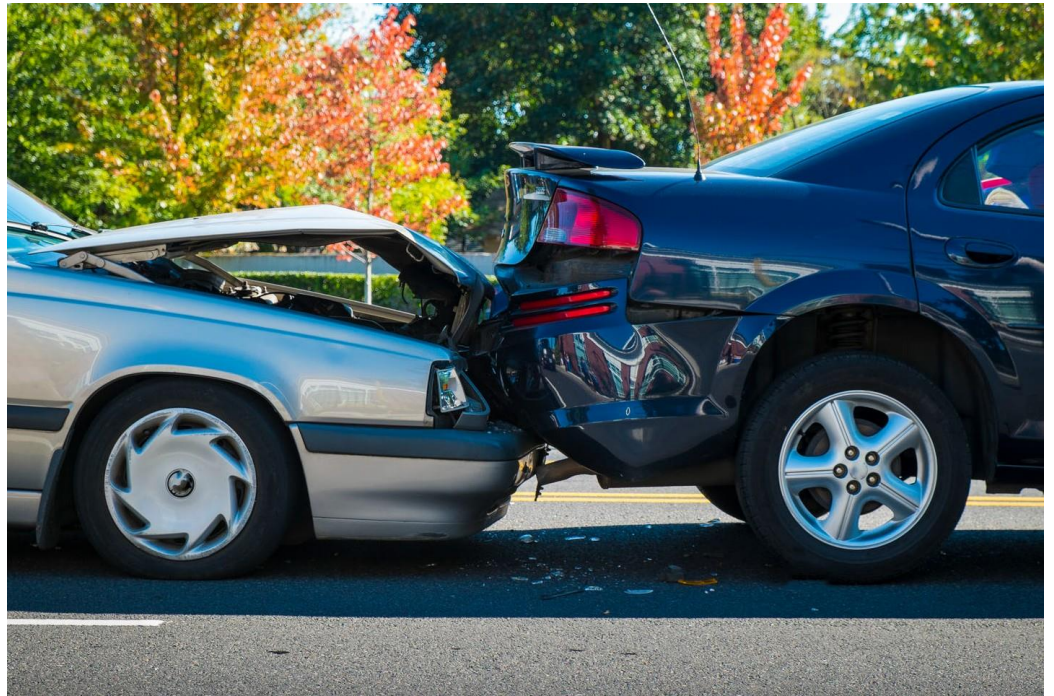


Cost of Motor Vehicle Crashes to Employers—2015™



June
2016

Costs by Selected Risk Factors

- Non-seat Belt Use
- Alcohol Use
- Distracted Driving
- Speeding

and

Costs by State and Industry

The Cost of Motor Vehicle Crashes to Employers - 2015™

Acknowledgments

The *Cost of Motor Vehicle Crashes to Employers* was prepared for the Network of Employers for Traffic Safety (NETS) by the Pacific Institute for Research and Evaluation, funded by a grant to NETS by the National Highway Traffic Safety Administration. It updates the report *The Economic Burden of Traffic Crashes on Employers*, published in 2003. Costs in this report that were not part of the 2003 report include the costs of speeding, non-seat belt use and distracted driving.

About NETS

The Network of Employers for Traffic Safety
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NETS is a 501(c) 3 organization, a partnership between the U.S. Federal government and the private sector. Established in 1989, NETS is dedicated to improving the safety of employees, their families, and members of the communities in which they live and work by preventing traffic crashes that occur on-and- off the job. Board member companies include Abbott, AmeriFleet Transportation, Chubb Group of Insurance Companies, The Coca-Cola Company, Hess Corp., Johnson & Johnson, Liberty Mutual Insurance Group, Monsanto Company, Nationwide Mutual Insurance Group, Shell International Petroleum Company and UPS. In addition, the National Highway Traffic Safety Administration and the National Institute for Occupational Safety and Health serve as federal liaisons to the board of directors.

NETS is a member of the United Nations Road Safety Collaboration, which provides guidance to the Decade of Action for Road Safety 2011-2020 global initiative.

Introduction

This report is intended for employers who want to understand the cost of crashes incurred by their occupational fleets, in addition to the on- and off-the-job costs of crashes for all their employees and their employees' dependents. Knowing an occupational fleet's costs enables management to develop a business case that supports an investment in fleet safety. Knowing the on- and off-the-job crash costs for all employees and their dependents provides employers with justification to invest in employee-wide safe driving programs.

Disclaimer

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Cost of Motor Vehicle Crashes to Employers – 2015

Summary

Employers pay for injuries that occur both on and off the job. In 2013, motor vehicle crashes killed more than 1,600 people and injured 293,000 while they were working. More than half of the injuries forced people to miss work. Overall, on-the-job crash injuries (fatal and non-fatal) amounted to about 7.5 percent of all crash injuries.

Motor vehicle crash injuries on and off the job cost employers \$47.4 billion in 2013. Almost one half of this cost resulted from off-the-job injuries to workers and their dependents. The remainder resulted from on-the-job crashes.

Employer's Motor Vehicle Crash Costs (In millions of 2013 dollars.)			
	On the job	Off the job	All
Health Fringe Benefit Costs	5,030	21,770	26,800
Non-Fringe Costs	20,140	500	20,640
TOTAL	25,170	22,270	47,440

Property damage, workplace disruption and liability costs accounted for \$20.6 billion of the costs. The remaining \$26.8 billion were health-related fringe benefit payments including sick leave, health insurance and insurance covering work losses. The fringe benefit payments were roughly equally split between health care (medical) expenses and wage replacement (e.g., through sick leave and life insurance). The fringe benefit costs of off-the-job crash injuries were \$21.8 billion, accounting for 81 percent of the health-related fringe benefit bill.

The employer cost of motor vehicle crashes in which at least one driver was alcohol-impaired was \$6 billion in 2013. Injuries to people who were not wearing their safety belts cost employers \$4.9 billion; distracted driving cost them \$8.2 billion; and speeding cost them \$8.4 billion. Crashes that involved two of these risky behaviors are in both totals. Unrestrained crash injuries for on-the-job employees cost employers almost \$400 million a year in fringe benefit costs. A larger \$3.6 billion employer fringe benefit bill results from crash injuries to unrestrained employees and their benefit-eligible dependents while away from work.

Employer costs of motor vehicle crash injuries vary widely by state and industry. These costs exceed \$3.4 billion in each of the nation's four most populous states—California, Florida, New York and Texas. Costs per employee are highest in the primary metal manufacturing; agriculture, forestry, and fishing; and local and interurban transportation industries. When comparing costs between states and industries, be aware that differences in injury severity, the age of the workforce, regional and local characteristics, and the completeness of reporting play a significant role in the variance.

Cost of Motor Vehicle Crashes to Employers – 2015

Prevention is an important way to control health care costs arising from injuries. This report demonstrates that by increasing restraint use and reducing alcohol-impaired driving, speeding and distracted driving, the potential health care savings are large.

This report updates the national estimates of employer costs of crashes presented in NHTSA's 2003 report *The Economic Burden of Traffic Crashes on Employers*. It provides motor vehicle injury costs to employers on a national, state-by-state and industry basis.

Methods

The estimates were built from diverse data. Data sources included 2011-2013 Fatality Analysis Reporting System (FARS); purchased 2013 Insurance Services Office summary data; *The Insurance Fact Book, 2015*; *Highway Statistics 2013*; the 2009 National Household Travel Survey (NHTS); the 2011-2013 Censuses of Fatal Occupational Injuries (CFOI) and Surveys of Occupational Injury and Illness (SOII); and Zaloshnja and Miller (2006). Employer crash costs were adjusted to specific states using ratios of state-to-national costs. Medical and composite-item state price adjusters were calculated from the ACCRA Cost of Living Index. A wage adjustment factor was calculated from estimates of personal income per capita by state from the 2013 American Community Survey.

Conclusions

Protecting employees from motor vehicle crash injury can be a profitable investment of time and resources. Traffic safety programs are an alternative to reduce health care expenses to employers without reducing the benefits offered to employees. To the extent that health care reform prompts more employers to offer employees health insurance, the potential savings will be even larger.

What Do Motor Vehicle Crashes Cost?

Total Costs to Employers by State and Industry

This report shows that by preventing motor vehicle crashes, the potential employer savings on sick leave, health care and other fringe benefits are large. It includes motor vehicle injury costs to employers on a national, state-by-state and industry basis. It excludes active duty military personnel. The report updates the national estimates of employer costs of crashes presented in NHTSA's 2003 report *The Economic Burden of Traffic Crashes on Employers*.

Costs Covered by Employers

Employer costs resulting from motor vehicle crashes fall into two categories: health fringe benefit costs and non-fringe costs.

Health fringe benefit costs are the costs of fringe benefits paid because of illness and injury of employees and their dependents. They cover contributions to Workers' Compensation medical and disability insurance, health insurance, sick leave, Social Security disability insurance, life insurance and private disability insurance, as well as insurance administration and overhead.

Non-fringe costs include motor vehicle property damage and liability insurance, crash-related legal expenses and the costs of unreimbursed vehicle damage and replacement. In addition, employers pay taxes to help fund police fire, and ambulance services. Employers also lose productivity when employees suffer injuries preventing them or their coworkers from working at full capacity. Recruiting and training workers to replace fatally injured or permanently disabled employees raises the bill employers pay for injuries.

Employer Costs Extend Beyond the Company Door

Employers pay for injuries that occur to their employees on and off the job and to their dependents. They also pay for harm caused to non-employees involved in work-related crashes (crashes involving a vehicle on employer business, but excluding crashes during commuting). In 2013, motor vehicle crashes killed 1,620 people and injured an estimated 293,000 while they were working. As Table 1 shows, more than half of the injuries forced people to miss work. Overall, on-the-job crash injuries (fatal and non-fatal) amounted to about 7.5 percent of all crash injuries. On-the-job drivers also were involved in 707,000 crashes without injuries. Some on-the-job incidents were not on public roads. This report includes them because countermeasures and corporate safety management systems apply to both on-road and off-road incidents. The Census of Fatal Occupational Injuries (CFOI) also does not differentiate worker pedestrian deaths on and off public roads.

Cost of Motor Vehicle Crashes to Employers – 2015

The 2013 economic costs of U.S. highway crashes, excluding the cost imposed on society by travel delays and wage-risk premiums, was \$234 billion (in 2013 dollars). Employers paid 20 percent of these costs. They shared the costs of highway crashes with government, private passenger vehicle insurers and individual crash victims (Blincoe et al., 2015, inflated to 2013 dollars and adjusted for changes from 2010 in fatal and injury crash counts).

	INJURIES			
	On the job*	Bystander in Work-Related At-Fault Crash**	Other Off the job	All
Fatal	1,620	2,994	23,696	28,310
Nonfatal	293,000	170,000	2,779,000	3,242,000
Lost Work Days	155,000	90,000	1,473,000	1,718,000
No Lost Work Days	138,000	80,000	1,306,000	1,524,000
Total	294,620	172,994	2,802,696	3,270,310

* Excludes 684,200 people injured in non-work crashes who were not workers or their dependents. Includes 50,200 on-the-job crash injuries and 277 deaths that did not occur on public roads such as the driver of a forklift that rolled over in a warehouse or a worker hit by a refuse truck at a landfill. Excludes off-road crashes involving active-duty military personnel.

** For example, a pedestrian or recreational driver hit by a heavy truck

Including off-road crashes, motor vehicle crashes on and off the job cost employers \$47.4 billion in 2013. Of that, \$26.8 billion was comprised of fringe benefit costs and \$20.6 billion of non-fringe costs (Table 2). Almost half of the costs resulted from off-the-job injuries to workers and their dependents. Crashes involving property damage only (i.e., with no one injured or killed) accounted for \$3 billion of the costs.

	On-the-job	Off-the-job	All
Health Fringe Benefit Costs	5,030	21,770	26,800
Non-Fringe Costs	20,140 *	500	20,640
TOTAL	25,170	22,270	47,440

* Includes \$3 billion for crashes involving property damage only.

Employer Health Fringe Benefit Spending

Motor vehicle crashes imposed a \$26.8 billion health fringe benefit bill on employers (Table 3). The fringe benefit payments were roughly equally split between health care (medical) expenses and wage replacement (e.g., through sick leave and life insurance).

Table 3 illustrates the importance of off-the-job injuries to employers interested in achieving health-related cost savings. Off-the-job crash injuries cost \$21.8 billion, or 81

Cost of Motor Vehicle Crashes to Employers – 2015

percent of motor vehicle crash health-related fringe benefit costs. Motor vehicle crashes accounted for 4 percent of employer health-related fringe benefit costs.

	Crash Injuries		
	On the job	Off the job	All
Workers' Compensation	3,430	0	3,430
Medical	1,790	0	1,790
Disability	1,640	0	1,640
Health Insurance	110	10,190	10,300
Disability Insurance	0	420	420
Life Insurance	80	1,110	1,190
Insurance Administration	490	1,530	2,020
Insurance Overhead	220	1,470	1,690
Social Security	130	1,280	1,410
Sick Leave	570	5,770	6,340
TOTAL	5,030	21,770	26,800

Traffic Safety Programs Can Produce Savings

Employer costs per on-the-job crash, per on-the-job crash injury and per million vehicle-miles of travel enable employers to estimate their injury burden and the potential savings of traffic safety programs. These unit costs are averages calculated from total costs and actual incidence. Employers can estimate their cost burden by multiplying the costs in Table 4 by their total crashes, crash injuries or millions of vehicle-miles of travel. For example, the estimated cost of on-the-job crashes for a company that had 1000 such crashes would be $1000 \times \$24,057 = \$24,057,000$.

On-the-job highway crashes cost employers \$24,000 per crash, \$45,000 per million vehicle-miles of travel (M VMT) and \$68,000 per injury. The Network of Employers for Traffic Safety (NETS) reports that safety elements effective in reducing losses associated with motor vehicle crashes include top-level management commitment to traffic safety programs, mandatory safety restraint policies, alcohol and drug non-use policies, Employee Assistance Programs and safety outreach that extends safety efforts beyond the company door. NETS' Comprehensive Guide to Road Safety™ is available free of charge as a download at www.trafficsafety.org. The *Guide* has global applicability and is for employers of large or small fleets of all vehicle types with new, developing or advanced road safety programs.

Cost of Motor Vehicle Crashes to Employers – 2015

	Per M VMT	Per Crash*	Per PDO Crash	Per Injury**	Per Fatality	Per Nonfatal Injury
Health Fringe Benefit Costs	8,338	4,418	0	17,045	501,131	14,369
Other Direct Costs	18,187	7,926	4,252	16,841	132,238	16,203
Liability for Losses by Others	18,684	11,713	1,638	34,430	38,145	34,409
TOTAL	45,210	24,057	5,890	68,316	671,514	64,981

*Includes property damage only, injury, and fatal crashes.

**Includes both fatal and nonfatal injuries.

Tables 5 and 6 show what restraint non-use cost employers. Restraint non-use by on-the-job employees cost employers \$0.9 billion in 2013. A larger \$4.0 billion bill resulted from restraint non-use by employees and their benefit-eligible dependents while away from work. Costs per employee injured in a crash on the job averaged \$48,000 unrestrained, far exceeding the \$25,000 cost if restrained. The comparable figures for crashes off the job – where employers are not liable for costs incurred by people injured by their employees or for most permanent disability of their employees -- are much lower: \$7,200 versus \$4,800.

	Highway Crash		
	On-the-job	Off-the-job	All
Health Fringe Benefit Costs	412	3,586	3,998
Non-Fringe Costs	503	425	928
TOTAL	915	4,011	4,926

	On-the-job		Off-the-job	
	Unrestrained	Restrained	Unrestrained	Restrained
Health Fringe Benefit Costs	21,550	13,040	6,040	3,970
Non-Fringe Costs	26,290	11,540	1,180	800
TOTAL	47,840	24,580	7,220	4,770

In 2013, only 1.5% of alcohol-involved drivers in fatal crashes were on the job. The employer cost of motor vehicle crashes with an alcohol-impaired employee or dependent driving was \$6.0 billion (Table 7). Out of this, \$5.0 billion came from off-the-job alcohol involvement.

Cost of Motor Vehicle Crashes to Employers – 2015

	Highway Crash		
	On-the-job	Off-the-job	All
Health Fringe Benefit Costs	261	3,946	4,207
Non-Fringe Costs	780	1,023	1,803
TOTAL	1,041	4,969	6,010

The employer cost of distracted driver crashes was \$8.2 billion in 2013 (Table 8). Almost half of the costs resulted from crashes involving employees and their benefit-eligible dependents while away from work.

	Highway Crash		
	On-the-job	Off-the-job	All
Health Fringe Benefit Costs	593	3,237	3,830
Non-Fringe Costs	3,769	614	4,383
TOTAL	4,362	3,851	8,213

Speed-related crashes cost employers \$8.4 billion in 2013 (Table 9). Most costs resulted from off-the-job crashes.

	Highway Crash		
	On-the-job	Off-the-job	All
Health Fringe Benefit Costs	601	4,125	4,726
Non-Fringe Costs	2,836	805	3,641
TOTAL	3,437	4,930	8,367

These risk behaviors affected the frequency and severity of crashes. Table 10 shows average employer costs per nonfatal crash injury on and off the job by behavior. The costs were highest for people in alcohol-related crashes and for unbelted occupants. The cost of a traffic fatality was the same regardless of whether one of these risk factors caused the crash, as was the cost of a property damage only crash.

	Highway Crash	
	On-the-job	Off-the-job
Any Person Injured	73,796	4,932
Any Occupant	71,686	4,498
Unbelted	79,229	6,055
Belted	70,205	4,194
In Distracted Driving Crash	72,442	4,641
In Speed-Related Crash	73,914	5,303
In Alcohol-Related Crash	93,464	11,759

Cost of Motor Vehicle Crashes to Employers – 2015

Employer Costs of Crashes by State

Table 11 details employer costs of motor vehicle crash injuries, on- and off-the-job, by state. Costs exceeded \$3.4 billion in each of the nation's four most populous states— California, Florida, New York, and Texas.

Costs per employee varied widely by state. They were highest in Louisiana, Montana, and West Virginia and lowest in Colorado, Iowa, Minnesota, Washington, and Wyoming. Differences in injury severity, age of workforce, regional and local characteristics, and completeness of reporting caused the variance. Critically, the methods for calculating state costs (documented in the Appendix) ignore differences in non-fatal injury severity between states. This weakness probably produces cost estimates that are too low in rural states relative to urban states because urban states typically have lower average speeds and consequently less severe injuries.

Differences in labor force participation rates and family size between states could cause employer costs per employee to vary even if safety levels and prices were equal. Cost differences between states may reflect price and income variations more than differences in safety. Finally, differences between states may result from differing completeness of reporting of occupational or crash injuries rather than actual differences in injury rates.

Table 12 provides estimates of employer costs of alcohol-involved injuries by state. These estimates account for regional differences in alcohol-impaired driving. They were obtained by assuming that the ratio between employers' costs of alcohol use and fatalities involving Blood Alcohol Levels at or above .08 remain the same across the states.

Cost of Motor Vehicle Crashes to Employers – 2015

Table 11. Annual Employer Costs of On- and Off-the-Job Motor Vehicle Crash Injuries by Expense Category by State*

(In Millions of 2013 Dollars except that costs per employee are in 2013 Dollars)

STATE	EXPENSE CATEGORY		TOTAL	Per Employee	STATE	EXPENSE CATEGORY		TOTAL	Per Employee
	Health Fringes	Non Fringe				Health Fringes	Non Fringe		
USA	26,822	17,634	44,456	310	MS	258	160	418	360
AK	77	49	126	370	MT	187	116	303	620
AL	383	252	635	320	NC	1,072	675	1,747	400
AR	258	168	426	350	ND	75	43	118	300
AZ	517	332	849	310	NE	157	100	257	260
CA	2,817	1,955	4,772	280	NH	122	79	201	290
CO	282	178	460	180	NJ	999	705	1,704	410
CT	407	281	688	400	NM	191	121	312	360
DC	74	58	132	390	NV	270	180	450	360
DE	80	53	133	320	NY	2,151	1,542	3,693	410
FL	2,072	1,368	3,440	390	OH	973	636	1,609	300
GA	1,088	692	1,780	410	OK	341	212	553	320
HI	118	90	208	340	OR	377	246	623	350
IA	151	93	244	150	PA	874	588	1,462	240
ID	142	83	225	310	RI	77	51	128	250
IL	867	559	1,426	240	SC	459	290	749	370
IN	453	287	740	250	SD	59	38	97	230
KS	195	120	315	220	TN	419	268	687	240
KY	410	264	674	360	TX	2,097	1,332	3,429	290
LA	669	436	1,105	560	UT	207	134	341	250
MA	493	334	827	260	VA	655	420	1,075	270
MD	473	342	815	280	VT	71	48	119	350
ME	136	88	224	340	WA	378	236	614	190
MI	670	428	1,098	260	WI	413	255	668	230
MN	321	206	527	190	WV	232	150	382	510
MO	505	320	825	290	WY	27	15	42	140

*Excludes \$3,000 million for crashes involving property damage only.

Cost of Motor Vehicle Crashes to Employers – 2015

Table 12. Employer's Costs of On- and Off-the-Job Alcohol-Involved Motor Vehicle Crashes by State (In millions of 2013 dollars)

STATE		TOTAL COST		STATE		TOTAL COST	
USA		6,010		Missouri		140	
Alabama		133		Montana		54	
Alaska		11		Nebraska		35	
Arizona		121		Nevada		43	
Arkansas		63		New Hampshire		32	
California		584		New Jersey		102	
Colorado		90		New Mexico		51	
Connecticut		87		New York		270	
Delaware		23		North Carolina		211	
District of Columbia		5		North Dakota		42	
Florida		389		Ohio		153	
Georgia		163		Oklahoma		96	
Hawaii		22		Oregon		66	
Idaho		36		Pennsylvania		222	
Illinois		199		Rhode Island		16	
Indiana		106		South Carolina		181	
Iowa		61		South Dakota		24	
Kansas		60		Tennessee		149	
Kentucky		88		Texas		778	
Louisiana		131		Utah		20	
Maine		26		Vermont		11	
Maryland		92		Virginia		158	
Massachusetts		87		Washington		99	
Michigan		141		West Virginia		48	
Minnesota		60		Wisconsin		109	
Mississippi		105		Wyoming		16	

Employer Costs of Crashes by Industry

Employer costs of on-the-job motor vehicle crashes by industry are shown in Table 13. As expected, costs per employee are higher for industries where motor vehicles are used intensively and exposure to risk is greater. Costs per employee are highest in the primary metal manufacturing; agriculture, forestry, and fishing; and local & interurban transportation industries. Costs were assigned by vehicle type involved in the crash. Heavier vehicles have smaller fatality costs but higher property damage costs. The SOII obtained reports on less than 25% of survivors of on-the-road occupational crashes with work loss. We used the reported cases to infer the distribution of unreported cases. Thus, cost variations between industries should be compared cautiously. They may result from differing completeness of reporting.

Cost of Motor Vehicle Crashes to Employers – 2015

Table 13. Costs of On-the-Job Motor Vehicle Crashes to Employers by Industry (in 2013 dollars)

Industry	Health Fringe	Non-Fringe	Total	Cost/ Employee
Agriculture, Forestry & Fishing	283,211,395	845,827,621	1,129,039,016	2,794
Mining	262,987,141	785,431,829	1,048,418,970	1,299
Metal Mining	3,552,321	12,720,981	16,273,302	360
Coal Mining	10,112,126	30,197,897	40,310,023	504
Oil & Gas Extraction	5,776,305	17,247,755	23,024,060	120
Nonmetallic Minerals	5,776,305	17,247,755	23,024,060	255
Construction	424,821,441	1,403,327,949	1,828,149,390	315
Gen'l Building Contractors	44,960,373	138,784,729	183,745,102	146
Heavy Construction	133,548,486	426,956,473	560,504,959	632
Special Trades Contractors	143,053,366	427,240,074	570,293,440	156
Manufacturing	266,070,088	939,530,575	1,205,600,663	100
Food & Kindred Products	60,593,909	212,706,495	273,300,404	187
Textile Mill Products	3,146,811	12,549,357	15,696,168	68
Lumber & Wood Products	15,165,755	45,295,815	60,461,570	173
Printing & Publishing	98,051,646	387,961,358	486,013,004	1,065
Chemicals & Allied Products	32,212,915	103,066,418	135,279,333	171
Primary Metal Industries	1,102,207,948	4,391,752,969	5,493,960,917	13,894
Fabricated Metal Products	18,421,025	67,674,395	86,095,420	60
Industrial Machinery & Equip.	13,819,362	50,770,122	64,589,484	58
Transportation Equipment	22,447,962	88,074,600	110,522,562	73
Transportation & Public Utilities	1,332,528,182	4,215,811,272	5,548,339,454	986
Local & Interurban Trans.	218,554,418	825,838,583	1,044,393,001	2,272
Trucking & Warehousing	699,222,210	2,222,889,134	2,922,111,344	1,408
Water Transportation	4,195,748	16,732,476	20,928,224	316
Transportation by Air	97,066,264	385,290,563	482,356,827	1,064
Communications	70,659,509	273,105,424	343,764,933	305
Electric, Gas & Sanitary Serv.	24,240,438	85,094,058	109,334,496	201
Wholesale Trade	523,824,665	1,942,846,899	2,466,671,564	433
Retail Trade	458,496,348	1,743,093,348	2,201,589,696	145
General Merchandise Stores	31,276,986	117,985,554	149,262,540	47
Food Stores	44,625,584	176,034,781	220,660,365	76
Automotive Dealers	188,466,253	730,791,226	919,257,479	520
Apparel & Accessory Stores	5,244,685	20,915,595	26,160,280	18
Furniture & Home Furnishings	6,056,518	21,259,189	27,315,707	61
Eating & Drinking Places	154,157,735	600,305,109	754,462,844	74
Finance, Insurance & Real Estate	191,222,523	739,436,120	930,658,643	123
Services	760,373,205	2,686,509,768	3,446,882,973	51
Hotels	23,665,710	88,589,990	112,255,700	61
Personal services	25,932,395	93,288,500	119,220,895	89
Business Services	407,188,072	1,508,091,390	1,915,279,462	242
Automotive Repair	38,383,053	128,471,419	166,854,472	199
Amusement & Recreation Serv.	49,444,520	170,595,963	220,040,483	154
Health Services	410,762,857	1,610,613,291	2,021,376,148	131
Legal Services	16,797,361	66,987,207	83,784,568	74
Educational Services	47,230,903	188,354,961	235,585,864	19
Social Services	222,855,957	880,058,800	1,102,914,757	334
Membership Organizations	53,150,834	194,599,645	247,750,479	85
Engineering & Management	62,673,928	239,812,271	302,486,199	64
Government	518,586,660	1,832,245,161	2,350,831,821	106
Federal Government	114,221,403	403,563,817	517,785,220	189
State Government	76,356,670	269,779,834	346,136,504	67
Local Government	327,694,984	1,157,795,574	1,485,490,558	104
TOTAL	5,022,121,648	17,134,060,542	22,156,182,190	167

Note: based on CFOI and SOII counts by industry using North American Industry Classification System (NAICS) industry categories.

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Conclusions

Including insurance expenses, employer health care (medical) spending for motor vehicle crashes was nearly \$14 billion in 2013. Another \$13 billion was spent on sick leave and life and disability insurance for crash victims. Traffic safety programs are an alternative to reduce these costs without reducing the benefits offered to employees.

Protecting employees from motor vehicle crash injury can be a profitable investment of time and resources. Alcohol-impaired driving crashes cost employers \$6.0 billion annually and injuries to unrestrained occupants cost employers \$4.9 billion. Employer costs of distracted driving and speed-related crashes are even higher at \$8.2 billion and \$8.4 billion. Crashes that involve two of these risky behaviors are in both totals.

Developing a proactive traffic safety program is one of the best ways to control costs from workplace vehicle crashes. Resources for such a program can be found in the Network of Employers for Traffic Safety's (NETS') *Comprehensive Guide to Road Safety™*. It is also recommended the reader see NETS' Drive Safely Work Week™ 2010-2015 Campaigns. These resources are available for download at no cost from NETS' website, www.trafficsafety.org. In addition, later this year NETS will publish *NETS' Guide to Defensive Driver Training™* and *NETS' Recommended Road Safety Best Practices™*.

The large employer costs due to off-the-job crashes suggest that employers might profit by initiating "work-life" programs that use workers as conduits for getting traffic safety information to family and community. It also suggests that employers profit from passage of proven measures like graduated licensing for youth, booster seat, bicycle helmet, and primary safety belt laws, plus enforcement efforts like intensive sobriety checkpoints and reducing service to over-the-limit and underage drinkers.

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Appendix

Incidence Estimation

In general, the computations used the peer-reviewed methods in Zaloshnja and Miller (2006). Both fatal and non-fatal motor vehicle crash injuries were estimated by state and industry. The state fatality estimation used two data sets: NHTSA's 2011-2013 FARS and the U.S. Bureau of Labor Statistics' (BLS') 2011-2013 Census of Fatal Occupational Injuries (CFOI), Table A-2.

Occupational crash fatalities by state are the average annual FARS count for 2011-2013 adjusted upward to the 2013 Census of Fatal Occupational Injuries total including deaths not on public roads. Off-the-job motor vehicle-related fatalities were computed by subtracting the state occupational highway fatality estimates from the 2013 FARS state totals under age 65. The calculations assumed that the number of people over age 65 equals the number of people who are not workers or their dependents.

The number of non-fatal occupational motor vehicle injuries was computed using: NHTSA's 2013 General Estimates System (GES) injury counts by vehicle type; purchased 2013 Insurance Services Office summary data; *The Insurance Fact Book, 2015* (Insurance Information Institute, 2015); 2010 police-reported state non-fatal injury counts (Blincoe et al, 2015 and online), and the 2013 CFOI ratio of crash deaths on versus off public roads;

The number of injured on-the-job motor vehicle crash survivors by state was computed in four stages. The computation started from national and state-by-state estimates of crash injury victims from Blincoe et al. (2015). The estimates were adjusted upward by the ratio from GES of people injured in police-reported crashes in 2013 versus 2010. From these injury counts and FARS fatality counts, the number of injured crash survivors per crash fatality by state was computed. Finally, that ratio was multiplied by the CFOI/FARS estimates of on-the-job motor vehicle fatalities by state. (This calculation assumes that the CFOI percentage of crash fatalities and injuries that occur on public roads, 81%, does not vary between states.)

To distribute the injured survivors of on-the-job crashes by industry, the Bureau of Labor Statistics' Survey of Occupational Injury and Illness (SOII) distribution of survivors of lost-workday occupational injuries by two-digit North American Industry Classification System (NAICS) code was used. The SOII data by source (e.g., motor vehicle) exclude medically treated survivors without workdays lost, whom the 1987-1992 National Health Interview Survey estimated were 47% of the total (Zaloshnja and Miller, 2006). They also do not cover all workers. Notably, they exclude self-employed truck and taxi drivers. Beyond its under-coverage problem, the SOII appears to under-count motor vehicle crash injuries. It records only 57,000 of the estimated 150,000 injured survivors who lost days from work due to on-the-job crashes.

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Incidence of commercial vehicle crashes used to calculate cost per crash was estimated from aggregated data purchased from the Insurance Services Office (ISO). Work-related vehicle miles traveled were estimated from two sources. *Highway Statistics* provided 2013 estimates of miles traveled by commercial trucks, buses, and other heavy vehicles. The Federal Highway Administration's 2009 National Household Travel Survey (U.S. Department of Transportation, 2013) provided estimated vehicle miles of on-the-job use of light vehicles on daily and long-distance trips

Cost Estimation

Medical, productivity, emergency services, property damage, legal, and non-liability insurance claims processing costs came from Blincoe et al. (2015). These costs were inflated from 2010 to 2013 dollars using the employment cost index and consumer price index — all items and medical care. Employer crash costs were adjusted to specific states using ratios of state to national costs. The medical and composite state price adjusters were aggregated to the state level from *ACCRA Cost of Living Index* values for 2014 from participating metropolitan areas. The state wage adjusters and employment by state used in computing costs per employee in Table 10 came from Bureau of Labor Statistics compilations of 2013-2014 Current Population Survey data. Future costs were converted to present value using a 3% discount rate. The calculations assume that costs per nonfatal motor vehicle injury on and off public roads are equal. Costs related to crash-caused traffic delays of commercial vehicles or employees not involved in crashes were excluded from the cost estimates.

Total employer health fringe benefit costs were computed following the methods in Miller (1992) and Zaloshnja and Miller (2006). Sources of data were as follows: sick leave, health and other insurance, and Workers' Compensation per hour worked from the National Compensation Survey (Bureau of Labor Statistics, 2015), Sengupta et al. (2014), and American Council of Life Insurance (2015). The tax payments shown assume, perhaps optimistically, that police, fire, and emergency medical services would require less vehicles and staffing if crashes were eliminated. Liability payments per on-the-job crash were estimated from the Insurance Services Office data, rectified to match the \$11.3 billion total commercial liability claims costs for 2013 (Insurance Information Institute, 2015)

Prior NETS reports on cost of crashes included wage-risk premiums which measure the extra wages workers demand when accepting jobs with high risks of death in road crashes or other circumstances. This concept was abstract and the costs were not linked to individual crashes. Therefore those costs were dropped from the current report except to the extent they affect liability insurance payments.

Employer costs of speed-related, distracted driving, and alcohol-involved motor vehicle crashes were estimated by applying payer estimates by cost category to incidence and cost information by injury severity in Blincoe et al. (2015), along with 2013 data from FARS encyclopedia online tabulation. A similar approach was taken on restraint nonuse,

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except that the incidence calculations also used NHTSA estimates of persons saved by belts. The percentage of each type of crash that was on-the-job came from 2013 FARS encyclopedia data. Employer costs of alcohol-involved injuries by state (Table 12) were allocated in proportion to alcohol-involved fatalities. This procedure assumed the percentage of impaired driving that was on the job did not vary between states.

The number of employees and crash fatality and injury risks by industry came from the 2011-2013 CFOI and SOII.

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References

American Council of Life Insurance. **2014 Life Insurers Fact Book**, Washington, DC, 2015.

Council for Community and Economic Research. **ACCRA Cost of Living Index, 1st-4th Quarters., 2013**, Arlington, Virginia, 2013.

Blincoe, Lawrence J., Miller, T.R., Zaloshnja, E., Lawrence, B.A. **The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised)**, Washington DC: National Highway Traffic Safety Administration, May 2015.

Bureau of Labor Statistics. **Employee Benefits in the United States – March 2013**, Press Release, Washington DC: BLS, July 2013.

Bureau of Labor Statistics. **Census of Fatal Occupational Injuries 2013**. Washington, DC: U.S. Department of Labor. URL: <http://www.bls.gov/iif/oshwc/cfoi/cftb0278.pdf> (accessed August 2015).

Bureau of Labor Statistics. Case and demographic characteristics for work-related injuries and illnesses involving days away from work, 2013. Washington, DC: U.S. Department of Labor. URL: <http://www.bls.gov/iif/oshwc/osh/case/ostb3985.pdf> (accessed August 2015).

Council of Economic Advisors. **Economic Report of the President**, Washington, DC: U.S. Government Printing Office, 2010.

Federal Highway Administration. **Highway Statistics 2013**, <https://www.fhwa.dot.gov/policyinformation/statistics/2013/pdf/vm1.pdf> (accessed August 2015).

Federal Highway Administration. **2009 National Household Travel Survey** online analysis tool (accessed June 2015).

Insurance Information Institute. **The Insurance Fact Book 2015**, New York City, 2015.

Miller, Ted R. **The Cost of Injuries to Employers: A NETS Compendium**, National Highway Traffic Safety Administration, Grant R49/CCR303675-02, 1992.

National Highway Traffic Safety Administration. **Traffic Safety Facts, 2013: A Compilation of Motor Vehicle Crash Data from the Fatal Accident Reporting System and the General Estimates System**, 2014.

National Highway Traffic Safety Administration. **The Economic Burden of Traffic Crashes on Employers**, 2003.

Cost of Motor Vehicle Crashes to Employers – 2015

Network of Employers for Traffic Safety. ***NETS' Comprehensive Guide to Road Safety***, 2014.

Sengupta, I., Balwin, M., Reno, V. ***Workers' Compensation: Benefits, Coverage, and Costs, 2012***. Washington DC: National Academy of Social Insurance, 2014.

U.S. Department of Transportation, Bureau of Transportation Statistics, ***NHTS 2009 Highlights Report***, BTS03-05, available at http://www.bts.gov/publications/highlights_of_the_2001_national_household_travel_survey/pdf/entire.pdf , 2013.

Zaloshnja, E., Miller, T.R. The Employer Costs of Motor Vehicle Crashes, ***International Journal of Injury Control and Safety Promotion***, 13:3, 145-150, 2006.