

Programs of the Federal Motor Carrier Safety Administration (FMCSA) encompass a range of issues and disciplines, all related to motor carrier and bus safety and security. FMCSA's Office of Research and Analysis, which includes the Research, Technology, and Analysis Divisions, defines a "research program" as any systematic study directed toward fuller scientific discovery, knowledge, or understanding that will improve safety, and reduce the number and severity of commercial motor vehicle crashes. Similarly, a "technology program" is a program that adopts, develops, tests, and/or deploys innovative driver and/or vehicle best safety practices and technologies that will improve safety and reduce the number and severity of commercial motor vehicle crashes. An "analysis program" is defined as economic and environmental analyses done for the agency's rulemakings, as well as program effectiveness studies, state-reported data quality initiatives, and special crash and other motor carrier safety performance-related analyses. A "large truck" is any truck with a Gross Vehicle Weight rating or Gross Combination Weight rating of 10,001 pounds or greater.

Currently, FMCSA's Analysis, Research, and Technology Divisions are conducting programs in order to produce safer drivers, improve safety of commercial motor vehicles, produce safer carriers, advance safety through information-based initiatives, and improve security through safety initiatives. The study described in this Tech Brief was designed and developed to support the strategic objective to produce safer carriers. The primary goals of this initiative are to support efforts to improve carrier safety by applying safety management principles, compiling best management practices, communicating best practices, and supporting the Agency's enforcement of carrier-related regulations.



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Operational Differences and Similarities among the Motorcoach, School Bus, and Trucking Industries

Background

As part of the Commercial Truck and Bus Safety Synthesis Program, the effort summarized in this tech brief collected and compared commercial motor vehicle operational measures such as the number of U.S. operators, fleet sizes, crash statistics, vehicle-miles of travel, and business models – information which will serve as a foundation for regulatory programs. Many sources were used to compile data for this synthesis, including FMCSA databases, industry association publications, industry trade magazines, Internet searches, and documents from the Bureau of Labor Statistics and the Census Bureau. The literature review was supplemented by interviews with staff at several organizations, who were able to provide additional data not readily available to the public. The key information collected from both the literature review and the interviews includes:

- **Industry Size and Extent** – A description of the number of carriers and vehicles in the industry by fleet size, geographic area, and industry subsegments.
- **Safety** – Historical fatality, injury, and crash statistics for the industry.
- **Economy and Finances** – Industry business statistics, such as sources of revenues, driver compensation, driver regulations, operating costs, vehicle sales, etc.

Whenever possible, statistics (such as interstate and intrastate, and for-hire and private) were presented for the entire national company and vehicle population. However, data was most readily available from interstate and for-hire segments of the industries. As a result, the synthesis report is not meant to be a statistically defensible national survey; national statistics that can be disaggregated by industry segment are generally not available, and the aggregation of component data from various industry sources is not necessarily a valid methodological approach. The synthesis report identified the data limitations and concluded with a section describing gaps in the data.

Industry Comparisons

Carriers by Size

The Motor Carrier Management Information System (MCMIS) database, which includes all interstate but only selected intrastate firms, was a resource in size assessment of the three industries presented in this synthesis. According to MCMIS, of the motorcoach, school bus and trucking industries, trucking is the largest, with 612,000 firms owning or operating over 3.5 million trucks and

tractors. The comparative sizes of the three industries are shown in Table 1. All three industries are dominated by firms that own or operate less than a half-dozen vehicles. When comparing the school bus companies registered in MCMIS against national estimates of total firms, only about 20 percent of school bus contractors appear to be registered in MCMIS.

Table 1: Comparison of firm and fleet sizes

Industry	Number of Firms	Number of Vehicles Owned/Operated
Motorcoach	8,568	75,595
School Bus	3,600	65,221
Truck	612,771	3,505,954

Note: This table excludes 595 firms with equal-sized bus and trucking operations, 82 bus firms with equal-sized motorcoach and school bus operations, and 2,157 bus firms with no vehicle information.

Source: FMCSA MCMIS, 2000.

Safety

Fatalities, injuries, and crashes for the three industries were compared. The fatality data are regarded as representing true population totals (all interstate and intrastate, for-hire, and private), and the injury and crash data are national estimates based on representative samples. The data on motorcoach injuries and crashes include transit buses, which are not regulated by FMCSA. The data on school bus injuries include those owned by school bus districts, school bus contractors, and other vehicles used as school buses. Further review of the Fatality Analysis Reporting System and General Estimates System files may provide additional refinement of this data. Because the number of fatalities for the motorcoach and school bus industries is relatively small compared to the number of fatalities for the trucking industry, the motorcoach and school bus indices appear more sensitive to year-to-year fluctuations when graphed.

Revenues and Expenses

The synthesis report compared operating revenues and expenses for the motorcoach and trucking industries, based on Bureau of Transportation Statistics (BTS) datasets from 1994 to 2002. Only about one-third of school bus operations are handled by private companies, and data on these companies are not collected by BTS or other organizations. Consequently, data for only one school bus company could be obtained, based on tax filings with the Securities and Exchange Commission. The average operating ratio of the nation's largest motorcoach companies from 1994 to 2001 was 98 percent, and that of the largest trucking operators was 95 percent. This implies that trucking operations are slightly more profitable than motorcoach operations. Between 1993 and 1997, the average operating ratio of the single bus operator was 84 percent. However, this statistic does not represent the industry average.

Driver Qualifications for Employment

An analysis for the employment qualifications for motorcoach, school bus, and truck drivers was examined. All three types of drivers generally must obtain a Commercial Driver's License, be 21 years of age, pass a physical examination if transporting passengers or goods across State lines, submit to random drug and alcohol testing, speak English well enough to read road signs, pass an FMCSA written examination, and have no criminal record involving drunk driving, drug use, or hit-and-run driving.

Sources of Revenues

The sources of revenues for each of the three industries were examined as well. The trucking data only included for-hire trucking companies with greater than \$3 million in annual revenue. Of the three, the school bus industry depends the most heavily on a single source of revenue (public school contracts).

Driver Compensation

As shown in Table 2, truck drivers on average earn a higher hourly wage than both school bus drivers and motorcoach drivers. The school bus data include district drivers as well as contractor drivers.

Table 2: Comparison of driver compensation.

Driver	Hourly Wage Rates
Motorcoach	\$10.64 – \$15.15
School Bus	\$10.77 – \$12.98
Truck	\$11.48 – \$15.97

Note: Wages are national medians except for the upper school bus driver compensation limit, which is an average.

Source: American Bus Association, Destinations magazine, “2001 Industry Survey”; Bureau of Labor Statistics Occupational Outlook Handbook, 2004–2005 Edition; School Bus Fleet, “2003 Contractor Survey.”

Driver Duties

The typical duties of motorcoach, school bus, and truck drivers were compared. All three types of drivers are responsible for inspecting their vehicle before starting off for the day’s run, and for remaining alert in order to prevent crashes while driving. Some truck drivers perform customer service duties, such as taking orders, collecting payments, selling goods, or soliciting new orders. Motorcoach drivers often must interact with customers and tour guides in order to help make the trip more comfortable and informative, and school bus drivers must maintain order and enforce discipline on the bus. School bus drivers have a particular responsibility for passenger safety, as young children are often not yet trained to exercise caution in and around moving vehicles.

Operating Costs per Mile

Operating costs per mile were not available for the school bus industry. Table 3 shows that operating costs per mile for the trucking industry are about \$0.17 higher than those for the motorcoach industry.

Table 3: Comparison of operating costs per mile

Driver	Operating Costs per Mile
Motorcoach	\$1.90
School Bus	Further analysis required
Truck	\$2.07

Source: American Bus Association, Destinations magazine, “2001 Industry Survey”; American Trucking Associations, Inc., American Trucking Trends 2003

Availability: The synthesis report "Operational Differences and Similarities among the Motorcoach, School Bus, and Trucking Industries" is available at the Transportation Research Board and can be found at www.trb.org.

Key Words: Bus, CMV, Carrier Safety, Commercial Motor Vehicle, Motorcoach, Truck

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Vehicle Sales

Annual sales of motorcoaches, school buses, and large trucks increased during the 1990s, then began to decline toward the end of the decade. Sales of large trucks number in the hundreds of thousands, far exceeding sales of the other two vehicle types. In 2002, large truck sales outnumbered school bus sales 10:1, and motorcoach sales 168:1.

Trends in Revenue

Revenue data are not available for the motorcoach industry, but are available for public school bus contractors and trucking operators with at least \$3 million in annual revenue, except household good carriers. The information presented in the synthesis report show that since 1991, public school districts have increased their spending on bus services by 26 percent in inflation-adjusted dollars. Meanwhile, large for-hire trucking firms saw their annual revenues fall during the mid-1990s, then rise 13 percent above their 1991 level.

Passenger- and Ton-Miles

Because of differences in reporting methods, trends in passenger- and ton-miles across the three industries are not readily comparable. Data on motorcoach passenger-miles are available from different sources before and after 2000, while school bus data are reported in terms of the number of public students transported only. For the years 1991 – 2000, the number of students transported increased 13 percent, and truck ton-miles increased 29 percent.

Note that transit buses are not included in this synthesis. Comprehensive statistics on the transit industry are available from the Federal Transit Administration's National Transit Database, at www.ntdprogram.com.