

An Analysis of the Operational Costs of Trucking: 2022 Update

August 2022



Prepared by the American Transportation Research Institute

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ACRONYMS

ATRI	American Transportation Research Institute
ATA	American Trucking Associations
BLS	Bureau of Labor Statistics
CNG	Compressed Natural Gas
CPM	Cost per Mile
CPH	Cost per Hour
EIA	U.S. Energy Information Administration
FMI	Freight Mobility Initiative
IFTA	International Fuel Tax Agreement
LNG	Liquefied Natural Gas
LTL	Less-than-Truckload
MPG	Miles per Gallon
MPH	Miles per Hour
NPTC	National Private Truck Council
Ops Costs	Operational Costs of Trucking
QCEW	Quarterly Census of Employment and Wages
RAC	Research Advisory Committee
SIRs	Self-Insurance Retentions
STA	State Trucking Associations
TL	Truckload
U.S. DOT	United States Department of Transportation
VMT	Vehicle Miles Traveled

INTRODUCTION

The American Transportation Research Institute (ATRI) has published *An Analysis of the Operational Costs of Trucking* since 2008, when ATRI's Research Advisory Committee (RAC) identified the need for accurate marginal cost data as a top priority.¹ Since then, ATRI has continued to expand the report on an annual basis in consultation with industry experts.

This year's report, based on motor carrier financial and operational data from 2021, had a record number of industry participants. It is being released earlier in the year in order to provide more timely information for industry decision makers.

Amid a variety of supply chain challenges, parts shortages and rising inflation, 2021 had the highest trucking industry costs on record.

RESEARCH OBJECTIVE

ATRI's *Operational Costs of Trucking* or "Ops Costs" report fulfills the ongoing need for accurate, public, and actionable insights into operational costs in the for-hire trucking industry as well as its partners in the public and private sectors. Marginal line-item costs, calculated on per-mile and per-hour bases, are the centerpiece of the report. To understand how costs change over time, these metrics are compared year-over-year. Additional metrics have been calculated to address other critical concerns pertaining to drivers, equipment, efficiency, and revenue.

METHODOLOGY

ATRI's Ops Costs utilizes real-world data obtained directly from motor carriers and owner-operators, supplemented with federal sources where noted. The data collection process ensures the confidentiality of all submissions, and the resulting data is presented in aggregate form only. ATRI enters into non-disclosure agreements with participants upon request.

The methodology for collecting and analyzing motor carrier operational data has remained consistent to ensure year-to-year comparability. Motor carriers are asked to provide a variety of data including fleet demographics, driver compensation, and line-item costs per mile (or per hour) for numerous cost centers. The 2022 data collection form can be found in the Appendix.

This year's data collection form introduced the following updates:

- Respondents were asked to report exact trucking-related annual revenue rather than selecting from pre-set ranges (#3).
- All sub-questions related to the compensation of leased drivers operating company trucks were removed (#24, #25).
- The 1-4 Power Unit and 5-25 Power Unit fleet size categories have been merged to create more balanced categories while maintaining internal consistency.

This year's data collection form included multiple new questions:

- A question was added to ascertain carriers' operating or profit margin (#4).
- A question was added to ascertain annualized driver turnover rate (#12).

¹ ATRI's Research Advisory Committee RAC is comprised of industry stakeholders representing motor carriers, trucking industry suppliers, federal government agencies, labor and driver groups, law enforcement, and academia. The RAC is charged with annually recommending a research agenda for the Institute.

- A question was added to ascertain the percentage of total International Fuel Tax Agreement (IFTA) miles occurring on U.S. toll roads (#20).
- A question was added to ascertain the average total dwell time per stop at shipper/receiver facilities (#21).
- A question was added to ascertain whether drivers are compensated for truck parking, how, and how much (#22).

Data collection began in March 2022 and concluded in June 2022. ATRI solicited participation through ATRI database emails, media coverage from industry trade press, and trade organizations such as the 50 State Trucking Associations (STA). Respondents were able to submit data via email, fax, or a secure online portal. ATRI staff reviewed each submission and contacted participants regarding any outlier data.² They also worked with industry experts to corroborate and interpret marginal costs.

ATRI uses the same cost centers each year in order to facilitate year-over-year operational cost comparisons. These line-item costs fall into two categories:

- Vehicle-based
 - Fuel
 - Truck/Trailer Lease or Purchase Payments
 - Repair and Maintenance Costs
 - Truck Insurance Premiums
 - Permits and Special Licenses, only if a carrier paid for permits or licenses
 - Tolls, only if a carrier paid tolls
- Driver-based
 - Wages
 - Benefits, only if a carrier paid benefits

Though these general categories are consistent across the trucking industry, business models and marginal costs vary from one sector of the trucking industry to the next. Cost metrics are subdivided by fleet size, sector, and region of operation to provide more detailed insights. The report identifies specific trends where they are significant, such as tanker carriers' deadhead mileage or refrigerated carriers' dwell time. It also indicates relationships between cost centers and other factors that can cause variations in marginal costs.

To produce industry-wide marginal cost per mile (CPM) averages, ATRI weights respondent data to better reflect sector representation, thus documenting the industry market share of each sector. Table 1 compares the percentage of total drivers in each sector between ATRI Ops Costs respondents and industry employment data supplied by the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW). Truckload (TL) carriers are underrepresented in the dataset, while Less-Than-Truckload (LTL) are overrepresented.

² To ensure reliability, individual data points were excluded as outliers if they were three times the interquartile range less than the first quartile or three times the interquartile range more than the third quartile of a cost center.

Table 1: For-Hire Industry Sector Breakout

	ATRI Respondents	U.S Trucking Industry³
Truckload	26.0%	56.5%
Less-than-Truckload	55.5%	29.3%
Other/Specialized	18.5%	14.2%

CPM metrics were converted to cost per hour (CPH) metrics through an average speed derived from the U.S. Bureau of Transportation Statistics/ATRI Freight Mobility Initiative (FMI) program.⁴ The truck GPS-based speed metric calculated for 2021 was 40.24 miles per hour (MPH). This figure is 0.4 MPH lower than in 2020, when less traffic and fewer slowdowns due to the COVID-19 pandemic led to unusually higher speeds. The average speed in 2021 was still 0.8 MPH higher than the average speed metric in 2017-2019.

ATRI also tracks a variety of other carrier costs and efficiency metrics. These include average driver bonuses by type and driver parking compensation as well as average dwell time, deadhead mileage, truck-to-trailer ratio, and annualized driver turnover.

RESPONDENT DEMOGRAPHICS

ATRI's Ops Costs report focuses on for-hire motor carriers. In 2021 for-hire carriers held 52.6 percent of the total trucking market share, while private carriers had a 43 percent market share.⁵ Thanks to an ongoing collaboration with the National Private Truck Council (NPTC), ATRI is able to compare cost metrics between for-hire and private fleets in the *NPTC Benchmarking Survey Report 2022*, which reflects data generated in 2021.⁶

Private fleets utilize very different business models than for-hire fleets: in 2021, 46 percent of NPTC respondents reported that customer service was the primary reason for operating their private fleet, and 79 percent reported operating as a cost center rather than a profit center.⁷ Nonetheless, private carriers are impacted by many of the same external factors as for-hire carriers, and there is some market overlap, with 55 percent of private fleets acquiring for-hire authority in 2021.

³ Quarterly Census of Employment and Wages, 2021 Third Quarter, U.S. Department of Transportation, Bureau of Labor Statistics, available online: <https://www.bls.gov/cew/>. SOC codes used were as follows: 484121 for truckload carriers, 484122 for less-than-truckload carriers, and 484230 for other/specialized carriers.

⁴ ATRI derived this speed by analyzing one full week of national FMI data in each of the four quarters in 2021 (the 12th to the 18th of February, May, August, and October). This dataset consisted of over 300 million truck speed data points with non-zero speeds. The 40.24 MPH figure is an update to the 40.62 MPH figure from 2020 that was used in last year's report. This speed figure represents an average operational speed since it includes speeds in all types of operational conditions, sectors, and locations.

⁵ *American Trucking Trends 2021*, American Trucking Associations (2021).

⁶ *Benchmarking Survey Report 2022*, National Private Truck Council (Aug. 2022). See <https://www.nptc.org/> for more information.

⁷ *Benchmarking Survey Report 2021*, National Private Truck Council (Aug. 2021).

Operation Size

ATRI’s 2022 report, which represents 2021 data, reflects 173,322 truck-tractors, 552,351 trailers, and over 14.6 billion vehicle miles traveled. As Figure 1 shows, a slight plurality of respondents operates between 26 and 100 power units, closely followed by fleets with 251 to 1,000 power units. Fleets with 1 to 25 power units, 101 to 250 power units, and 1,000 or more power units were approximately equally represented.

Figure 1: Respondent Fleet Size

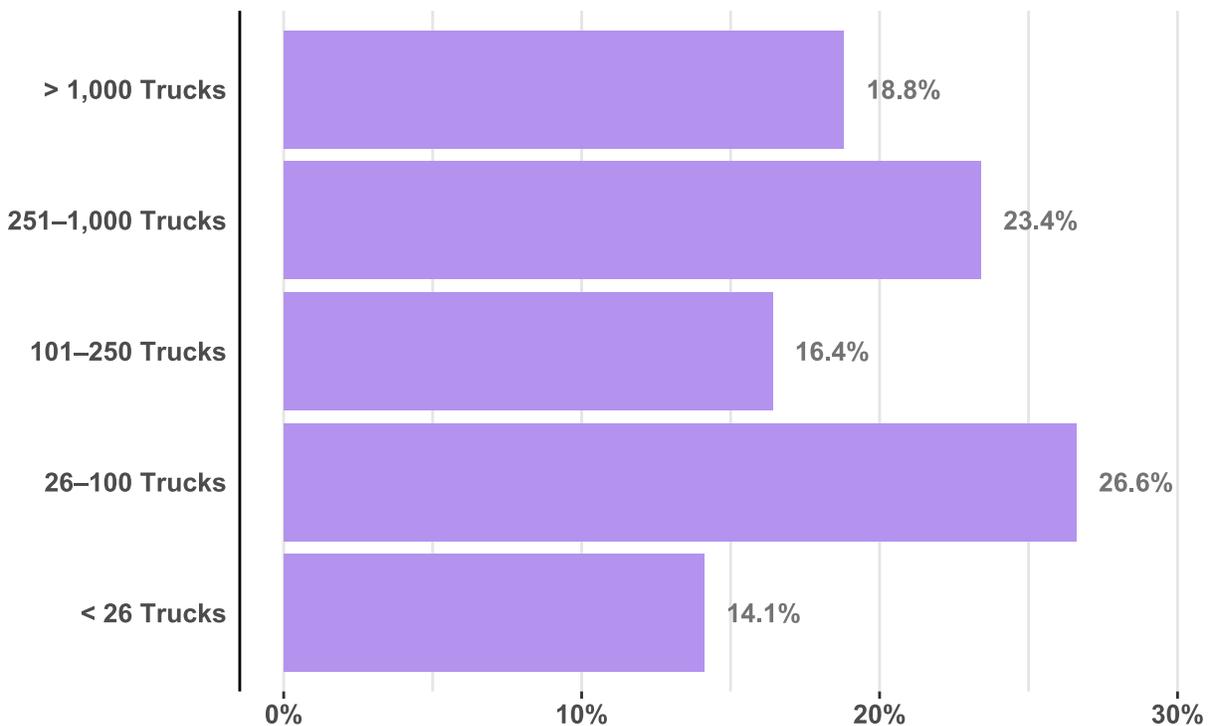
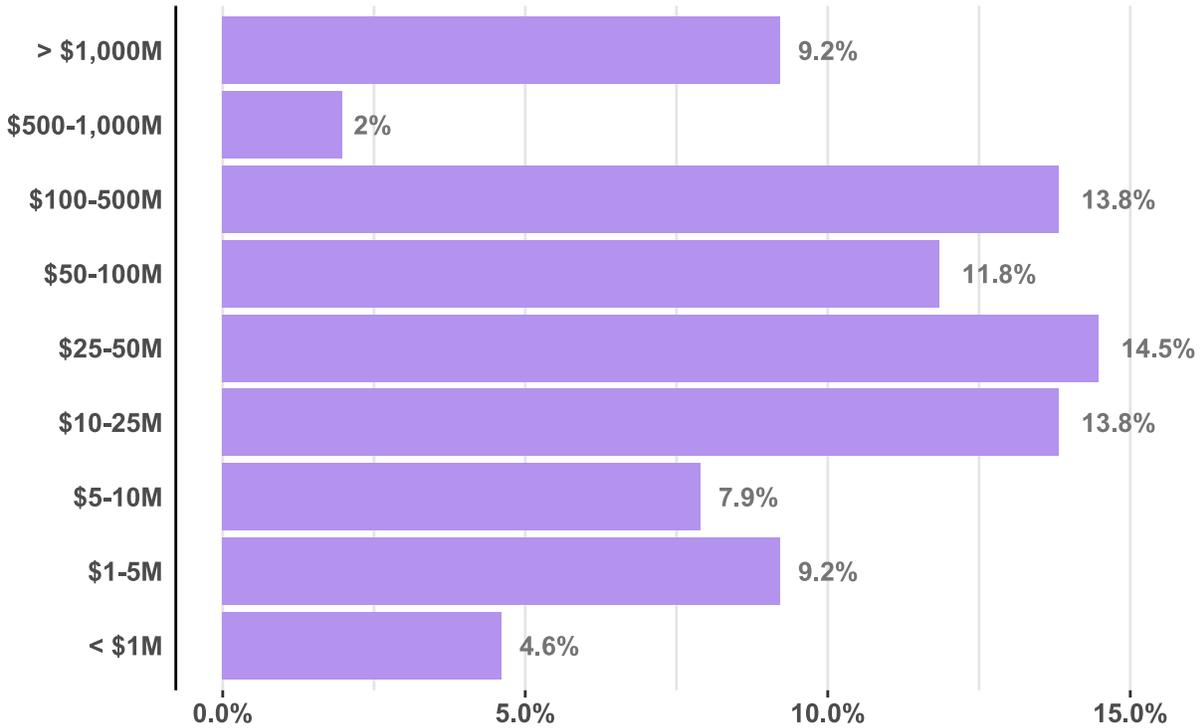


Figure 2 provides a breakdown of respondents by total trucking-related revenue, excluding brokerage or logistics revenue. A plurality of fleets had revenues between \$25 million and \$50 million.

Figure 2: Respondent Revenue



Operation Type

The last decade witnessed a trend toward shorter trip lengths; 2021 deviated from that trend. Inter-regional and national pick-ups and deliveries in the sample increased by several percentage points each, while the percentage of local pick-ups and deliveries declined (Table 2). This could reflect a normalization from COVID-19-related impacts, whereby truck trips shifted from long-haul and inter-regional toward local and regional trips.⁸ Private fleets also experienced an increase in average trip length to 242 miles per trip, the highest since 2018.

Table 2: Respondent Trip Types, 2018 to 2021

	2018	2019	2020	2021
Local (less than 100 miles)	26%	26%	32%	27%
Regional (100-500 miles)	37%	39%	37%	41%
Inter-regional (500-1,000 miles)	21%	22%	19%	24%
National (over 1,000 miles)	16%	13%	12%	17%

⁸ "COVID-19 Impacts on the Trucking Industry," American Transportation Research Institute and Owner-Operator Independent Driver Association Foundation (April 2020).

Table 3 compares the regional distribution of ATRI’s sample to that of the overall trucking industry using respondents’ percentage of IFTA miles and the percentage of total U.S. truck registrations. In the sample, vehicle miles traveled (VMT) were underrepresented in the Midwest and West and overrepresented in the Northeast and Southeast.

Table 3: Respondent Truck IFTA Miles and National Truck Registrations by Region

Region	Respondent Percent of IFTA Miles	Share of U.S. Truck-Tractor Registrations (2019) ⁹
Midwest	31.5%	40.2%
Northeast	12.5%	7.4%
Southeast	33.6%	19.4%
Southwest	15.0%	12.2%
West	17.9%	20.8%
Canada	3.9%	

Equipment

The trucking industry hauled 10.23 billion tons of freight in 2020, making up 72.5 percent of total domestic tonnage in the U.S.¹⁰ In that year, the total number of registered truck-tractors was 3.97 million.¹¹

Ops Costs demographic data for 2021 suggests that the industry is running equipment longer amid truck and parts shortages, as discussed in greater detail in the Equipment line-item analysis.

⁹ “Table MV-9: Truck and Truck-Tractor Registration – 2019,” 2019 Highway Statistics Series, Office of Highway Policy Information, Federal Highway Administration, United States Department of Transportation (Nov. 2020), available online: <https://www.fhwa.dot.gov/policyinformation/statistics/2019/pdf/mv9.pdf>.

¹⁰ *American Trucking Trends 2021*, American Trucking Associations (2021).

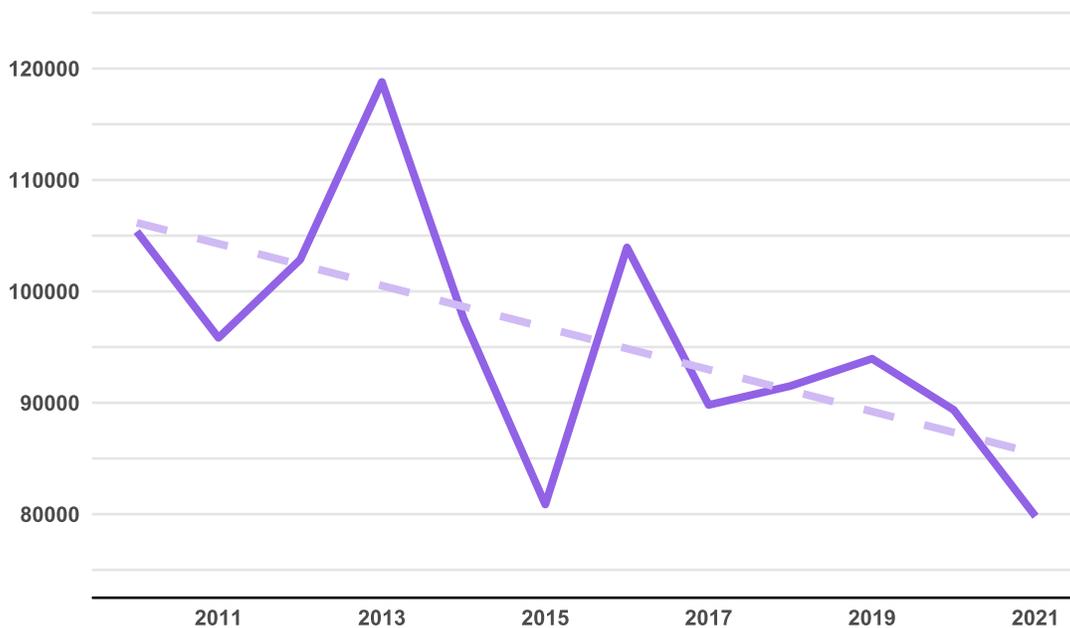
¹¹ *Ibid.*

Table 4: Respondent Equipment Characteristics

Equipment Type	Number of Units	Average Age (Years)	Average Miles Driven per Year per Truck
Truck-Tractors	173,322	5.7	79,808
28' Trailers	210,064	9.5	
33' Trailers	776	9.1	
45' Trailers	14,526	15.6	
48' Trailers	32,598	8.9	
53' Trailers	215,638	6.4	
Tank Trailer	24,381	16.6	
Flatbed Trailer	12,571	5.7	
Refrigerated Trailer	25,576	4.4	
Intermodal Trailers	9,872	5.4	
Other Trailers	6,349	13.8	
Total Trailers	552,351		

Table 4 shows that respondents' average truck-tractor age was 5.7 years old – the highest in over a decade. At the same time, the average number of miles driven annually per truck fell by almost 11 percent to 79,808. The average annual miles driven per truck has been trending downward over the past decade, as Figure 3 illustrates, but this decline accelerated during the COVID-19 pandemic.

Figure 3: Average Miles Driven per Year per Truck, 2010-2021



The average trailer age also increased in 2021 for every trailer type except flatbeds and intermodals chassis. The average trade cycle for trailers increased from 12.3 in 2020 to 15.4 (Table 5).

Respondents' average trade cycle for truck-tractors in 2021 was 8.7 years, holding steady at 2020's decade high. When measured by miles, however, the truck-tractor trade cycle declined to 594,373 miles. Since engine rebuilds now typically occur over 1 million miles for over-the-road trucks, most carriers appear to be turning trucks over well before a major expense milestone.

Table 5: Respondent Equipment Trade Cycle

Equipment Type	Average Number of Years Until Replacement	Average Miles Driven Until Replacement
Truck-Tractors	8.7	594,373
Trailers	15.4	

Alternative Fuels

Only seven percent of Ops Costs respondents used some form of alternative fuel in at least one truck in 2021. Of all alternative fuel types, compressed natural gas (CNG) has the highest adoption rate: 5.9 percent of respondents had at least one CNG-fueled truck (Table 6). The next highest alternative fuel type, battery electric, was utilized by 3.9 percent of carriers, while liquefied natural gas (LNG) usage was 2 percent. In almost all instances these trucks would be operated in local or regional delivery scenarios, based on existing technologies.¹²

Table 6: Use of Alternative Fuel Vehicles

Alternative Fuel Type	Percent of ATRI Ops Costs Respondents Using Alternative Fuels
CNG	5.9%
Battery Electric	3.9%
LNG	2.0%
LPG	0.7%
Hydrogen Fuel Cell	0%

The level of alternative fuel adoption remains limited; most fleets that use alternative fuels in Table 6 do so only in a very small number of trucks. For example, while there is increased focus on battery electric vehicles, only 0.048 percent of all trucks in this year's Ops Costs data were battery electric. Ninety-six percent of all sampled trucks using alternative fuels belong to three fleet respondents. Adoption levels are similar in private fleets, where only 8 percent of NPTC respondents reported using any vehicles powered by alternative fuels.

¹² Jeffrey Short and Danielle Crowover, *Understanding the CO₂ Impacts of Zero-Emission Trucks: A Comparative Life-Cycle Analysis of Battery Electric, Hydrogen Fuel Cell and Traditional Diesel Trucks*, American Transportation Research Institute, May 2022.

FINDINGS

The cost of trucking in 2021 increased to its highest level in the 15-year history of ATRI's Ops Costs: \$1.855 per mile. Though fuel saw the single largest jump in expense, nearly every other line-item cost center grew or remained constant. Even when fuel costs are removed, the marginal costs of trucking increased by 10 cents between 2020 and 2021, from \$1.338 to \$1.438. Table 7 shows per-mile costs for each cost center over the past ten years.

Costs per hour were \$74.65. Despite a slightly lower average truck operating speed than in 2020, costs per hour in 2021 also reached their highest levels recorded by ATRI. Table 8 shows per-hour costs for each cost center over the past ten years.

Table 7: Average Marginal Costs per Mile, 2012-2021

Motor Carrier Costs	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<i>Vehicle-based</i>										
Fuel Costs	\$0.641	\$0.645	\$0.583	\$0.403	\$0.336	\$0.368	\$0.433	\$0.384	\$0.308	\$0.417
Truck/Trailer Lease or Purchase Payments	\$0.174	\$0.163	\$0.215	\$0.230	\$0.255	\$0.264	\$0.265	\$0.256	\$0.271	\$0.279
Repair & Maintenance	\$0.138	\$0.148	\$0.158	\$0.156	\$0.166	\$0.167	\$0.171	\$0.149	\$0.148	\$0.175
Truck Insurance Premiums	\$0.063	\$0.064	\$0.071	\$0.074	\$0.075	\$0.075	\$0.084	\$0.071	\$0.087	\$0.086
Permits & Licenses	\$0.022	\$0.026	\$0.019	\$0.019	\$0.022	\$0.023	\$0.024	\$0.020	\$0.016	\$0.016
Tires	\$0.044	\$0.041	\$0.044	\$0.043	\$0.035	\$0.038	\$0.038	\$0.039	\$0.043	\$0.041
Tolls	\$0.019	\$0.019	\$0.023	\$0.020	\$0.024	\$0.027	\$0.030	\$0.035	\$0.037	\$0.032
<i>Driver-based</i>										
Driver Wages	\$0.417	\$0.440	\$0.462	\$0.499	\$0.523	\$0.557	\$0.596	\$0.554	\$0.566	\$0.627
Driver Benefits	\$0.116	\$0.129	\$0.129	\$0.131	\$0.155	\$0.172	\$0.180	\$0.190	\$0.171	\$0.182
TOTAL	\$1.633	\$1.676	\$1.703	\$1.575	\$1.592	\$1.691	\$1.821	\$1.699	\$1.646	\$1.855

Table 8: Average Marginal Costs per Hour, 2012-2021

Motor Carrier Costs	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<i>Vehicle-based</i>										
Fuel Costs	\$25.63	\$25.78	\$23.29	\$16.13	\$13.45	\$14.50	\$17.07	\$15.14	\$12.52	\$16.78
Truck/Trailer Lease or Purchase Payments	\$6.94	\$6.52	\$8.59	\$9.20	\$10.20	\$10.39	\$10.45	\$10.09	\$11.00	\$11.21
Repair & Maintenance	\$5.52	\$5.92	\$6.31	\$6.23	\$6.65	\$6.58	\$6.72	\$5.87	\$6.00	\$7.04
Truck Insurance Premiums	\$2.51	\$2.57	\$2.86	\$2.98	\$3.00	\$2.95	\$3.32	\$2.80	\$3.55	\$3.46
Permits & Licenses	\$0.88	\$1.04	\$0.76	\$0.78	\$0.88	\$0.92	\$0.95	\$0.79	\$0.67	\$0.64
Tires	\$1.76	\$1.65	\$1.76	\$1.72	\$1.41	\$1.50	\$1.50	\$1.54	\$1.73	\$1.67
Tolls	\$0.74	\$0.77	\$0.90	\$0.79	\$0.97	\$1.05	\$1.17	\$1.38	\$1.49	\$1.30
<i>Driver-based</i>										
Driver Wages	\$16.67	\$17.60	\$18.46	\$19.95	\$20.91	\$21.97	\$23.50	\$21.84	\$22.97	\$25.24
Driver Benefits	\$4.64	\$5.16	\$5.15	\$5.22	\$6.18	\$6.78	\$7.10	\$7.49	\$6.94	\$7.31
TOTAL	\$65.29	\$67.00	\$68.09	\$62.98	\$63.66	\$66.65	\$71.78	\$66.94	\$66.87	\$74.65

Truck and trailer lease or purchase costs set another record high in 2021. The same was true of repair and maintenance costs, which had the largest-ever annual spike as carriers faced unfavorable equipment markets. Within ATRI’s data set, insurance premium costs declined only slightly in 2021 – by a mere tenth of a cent, and tire costs declined by just two tenths of a cent. Table 9 shows the percentage change for each cost center between 2020 and 2021.

Driver wages and benefits costs both increased in 2021: wages reached a record high, while benefits corrected part of their 2020 decline. These figures do not include driver bonuses, which are discussed later.

Table 9: 2020-2021 Annual Change of Average Marginal Costs per Mile Among For-Hire and Private Fleets

Motor Carrier Costs	ATRI For-Hire Carriers	NPTC Private Carriers ¹³
<i>Vehicle-based</i>		
Fuel Costs	35.4%	27.8%
Truck/Trailer Lease or Purchase Payments	3.0%	11.1%
Repair & Maintenance	18.2%	- 6.9%
Truck Insurance Premiums	- 1.1%	- 27.3%
Permits & Licenses	0.0%	20.0%
Tires	- 4.7%	25.0%
Tolls	- 13.5%	(Not reported)
<i>Driver-based</i>		
Driver Wages	10.8%	14.7%
Driver Benefits	6.4%	19.2%
TOTAL	12.7%	8.3%

Private fleet costs increased from \$2.90 per mile in 2020 to \$3.14 per mile in 2021. NPTC metrics include “administrative” and “other” costs, however, each of which totaled \$0.32 cents. With these two line-items removed, the average total marginal cost for private fleets was \$2.50. Many private fleet marginal costs followed similar trends: fuel, driver wages, and driver benefits all increased significantly in 2021. Though private fleets spent considerably more per mile on truck and trailer purchases, this expense was partly offset by declining repair and maintenance costs. Private carriers saw a large decline in insurance premiums per mile, but this decline – from 11 cents in 2020 to 8 cents in 2021 – brought their average closer to that of for-hire carriers. Large percentage changes in line-items with low per-mile costs, such as tires or permits and licenses, reflect the fact that the NPTC report rounds by cents rather than tenths of a cent, as in ATRI’s Ops Costs.

The relative share for each line-item cost in 2021 remained consistent with recent years, as fuel costs returned to more typical levels. Though driver wages and repair and maintenance each increased by a large percent, they continued to make up the same share of the total marginal costs. These results are shown in Table 10.

¹³ *Benchmarking Survey Report 2022*, National Private Truck Council (Aug. 2022). See <https://www.nptc.org/> for more information.

Table 10: Share of Total Average Marginal Cost, 2013-2021

Motor Carrier Costs	2013	2014	2015	2016	2017	2018	2019	2020	2021
<i>Vehicle-based</i>									
Fuel Costs	38%	34%	26%	21%	22%	24%	24%	19%	22%
Truck/Trailer Lease or Purchase Payments	10%	13%	15%	16%	16%	15%	16%	17%	15%
Repair & Maintenance	9%	9%	10%	10%	10%	9%	9%	9%	9%
Truck Insurance Premiums	4%	4%	5%	5%	4%	5%	4%	5%	5%
Permits & Licenses	2%	1%	1%	1%	1%	1%	1%	1%	1%
Tires	2%	3%	3%	2%	2%	2%	2%	3%	2%
Tolls	1%	1%	1%	2%	2%	2%	2%	2%	2%
<i>Driver-based</i>									
Driver Wages	26%	27%	32%	33%	33%	33%	32%	34%	34%
Driver Benefits	8%	8%	8%	10%	10%	10%	10%	10%	10%
TOTAL	100%								

Sector Costs

Marginal costs vary by sector, as shown in Table 11. LTL carriers saw total average marginal costs increase by nearly 16 percent, the highest of any sector. Specialized carriers saw an increase of 10 percent, while truckload carriers saw an increase of 12 percent. The subsequent analysis of each line-item includes cost breakdowns by fleet size for the truckload and specialized sectors.

Table 11: Average Total Marginal Costs by Sector, 2012-2021

Sector	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
LTL	\$1.79	\$1.84	\$1.83	\$1.60	\$1.74	\$1.84	\$1.92	\$1.85	\$1.72	\$1.99
Specialized	\$1.73	\$1.67	\$1.85	\$1.72	\$1.83	\$1.95	\$2.02	\$1.85	\$1.82	\$2.01
TL	\$1.51	\$1.60	\$1.58	\$1.50	\$1.42	\$1.49	\$1.71	\$1.55	\$1.56	\$1.74

The NPTC report found that private fleet bulk/tank operations had the highest per-mile costs on average at \$3.83 per mile. Private fleet van operations averaged \$2.80 in costs per mile.

Regional Costs

Carrier costs are impacted by the regions in which they primarily operate. Table 12 depicts these differences as weighted by each respondent carrier's share of IFTA miles traveled per region.

Table 12: Average Marginal Cost per Mile by Region, 2021

Motor Carrier Costs	Midwest	Northeast	Southeast	Southwest	West
<i>Vehicle-based</i>					
Fuel Costs	\$0.413	\$0.417	\$0.407	\$0.406	\$0.431
Truck/Trailer Lease or Purchase Payments	\$0.286	\$0.283	\$0.276	\$0.254	\$0.304
Repair & Maintenance	\$0.177	\$0.175	\$0.174	\$0.170	\$0.156
Truck Insurance Premiums	\$0.085	\$0.084	\$0.094	\$0.092	\$0.076
Permits & Licenses	\$0.016	\$0.018	\$0.017	\$0.015	\$0.011
Tires	\$0.038	\$0.040	\$0.043	\$0.045	\$0.042
Tolls	\$0.036	\$0.048	\$0.028	\$0.030	\$0.023
<i>Driver-based</i>					
Driver Wages	\$0.634	\$0.654	\$0.623	\$0.604	\$0.595
Driver Benefits	\$0.176	\$0.173	\$0.199	\$0.195	\$0.164
TOTAL	\$1.861	\$1.892	\$1.861	\$1.811	\$1.802

The Northeast, as is typically the case, had the highest total average marginal costs at \$1.892 per mile. This was due to the Northeast region’s typically higher-than-average driver wage and toll costs.

The West had the lowest total average marginal costs at \$1.802 per mile, although it had the highest costs for fuel and truck and trailer lease or purchase costs. Higher truck and trailer lease or purchase costs in this region were partly offset by lower average repair and maintenance costs relative to the rest of the country.

Insurance costs were highest in the Southeast, where they were almost one cent per mile higher than the national average. Several of the most litigious states in the country are located in the Southeast.¹⁴ The Southeast also had the highest driver benefits costs per mile, followed by the Southwest.

The Midwest had the highest repair and maintenance costs, though the region’s other costs tended to closely follow national averages.

The difference between the total average marginal costs for the highest and lowest regions amounted to 9 cents or 5 percent in 2021, suggesting that the impacts on costs in 2021 were relatively consistent across the country.

¹⁴ Alex Leslie and Claire Evans, *The Impacts of Small Verdicts and Settlements on the Trucking Industry*, American Transportation Research Institute (Nov. 2021).

Fleet Size

The vast majority of carriers registered with the United States Department of Transportation (U.S. DOT) – 97.4 percent – fewer than 20 power units.¹⁵ With less bargaining power and fewer economies of scale, smaller fleets encounter higher costs per mile. Table 13 compares each cost center for small carriers (100 or fewer power units) and large carriers (more than 100 power units) in 2020 and 2021.

Table 13: Average Marginal Cost per Mile by Fleet Size

Motor Carrier Costs	Small Carriers 2020	Small Carriers 2021	Large Carriers 2020	Large Carriers 2021
<i>Vehicle-based</i>				
Fuel Costs	\$0.326	\$0.444	\$0.293	\$0.408
Truck/Trailer Lease or Purchase Payments	\$0.307	\$0.305	\$0.248	\$0.279
Repair & Maintenance	\$0.174	\$0.197	\$0.128	\$0.161
Truck Insurance Premiums	\$0.122	\$0.102	\$0.068	\$0.082
Permits and Licenses	\$0.020	\$0.016	\$0.015	\$0.016
Tires	\$0.055	\$0.047	\$0.035	\$0.040
Tolls	\$0.037	\$0.031	\$0.036	\$0.031
<i>Driver-based</i>				
Driver Wages	\$0.580	\$0.603	\$0.556	\$0.629
Driver Benefits	\$0.117	\$0.135	\$0.196	\$0.185
TOTAL	\$1.738	\$1.880	\$1.575	\$1.831

The total average marginal cost for small fleets was 4.9 cents higher than for large fleets. This cost difference decreased by 70 percent from 2020, when the difference in total average marginal cost between small and large fleets was 16.3 cents. Most cost center trends were consistent across small and large fleets. There were a few line-items however – insurance premiums and tires – where small carrier costs came down from high 2020 levels while still remaining higher than large carrier costs.

Large carrier driver wages per mile were once again higher than small carrier driver wages in 2021, after briefly being surpassed by small carrier driver wages in 2020. Driver benefits spending increased among small carriers while declining among large carriers, though large carriers still spent more in this cost center.

¹⁵ 2022 American Trucking Trends, American Trucking Associations, 2022.

Line-Item Analyses

Driver Compensation

Carriers spent \$0.809 per mile on average on driver pay and benefits in 2021. As shown in Table 7, this year’s total driver compensation surpassed 2018 as the highest recorded.

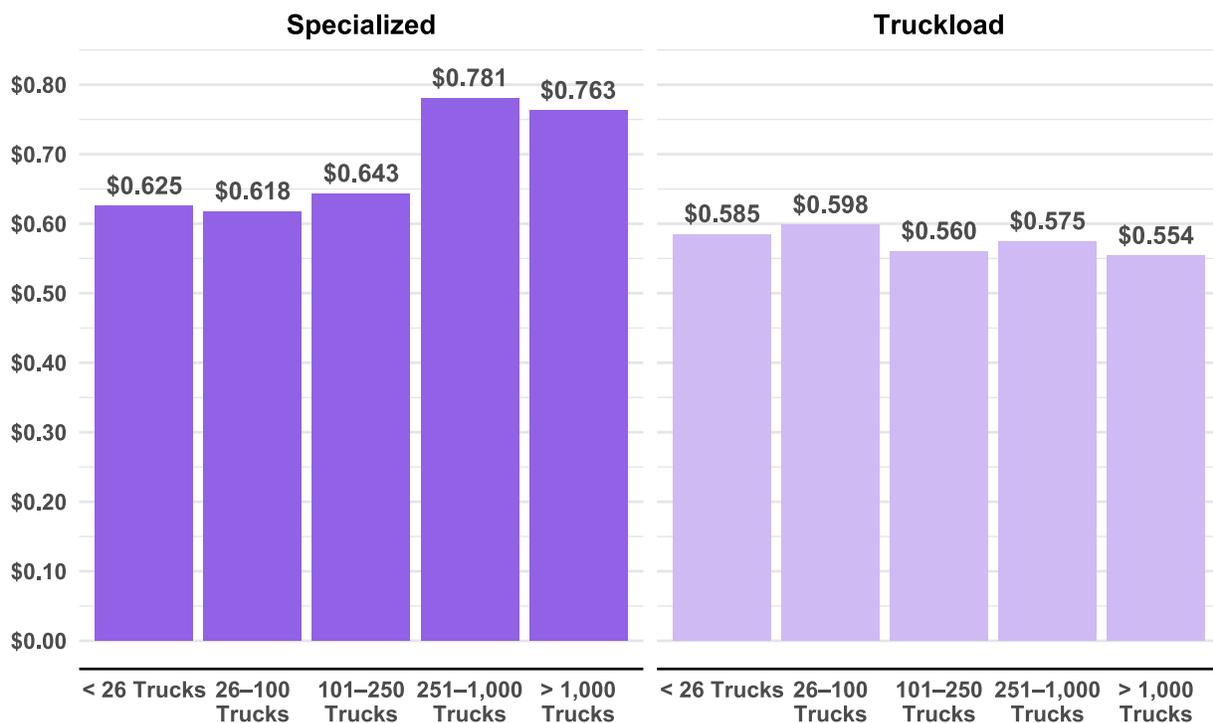
Total driver compensation was highest among LTL fleets, which spent a total of \$0.987 per mile on average or 22 percent more than the overall average. Specialized carriers spent \$0.847 per mile on driver compensation, 5 percent more than the overall average.

Driver Wages

Figure 4 details company driver wages per mile by sector and fleet size. Among truckload carriers, wages tended to decrease on average with increasing fleet size. Though almost all fleet size groups had higher average driver wages in 2021 than in 2020, the larger fleet size groups nonetheless increased driver wages by a greater amount.

Specialized carriers’ driver wages tended to increase with increasing fleet size. Small specialized fleets and small truckload fleets have comparable driver wages per mile, though small specialized fleets’ driver wages per mile are slightly higher.

Figure 4: Driver Wages per Mile by Fleet Sector and Size



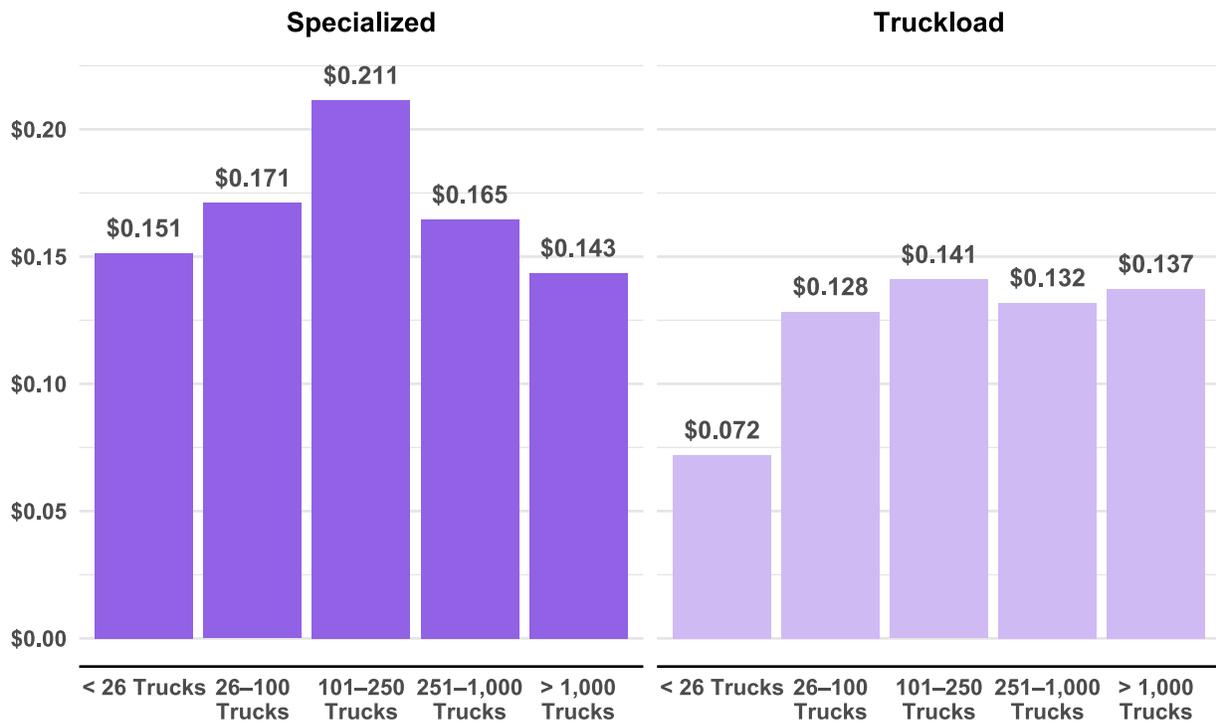
LTL carriers are not included in this report’s fleet size breakdowns because their fleet sizes rarely fall below 250 tractor-trailers. LTL carriers paid 70.2 cents per mile in driver wages on average, more than all but the largest two specialized fleet size bins.

Driver Benefits

As Figure 5 shows, benefits in the truckload sector tended to increase with fleet size among those carriers that offered benefits, albeit slightly. Thirteen percent of truckload carriers did not offer benefits.

Specialized carriers of every size spent more on driver benefits than truckload carriers of every size. Specialized carrier benefits costs peaked in the 101 to 250 truck category. Twelve percent of specialized carriers did not offer benefits.

Figure 5: Driver Benefits per Mile by Fleet Sector and Size

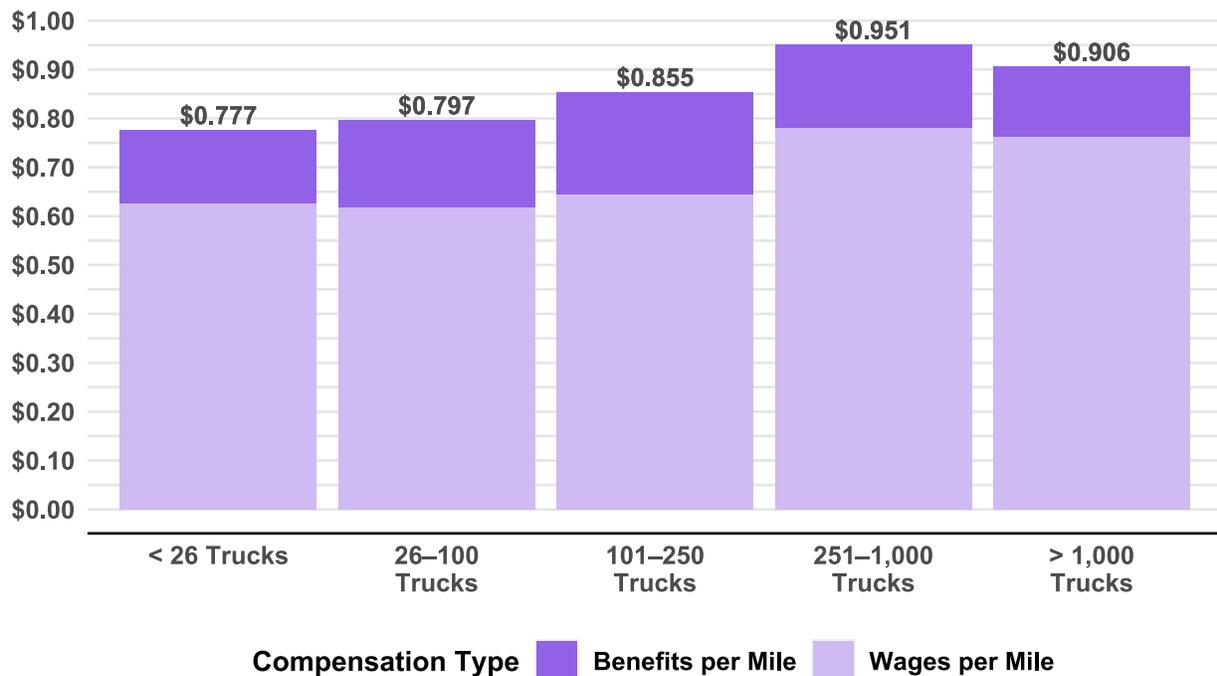


LTL carriers paid 18.1 cents per mile in driver benefits, more than all fleet sector and size bins in Figure 5 except one.

Combined Wages and Benefits Analysis

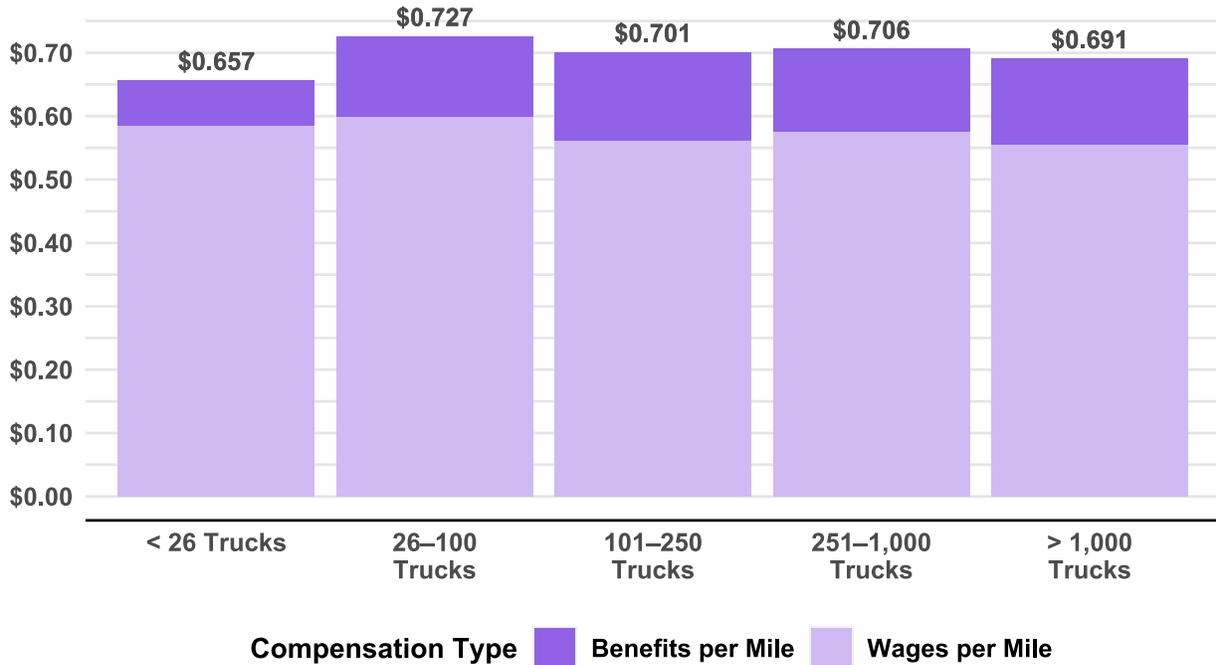
High average wages among the largest specialized fleets (more than 250 trucks) result in higher total driver compensation than small specialized fleets, despite the fact large specialized fleets on average do not spend more on benefits than small specialized fleets. As Figure 6 depicts, these two largest fleet size bins spend considerably more on total compensation than the two smallest fleet size bins (100 or fewer trucks).

Figure 6: Specialized Carrier Driver Wages and Benefits per Mile by Fleet Size



The tendency for larger fleets to offer higher total driver compensation is not identifiable in the truckload sector, where higher benefits spending among large fleets is offset by lower wages spending. As Figure 7 depicts, total compensation tends to decline on average in truckload fleets with more than 100 trucks. This pattern was also observed to a greater degree in last year's Ops Costs report.

Figure 7: Truckload Driver Wages and Benefits per Mile by Fleet Size



Driver Benefits Breakdown

The specific benefits offered to drivers vary from carrier to carrier. Health insurance was the most common benefit, with 93 percent of carriers offering it to drivers (Table 14).

The American Trucking Associations’ (ATA) 2022 *Driver Compensation Study* found that 95 percent of truckload carriers offered health insurance, 89 percent offered paid leave, and 88 percent offered 401(k) plans to employee drivers.¹⁶ ATRI’s respondents reported comparable though slightly lower percentages.

Table 14: ATRI Ops Costs Respondent Driver Benefits Offered

Benefit	Percent Offered
Health Insurance	93%
Paid Vacation	87%
Dental Insurance	84%
401(k)	82%
Vision Insurance	74%
Per Diem	52%
Paid Sick Leave	43%

¹⁶ Lindsay Bur and Bob Costello, *ATA 2022 Driver Compensation Study*, American Trucking Associations (June 2022).

Almost every benefit was offered by a higher percentage of Ops Costs respondents in 2021 than in 2020 – with the exception of paid vacation and paid sick leave, which dropped 5 and 4 percentage points respectively. The decline of these two benefits, each a form of paid time off work, may be the result of the staffing difficulties or driver shortages faced by many carriers.

Contracted Drivers

On average, 16 percent of respondents' drivers were contracted owner-operators. Owner-operator utilization varies significantly based on each carriers' business model. The fact that this average has grown for each of the last three years, however, suggests that owner-operator utilization is on the rise in the industry.

Owner-operator wages also grew for the third straight year to \$1.81 per mile, as Table 15 shows. The simultaneous increase in owner-operator utilization and wages may be the result of combined high demand and limited capacity during 2021. Because of spot market rate increases over 2021, many company drivers migrated to an owner-operator model.

Table 15: Contracted Owner-Operator Pay per Mile

2015	2016	2017	2018	2019	2020	2021
\$1.52	\$1.37	\$1.31	\$0.99	\$1.36	\$1.65	\$1.81

Driver Bonuses

A majority of carriers offered bonuses to drivers in 2021. Bonuses are designed to reward and incentivize driver behaviors. As such, carriers pay bonuses in a variety of ways: annually, per-mile, per-benchmark, per-event, etc. Table 16 tracks the average bonus size for the three most common bonus types – safety, starting, and retention – for the carriers that offered them.¹⁷

Table 16: Single Driver Bonus Pay by Type

Bonus Type	2018	2019	2020	2021
Safety	\$1,238	\$1,373	\$1,597	\$1,943
Starting	\$1,562	\$1,846	\$1,662	\$1,974
Retention	\$672	\$1,218	\$1,391	\$1,055

Starting bonuses in 2021 continued to have the highest average dollar amount, and the average safety bonus continued to grow. Retention bonuses declined in 2021, though it should be noted that many carriers' retention bonuses increase with the number of years that a driver has been with the carrier. Despite being smaller than starting bonuses, safety and retention bonuses are a potentially greater source of driver income because they are offered on a recurring basis rather than just once.

¹⁷ Bonuses reported on an average per-mile basis were annualized based on the carrier's average miles driven per truck.

The most common bonuses not included in Table 16 were fuel economy bonuses, referral bonuses, and overall performance bonuses.

Parking Compensation

As previously noted, parking compensation was added to the data collection form for the first time this year. The truck parking shortage has long been a top concern among drivers, and amid mounting supply chain difficulties in 2021, the general media and politicians have begun paying greater attention to this issue too.¹⁸

Forty percent of truckload carrier respondents offer driver reimbursements for truck parking, while an additional 14 percent compensate for truck parking in advance through reservations, pre-paid cards, etc. Forty-six percent of truckload carriers do not compensate drivers for truck parking expenses.

Twenty-one percent of specialized carrier respondents offer driver reimbursements for truck parking, while an additional 8 percent compensate for truck parking in advance through reservations, pre-paid cards, etc. Seventy-one percent of specialized carriers do not compensate drivers for truck parking expenses.

The percentage of carriers that compensate drivers for truck parking has risen significantly since 2016, when an ATRI study of over 650 drivers primarily in the truckload sector found that 15 percent of drivers had reservation fees covered by their carrier.¹⁹ As truck parking demand increases, covering truck parking reservation fees is one potentially effective strategy for addressing driver shortage and retention issues.²⁰

Looking Ahead

Driver compensation is rising at a rapid pace across the industry. One important question for carriers is how sustainable this growth will prove to be as consumer spending and rates begin to cool. From 2020 to 2021, the average driver wage per-mile increased by 10.8 percent (see Table 9). This increase was 3.8 percentage points higher than the 7 percent consumer inflation rate during the same period. Much of the driver wage raises in 2022 will be undercut by consumer inflation, which was up 9.1 percent year-over-year in June 2022.²¹

BLS data recorded a 2021 mean heavy truck driver annual wage of \$52,240 across the entire truck transportation industry, up 5.7 percent from 2020.²² This rate of increase exceeded that of all BLS-monitored industries, which was 4.4 percent during the same period, though data also suggests that wages are increasing at a greater rate in industries that compete with trucking for labor.²³ Though driver wages saw record growth last year, compensation in the trucking

¹⁸ Eugene Mulero, "House Committee Approves Truck Parking Bill," *Transport Topics* (July 20, 2022), <https://www.ttnews.com/articles/house-committee-approves-truck-parking-bill>.

¹⁹ Caroline Boris and Rebecca M. Brewster, *Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries*, American Transportation Research Institute, Dec. 2016.

²⁰ Ibid.

²¹ Olivia Rockeman, "US Inflation Quickens to 9.1%, Amping Up Fed Pressure to Go Big," *Bloomberg* (July 13, 2022), <https://www.bloomberg.com/news/articles/2022-07-13/us-inflation-accelerates-to-9-1-once-again-exceeding-forecasts>.

²² Occupational Employment and Wage Statistics, May 2021 Period, U.S. Bureau of Labor Statistics, accessed July 2022, <https://www.bls.gov/oes/current/oes533032.htm>.

²³ "Employment Cost Index News Release," Bureau of Labor Statistics (January 22, 2022), https://www.bls.gov/news.release/archives/eci_01282022.htm; Issi Romem and Nela Richardson, "The Geography of

industry must exceed other industries amid nationwide wage increases if the industry is to remain competitive and counteract driver shortages.

As a share of total marginal costs, though, driver compensation has remained largely consistent in the last five years: the share of driver wages and driver benefits costs combined has fluctuated between 42 and 44 percent over that time period (see Table 10).

At the same time, many carriers are learning that higher compensation alone is not enough to avoid driver shortages as work and lifestyle priorities change.²⁴ In recent research on integrating younger adults into trucking careers, ATRI found that 60 percent of Millennial and Gen Z drivers chose to enter the industry for reasons other than pay, including a stable career path, work/life balance, and benefits.²⁵

Fuel Costs

Fuel costs were 35.4 percent higher in 2021 than in 2020, erasing the 19.8 percent COVID-19-related drop in fuel costs between 2019 and 2020. The increase in fuel expenses was higher than that of any other marginal cost.

On-highway diesel prices rose sharply by 52 cents per gallon in the first quarter of 2021 before settling into a more gradual increase until October, when they rose 30 cents to close the year.²⁶ Figure 8 tracks this movement in a broader context from 2018 to June 2022 with data from the U.S. Department of Energy's Energy Information Administration (EIA).²⁷

Recent Wage Growth," ADP Research Institute (July 2022), <https://www.adpri.org/wp-content/uploads/2022/07/2022JUL-Geography-of-US-Wage-Growth-Research-Note-1.pdf>; "Fast Facts: 8 Facts About Wage Gains," Joint Economic Committee (April 26, 2022), <https://www.jec.senate.gov/public/index.cfm/democrats/fact-sheets/?id=D86FC2D8-88B9-40F8-8953-12DAEAFE7B8D>.

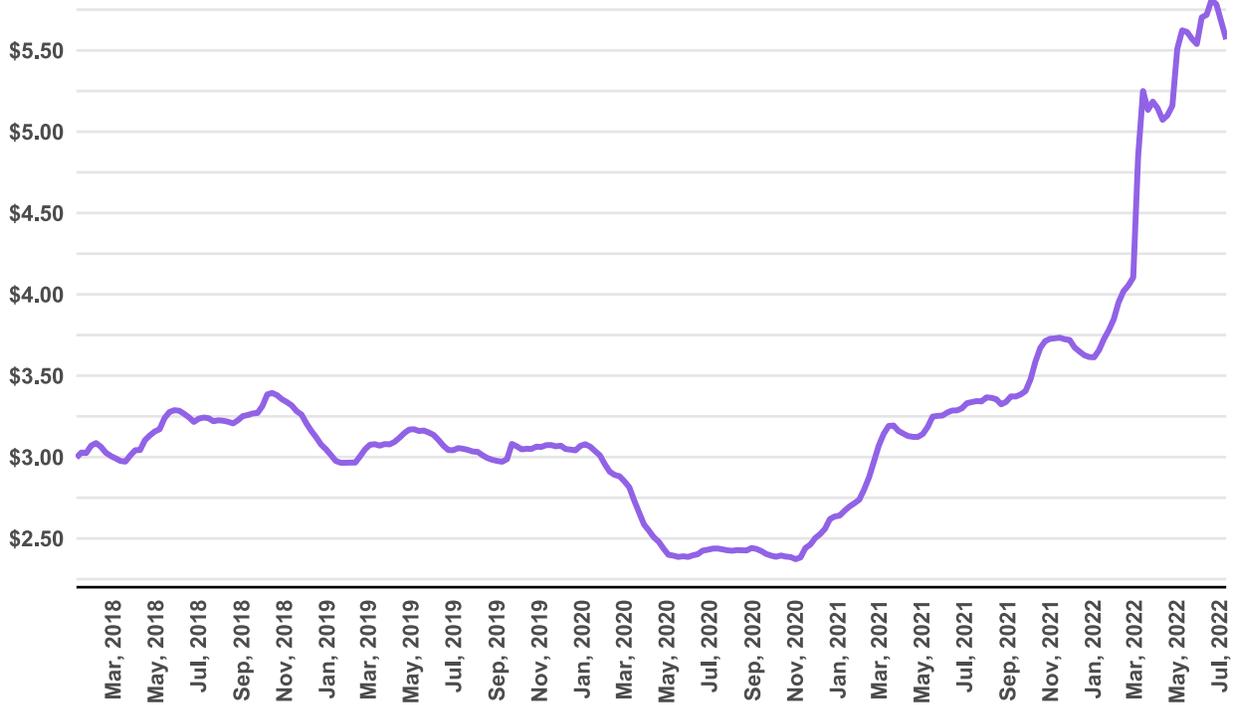
²⁴ Katie Pyzyk, "Fleets Find That Rising Pay Doesn't Solve Driver Shortage," *Transport Topics* (Jan. 10, 2022), <https://www.ttnews.com/articles/fleets-find-raising-pay-doesnt-solve-driver-shortage>.

²⁵ Alex Leslie and Danielle Crownover, *Integrating Younger Adults into Trucking Careers*, American Transportation Research Institute (July 2022).

²⁶ Weekly Retail Gas and Diesel Prices, U.S. Energy Information Administration, available online: https://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm.

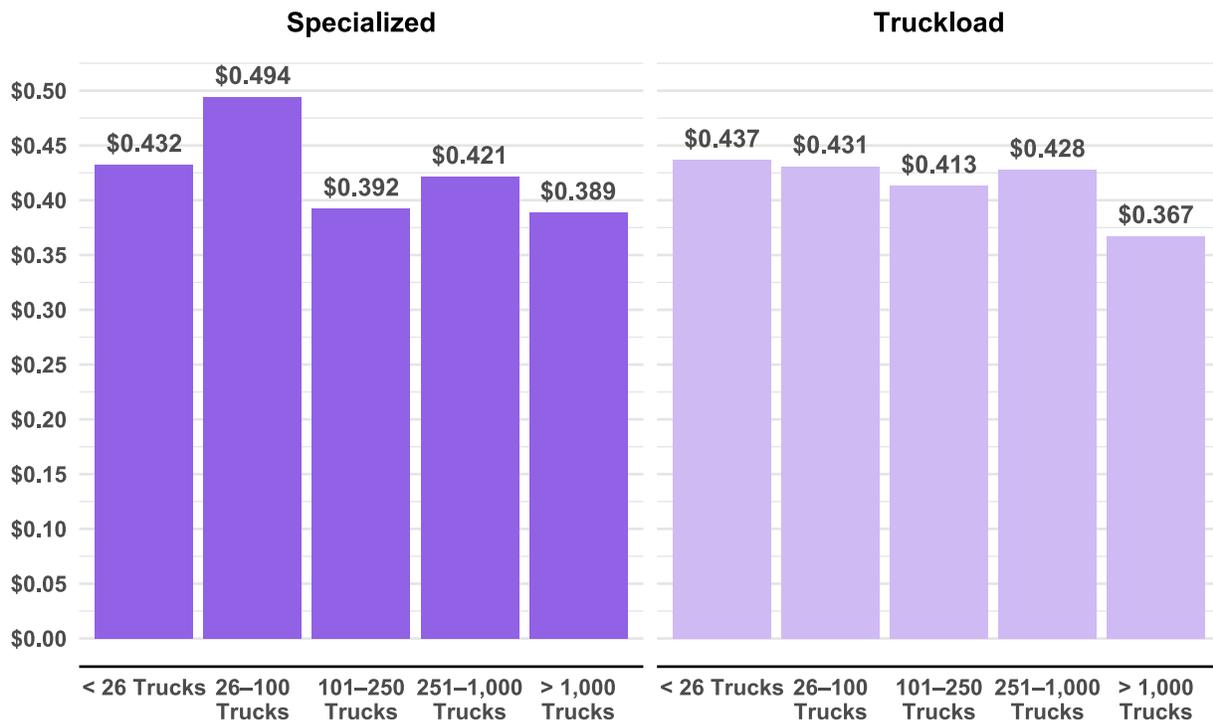
²⁷ Ibid.

Figure 8: Monthly U.S. On-Highway Diesel Prices, 2018-2022



Large carriers are able to obtain lower costs on fuel thanks to their stronger negotiating position when contracting with fuel suppliers and shippers, as well as their ability to hedge pricing in the markets. As Figure 9 details, however, this economy of scale was less pronounced in 2021 than in 2020 due to an unpredictable oil market (Figure 9). The difference in average fuel costs in fleets with fewer than 26 trucks versus fleets with 251 to 1,000 trucks, for example, was only about one cent per mile in both the truckload and specialized sectors.

Figure 9: Respondent Fuel Costs per Mile by Fleet Sector and Size



Looking Ahead

The low cost of fuel was the defining factor in 2020’s marginal costs: it was sufficiently low that the average total marginal cost of trucking was lower than in 2019 despite the fact that many other cost centers became more expensive. 2021 inherited the rising trends in these other cost centers without benefiting from the low cost of fuel.

While fuel surcharges cover much of the increased cost of fuel, carriers have had to cover sudden price volatility over the last year and a half due to the lag built into fuel surcharge contracts.²⁸ Carriers that rely on the spot market are also susceptible to fronting a greater share of fuel costs during spikes like those in early 2021 and 2022. This is because spot rates are negotiated on an all-inclusive basis, which can mask fuel costs especially now that spot rates are declining.²⁹ Furthermore, rising fuel costs are particularly impactful for deadhead mileage, which is not offset by revenue or surcharges.

For these reasons, ongoing volatility in the oil market leaves carriers vulnerable to high fuel costs despite the moderate drop in diesel prices in July 2022. While the EIA forecasts a decline in oil price over the second half of 2022 and first half of 2023, the confidence interval for their forecast is extremely wide, meaning that there is considerable likelihood that diesel prices may

²⁸ John Kingston, “Surging diesel prices, lag in fuel surcharges starting to raise concern,” *Freightwaves* (March 1, 2022), <https://www.freightwaves.com/news/surging-diesel-prices-lag-in-fuel-surcharges-starting-to-raise-concern>.

²⁹ Connor D. Wolf, “Rising Fuel Costs Slow Spot Rate Descent,” *Transport Topics* (March 31, 2022), <https://www.ttnews.com/articles/rising-fuel-costs-slow-spot-rate-descent>.

remain high or even continue to increase.³⁰ If global consumption continues to increase, as forecasted by EIA, upward price pressures will increase as well.

Equipment Costs

The three main equipment costs tracked in this report – truck and trailer lease or purchase costs, repair and maintenance costs, and tire costs – are closely related. In 2021 this relationship was even more complex, as many carriers incurred higher costs in one of these three line-items as a result of high costs or unavailability in one of the other line-items.

Truck and Trailer Payment Costs

Truck and trailer leases or purchases by fleet size rose by 3 percent in 2021 to 27.9 cents per mile, another all-time high. This relatively modest increase, however, says more about carriers' ability to acquire trucks than about the market price of trucks. New Class 8 sales fell over most of 2021, with the exception of a strong December, as manufacturers were unable to keep up with pent-up demand.³¹ Used markets reacted to this reduced supply by setting used truck price records: the average retail price of used 3-to-5-year-old trucks in 2021 was 40.7 percent higher than in 2020 and 21.4 percent higher than in 2019.³² In response, carriers' average truck age increased in 2021 as new leases or purchases declined (see Tables 4 and 5).

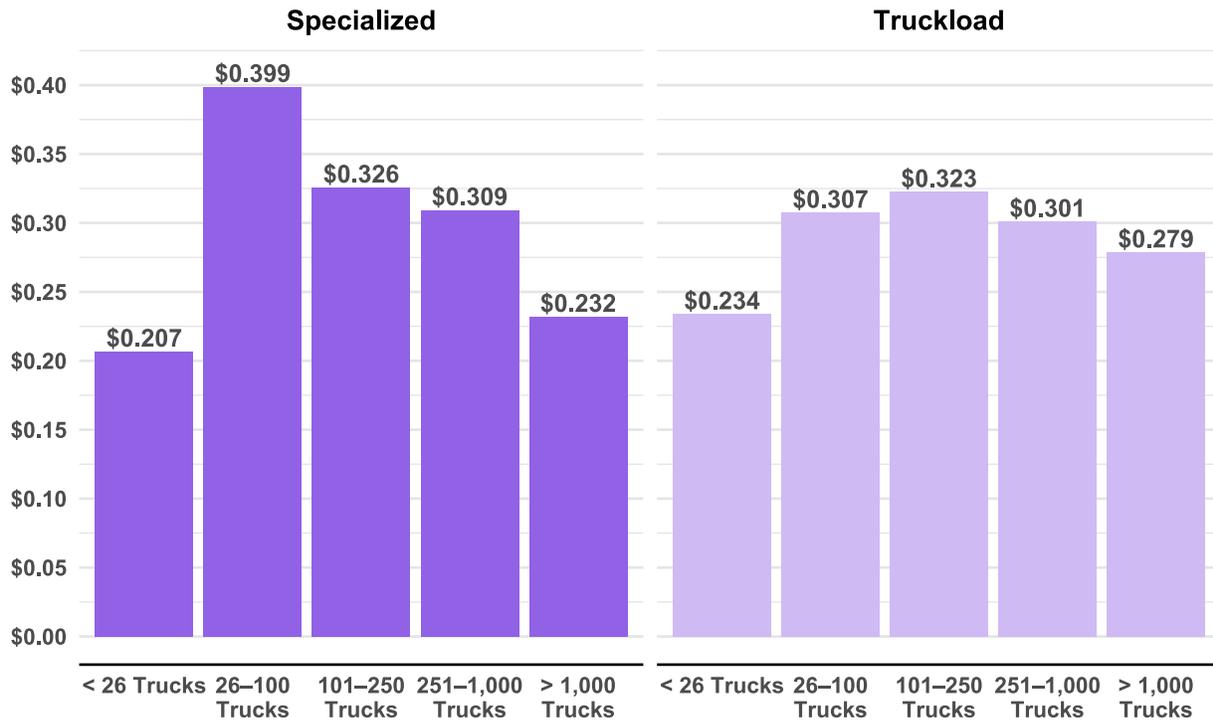
Figure 10 breaks down the average amount spent on all payments related to truck leases or purchases by fleet size. Many small carriers in both truckload and specialized sectors avoided purchasing or leasing trucks in 2021 due to high prices in both primary and secondary markets. As is typically the case, medium sized fleets of 26 to 250 trucks incurred the highest per-mile truck payment costs.

³⁰ "Short-Term Energy Outlook," U.S. Energy Information Administration (July 12, 2022), <https://www.eia.gov/outlooks/steo/>.

³¹ Roger Gilroy, "Class 8 Sales in December Climb to High Point of 2021," *Transport Topics* (Jan. 12, 2022), <https://www.ttnews.com/articles/class-8-sales-december-climb-high-point-2021>.

³² "Commercial Truck Guidelines," J.D. Power Valuation Services (January 2022), https://discover.jpda.com/hubfs/Files/Industry%20Campaigns/Valuation%20Services/01.2022_Commercial%20Truck%20Guidelines.pdf.

Figure 10: Truck and Trailer Lease or Purchase Costs per Mile by Fleet Sector and Size

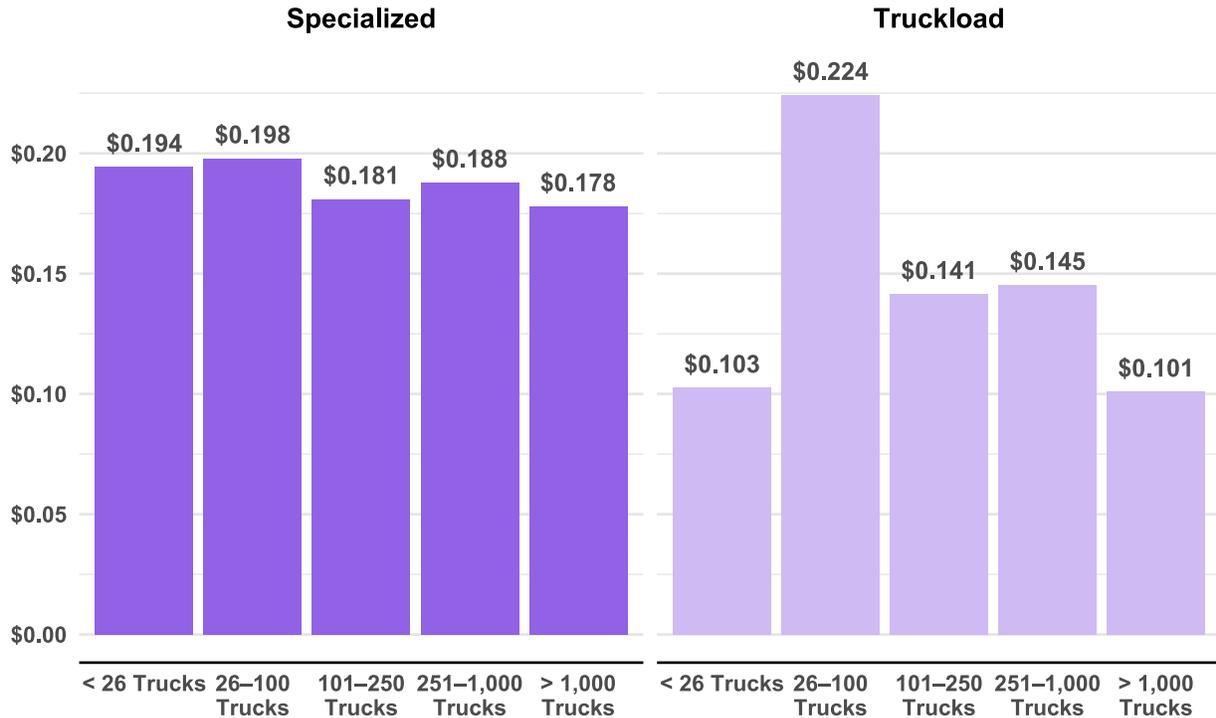


Repair and Maintenance

With an increase of 18.2 percent from 2020 to 2021, repair and maintenance costs were the second-fastest growing cost center; only fuel rose at a faster rate. Many possible causes contributed to this increase, including post-pandemic parts shortages, an increased focus on maintenance to offset declines in purchases and/or leases, and longer-term trends in more complex equipment being more expensive to repair.

Specialized carriers spent considerably more on repair and maintenance in 2021, in part because their equipment is more complex and in part because they tend to keep their equipment longer (Figure 11). Costs were lower for very large specialized fleets than specialized fleets with fewer than 1,000 trucks but only slightly.

Figure 11: Repair and Maintenance Costs per Mile by Fleet Sector and Size



In the truckload sector, fleets with more than 1,000 trucks were able to secure significantly lower costs. This is because large fleets have many more strategies for managing repair and maintenance expenses, which include negotiating better prices, establishing in-house shops, and greater flexibility in conducting preemptive maintenance. Truckload carriers with fewer than 26 trucks also spent less on this line-item, though this was likely due to performing less repair and maintenance.

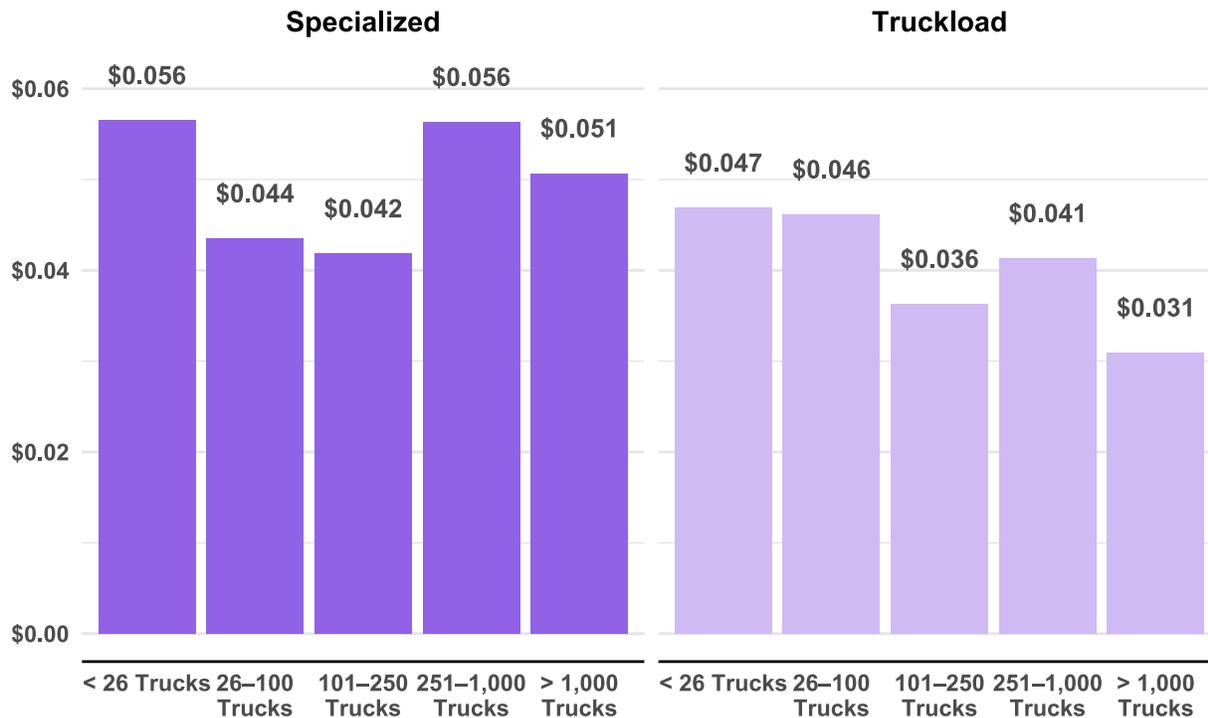
Medium-sized fleets with 26 to 100 trucks paid the most in maintenance in both specialized and truckload sectors: this was true across the sample. These medium-sized fleets were too small to take advantage of all the strategies that large fleets use to keep costs down. Combined with relatively high truck payment costs, this fleet size is one of the most challenging to operate in terms of expenses.

Tires

Though tire prices are related to fuel prices through their shared dependence on oil, carrier tire costs per mile remained relatively consistent in 2021 even as fuel prices spiked, declining by a fraction of a cent to 4.1 cents per mile.

As Figure 12 shows, carriers with more trucks tend to pay less for tires per mile, especially in the truckload sector. Average tire costs in the specialized sector tend to be higher and more variable than in the truckload sector, as their operations often entail greater wear on tires.

Figure 12: Tire Costs per Mile by Fleet Sector and Size



Looking Ahead

There is cause for some optimism regarding equipment costs in the next calendar year, though current market pressures will be slow to recede.

Trends suggest that truck and trailer lease or purchase costs may have peaked in mid-2022. New Class 8 sales were up in the second quarter of 2022 after a slow first quarter, though sales still lag behind demand.³³ The average auction price of used 3-to-5-year-old sleeper trucks began to decline in February 2022 and the retail price of used 3-to-5-year-old sleeper trucks began to decline slightly in April 2022 (by 3.8 percent) after peaking in January of this year, according to the most recent analysis from J.D. Power.³⁴ Still, the average price of used trucks remains higher than in 2021, suggesting that improvements are likely to be gradual and tentative. Though the average truck and trailer lease and purchase cost for 2022 will likely be higher than for 2021 overall due to high prices in the first half of the year, these market trends point to a possible softening of the market on the horizon.

Repair and maintenance costs tend to have a delayed reaction to changes in truck and trailer lease or purchase costs as well as fleet business models (see Table 7). Q1 2022 data shows that commercial vehicle parts and labor costs continued to rise on the same trajectory as 2021,

³³ Roger Gilroy, "US Class 8 Sales in May Climb Past 20,000, Adding to Recent Momentum," *Transport Topics* (June 10, 2022), <https://www.ttnews.com/articles/us-class-8-sales-may-climb-past-20000-adding-recent-momentum>.

³⁴ "Commercial Vehicle Guidelines," J.D. Power Valuation Services (May 2022), https://discover.jdpa.com/hubfs/Files/Industry%20Campaigns/Valuation%20Services/05.2022_CommercialVehicleGuidelines_FINAL.pdf.

by 16.1 percent year-over-year.³⁵ This increase was observed in nearly every parts category.³⁶ Accordingly, repair and maintenance costs will likely increase at a similar rate in 2022 and into 2023 regardless of any stabilization in truck costs.

Last year's Ops Costs report predicted that two separate spending trends – higher truck costs with lower repair costs and lower truck costs with higher repair costs – may deepen as shortages persist. This prediction was confirmed in the 2021 data and will likely continue for the foreseeable future. Parts shortages continue to hamper maintenance operations: in 2021, 84 percent of shops reported increased delays and 45 percent of shops needed to frequently purchase parts from outside their regular suppliers.³⁷ Carriers are pursuing creative workarounds such as onshore sourcing, salvage, and optimizing the balance between internal and outsourced repairs, but these options can come at a premium when a carrier's top priorities are speed and quality.³⁸ Furthermore, a growing diesel technician shortage has contributed to growing maintenance costs and delays.³⁹

Last year, some commercial tire manufacturers warned of a potential natural rubber shortage: it did not ultimately materialize, which helped allow tire costs to decline slightly from 2020 to 2021.⁴⁰ Rising fuel costs often lead to higher tire prices due to the use of oil in tire production as well as some carriers' decision to purchase more fuel-efficient (and thus more expensive) tires. The slight though unexpected decline in tire costs per mile in 2021 may be due to the fact that tire costs per mile were already high in 2020 relative to historical levels, resulting from COVID-19 supply chain disruptions.⁴¹ Tire manufacturers increased prices across the board in response to the spike in fuel costs during the first half of 2022.⁴² While some carriers may have partly shielded themselves with advance purchasing, prices are unlikely to come down soon.

Truck Insurance

ATRI's recent report on *The Impacts of Rising Insurance Costs on the Trucking Industry* demonstrated that fleets of all sectors and sizes faced rising insurance premiums from 2018 through 2020 – despite decreasing liability coverage, improving safety, and implementing new

³⁵ "Parts and Labor Cost Analysis for the North American Commercial Vehicle Market," Technology Maintenance Council and Decisiv (First Quarter 2022).

³⁶ Ibid.

³⁷ *State of Heavy-Duty Repair 2021-2022*, Fullbay, Motor, and Technology and Maintenance Council (2022), <https://www.fullbay.com/state-of-heavy-duty-repair/>.

³⁸ Bill Grabarek, "When parts shortages affect repairs," *Truck Parts and Service* (March 1, 2022), <https://www.truckpartsandservice.com/maintenance/service-and-repair/article/15289101/dont-let-the-parts-shortage-hamstring-your-service-department>; Lisa Fickenscher, "Trucking firms turn to junkyards as they grapple with big-rig shortage," *New York Post* (March 6, 2022), <https://nypost.com/2022/03/06/trucking-firms-turn-to-junkyards-during-big-rig-shortage/>; Seth Skydel, "Why some fleets opt to outsource maintenance," *Fleet Owner* (July 6, 2022), <https://www.fleetowner.com/operations/article/21243139/why-some-fleets-opt-to-outsource-maintenance>.

³⁹ Bill Grabarek, "The 2022 State of Diesel Technicians Report," *Truck Parts and Service* (April 15, 2022), <https://www.truckpartsandservice.com/workforce/article/15290901/the-2022-state-of-diesel-technicians-report>.

⁴⁰ Sebastian Blanco, "Up Next, a Possible Tire Shortage," *Car and Driver*, May 2, 2021, available online: <https://www.caranddriver.com/news/a36312124/tire-shortage-possible/>.

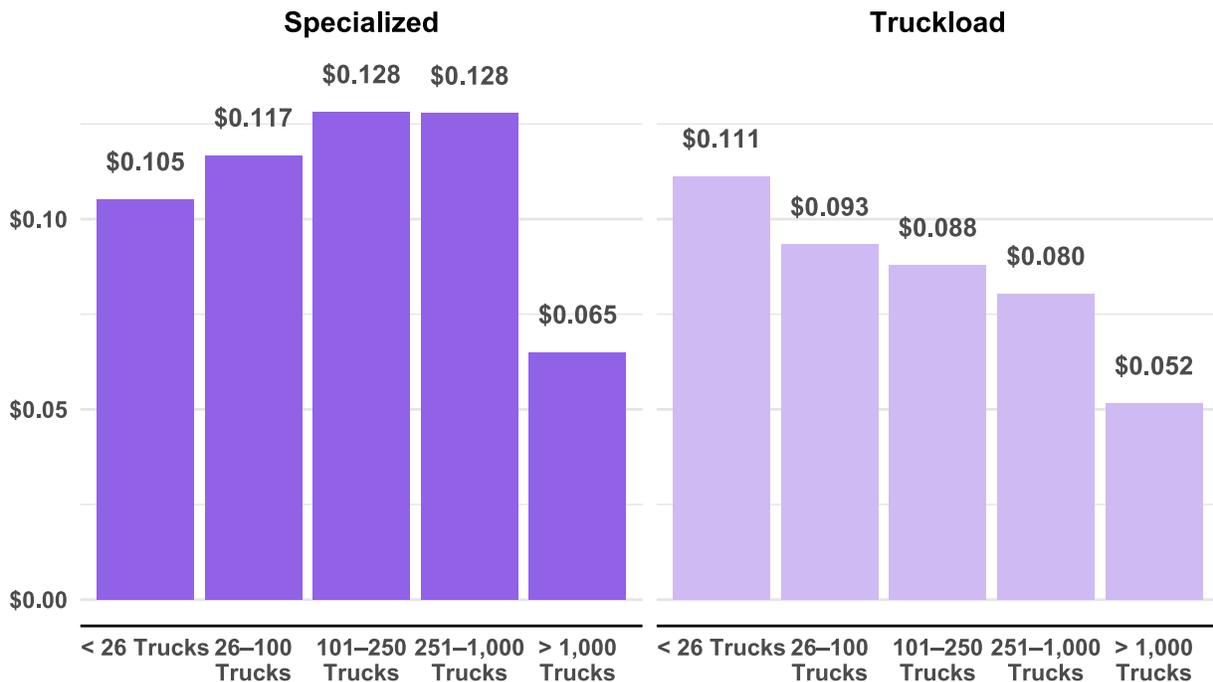
⁴¹ Mike Antich, "Higher Commodity Prices Exert Upward Cost Pressure on Tires," *Global Fleet Management* (Oct. 26, 2021), <https://www.globalfleetmanagement.com/10154763/higher-commodity-prices-exert-upward-cost-pressure-on-tires>.

⁴² Tom Quimby, "Tire prices likely to extend climb this year," *Commercial Carrier Journal* (Feb. 7, 2022), <https://www.ccdigital.com/maintenance/article/15288132/tire-price-woes-may-continue-throughout-2022>.

safety technologies.⁴³ This research also identified a silver lining: carriers that took on more direct risk were successfully incentivized to reduce crashes and out-of-pocket costs.⁴⁴ In 2021 these trends possibly helped lead to a stabilization in commercial auto liability insurance premium costs at 8.6 cents per mile, down one tenth of a cent from 2020.

As Table 13 showed earlier, there are divergent trends within respondents' insurance data: fleets with more than 100 trucks paid more for insurance per mile in 2021 than in 2020, while fleets with fewer than 100 trucks paid slightly less in 2021. A closer look at fleet size breakdowns in Figure 13 provides more context for these fleet sector and size variations.

Figure 13: Commercial Auto Liability Insurance Premium Costs per Mile by Fleet Sector and Size



Only the largest specialized carriers, with more than 1,000 trucks, were able to secure lower average insurance premium costs on a per-mile basis. In the specialized sector, every fleet size category with 26 trucks or more had higher average insurance premium costs per mile in 2021 than in 2020.⁴⁵

As in previous years, truckload carrier insurance premium costs per mile decrease as fleet size increases. Fleets with fewer than 26 trucks paid more than twice as much per mile as fleets with more than 1,000 trucks, though the difference in premium costs between other fleet sizes was less pronounced. In the truckload sector, fleets with more than 250 trucks had higher average insurance premium costs per mile in 2021 than in 2020.

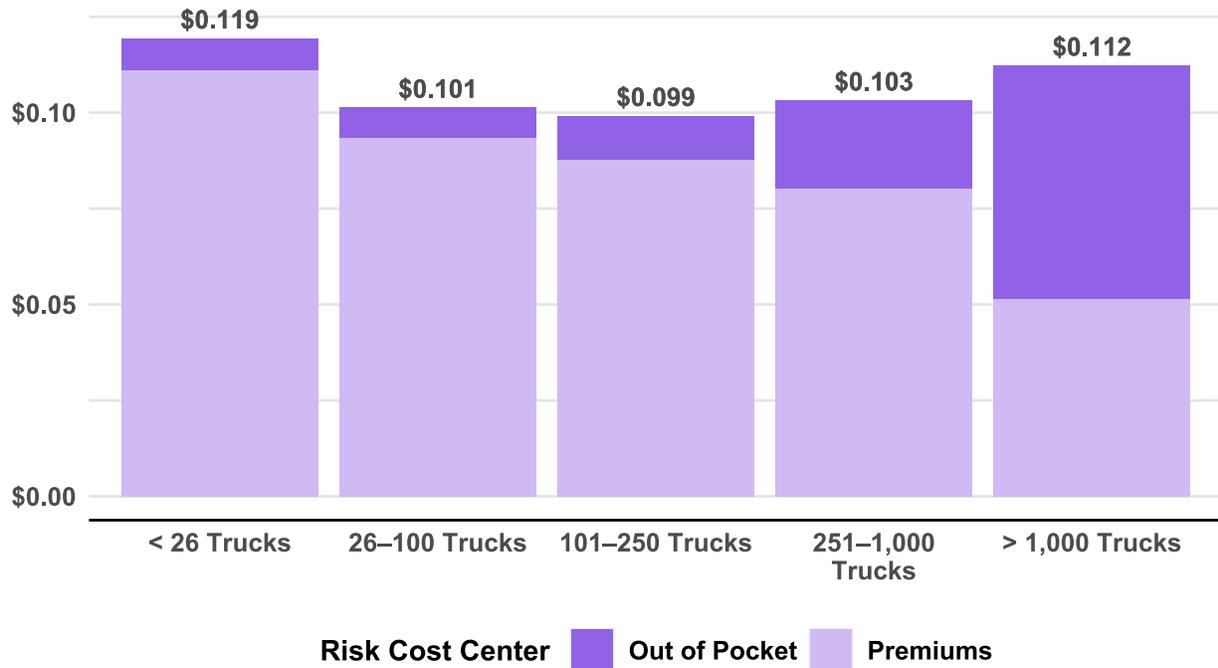
⁴³ Alex Leslie and Dan Murray, *The Impacts of Rising Insurance Costs on the Trucking Industry*, American Transportation Research Institute (Feb. 2022).

⁴⁴ Ibid.

⁴⁵ Alex Leslie and Dan Murray, *An Analysis of the Operational Costs of Trucking: 2021 Update*, American Transportation Research Institute.

Insurance premiums are just one component of a carrier’s total cost of risk, which also includes expenses related to litigation, safety technologies, training, out-of-pocket costs, and even driver compensation such as safety bonuses. Of these other total cost of risk line-items, out-of-pocket costs are the most closely related to insurance premiums because lower premiums tend to result in less coverage and thus higher out-of-pocket costs. Accordingly, these two line-items should be evaluated together. Figure 14 shows the average combined premium and out-of-pocket costs per mile in the truckload sector.

Figure 14: Truckload Auto Liability Insurance Premium and Out-of-Pocket Costs per Mile by Fleet Size



The insurance premium costs in Figure 14 match those for truckload carriers in Figure 13: the same economy of scale is visible, with costs progressively declining for larger fleet sizes. Figure 14 reveals nearly the opposite trend for out-of-pocket incident costs, however. Out-of-pocket costs increase with fleet size to such a degree that fleets with 251 or more trucks paid more in combined premium and out-of-pocket costs per mile than fleets with 26 to 250 trucks.

Larger carriers’ higher out-of-pocket costs partly reflect their significantly greater use of Self-Insurance Retentions (SIRs).⁴⁶ SIRs allow carriers to reduce premiums and exert more control over the claims resolution process by paying up to a stipulated SIR limit before an insurance policy responds to a loss. In 2021, however, it appears that many large carriers had suboptimal deductible or SIR limits that led to higher combined premium and out-of-pocket costs.

⁴⁶ Alex Leslie and Dan Murray, *The Impacts of Rising Insurance Costs on the Trucking Industry*, American Transportation Research Institute (Feb. 2022).

Looking Ahead

Several indicators in the commercial insurance industry point to a window of relief in insurance premium increases for motor carriers.

For the first time in a decade, the commercial auto insurance sector posted an underwriting profit in 2021.⁴⁷ This improvement was in part due to a drop in claims to the lowest level since 2016 (with the exception of 2020, when claims declined due to COVID-19-related traffic levels). Fitch Ratings also attribute improved profitability in the sector to corrective pricing, higher deductible requirements, and more disciplined underwriting standards; for these reasons, they stipulate similar results for 2022.⁴⁸ Early data for 2022 corroborates this estimate. The Council of Insurance Agents and Brokers reported that the rate of premium increases slowed to 5.9 percent in the first quarter of 2022, the lowest rate of increase in five years.⁴⁹

Concerns about rising crash severity nonetheless remain, especially amid the continued return to pre-pandemic traffic levels. While it is likely that insurance premiums per mile will increase again over the next year, in the short term average increases will be moderate to low among carriers with consistent crash rates.

Other Marginal Costs

Tolls

Toll costs per mile decreased from 3.7 cents to 3.2 cents per mile in 2021. Toll costs are higher in the Northeast; carriers operating in that region pay 4.8 cents per mile – 50 percent higher than the national average (Table 12). Toll costs are consistent across fleet sizes (Table 13), but they do vary by sector: LTL carriers spent 28 percent more on tolls than the industry average.

Carriers spent a median of 5 percent of their total mileage on toll roads in 2021. Tanker, flatbed, and refrigerated carriers relied on toll roads slightly more, for a median of 8 percent of their mileage, while only 2.7 percent of LTL carrier mileage occurred on toll roads. The median toll road usage for truckload carriers was 5 percent.

Permits and Special Licenses

Costs associated with permits and special licenses remained stable at 1.6 cents per mile in 2021. This cost was also consistent across small and large fleet sizes. Specialized carriers, which often haul oversized or sensitive materials, spent 50 percent more on permits and special licenses than the industry average.

Efficiency

With expenses on the rise in nearly every cost center, increasing operational efficiencies is imperative. For this reason, ATRI added several new questions to this year's Ops Costs data collection form in order to provide a broader range of efficiency benchmarks. The figures in this

⁴⁷ "US Commercial Auto Insurance Recovery May Prove Unsustainable," Fitch Ratings (June 30, 2022), <https://www.fitchratings.com/research/insurance/us-commercial-auto-insurance-recovery-may-prove-unsustainable-30-06-2022>.

⁴⁸ Ibid.

⁴⁹ *Commercial Property/Casualty Market Index*, Council of Insurance Agents and Brokers (Q1 2022), <https://www.ciab.com/download/33981/>.

section are all averages of carrier responses; they are not weighted by the number of trucks or sector.

Deadhead Mileage

Deadhead mileage, also known as “backhaul” or “empty miles,” is one of the most important impediments to operational efficiency because these miles incur costs without generating a revenue stream. Under the pressure of rising fuel prices, carriers achieved some of the lowest deadhead mileage in years. On average, only 14.8 percent of non-tanker carrier miles were deadhead.

Tanker carriers historically have significantly more empty miles due to the commodities they transport, but they also maintained a lower deadhead mileage figure than in 2020: 44.9 percent.

Private carriers were also able to decrease deadhead mileage to a five-year low of 24 percent in 2021. The NPTC report attributed this improved efficiency to the decline of long haul in the sector as well as the need to carry returns or dunnage.

Dwell Time

Another critical efficiency bottleneck occurs when drivers are waiting at shipper and receiver facilities. Though loading or unloading freight necessarily expends time, driver detention occurs when shippers or receivers lock up trucks outside of loading/unloading periods. In 2021, drivers rated this issue as their second-highest concern.⁵⁰ The average dwell time at facilities for all fleets was 1 hour and 54 minutes per stop.

Refrigerated carriers – which have longer waits at shipper and receiver facilities due to the sensitive commodities they transport – had an average dwell time of 3 hours and 16 minutes. LTL carriers are able to secure a lower average dwell time of 1 hour.

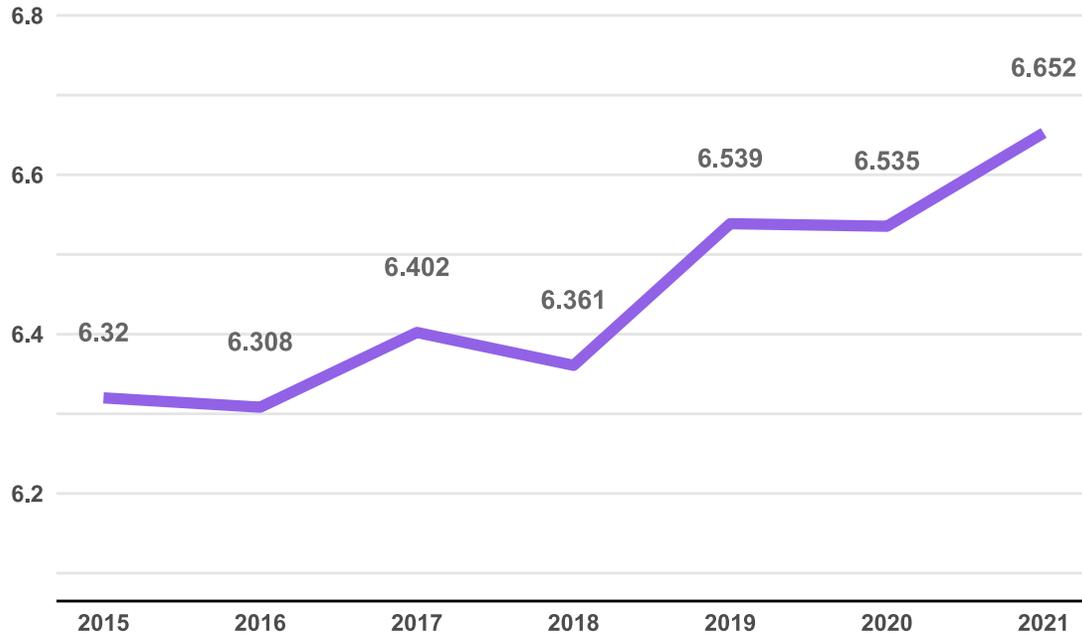
Fleets with 25 or fewer trucks experienced the highest dwell time, averaging 2 hours and 23 minutes per stop. At 1 hour and 37 minutes per stop, fleets with more than 1,000 trucks had the lowest average dwell time. While these fleets spent 46 fewer minutes at shipper and receiver facilities than the smallest fleets, dwell time is a significant drain on operating hours for fleets of all size.

Fuel Economy

Fuel economy continued its general trend of improvement in 2021, as shown in Figure 15. The average truck-tractor miles per gallon (MPG) in that year was 6.652.

⁵⁰ “Critical Issues in the Trucking Industry – 2021,” American Transportation Research Institute, Oct. 2021.

Figure 15: Average MPG by Year



Fuel economy varies based on a tractor-trailer’s total operating weight, which includes cargo as well as tractor and trailer weights. Table 17 provides average respondent MPG for each average operating weight class.

Table 17: Average MPG by Weight Class

Weight Class (lbs.)	Average MPG
30,000-40,000	7.27
40,000-50,000	6.99
50,000-60,000	6.98
60,000-70,000	7.10
70,000-80,000	6.47
80,000-120,000	5.27

Speed Governors

Speed governors contribute to fuel efficiency, and for this reason their use tends to rise with fuel prices.⁵¹ In 2021, 94 percent of respondents used speed governors on some or all of their trucks, compared with just 81 percent in 2020. Even small carriers, which often refrain from

⁵¹ Alex Leslie and Dan Murray, *An Analysis of the Operational Costs of Trucking: 2021 Update*, American Transportation Research Institute (Nov. 2021).

using them, joined this trend: 82 percent of fleets with 25 or fewer trucks used speed governors in 2021, whereas only 50 percent used them in 2020.

Equipment Ratios

Maintaining a large trailer pool is one way that carriers improve efficiency or flexibility when capacity demand is high or they face shortages of other resources like drivers or truck-tractors. The average number of trailers per truck declined slightly from 2.90 in 2020 to 2.82 in 2021, but this ratio remains higher than it was five years ago (Table 18).

Table 18: Trailer-to-Truck Ratio

Year	Average Number of Trailers per Truck
2021	2.82
2020	2.90
2019	2.55
2018	2.70
2017	2.76

The average number of drivers per truck also declined to 0.96 in 2021 after two years of slight improvement (Table 19). This ratio differs significantly for private fleets, where slip seating is more widespread and a greater variety of power units are used: after a low of 1.1 drivers per power unit in 2019, private fleets now average 1.63 drivers per power unit.

Table 19: Driver-to-Truck Ratio

Year	Average Number of Drivers per Truck
2021	0.96
2020	1.03
2019	1.02
2018	0.95
2017	0.94

Turnover and Driver Utilization

The average annualized driver turnover rate varies significantly by fleet sector and size. Small fleets in specialized and truckload sectors have the lowest driver turnover, and driver turnover rates increase in both sectors with increasing fleet size.

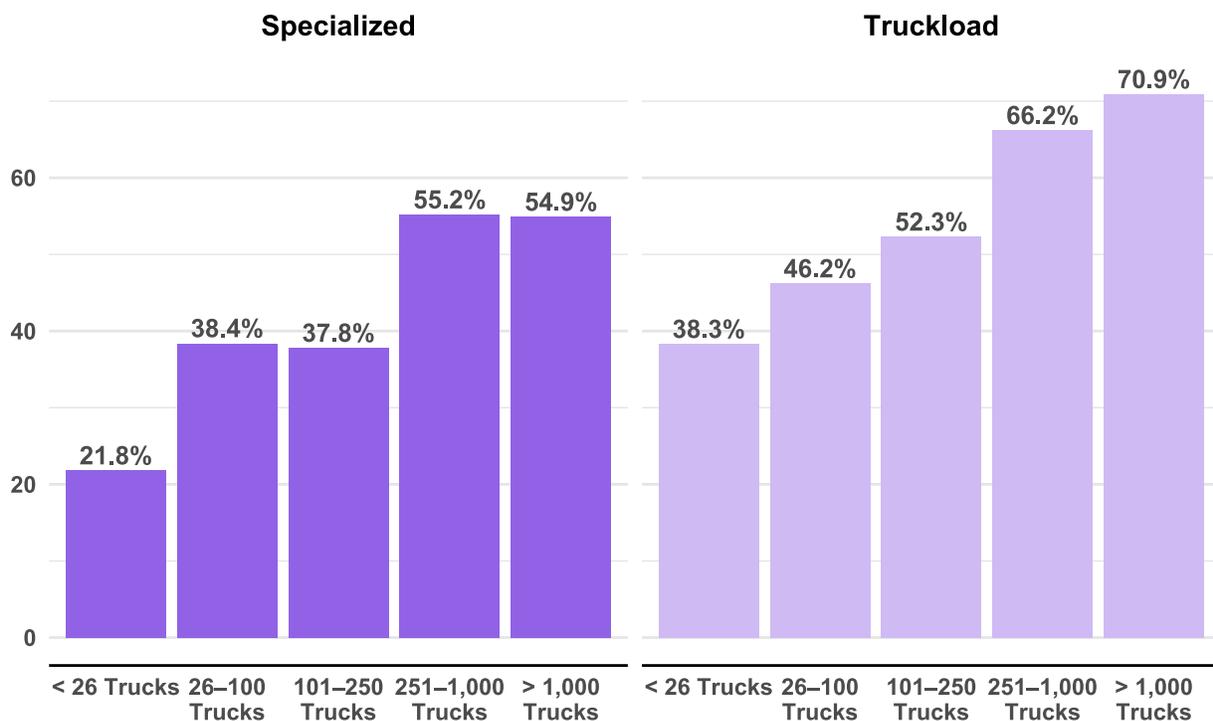
Truckload carriers have considerably higher turnover than all other sectors in every fleet size category. Truckload fleets with more than 1,000 trucks have the highest average turnover of all at 70.9 percent (Figure 16).⁵² This sector also had the widest variation in turnover rates, ranging from 15 percent to 150 percent.

Large specialized carriers also had higher average driver turnover than their smaller peers; specialized fleets with fewer than 26 trucks had a turnover rate of 21.8 percent while fleets with 251 to 1,000 trucks had a turnover rate of 55.2 percent, the highest in the specialized sector.

LTL carriers had the lowest average annualized turnover rate of 18.6 percent.⁵³

Private fleets in the NPTC report saw higher driver turnover in 2021, indicating that the tight labor market is impacting all parts of the industry. The average driver turnover rate across the entire 15 years of NPTC data was 14.3 percent; in 2021 it was 22.5 percent.

Figure 16: Average Annualized Driver Turnover Rate by Fleet Sector and Size



The ratio of company drivers to leased drivers, owner-operators, and independent contractors varies by carrier business model and company culture. Thirty-five percent of carriers in the sample employ company drivers exclusively, and six percent employ no company drivers. Of the remaining carriers that employ a mix of driver types, company drivers made up 74 percent of their total driver force. With California’s AB5 law set to impact the status of the state’s independent contractors, this figure may increase.

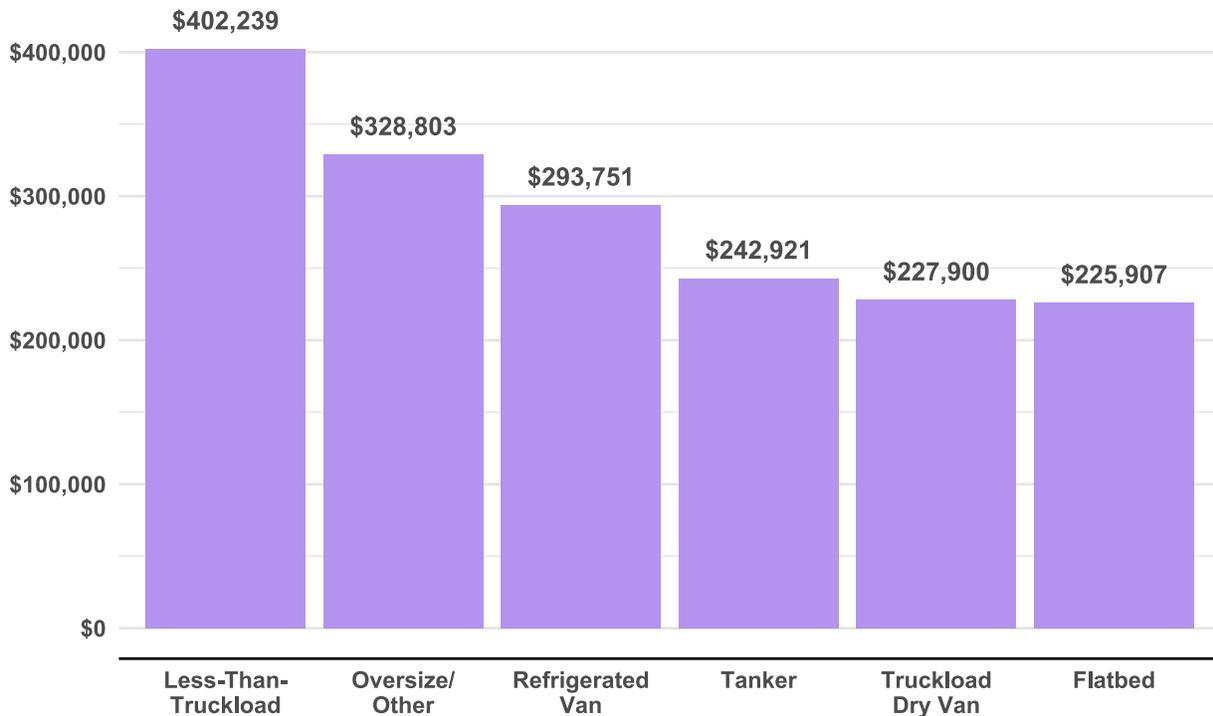
⁵² The most recent ATA driver compensation study found a mean truckload driver turnover rate of 75 percent in 2021. Lindsay Bur and Bob Costello, *ATA 2022 Driver Compensation Study*, American Trucking Associations, June 2022.

⁵³ The most recent ATA driver compensation study found a mean LTL driver turnover rate of 18 percent in 2021. *Ibid.*

Revenue

Respondents' trucking-related revenue was analyzed by sector because rates vary by operation type. Revenue can be benchmarked in multiple ways in order to assess different facets of a carrier's operation. Annual revenue per truck, shown in Figure 17 by sector, is a valuable measure of the efficiency of asset usage.

Figure 17: Average Respondent Annual Revenue per Truck by Sector



LTL carriers generated \$402,239 in revenue for every truck on average, setting them well ahead of all other sectors.

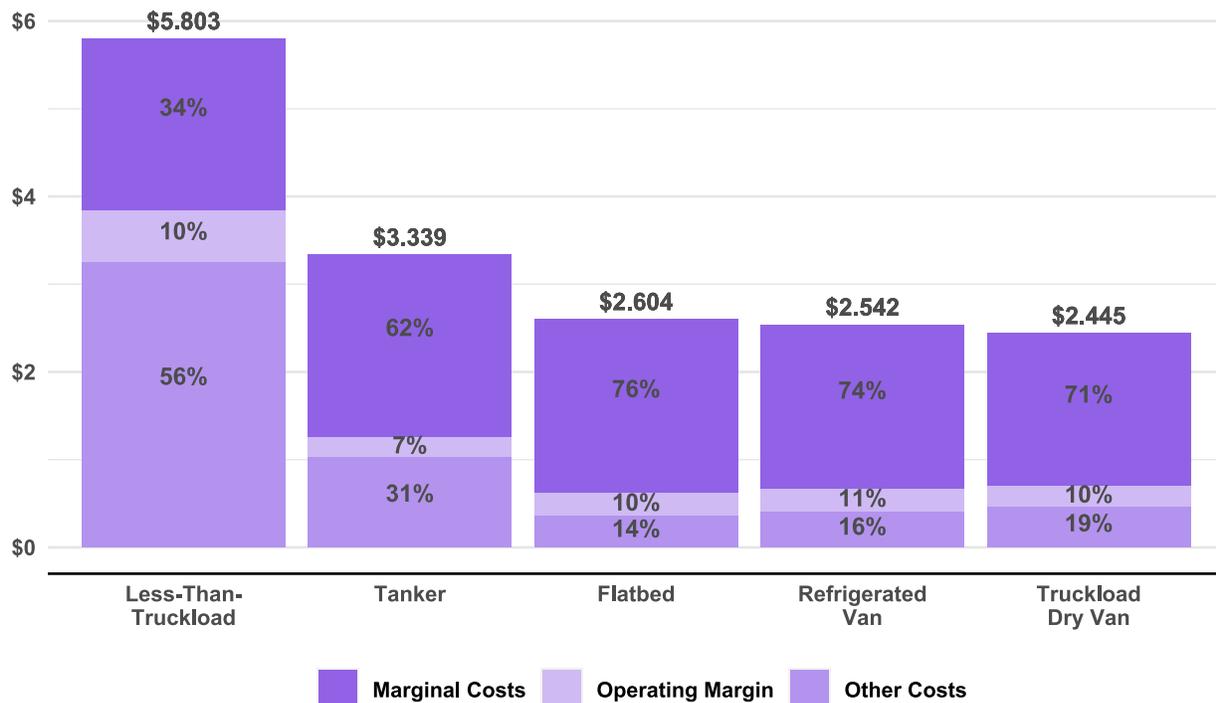
With \$328,803 in revenue per truck, oversize/overweight operations were the next highest, followed by refrigerated operations with \$293,751 in revenue per truck.

Truckload carriers had an average revenue per truck of \$227,900.

Analyzing revenue per mile allows for a direct comparison with marginal costs per mile. Figure 18 graphs the average revenue per mile (total revenue divided by IFTA miles) for each sector and the percentage of revenue that went to marginal costs.

This year's Ops Costs survey also asked for approximate operating margins, which can be seen in Figure 18. Finally, an approximation of all other costs can be derived from operating margins, marginal costs, and total carrier revenue (see Figure 18).

Figure 18: Average Respondent Revenue per Mile



Though LTL carriers generate more revenue per mile than all other sectors, they also have the highest costs. These include higher marginal costs in areas like driver wages and benefits as well as higher fixed costs in areas like facilities expenses. In 2021, they reported an average operating margin of 10 percent on an annual average of \$5.803 per mile in revenue.

The average operating margin for truckload and flatbed carriers was also 10 percent, with revenues of \$2.445 and \$2.604 per mile, respectively. Truckload carriers have the lowest revenue per mile, but they also incur the lowest costs of all sectors.

Refrigerated carriers had a slightly higher operating margin on average, 11 percent, with revenues of \$2.604 per mile. Tankers generated higher revenue, with an average of \$3.339 per mile, but they also had higher costs in other areas that resulted in a lower average operating margin of 7 percent.

CONCLUSION

After two years of declines, the average total marginal costs per mile jumped to its highest recorded level in 2021. Fuel was the single largest driver of this change, increasing by 35.4 percent to 41.7 cents per mile. Driver wages had a significant increase of 10.8 percent to 62.7 cents per mile, as did repair and maintenance costs, which rose 18.2 percent to 17.5 cents per mile.

While carriers in 2020 relied on unusually low marginal costs despite economic uncertainty, carriers in 2021 relied on unusually high rates despite steeply rising costs. Improvements in efficiencies like deadhead mileage (down to 14.8 percent) and MPG (up to 6.652 MPG) helped

carriers navigate this market. While there is considerable disparity across sectors, the average operating margin across most sectors was 10 percent.

Fleets with 100 or fewer trucks have higher costs per mile – \$1.880 in total – especially in cost centers like fuel and insurance premiums. As prices spiked across the board in 2021, however, the gap between the average total marginal costs of small carriers and large carriers narrowed slightly: fleets with more than 100 trucks spent \$1.831 per mile in marginal costs versus \$1.880 for small fleets. Faced with equipment and parts shortages, small fleets kept costs down by avoiding some purchases. Medium-sized fleets, with 26 to 250 trucks, were less able to wait out price peaks and thus had the highest per-mile costs in equipment-related cost centers like truck and trailer leases or purchases, repair and maintenance, and tires.

Rising costs are beginning to have an adverse effect on the industry. After record numbers of new operating authority registrations in 2021, the opening months of 2022 had record-high numbers of operating authority revocations, and some industry analysts warn of potential fallout as the freight market cools.⁵⁴ Looking ahead to the second half of 2022 and to 2023, inflation will be a major concern for all cost centers. Wholesale inflation as measured by the producer price index rose at a rate of 11.4 percent year-over-year in June 2022, even faster than consumer inflation.⁵⁵ Roughly half of this increase is attributable to rising fuel prices.

There continues to be cause for optimism in the freight market, however. Contract rates remain stable despite declining spot rates.⁵⁶ Many carriers posted solid earnings growth in the first two quarters of 2022, with little evidence of a recession or even a slackening in the freight market.⁵⁷ Truck tonnage rose over most of the first half of 2022, with a June year-over-year increase of 7.9 percent, as did the number of shipments and freight spending.⁵⁸ Despite the projected continued rise in costs in 2022, these signs suggest that the trucking industry remains strong.

⁵⁴ Avery Vise, “Trucking Company Failures on the Rise,” *Heavy Duty Trucking* (May 27, 2022), <https://www.truckinginfo.com/10173212/trucking-company-failures-on-the-rise>; Rachel Premack, “A ‘Great Purge’ is pushing small truckers out of business at an unprecedented rate,” *Freight Waves* (June 23, 2022), <https://www.freightwaves.com/news/a-great-purge-is-pushing-small-truckers-out-of-business-at-an-unprecedented-rate>.

⁵⁵ Joseph Kowal, Gabriel Vera, and Timothy Schermerhorn, *PPI Detailed Report*, U.S. Bureau of Labor Statistics, U.S. Department of Labor (July 2022), <https://www.bls.gov/ppi/detailed-report/ppi-detailed-report-june-2022.pdf>.

⁵⁶ DAT Trendlines, accessed July 7, 2022, <https://www.dat.com/trendlines/van/national-rates>.

⁵⁷ Alex Lockie, “Top fleets’ Q1 earnings dispute freight recession narrative,” *Commercial Carrier Journal* (May 12, 2022), <https://www.ccjdigital.com/business/article/15291082/trucking-fleets-q1-2022-earnings-reports>; John D. Schulz, “Top trucking executives say freight recession is nowhere in sight,” *Logistics Management* (May 12, 2022), <https://www.logisticsmgmt.com/article/top-trucking-executives-say-freight-recession-is-nowhere-in-sight>.

⁵⁸ Dan Ronan, “Truck Tonnage in June Soars 7.9% Year-Over-Year,” *Transport Topics* (July 19, 2022), <https://www.ttnews.com/articles/truck-tonnage-june-soars-79-year-over-year>; “U.S. Bank Freight Payment Index Q2 2022,” U.S. Bank, <https://www.usbank.com/dam/documents/pdf/corporate-and-commercial-banking/industry-expertise/transportation/freight-payment-index/04-0170-04-Freight-Index-2022-Q2.pdf>.

APPENDIX A: Operational Costs Data Collection Form



OPERATIONAL COSTS OF TRUCKING DATA COLLECTION

The American Transportation Research Institute (ATRI) is conducting its annual **for-hire** motor carrier data collection initiative to obtain truck-related operational costs for ATRI's *Operational Costs of Trucking* report. ATRI is seeking cost data **from 2021** associated with operating a truck. The final report will support studies related to industry productivity, driver issues, and fuel efficiency. Please note that the questions below are focused on TRUCK-TRACTORS only.

The data collected will be kept completely **confidential**. Personal, organizational, or financial information will never be released for public use under any circumstance, and it will only be used internally for research analyses. The final report will only be presented in an aggregated, non-identifying format. As needed, ATRI will sign a confidentiality agreement.

The data collection form can be completed [online here](#), **OR** by completing this form and returning it via email to aleslie@trucking.org or via fax to 770-432-0638.

All participants submitting a completed, usable data collection form will receive an advance copy of the 2022 *Operational Costs of Trucking* report. New this year, each participant will also receive a confidential, customized report directly comparing your operational costs to the operational cost trends of peer carriers of the same sector and size.

For any costs that were equal to zero in 2021, please explicitly enter "0" in the submission box. If you have any questions please contact Alex Leslie at aleslie@trucking.org or 651-641-6162 ext. 2.

CONTACT INFORMATION

- 1) Please enter your contact information below. Occasionally ATRI will follow up with participants to clarify answers. Your information will be kept strictly confidential. **All participants will receive an advance copy of the full report as well as a confidential, customized report directly comparing your operational costs to those of your peer carriers.**

Company	Contact Name
Street Address	Position/Title
City, State	Zip
Phone	Email

DEMOGRAPHIC DATA

2) **What was your fleet’s total IFTA mileage in 2021?** *(Include Owner-Operator miles reported for IFTA purposes)*

3) **What was your company’s annual trucking-related revenue in 2021?** *(Exclude brokerage/logistics revenue)*

4) **What was your company’s operating or profit margin in 2021?** *(Include as a percentage)*

_____ %

5) **What is your primary for-hire business operation type?** *(Check only one)*

- | | |
|---------------------------------------------------------------|--------------------------------------------------------|
| <input type="checkbox"/> Truckload Dry Van | <input type="checkbox"/> Express / Parcel Service |
| <input type="checkbox"/> Less-Than-Truckload | <input type="checkbox"/> Intermodal Containers |
| <input type="checkbox"/> Refrigerated Van | <input type="checkbox"/> Automotive Transportation |
| <input type="checkbox"/> Tanker | <input type="checkbox"/> Household Goods Mover |
| <input type="checkbox"/> Flatbed | <input type="checkbox"/> Other (please specify): _____ |
| <input type="checkbox"/> Specialized –
Oversize/Overweight | |

6) **What are the three primary types of commodities that your company hauls?** *(While your company may haul multiple commodities, select only the top 3 most frequently hauled commodities.)*

- | | |
|-----------------------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> Agricultural Products | <input type="checkbox"/> Industrial Gases |
| <input type="checkbox"/> Automotive Parts | <input type="checkbox"/> Intermodal Containers |
| <input type="checkbox"/> Construction/Building Materials | <input type="checkbox"/> Livestock |
| <input type="checkbox"/> Finished Vehicles | <input type="checkbox"/> Manufactured Goods |
| <input type="checkbox"/> Food Products – Refrigerated | <input type="checkbox"/> Mine Ores |
| <input type="checkbox"/> Food Products – Non-Refrigerated | <input type="checkbox"/> Modular/Mobile Homes |
| <input type="checkbox"/> Forest Products | <input type="checkbox"/> Paper Products |
| <input type="checkbox"/> Garbage or Sanitation | <input type="checkbox"/> Petroleum Products |
| <input type="checkbox"/> General Freight | <input type="checkbox"/> Refrigerated Food |
| <input type="checkbox"/> Hazardous Materials | <input type="checkbox"/> Retail Store/General Merchandise |
| <input type="checkbox"/> Heavy Machinery/Equipment | <input type="checkbox"/> U.S. Mail/Parcel Service |
| <input type="checkbox"/> Household Goods | <input type="checkbox"/> Other (please specify): _____ |

7) **Are any of the trucks in your fleet speed-limited or governed?**

- Yes No Don’t Know

8) If you answered yes to previous question, please provide the maximum speed setting and the percent of your fleet governed at that speed.

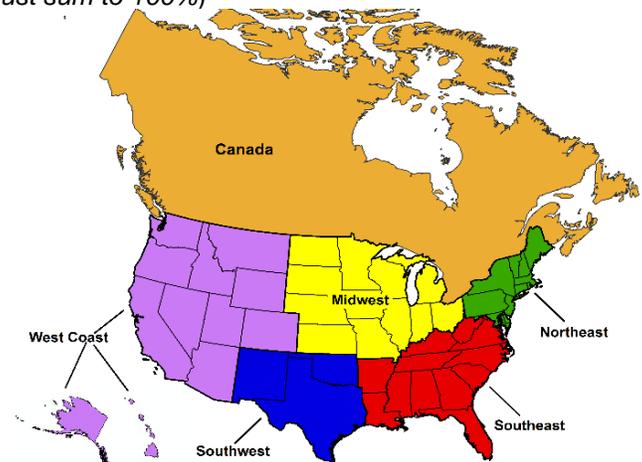
	Maximum Speed (MPH)	Percent of Trucks
Speed Setting 1		
Speed Setting 2		
Speed Setting 3		

9) Based on your fleet’s IFTA miles, what percentage of your drivers’ trips were in the following categories in 2021? (Total must sum to 100%)

Local pickups and deliveries (less than 100 miles)	
Regional pickups and deliveries (100 – 500 miles)	
Inter-regional pickups and deliveries (500 – 1,000 miles)	
National (greater than 1,000 miles)	
Total	100%

10) Please estimate the percentage of miles traveled by your fleet (include IC/Owner-Operator miles) in the following regions during 2021. (Total must sum to 100%)

Region	% of Total Miles
Midwest	
Northeast	
Southeast	
Southwest	
West	
Canada	
Total	100%



11) How many drivers did your company utilize in 2021 for each type of equipment?

	Company Driver / Company Truck	Leased Driver / Company Truck	Owner-Operator
Truck-Tractor – Solo Driver			
Truck-Tractor – Team Drivers			

12) What was your company’s annualized driver turnover rate in 2021?

TRUCK-TRACTOR DATA

13) What was your fleet size, average age and average number of miles traveled (including Owner-Operators) in 2021?

	Total Number of Truck-Tractors	Average Age (in years)	Average Miles per Year per Tractor
Truck-Tractors			

Trailer Type	Number of Units	Average Age (in years)
28' Trailer		
33' Trailer		
45' Trailer		
48' Trailer		
53' Trailer		
Tank Trailer		
Flatbed Trailer		
Auto Transporter		
Refrigerated Trailer		
Intermodal Chassis		
Other Trailer (please specify):		
Other Trailer (please specify):		
Other Trailer (please specify):		

14) For your fleet of TRUCK-TRACTORS, what is the average loaded weight of a tractor-trailer combination in pounds? (cargo + truck + trailer)

_____ LBS

15) How long do you typically keep your equipment? (Please check years or miles)

Equipment Type	Avg. Trade Cycle	Years	Miles
Truck-Tractors			
Trailers			

16) Are any of the **TRUCK-TRACTORS** in your fleet powered by an alternative fuel? Do not include diesel, gasoline or biodiesel fuel.

- Yes No Don't Know

17) If you answered yes to previous question, please indicate the number of **TRUCK-TRACTORS** in your fleet that use each of the alternative fuels listed below.

Alternative Fuel Type	Number of Trucks
Compressed Natural Gas (CNG)	
Liquefied Natural Gas (LNG)	
Liquefied Petroleum Gas (LPG)	
Electric – Battery	
Electric – Fuel Cell (hydrogen)	
Other (please specify):	

18) Based on your fleet's total IFTA data for **TRUCK-TRACTORS**, what was your average fuel economy in miles per gallon (MPG) for 2021 (i.e. real miles driven divided by gallons of fuel purchased)?

_____MPG

19) What percent of your total annual **TRUCK-TRACTOR** miles were non-revenue/dead-head miles in 2021?

_____ % of total 2021 miles

20) What percent of your total IFTA miles occurred on a U.S. toll road in 2021?

_____ % of total 2021 miles

21) What was your average **TRUCK-TRACTOR** total dwell time (loading + detention) per stop at shipper/receiver facilities in 2021?

_____ hours per trip

22) Do you pay truck parking costs to your drivers?

- Yes, in advance (via reservation, pre-paid card, etc.) Yes, by reimbursement No

If you answered yes, how much do you pay drivers for truck parking per day on average?

23) What was your total out-of-pocket expense for incident costs below your deductible or self-insured retention (S.I.R.) in 2021?

24) Please list the average pay and benefits per mile (\$/mile) **OR** the average pay and benefits per hour (\$/hour) for **TRUCK-TRACTOR SOLO** drivers in 2021. (Do not include bonuses in this question. If there are multiple pay and benefit rates for the same type of driver, please use the average pay and benefits rates. If you use a different compensation method, e.g. percent of load or salary, please list it here.)

	Company Driver / Company Truck	Owner-Operator
Pay per Mile ¹		
Benefits per Mile ²		
Pay per Hour ¹		
Benefits per Hour ²		
Other Compensation Method (please specify):		

¹ Pay – Include only base pay. Do not include benefits, incentives and bonuses.

² Benefits – Include employer contributions to medical insurance, per diem and other financial benefits to the driver that are a standard part of employment. Do not include incentives and bonuses.

Please check the **benefits** you provide to drivers that were included in previous question:

- | | | |
|-------------------------------------------|------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> Health Insurance | <input type="checkbox"/> Paid Vacation | <input type="checkbox"/> 401k |
| <input type="checkbox"/> Dental Insurance | <input type="checkbox"/> Paid Sick Leave | <input type="checkbox"/> Other – please specify |
| <input type="checkbox"/> Vision Insurance | <input type="checkbox"/> Per Diem | _____ |

25) Do you provide any additional financial incentives and/or bonus pay for **TRUCK-TRACTOR SOLO** drivers that are not part of their regular wages?

- Yes No Don't Know

If yes, what was the average incentive and/or bonus pay paid per driver who received the bonus in 2021? (i.e. Safety Bonus: \$2,000. Please report as an annual average paid per driver. Please only include drivers who received bonuses in 2021.)

Type of Bonus	Company Driver / Company Truck	Owner-Operator
Safety Bonus		
On-Time Delivery Bonus		
New / Starting Driver Bonus		

Type of Bonus	Company Driver / Company Truck	Owner-Operator
Retention Bonus		
Fuel Economy Bonus		
Other (please specify):		
Other (please specify):		

26) Please list your 2021 **average TRUCK-TRACTOR cost per mile** for the following key cost centers, calculated using IFTA miles: (i.e. Tires: .04. If the line-item does not apply to your operation, please enter N/A.)

Expense Type	2021 Cost per Mile
Repair & Maintenance <ul style="list-style-type: none"> Include R&M costs, including R&M labor and roadside repairs, for all trucks and trailers; do not include tire-related expenses. 	\$
Tires <ul style="list-style-type: none"> Include all purchase, maintenance, re-treading, and replacement costs. 	\$
Fuel Costs <ul style="list-style-type: none"> Include all IFTA-related fuel. <u>Do not</u> include fuel surcharge revenue. 	\$
Truck Insurance Premiums <ul style="list-style-type: none"> Include all liability, cargo, and excess liability policy premiums related to insuring the truck. <u>Do not</u> include workers compensation costs/insurance, physical damage, jury awards, or out-of-court settlements. 	\$
Truck and Trailer Lease or Purchase Costs <ul style="list-style-type: none"> Include all payment costs, and interest and fees associated with the payments. <u>Do not</u> include depreciation tax benefits. 	\$
Tolls <ul style="list-style-type: none"> If you paid tolls in 2021, what were your costs per mile (total annual toll costs/annual IFTA miles)? If you had no toll costs in 2021, please enter 0. 	\$
Permit Costs <ul style="list-style-type: none"> Include permits for oversize/overweight, HazMat, etc. DO NOT include truck registration or CDL costs. 	\$
Other <ul style="list-style-type: none"> Please specify: _____ 	\$
Total	\$

Thank you! We greatly appreciate your participation.

Please return completed data collection form to ATRI via fax **770-432-0638** or email aleslie@trucking.org.



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