number of fatal occupational injuries)/(Employment)*100,000.

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