



How the Cost of Operating a Truck Shapes the Freight Market



2024



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Trucking Costs Breakdown

Fuel and Non-Fuel Expenses Drive Record Highs

Average Marginal Costs per Mile 2014 - 2023

Motor Carrier Costs	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Vehicle-based										
Fuel Costs	\$0.58	\$0.40	\$0.34	\$0.37	\$0.43	\$0.38	\$0.31	\$0.42	\$0.64	\$0.55
Truck/Trailer Lease or Purchase Payments	\$0.22	\$0.23	\$0.26	\$0.26	\$0.27	\$0.26	\$0.27	\$0.28	\$0.33	\$0.36
Repair & Maintenance	\$0.16	\$0.16	\$0.17	\$0.17	\$0.17	\$0.15	\$0.15	\$0.18	\$0.20	\$0.20
Truck Insurance Premiums	\$0.07	\$0.07	\$0.08	\$0.08	\$0.08	\$0.07	\$0.09	\$0.09	\$0.09	\$0.10
Permits & Licenses	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.01
Tires	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.05	\$0.05
Tolls	\$0.02	\$0.02	\$0.02	\$0.03	\$0.03	\$0.04	\$0.04	\$0.03	\$0.03	\$0.03
Driver-based										
Driver Wages	\$0.46	\$0.50	\$0.52	\$0.56	\$0.60	\$0.55	\$0.57	\$0.63	\$0.72	\$0.78
Driver Benefits	\$0.13	\$0.13	\$0.16	\$0.17	\$0.18	\$0.19	\$0.17	\$0.18	\$0.18	\$0.19
Total	\$1.70	\$1.58	\$1.59	\$1.69	\$1.82	\$1.70	\$1.65	\$1.86	\$2.25	\$2.27

Trucking Costs Hit Record Highs in 2023

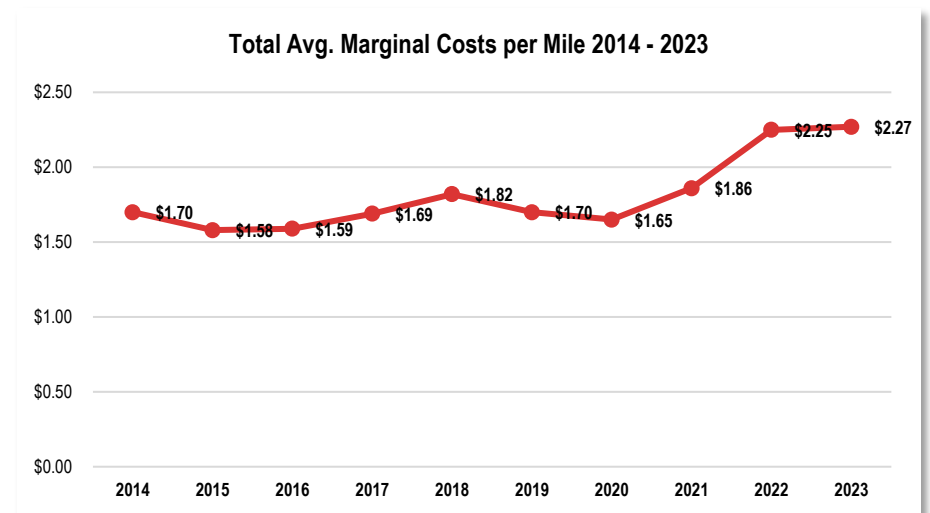
- » In 2023, the total marginal cost of operating a truck reached \$2.27 per mile, marking a new record high. This represented a modest increase of 0.8 percent over the total cost in 2022. Despite the overall rise, certain cost components experienced more significant changes.

Non-Fuel Costs Drive Expenses Higher

- » The overall marginal cost increased from \$2.25 per mile in 2022 to \$2.27 per mile in 2023, a 0.8% increase.

Excluding Fuel Costs

- » Without fuel costs, the marginal cost of trucking rose by 6.6%, from \$1.61 per mile in 2022 to \$1.72 per mile in 2023.



Trucking Costs Breakdown

Major Cost Drivers

2022 – 2023 Annual Change in Average Costs per Mile

Motor Carrier Costs	Percent Change
Vehicle-based	
Fuel Costs	-13.7%
Truck/Trailer Lease or Purchase Payments	8.8%
Repair & Maintenance	3.1%
Truck Insurance Premiums	12.5%
Permits & Licenses	-40.0%
Tires	2.2%
Tolls	21.4%
Driver-based	
Driver Wages	7.6%
Driver Benefits	2.7%
Total	0.8%
Total excluding Fuel	6.6%

Major Cost Drivers

- » Insurance premiums and truck and trailer payments were among the line-items that grew at higher rates compared to others.
- » The costs of truck and trailer payments, repair and maintenance, insurance premiums, tires, and driver wages all reached record high marginal costs in 2023.

Sector Specific Trends

- » Despite the industry-wide average cost increase, the specialized and truckload sectors saw a decline in costs. This anomaly was due to a significant reduction in fuel costs, which outweighed the increases in other cost centers for these sectors.

Change in Costs per Mile Q1 2024 over 2023

Motor Carrier Costs	Percent Change
Fuel Costs	-3.1%
Truck/Trailer Lease or Purchase Payments	3.8%
Repair & Maintenance	2.0%
Truck Insurance Premiums	6.8%
Permits & Licenses	0%
Tires	-1.8%
Tolls	2.8%

Line-Item Increases

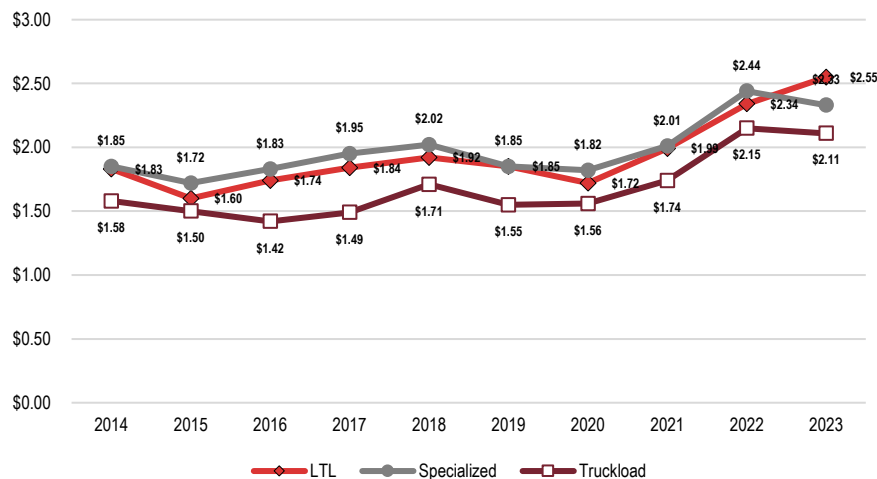
- » Tolls, driver benefits, and truck insurance premiums were the three - line items that experienced a greater rate of increase during 2022-2023 compared to the previous year (2021-2022).

Cost Trends in Early 2024

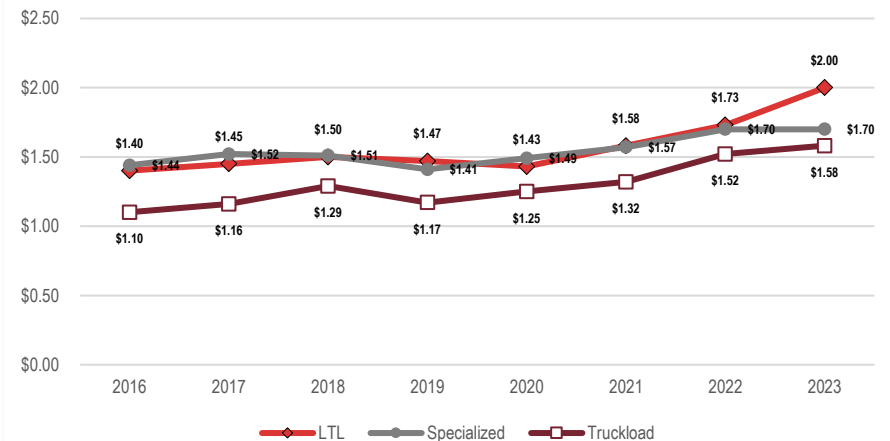
- » Carriers also reported the percent change by line item that they experienced in January and February of 2024. These early reports offer a glimpse into the cost trends for the year 2024, potentially indicating ongoing adjustments and pressures within the industry.

Cost Trends by Trucking Sector

Average Total Marginal Costs by Sector 2014 - 2023



Average Total Marginal Costs Excluding Fuel by Sector 2016 - 2023



Sector Divide: Insights from 2014–2023 Data

- » The data in “Average Total Marginal Costs by Sector 2014 – 2023” underscores the differential impact of cost changes across trucking sectors. While the industry-wide average suggests a slight increase in costs, the specialized and truckload sectors demonstrate that individual sector dynamics can diverge significantly from the overall trend. The decrease in fuel costs provided substantial relief, but other rising costs, particularly in the truckload sector, underscore the complexity of cost structures within the industry.

Impact of Non-Fuel Costs on Truckload and Specialized Sectors

- » When fuel is excluded as in Average Total Marginal Costs Excluding Fuel by Sector 2016 – 2023 the total marginal costs in the truckload sector increased by 3.9%. This rise highlights growing pressures from non-fuel expenses such as labor, maintenance, and insurance.
- » In contrast, the specialized sector’s marginal costs remained flat, indicating effective cost management and stability in non-fuel-related expenses.

Regional Cost Dynamics

Average Marginal Cost per Mile by region 2023

Motor Carrier Costs	Midwest	Northeast	Southeast	Southwest	West
Vehicle-based					
Fuel Costs	\$0.53	\$0.54	\$0.54	\$0.55	\$0.60
Truck/Trailer Lease or Purchase Payments	\$0.39	\$0.42	\$0.36	\$0.30	\$0.33
Repair & Maintenance	\$0.21	\$0.22	\$0.19	\$0.18	\$0.20
Truck Insurance Premiums	\$0.08	\$0.09	\$0.10	\$0.10	\$0.11
Permits & Licenses	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01
Tires	\$0.04	\$0.05	\$0.05	\$0.05	\$0.04
Tolls	\$0.04	\$0.06	\$0.03	\$0.03	\$0.02
Driver-based					
Driver Wages	\$0.74	\$0.85	\$0.79	\$0.80	\$0.73
Driver Benefits	\$0.17	\$0.20	\$0.21	\$0.20	\$0.17
Total	\$2.19	\$2.44	\$2.27	\$2.20	\$2.21

Northeast

The Northeast region reclaimed its position as the most expensive region to operate in 2023, a title it had briefly lost to the Southeast in 2022. The Northeast leads in costs for several critical line items, including:

- » Truck and Trailer Payments
- » Repair and Maintenance
- » Permits and Licenses
- » Tolls
- » Driver Wages

Southeast

The Southeast, while no longer the most expensive region overall, retains the highest costs for driver benefits and matches the Northeast in tire costs. Key cost highlights for the Southeast include:

- » Highest Driver Benefits
- » Equal Tire Costs with the Northeast

Midwest

The Midwest stands out as the least expensive region for trucking operations overall. It has the lowest costs for three specific line items:

- » Fuel
- » Insurance Premiums
- » Driver Benefits

West

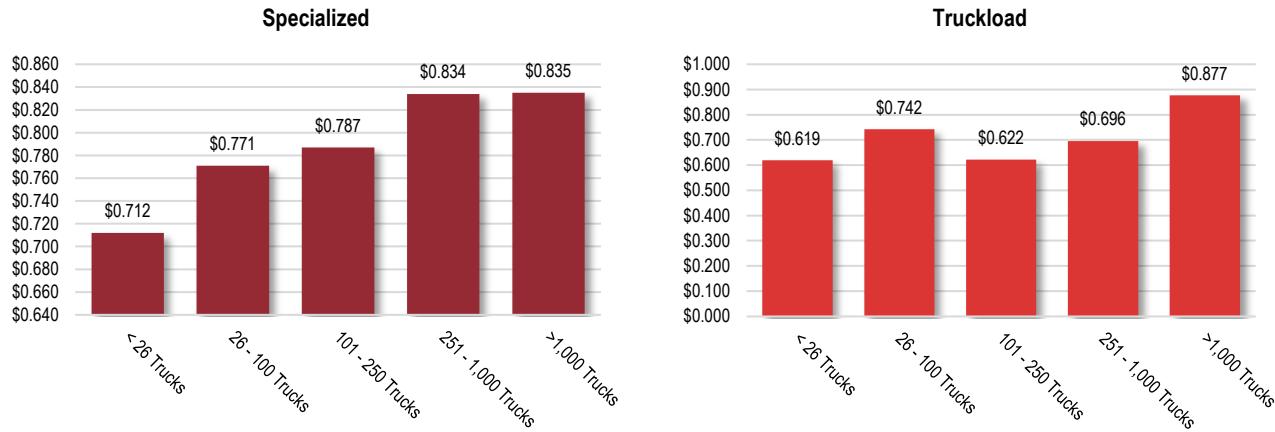
The West region shows a mixed cost profile. It leads in fuel and insurance costs but offers the lowest average driver wages. Key points for the West include:

- » Highest Fuel Costs
- » Highest Insurance Premiums
- » Lowest Driver Wages

Driver Compensation Costs

2023

Driver Wages per Mile by Fleet Sector and Size



Pay Type	2019	2020	2021	2022	2023
Owner-Operator Pay	\$1.36	\$1.65	\$1.81	\$2.08	\$2.10

Total Marginal Cost	\$1.699	\$1.646	\$1.855	\$2.251	\$2.270
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Driver Compensation Costs

- » In 2023, the trucking industry spent an average of \$0.97 per mile on driver compensation. This includes \$0.78 allocated to driver wages and \$0.19 for driver benefits. This comprehensive figure underscores the substantial financial commitment required to maintain a workforce in the trucking industry.

LTL Carriers

- » The LTL sector saw average pay rise from \$0.780 per mile in 2022 to \$0.920 per mile (\$36.99 per hour) in 2023, driven by Yellow's closure and new union agreements. This increase significantly impacted overall industry wages, reversing the trend of narrowing wage gaps between truckload and LTL drivers.

Driver Wages by Sector and Fleet Size

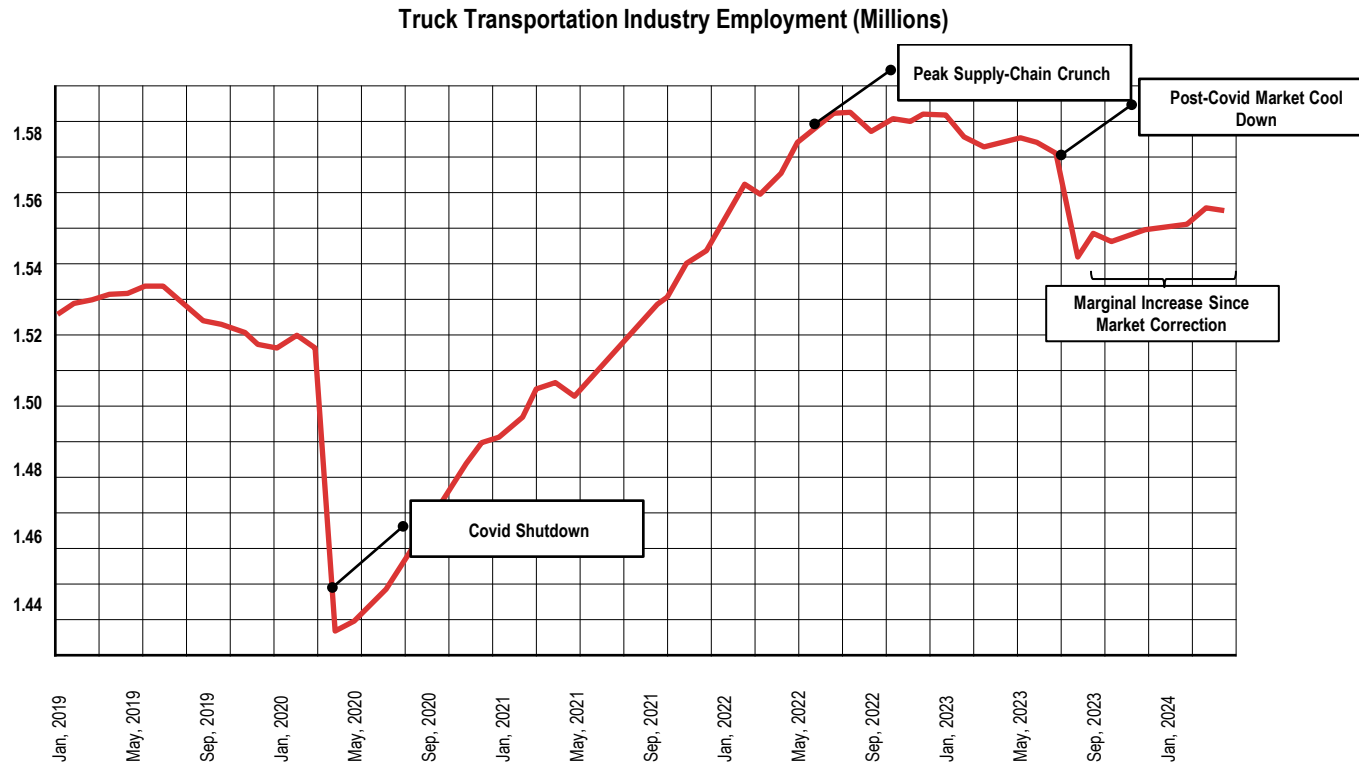
- » **Truckload Fleets:** Fleets with over 1,000 trucks paid \$0.88 per mile, up from \$0.77 in 2022. Fleets with fewer than 26 trucks saw a slight decrease in wages, while other truckload fleets had minor increases of 1-2 cents per mile.
- » **Specialized Fleets:** Wages in specialized fleets grew across all sizes. Fleets with over 1,000 trucks paid the highest wages, with only a 6-cent difference from those with 26 to 100 trucks. Smaller fleets saw wage increases, with 26 to 100 truck fleets rising from \$0.73 to \$0.77 per mile.

Owner-Operators

- » As of December 2023, the FMCSA registered 578,329 single-truck, single-driver for-hire carriers. Despite a softer spot market and lower freight volumes in 2023, owner-operator pay rose to \$2.10 per mile, reflecting their continued premium rate amidst market challenges.

Trucking Employment Trends

2022 - 2024

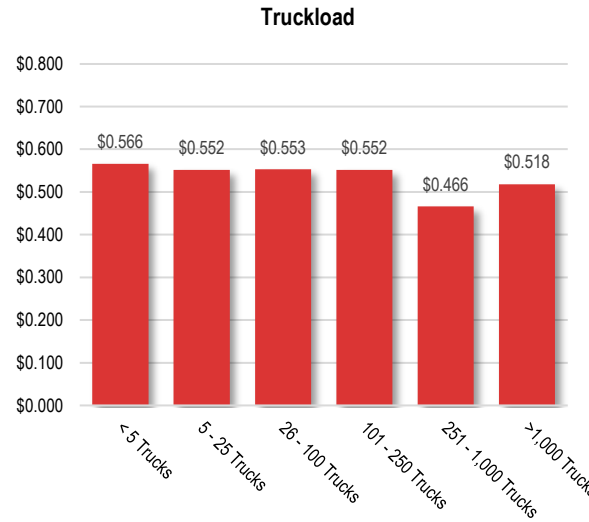
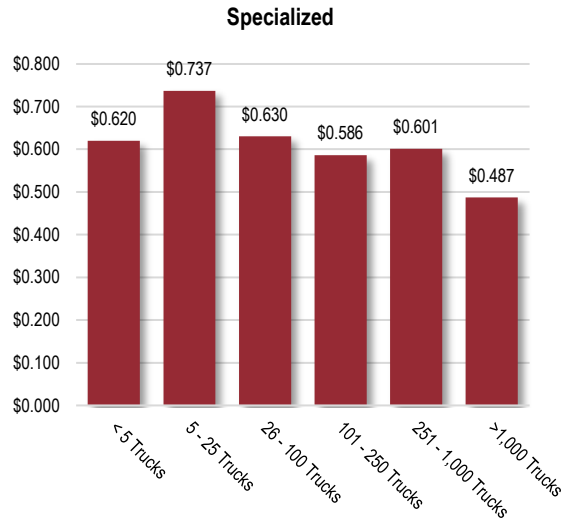


Overview of Employment Trends

- » The Truck Transportation Industry Employment chart, based on BLS data, tracks monthly employment trends in the industry.
- » During the last freight boom, high driver demand led to record-high pay rates. However, as the freight market softened at the end of 2022, truck transportation employment decreased from nearly 1.59 million in July 2022 to 1.575 million in July 2023.
- » The closure of Yellow caused a sharp employment drop. By April 2024, employment had risen but remained at levels seen before Yellow's closure.
- » Continued employment growth might signal a recovering freight market and potential driver pay growth similar to 2023. Conversely, if employment trends downward as seen in early 2023, driver pay could see a lower increase rate.

Fuel Costs & Efficiency Across Fleet Sizes

Fuel Costs per Mile by Fleet Sector and Size



Industry Average Truck-Tractor MPG by Operating Weight Class

Weight Class (lbs.)	Average MPG
30,000-40,000	6.9
40,000-50,000	7.2
50,000-60,000	7.2
60,000-70,000	7.8
70,000-80,000	6.9
80,000-100,000	6.2

Fuel Costs by Fleet Size

- » Fuel costs per mile were nearly identical across fleet sizes. On average, there was less than a 5-cent difference between fleets with fewer than 5 trucks and those with over 1,000 trucks, with some differences being as small as a tenth of a cent.

Fleet-Wide Fuel Economy

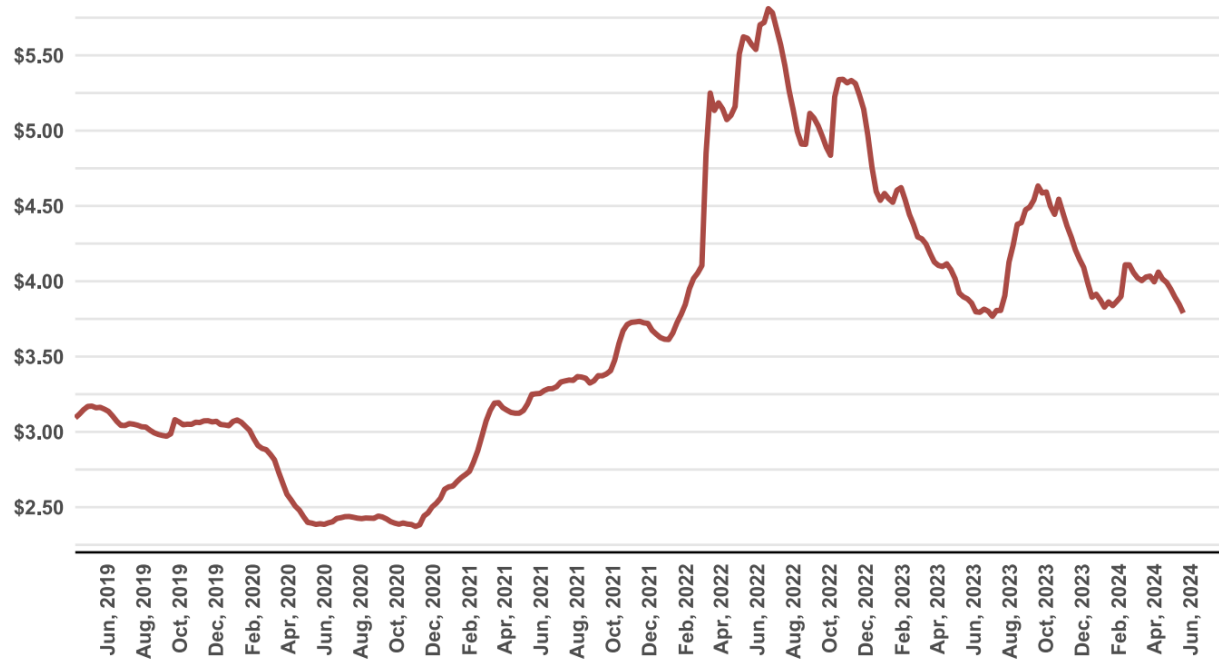
- » The average fleet-wide fuel economy in 2023 was 6.61 miles per gallon, a slight decrease from 6.68 miles per gallon in 2022.

Future Price Forecast

- » The EIA forecasts that highway diesel prices will remain below \$4 per gallon through summer 2024. Prices are expected to rise moderately in autumn 2024 and throughout 2025, peaking at \$4.25 per gallon.

Diesel Price Trends and Fleet-Specific Fuel Costs

Monthly U.S. On-Highway Diesel Prices 2019 - 2024

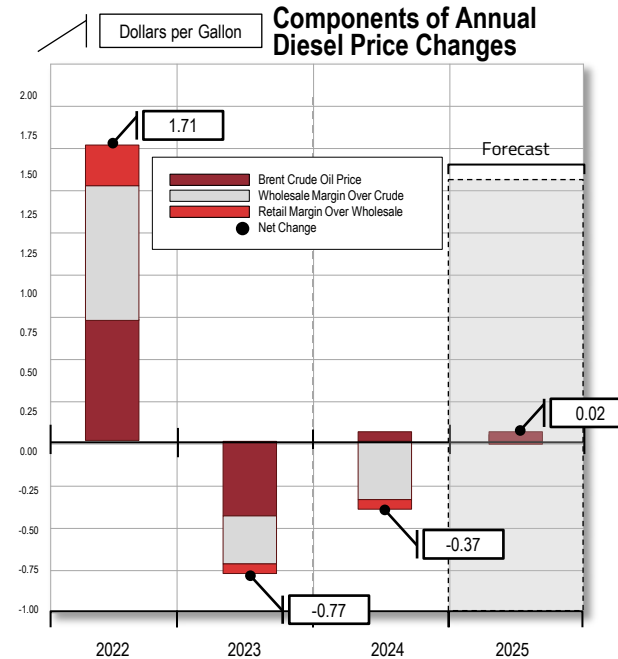
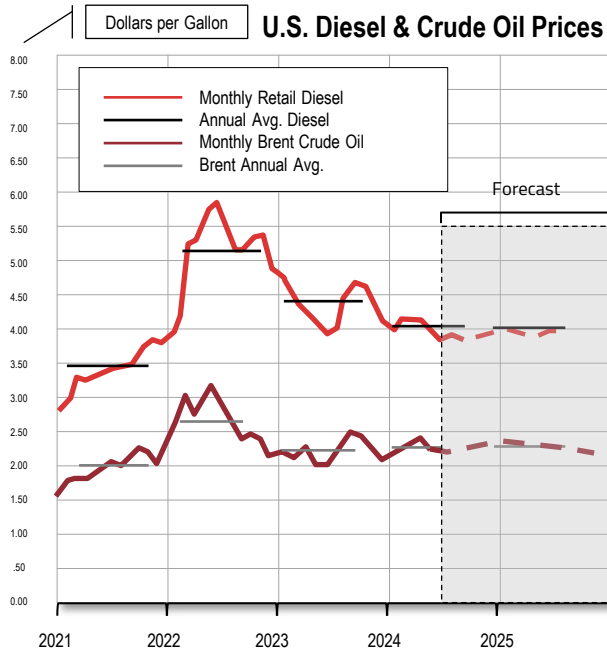


Diesel Prices

- » **Price Trends:** Diesel prices experienced a steady decline in early 2023, briefly spiking to January highs during autumn before decreasing again with the onset of winter. The annualized decrease was 13.7%, reaching \$0.55 per mile.
- » **Fleet Fuel Costs:** Truckload fleets incurred similar fuel costs regardless of fleet size. On average, the cost per mile varied by less than 5 cents between fleets with fewer than 5 trucks and those with over 1,000 trucks, with some differences being as small as a tenth of a cent.
- » **Specialized Carriers:** For specialized carriers, fleet size significantly influenced fuel costs, with larger fleets benefiting from economies of scale.

Diesel Price Trends and Fleet-Specific Fuel Costs

Cont'd



2024 Outlook: U.S. Gas and Diesel Prices Set to Drop with Increased Refinery Capacity

- » In the January Short-Term Energy Outlook, U.S. retail gasoline prices are expected to decrease in 2024 due to increased inventories from a rise in refinery capacity, which grew from 18.06 million barrels per day (b/d) in January 2023 to 18.31 million b/d by December 2023. In 2025, a slight reduction in gasoline consumption, by less than 1%, is anticipated to further lower prices. Diesel prices are also expected to decline in 2024 and 2025, despite a 1.3% increase in U.S. diesel consumption (about 50,000 b/d) in 2024. Crude oil prices are projected to remain similar to 2023 levels, with lower gasoline and diesel prices resulting from narrower crack spreads, indicating reduced refining costs.

Fleet Size Impact on Operational Costs

Fleet Size and Operational Costs

- » The 26 to 100 fleet size category remains the most expensive to operate. Despite economic challenges, many large carriers expanded their fleets between 2022 and 2023, increasing the number of trucks by 4.1 percent. This growth impacts smaller fleets more significantly, as a 4.1 percent increase in a 300-truck fleet is more impactful than in a 3,000-truck fleet.

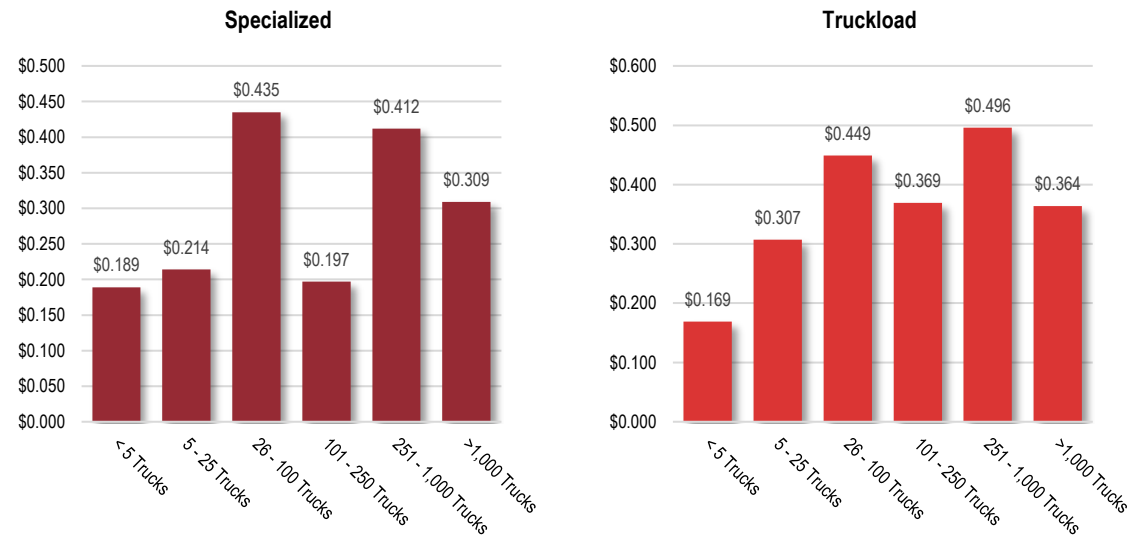
Market Trends and Pricing

- » In 2024, the truck and trailer markets are cooling. New Class 8 sales dropped by over 1,000 units in each of the first four months compared to the previous year and used Class 8 sleeper prices have stabilized just above \$60,000.
- » Carriers reported a 3.8 percent increase in truck and trailer payment costs per mile in the first two months of 2024 compared to 2023. These costs do not directly align with market availability, as many fleets finance their purchases over two to five years. Fleets that bought trucks in 2022 will continue making elevated payments into 2024 and possibly beyond.

Market Correction and Payment Costs

- » The Class 8 truck-tractor market in 2023 corrected from the 2020-2021 pandemic-era highs. Consequently, the industry-wide average truck and trailer payment cost rose by 8.8 percent to \$0.360 per mile, reflecting ongoing payments on costly trucks purchased in 2022.

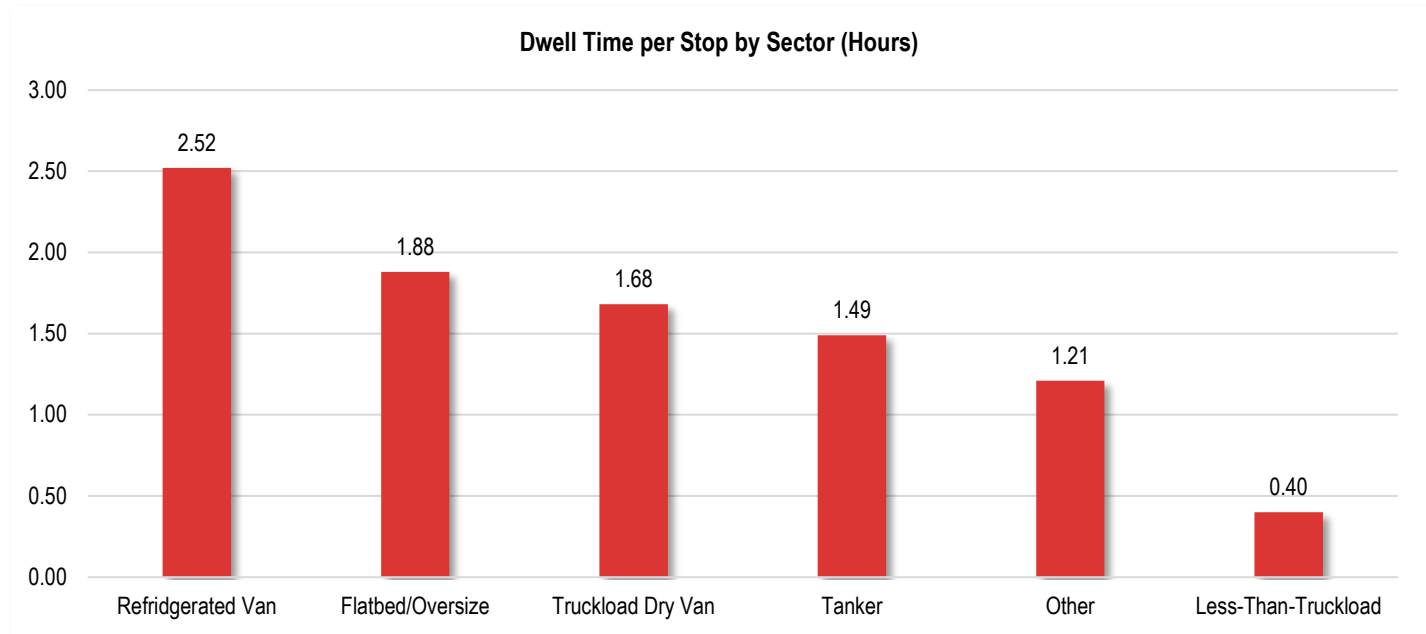
Truck and Trailer Lease or Purchase Costs per Mile by Fleet Sector and Size



J.D. Power Average Used Class 8 Sleeper Price



Impact of Deadhead Mileage on Fleet Efficiency



Deadhead Mileage

- » Deadhead mileage increased from 15.4% in 2022 to 16.3% in 2023 among non-tank operations. This rise is partly due to fleets traveling farther to secure financially viable loads in soft freight markets.

Fleet Performance

- » Truckload carriers with fewer than 5 trucks had the lowest deadhead mileage in 2023, averaging just 10%. This indicates that owner-operators and small fleets are effectively leveraging their tools and schedule flexibility.

Average Dwell Time

Average dwell time improved to 1 hour and 40 minutes per stop in 2023, a 6-minute reduction from the previous year. This reflects continued progress in operational efficiency.

Increased Turnover Rates and Capacity Challenges

Overview

- » In 2023, the truckload carrier industry experienced a notable increase in turnover rates across all fleet size groups compared to 2022. Despite smaller fleets generally having lower turnover rates, the metrics for 2023 indicate a shift in this trend. The soft freight market persisted throughout 2023 and into the first half of 2024, leading to speculations about capacity reductions as a means to potentially drive-up rates.

Turnover Rates

- » Annualized turnover rates among truckload carriers worsened in 2023. Specifically:
 - **Smaller Fleets:** Historically, smaller fleets have enjoyed lower turnover rates. However, the 2023 data reveals a shift.
 - **Medium Sized Fleets:** Fleets with 26 to 100 trucks saw a significant increase in turnover, jumping from 29.2% in 2022 to 51.0% in 2023.

Freight Market and Capacity

- » The freight market remained soft throughout 2023 and continued into early 2024. This softness in the market has led to speculations about reducing capacity—both in terms of the number of motor carriers and trucks competing for shipments—as a strategy to potentially improve rates.
 - **Capacity Trends:** Capacity did see a decrease over 2023 on both a monthly and cumulative basis. Despite this reduction in capacity, freight rates did not improve as anticipated.

Fleet Changes

- » Fleets that remained in the market had a significant impact on overall industry capacity. Notably:
 - **Fleet Size Increase:** On average, fleets participating in the Ops Costs program increased their fleet size by 4.1% between 2022 and 2023.

Operational Metrics

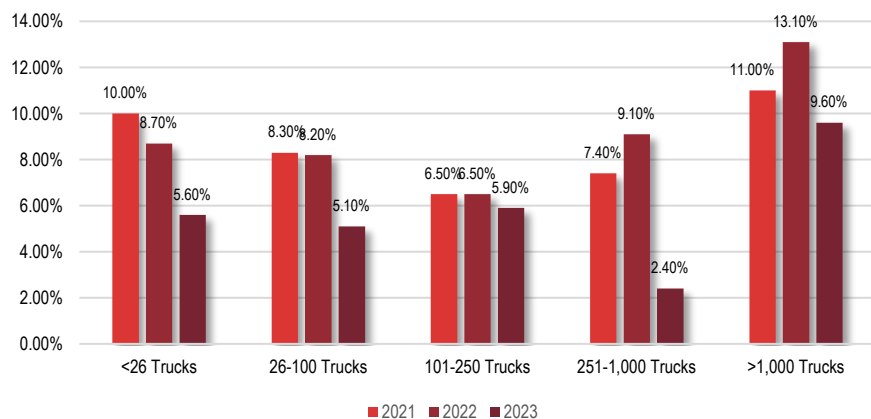
- » In 2023, trucks averaged:
 - Miles per Year: 80,159 miles
 - Days of Operation per Year: 243 days

These metrics suggest several potential trends:

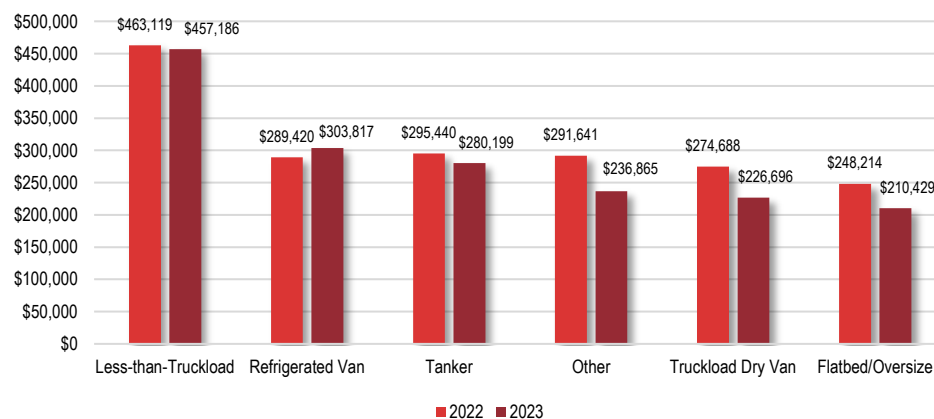
- » **Load Consolidation:** The slight increase in miles per year alongside a decrease in days of operation may indicate a consolidation of loads or routes due to the soft freight market.
- » **Increased Mileage:** Alternatively, the increase in mileage could reflect efforts by trucks to drive farther to secure loads while spending more days parked due to a lack of financially viable loads.

Impact of Revenue Decline on Truckload Carriers

Avg. Operating Margin by Fleet Size 2021-2023



Avg. Respondent Annual Revenue per Truck by Sector 2022 - 2023



Revenue per Mile

- » In 2023, truckload carriers saw a decrease in revenue per mile, dropping by an average of 28 cents from \$3.29 in 2022 to \$3.01.

Revenue per Truck

- » Revenue per truck also experienced a significant decline, falling by 17.5% from 2022 to 2023. This decrease left truckload carriers \$566 short of the sector's 2021 average of \$227,262 per truck.

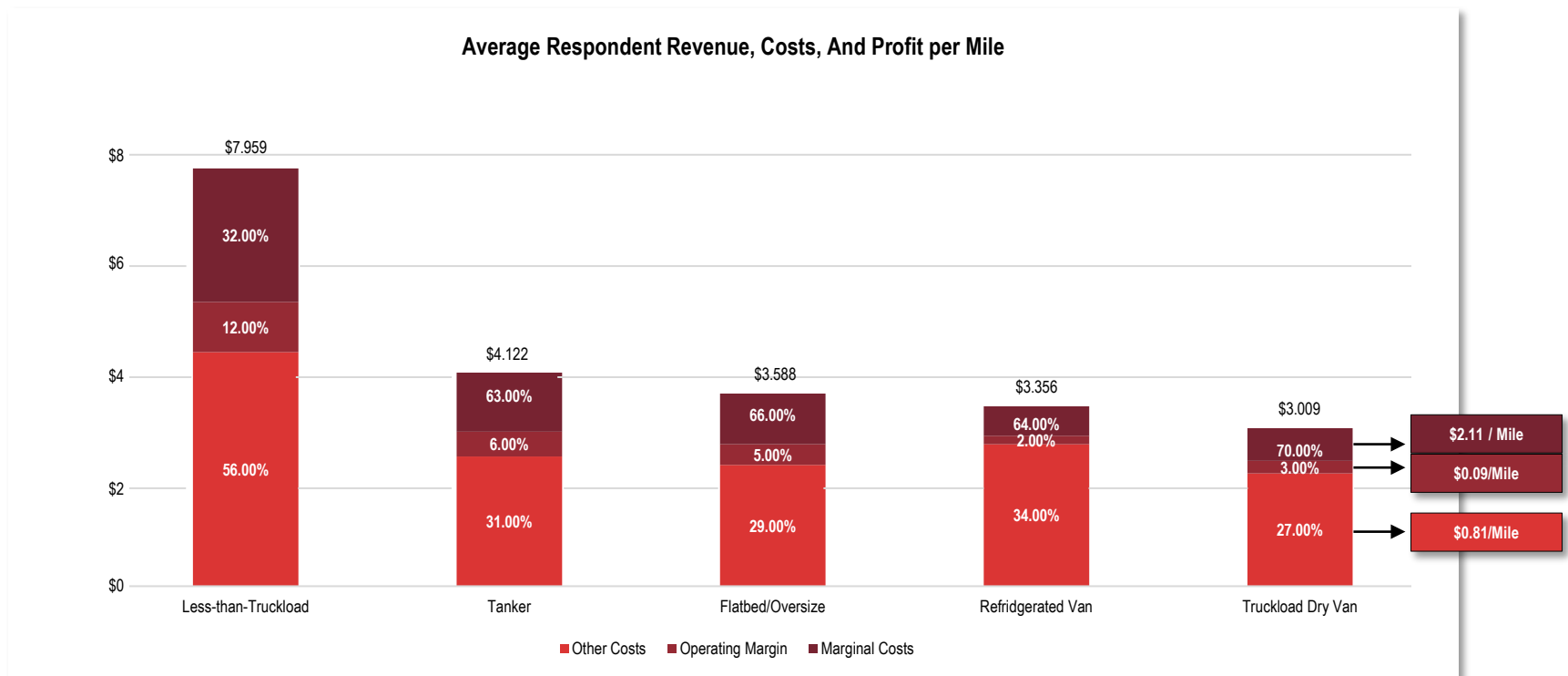
Fleet Size Analysis

- » 251-to-1,000-Truck Group
 - This group exhibited the lowest performance, with an average operating margin of just 2.4 percent. It also had the highest proportion of fleets operating at a loss in 2023.
 - This group also had the fewest fleets with double-digit operating margins, highlighting a challenging year for mid-sized fleets.

Operating Margins by Sector 2021 - 2023

Sector	2021 Operating Margin	2022 Operating Margin	2023 Operating Margin
LTL	10%	12%	12%
Tanker	7%	11%	6%
Refrigerated Van	11%	6%	2%
Truckload	10%	8%	3%
Flatbed / Oversize	10%	7%	5%

Revenue, Operating Margins & Cost Efficiency



The chart "Respondent Revenue, Costs, and Profit per Mile" synthesizes key financial metrics on a per-mile basis for five sectors. It enables direct comparison of average revenue, marginal costs, and operating margins across these sectors.

Key Metrics

» Revenue per Mile

- Displays sector-specific average revenue on a per-mile basis.

» Operating Margins per Mile

- Shows average operating margins per mile, providing insights into profitability relative to revenue and costs.

» Costs Breakdown

- "Other costs" are derived by subtracting core marginal costs and profit from revenue. This category includes non-driver payroll, telematics, and technology expenses.

Conclusion: Cost Trends, Revenue Challenges & Future Projections

Rising Marginal Cost & Revenue Trends

In 2023, the trucking industry saw an increase in average marginal costs, rising to \$2.27 per mile. This increase represents a modest 0.8% rise from 2022. When excluding fuel costs, however, the annual increase in marginal costs was more pronounced, at 6.6%, climbing from \$1.61 to \$1.72 per mile.

Operating margins fell across all fleet sizes and sectors, except for Less-than-Truckload (LTL) carriers. Truckload carriers, in particular, experienced lower revenues per mile and per truck compared to 2022, resulting in an average operating margin of just 3%.

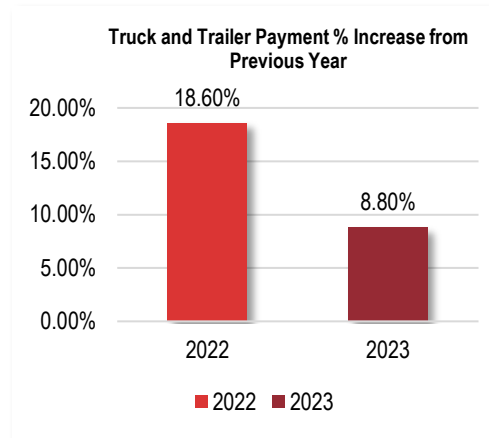
Capacity Growth Amidst a Soft Market

Despite these difficulties, the industry experienced a 4.1% increase in capacity among returning participants. The soft freight market continued to challenge industry efficiency, with rising driver turnover rates in the truckload sector and an increase in deadhead mileage to 16.3% for all non-tank operations. On a positive note, average dwell time per stop improved to 1 hour and 40 minutes.

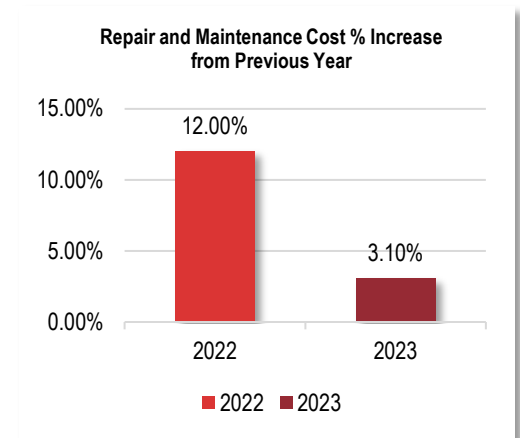
Economic Conditions & Market Challenges

Looking forward, economic conditions do not suggest significant improvement in the freight markets. In the first quarter of 2024, freight rates remained stagnant, GDP growth was the lowest of the previous four quarters, and both freight shipments and spending declined at a rate greater than in 2023. While retail sales grew by 3% year-over-year in April 2024, manufacturing production declined during the same period, and erratic month-to-month housing starts remained well below 2021 levels.

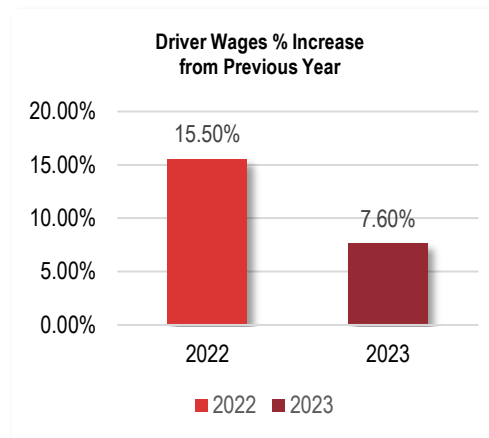
Most costs, excluding fuel, rose in 2023, but the increase was only half the rate experienced during the previous two years of unprecedented cost spikes.



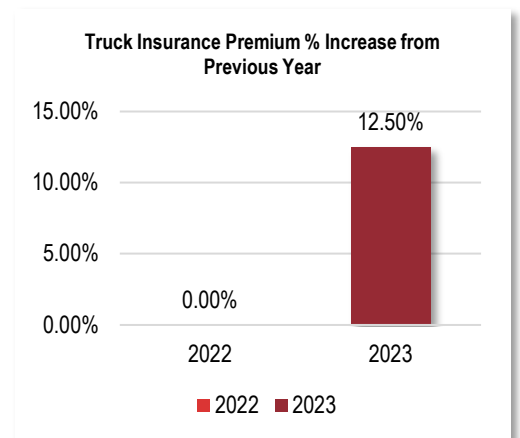
Truck and trailer payments grew by 8.8% in 2023 compared with 18.6% in 2022.



Repair and maintenance costs grew by 3.1% compared with 12.0% in 2022.



Driver wages grew by 7.6% compared with 15.5% in 2022.



The most notable exception to this trend was truck insurance premiums, which grew by 12.5% after two years of negligible change.



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