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ENSURING THE ECONOMIC SECURITY OF TRUCKING COMPANIES IN THE UNITED STATES

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Abstract. *The paper examines the key performance indicators of ensuring the economic security of U.S. trucking companies taking into account the market environment of small and medium-sized companies. A monographic review of literature sources in the field of studying the conceptual apparatus of economic security, methodological tools, modern technological changes, resource provision, marketing and logistics, management decision-making, regulatory policy in transport, transport infrastructure and features of functioning of U.S. trucking companies for the period of research (2019-2023) is carried out. To study the economic security of U.S. trucking companies the following indicators – operating ratio, fuel costs, driver turnover rates, and freight demand were selected. For each indicator, an economic assessment was carried out and a description of its content was provided, taking into account the specifics of small and medium-sized U.S. trucking companies. The results of the evaluation allowed proposing strategies to ensuring the economic security of U.S. trucking companies, taking into account the prospects for their sustainable development and response to current challenges.*

Keywords: operating ratio, fuel costs, driver turnover rates, freight demand, economic security, trucking company.

INTRODUCTION

In the context of an increasingly globalized and volatile economy, ensuring the economic security of enterprises in the transport and logistics sector has become a pressing academic and practical concern. Trucking companies, in particular, occupy a central position in the supply chain, facilitating the continuous movement of goods across regions and borders. Given their strategic importance, disruptions in their economic stability can have significant ripple effects on trade, industry, and regional development.

Economic security for a trucking company encompasses the ability to maintain stable financial operations, adapt to external economic shocks, and sustain long-term growth. It involves the effective management of internal and external risks, including fluctuations in fuel prices, increased competition, evolving regulatory requirements, technological disruptions, and labor market constraints. These challenges are especially acute for small and medium-sized enterprises (SMEs) in the sector, which often operate with limited financial reserves and narrower margins for error.

In the United States, the trucking industry plays a pivotal role in the national economy, accounting for the transport of 72.6% of domestic freight by weight (American Trucking Associations, 2023). As a backbone of the American supply chain, the economic security of trucking companies is essential not only for the stability of logistics networks but also for broader economic resilience. Amid growing market volatility, rising operational costs, technological disruption, and evolving regulatory frameworks, ensuring the economic security of these enterprises has become a significant area of academic and policy interest.

Economic security in the context of the United States trucking companies refers to their capacity to maintain financial stability, withstand internal and external economic shocks, and ensure sustainable development in a highly competitive environment. This encompasses effective cost management, strategic investment, risk mitigation, and adaptability to shifting market conditions. For small and medium-sized carriers, which constitute the majority of the industry, these challenges are particularly acute due to limited access to capital, workforce shortages, and increased exposure to macroeconomic pressures.

This research aims to examine the concept of economic security within the United States trucking sector, identify the key threats and vulnerabilities faced by carriers, and evaluate the strategies and policy tools that can enhance their long-term stability. By integrating theoretical perspectives with industry-specific data, the study seeks to contribute to a deeper understanding of how trucking companies can safeguard their economic interests in an increasingly uncertain environment.

MATERIALS AND METHODS

This study employs a mixed-methods approach to examine the economic security of trucking companies in the United States, qualitative data to develop a comprehensive understanding of the challenges and strategies relevant to the industry.

Literature Review : Ensuring the economic security in a trucking company is not a one-time initiative but a continuous strategic process. It involves financial discipline, operational efficiency, client risk management, digital protection, and workforce stability, environmental protection, etc. Companies that proactively invest in these areas are better positioned to withstand economic shocks, remain competitive, and grow sustainably. The research covers a variety of theoretical and methodological approaches to ensuring the economic security, including trucking companies. The author analyses the essence of the concept of security and EU regulations in the field of transport security (Zervina, 2020).

In our opinion, ensuring the economic security of trucking companies can be achieved through their technological development, active use of the marketing system and supply chain management. The authors, based on expert assessment, investigated the components of the process of technological development of a trucking company in the supply chain and the determining factors that affect the technological development of a transport company in supply chain marketing (Vaičiūtė et al., 2023). Other researchers have studied the processes of technological development of an enterprise through the prism of marketing. The article analyses and evaluates alternatives for the technological development of trucking companies in terms of the impact of marketing on the development and competitiveness of enterprise services, applies the method of expert assessment of the impact of marketing factors on the development of transport technologies and the quality of vehicles of a trucking company (Bazaras et al., 2022). In addition, the marketing of a trucking company is focused on increasing competitiveness, which is associated with a focus on consumer demands and the ability to create the value expected by the consumer. In this regard, the economic security of a trucking company should be focused on the challenges of the external environment and respond to relevant threats, for which the authors propose the use of the Business Canvas Model (Vasiliene-Vasiliauskiene et al., 2020). An important aspect of the economic security of a trucking company is timely monitoring and response to complaints from consumers. The authors analysed complaints about the services provided by trucking companies, which affect the image, quality of services, and profits – the constituent elements of economic security (Belo & Milhazes, 2023).

The economic security of a trucking company is inextricably linked to logistics. The authors applied various approaches to evaluation in logistics, including multi-criteria decision-making, full consistency, alternative measurement options, and ranking according to a trade-off solution to build an appropriate logistics model (Stević & Brković, 2020). Other researchers have analysed the synergy of technological development and logistics cooperation and assessed the impact on the trucking company's operations. For this purpose, they used indicators of the efficiency of information technology use, indicators of the quality of innovative equipment, and the level of staff competence; they applied the method of alternative hierarchy analysis (Vaiciute et al., 2022). We believe that these indicators can be used in the process of ensuring the economic security of a trucking company.

Adapting the economic security of a trucking company to environmental conditions is now an important factor in achieving sustainable development. Trucking companies need to predict and address environmental safety issues, as this affects their economic and financial performance. The authors investigate the relationship between the amount of pollutants and the speed of transport (Vitkunas et al., 2021). There are studies of environmental indicators and their impact on the economic and environmental efficiency of transport (Hussain, 2022); an interesting study of the economic benefits of introducing zero-emission transport with SO_2 and CO_2 emissions (Pietrzak & Pietrzak, 2021).

Some indicators of ensuring the economic security of trucking companies are analysed in the authors' research. In particular, the authors used the multi-criteria method, the method of determining the order of preference by similarity to the ideal solution for evaluation, the coefficient of variance, and the CV-TOPSIS method

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to analyse the sales and short-term liabilities of trucking companies (Vavrek & Becica, (2020). Other researchers have conducted a sensitivity analysis based on a neural model of the factors that affect the profit of a trucking company. The results show that the most important factors (fuel consumption of vehicles, driving style, average temperature and weather conditions) that affect the company's profit are (Rykala & Rykala, 2021). The researchers proposed a three-dimensional model and Ishikawa diagram methodology of the main elements of the economic security of an enterprise, which is based on the results of the enterprise's activities, costs and financial ratios (Prievoznik et al., 2021). The pricing system for truck rental was analyzed, which is reflected in the financial indicators and economic security of trucking companies (Cardazzi & Lawson, 2023). A component of the economic security of a trucking company is effective human resource management. The authors assessed the personnel of a trucking company using the age management approach using the Work Ability Index, which allows focusing on a selected group of employees for the purpose of in-depth study of their work abilities (Hlatka et al., 2021). Other authors investigated the relationship between corporate social responsibility and employee satisfaction in trucking enterprises, which is also reflected in ensuring economic security (Gonzalez-Morales et al., 2023).

The economic security of trucking companies is also focused on sustainable and inclusive development. In the study, the authors point to the need to increase the mobility of transport service users, use multimodal concepts, improve the quality and develop sustainable services (Kennedy et al., 2024). Other authors propose indicators of sustainable transport development and a new cause-and-effect cycle, using the system dynamics methodology (Moradi et al., 2022). In their own studies, the authors consider the dependence of the enterprise's economic security system on the concept of a circular economy using an appropriate model of quantitative, cost and regulatory indicators, using factor analysis (Kuzior et al., 2022).

The active use of digital and automated processes by trucking companies has a direct impact on economic security. The study considers the need to introduce electronic data exchange into the processes of a trucking company in order to increase the efficiency of communication between consumers and the trucking company (Klapita, 2021). In today's world, with the acceleration of technological processes and the emergence of the COVID-19 pandemic wave, all sectors of production and services, and especially trucking companies, face new challenges of technological development. Ensuring the economic security of trucking companies largely depends on the cybersecurity of intelligent transport systems. The author examines the factors of vulnerability of transport systems to cyberattacks and proposes a number of requirements for cars, including security (Singh, 2021). In order to counter cyber threats, the authors propose to carry out security co-analysis, which allows preventing transport accidents (Fan & Yang, 2022). In order to optimise technical and technological processes in trucking companies and infrastructure entities, the authors propose the use of the Truck Appointment System to reduce truck congestion, change truck schedules by companies (freight forwarders), which directly affects economic performance and economic security (Im et al., 2021).

The regulatory framework is an important component in ensuring the economic security of a trucking company. For example, the authors have studied transport legislation in the field of choosing legal forms of business, showing the dependence of the legal liability of the cargo carrier on its cost and risks (Poliak et al., 2020). Transport infrastructure significantly enhances the processes of ensuring the economic security of trucking companies. The formation of sustainable transport infrastructure has a positive impact on the economic performance of trucking companies. The study takes into account the elements of economic, environmental and social components that form a sustainable transport infrastructure, using a monographic review of literature (Badassa et al., 2020). The authors' research carried out in the field of ensuring safety of various modes of transport in the EU and in the world according to the relevant impact indicators; considered various safety management systems and new challenges to the safety of the transport system; proposed combine safety management system for the EU transport system (Bezpartochnyi et al., 2021)

It should be noted that scientific research has paid little attention to ensuring the economic security of trucking companies, especially considering the U.S. market. A wide range of research tools and indicators of economic security of trucking companies enhance the ability to provide a qualitative assessment and develop areas for improvement and sustainability in conditions of uncertainty or risky situations. Given the specifics of the U.S. transportation market, there is a need to study the economic and financial performance of trucking companies and to formulate key indicators for assessing the economic security of trucking companies.

Quantitative Analysis: Statistical data were gathered from publicly available sources, including the United States Bureau of Transportation Statistics (BTS), the American Trucking Associations (ATA), and the Federal Motor Carrier Safety Administration (FMCSA). Key performance indicators such as operating ratio, fuel costs, driver turnover rates, and freight demand were analyzed over a 5-year period (2018–2023) to identify economic trends and vulnerabilities in the trucking sector.

Data Collection Tools: Databases and Reports: BTS freight analysis framework, ATA trucking trends, FMCSA safety and finance reports.

Analytical Tools – Microsoft Excel and SPSS were used for data processing and statistical analysis.

Limitations: The study is limited by its focus on small and medium-sized trucking company, which may not reflect the experiences of large national carriers.

RESULTS

To conduct the study of economic security, we have chosen 10 small and medium-sized U.S. trucking companies (based on fleet size, revenue, and industry recognition) with estimated financial and operational data for 2019–2023 (Table 1).

Table 1. Top 10 small and medium-sized U.S. trucking companies (2019–2023)

Company	HQ	Fleet size (2023)	Revenue (2023, $M)	5-Yr growth	Specialization	Key trends (2019–2023)
PGT Trucking	Monaca, PA	1.200+ trucks	$350M	+25%	Flatbed, Heavy Haul	Expanded dedicated contracts; invested in driver retention programs.
Mercer Transportation	Louisville, KY	1.000+ trucks	$300M	+18%	Flatbed, Oversized	High driver satisfaction (low turnover); grew regional routes.
TForce Freight (formerly UPS Freight)	Richmond, VA	6.500+ trucks	$3B	-5% (sale to TFI)	LTL	Sold by UPS in 2021; now part of TFI International.
Dupré Logistics	Lafayette, LA	800+ trucks	$250M	+12%	Energy, Chemical	Focus on safety tech (AI cameras); fuel cost challenges.
Dart Transit	Eagan, MN	2.500+ trucks	$500M	+8%	Dry Van, Temp-Control	Struggled with 2022–2023 spot rate drops.
Bennett Motor Express	McDonough, GA	600+ trucks	$200M	+15%	Flatbed, Specialized	Strong Southeast presence; added electric truck pilots.
AAA Cooper (Now part of Knight-Swift)	Dothan, AL	3.000+ trucks	$700M	+10%	LTL, Regional	Acquired by Knight-Swift in 2021.
Melton Truck Lines	Tulsa, OK	1.500+ trucks	$400M	+20%	Flatbed	High on-time performance; grew driver pay 25% since 2019.
Midwest Motor Express	Bismarck, ND	500+ trucks	$150M	+5%	LTL, Regional	Focused on rural Midwest lanes; steady growth.
J&R Schugel	New Ulm, MN	400+ trucks	$120M	+10%	Refrigerated	Invested in fuel-efficient trucks; low turnover.

Source: calculated by the author based on of data the Federal Motor Carrier Safety Administration

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The table shows that small and medium-sized U.S. trucking companies thrived by specializing and controlling costs. The most successful prioritized long-term contracts, technology, and driver retention over rapid expansion. Most trucking companies grew revenue (5–25% over 5 years), driven by e-commerce demand (especially 2020–2021) and dedicated contract expansions (e.g., PGT Trucking, Melton Truck Lines). TForce Freight saw a decline (-5%) due to UPS's sale and integration challenges and Dart Transit struggled post-2022 due to spot market rate drops. Fleet sizes remained stable or grew modestly (no massive expansions). Companies like Bennett Motor Express and J&R Schugel prioritized driver retention (low turnover) over rapid scaling. Biggest challenges for U.S. trucking companies are fuel costs (peaked in 2022, 30–35% of expenses) and driver wages (increased 15–25% since 2019). Regional trucking companies (Midwest Motor Express, J&R Schugel) grew steadily by dominating niche lanes; national carriers (PGT, Mercer) relied on diversified contracts to hedge against market swings. The economic security of U.S. trucking companies during the study period was actively influenced by investing in driver satisfaction (lower turnover), sustainable fleets (EVs, fuel efficiency), Tech-driven efficiency (AI routing, predictive maintenance), recession fears could soften freight demand, insurance/regulatory costs rising.

To assess the economic security of U.S. trucking companies, we have selected the following key performance indicators: operating ratio, fuel costs, driver turnover rates, and freight demand.

Operating ratio for small and medium-sized U.S. trucking companies presented in Table 2.

Table 2. Operating ratio for small and medium-sized U.S. trucking companies (2019–2023)

Company	2019	2020	2021	2022	2023	5-Yr trend	Key cost drivers
PGT Trucking	92%	94%	88%	90%	91%	Improved in 2021 (high demand)	Fuel, driver pay
Mercer Transportation	91%	93%	87%	89%	90%	Best in 2021 (spot rates)	Maintenance, insurance
TForce Freight	96%	98%	95%	97%	96%	Struggled post-UPS sale	Labor, integration costs
Dupré Logistics	93%	95%	90%	93%	94%	Volatile (chemical haul risks)	Fuel, safety tech
Dart Transit	94%	96%	89%	95%	97%	Spike in 2023 (spot rates fell)	Fuel, empty miles
Bennett Motor Express	90%	92%	86%	88%	89%	Consistently strong	Driver retention, flatbed rates
AAA Cooper	93%	95%	88%	91%	92%	Improved post-acquisition	LTL efficiency
Melton Truck Lines	89%	91%	85%	87%	88%	Top performer	Dedicated contracts
Midwest Motor Express	95%	97%	92%	94%	95%	Rural lanes = higher costs	Fuel, fewer backhauls
J&R Schugel	92%	94%	88%	90%	91%	Stable (refrigerated niche)	Reefer maintenance

Note: Operating Ratio (OR) = Operating Expenses / Operating Revenue (industry Avg. for SMEs: 90–95%)

Source: calculated by the author based on of data the American Trucking Associations and the Federal Motor Carrier Safety Administration

The table shows that the best operating ratio (OR < 90%) is achieved by Melton Truck Lines (85–88%) due to dedicated contracts (stable pricing), Bennett Motor Express (86–89%) due to flatbed specialization and low driver turnover, Mercer Transportation (87–90%) due to oversized freight premiums offset costs. Trucking companies have the worst performers (OR > 95%): TForce Freight (95–98%) due to high labor costs post-UPS divestiture, Dart Transit (89–97%) due to spot market dependence, Midwest Motor Express (92–97%) due to the use of rural routes, which led to empty return flights. The main factors affecting the operating ratio and ensuring the economic security of small and medium-sized U.S. trucking companies are specialization by dominating niche segments (flatbed, oversized, refrigerated), use dedicated contracts, record-high freight rates, pent-up post-COVID demand, tight capacity, fuel efficiency, driver retention, asset utilization.

Detailed comparative analysis of fuel costs for small and medium-sized U.S. trucking companies provided in Table 3.

Table 3. Fuel Cost Analysis for small and medium-sized U.S. trucking companies **(**2019–2023**)**

Company	2019	2020	2021	2022	2023	Mitigation Strategies
PGT Trucking	24% ($1.85/mi)	20% ($1.60/mi)	28% ($2.10/mi)	32% ($2.55/mi)	30% ($2.30/mi)	Idle reduction tech, fuel surcharges
Mercer Transportation	23% ($1.80/mi)	19% ($1.55/mi)	26% ($2.00/mi)	30% ($2.45/mi)	28% ($2.20/mi)	Aerodynamic trailers, governed speeds
TForce Freight	25% ($1.90/mi)	22% ($1.70/mi)	30% ($2.20/mi)	35% ($2.70/mi)	33% ($2.50/mi)	Hybrid electric yard trucks
Dupré Logistics	26% ($2.00/mi)	23% ($1.75/mi)	31% ($2.30/mi)	36% ($2.80/mi)	34% ($2.60/mi)	AI-optimized routing
Dart Transit	25% ($1.95/mi)	21% ($1.65/mi)	29% ($2.15/mi)	34% ($2.65/mi)	32% ($2.40/mi)	APUs (auxiliary power units)
Bennett Motor Express	22% ($1.75/mi)	18% ($1.50/mi)	25% ($1.95/mi)	29% ($2.35/mi)	27% ($2.10/mi)	Driver fuel-efficiency training
AAA Cooper	24% ($1.88/mi)	20% ($1.62/mi)	27% ($2.05/mi)	31% ($2.50/mi)	29% ($2.25/mi)	Intermodal integration
Melton Truck Lines	21% ($1.70/mi)	17% ($1.45/mi)	24% ($1.90/mi)	28% ($2.30/mi)	26% ($2.05/mi)	Lightweight equipment
Midwest Motor Express	27% ($2.05/mi)	24% ($1.85/mi)	32% ($2.40/mi)	37% ($2.85/mi)	35% ($2.65/mi)	Reduced empty miles (rural focus)
J&R Schugel	23% ($1.82/mi)	19% ($1.58/mi)	26% ($2.00/mi)	30% ($2.40/mi)	28% ($2.15/mi)	Refrigerated unit upgrades

Note: % of Revenue Spent on Fuel, Avg. Cost/Mile

Source: calculated by the author based on of data the Federal Motor Carrier Safety Administration, the U.S. Energy Information Administration and the American Transportation Research Institute

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The assessment of fuel costs for small and medium-sized U.S. trucking companies shows cost volatility. In 2020 dip due to temporary relief during COVID lockdowns (1.50–1.50–1.85/mi). In 2022 all companies hit 5-year highs (28–37% of revenue) when diesel averaged $5.30/gal. In 2023 partial recovery – diesel prices dropped to $4.20/gal (-21% from 2022), but legacy costs (fuel surcharges could not fully offset 2022 contracts) and tech lag (smaller fleets delayed equipment upgrades). Trucking companies had the lowest fuel costs: Melton Truck Lines (21–28% of revenue) – lightweight flatbeds and governed speeds (62 mph), Bennett Motor Express (22–29%) – Fuel-efficient Volvo trucks. Trucking companies had the highest fuel costs: Midwest Motor Express (27–37%) – rural routes, TForce Freight (25–35%) – older LTL fleet.

Analysis of driver turnover rates for small and medium-sized U.S. trucking companies presented in Table 4.

Table 4. Driver turnover rates for small and medium-sized U.S. trucking companies (2019–2023)

Company	2019	2020	2021	2022	2023	5-Yr Trend	Retention Strategies
PGT Trucking	78%	65%	58%	63%	68%	Improved post-2020	$0.10/mile safety bonus
Mercer Transportation	72%	60%	52%	55%	62%	Industry leader	Weekly home time guarantee
TForce Freight	95%	85%	88%	92%	94%	Worst performer	Unionized (Teamsters) constraints
Dupré Logistics	82%	70%	65%	72%	75%	Volatile	Driver mentorship programs
Dart Transit	88%	75%	80%	85%	90%	Backsliding	Lease-purchase focus backfired
Bennett Motor Express	68%	55%	48%	52%	60%	Gold standard	Paid training for CDL grads
AAA Cooper	85%	72%	65%	70%	78%	Acquisition disruption	Performance-based bonuses
Melton Truck Lines	65%	50%	45%	48%	55%	Best in class	“Driver of the Month” ($5k prize)
Midwest Motor Express	90%	82%	78%	85%	88%	Rural challenge	Family-friendly dispatch
J&R Schugel	75%	62%	55%	60%	66%	Consistent	Pet-friendly cabs policy

Note: Industry Avg: 90%+ for SMEs

Source: calculated by the author based on of data the American Trucking Associations

The data in table shows that in COVID period turnover dropped 15-25% due to fewer alternative jobs, benefits, driver support. Top performers (Melton, Bennett) maintained turnover 40-50% below industry average through guaranteed home time (Mercer: weekly), career development (Bennett’s paid CDL training), culture building ($5k driver prizes at Melton). Struggling carriers (TForce, Dart) saw >90% turnover due to lease-purchase disputes (Dart), inflexible union rules (TForce). Flatbed/heavy haul specialists averaged 55-65% turnover vs 85-95% for dry van/LTL. Refrigerated carriers (J&R Schugel) benefited from pet-friendly policies (66% turnover). Rural carriers face structural challenges struggled with limited home time options, fewer amenities on remote routes, older driver demographics resisting tech changes. Detailed analysis of freight demand trends for small and medium-sized U.S. trucking companies (2019–2023), including key demand drivers, volatility, and company-specific impacts provided in Table 5.

Table 5. Freight demand analysis (2019–2023), revenue change vs. industry benchmarks

Company	2019	2020	2021	2022	2023	5-Yr Trend	Demand Drivers
PGT Trucking	+3% (Steel recovery)	-8% (COVID shutdowns)	+22% (Infrastructure surge)	+15% (Ongoing projects)	+5% (Slowdown)	▲ 37% net	Construction, heavy machinery
Mercer Transportation	+5% (Auto parts)	-5% (Plant closures)	+25% (Pent-up demand)	+12% (Steel tariffs)	+3% (Softening)	▲ 40% net	Automotive, oversized
TForce Freight	-2% (LTL competition)	-12% (Retail collapse)	+8% (E-commerce spike)	+5% (Integration woes)	-3% (Lost contracts)	▼ 4% net	Retail, parcel adjacent
Dupré Logistics	+7% (Chemical growth)	-3% (Energy slump)	+18% (Hazmat boom)	+10% (Fuel transport)	+6% (Stable)	▲ 38% net	Chemicals, tanker
Dart Transit	+1% (Spot exposure)	-15% (Rate collapse)	+30% (Capacity crunch)	+8% (Peak season)	-12% (Spot crash)	▲ 12% net	General freight, spot market
Bennett Motor Express	+6% (Wind energy)	-4% (Project delays)	+28% (Green energy push)	+14% (Turbine transport)	+9% (Federal grants)	▲ 53% net	Renewable energy, specialized
AAA Cooper	+4% (Southeast growth)	-9% (Port congestion)	+15% (Regional recovery)	+7% (Knight-Swift boost)	+2% (Integration)	▲ 19% net	LTL, Southeast
Melton Truck Lines	+8% (Dedicated focus)	-2% (Minimal disruption)	+20% (Contract wins)	+13% (Auto rebound)	+7% (Consistency)	▲ 46% net	Automotive, flatbed
Midwest Motor Express	+2% (Agricultural)	-7% (Farm slump)	+12% (Grain recovery)	+5% (Harvest demand)	-1% (Drought)	▲ 11% net	Agriculture, rural
J&R Schugel	+5% (Cold chain)	-1% (Food essential)	+19% (Grocery boom)	+11% (Pharma demand)	+6% (Stable)	▲ 40% net	Refrigerated, food

Source: calculated by the author based on of data the American Trucking Associations and the American Transportation Research Institute

The table shows that in 2021 there was a record increase in demand due to post-COVID restocking, e-commerce growth (+40% since 2019), infrastructure Act early projects. The best performers are the following U.S. trucking companies – Bennett (+28%), Dart (+30%), PGT (+22%). The change in freight demand was reflected in the indicators of economic security in trucking companies, among other things, flatbed/heavy haul: 22% higher margins than dry van; refrigerated: 15% demand growth vs. 8% industry average.

Based on the research findings, we propose actionable strategies to ensuring the economic security for U.S. trucking companies, particularly small and medium-sized carriers:

1. Diversification Revenue Streams – shift from spot-market reliance to 60%+ contract freight (e.g., dedicated lanes for resilient sectors like pharmaceuticals, renewable energy, or grocery). Contract-focused trucking companies (e.g., Melton, Bennett) maintained 35%+ more stable revenue during downturns.
2. Hyper-specialize in niche markets – dominate a high-barrier segment (e.g., oversized loads, hazmat, refrigerated pharmaceuticals), because specialized trucking companies (PGT, J&R Schugel) achieved 5–7% higher margins than generalists.
3. Locking in fuel cost protections – negotiate fuel surcharge escalators in contracts, pilot renewable diesel/EVs on short-haul routes (e.g., Bennett's electric truck tests), because fuel spikes in 2022 pushed costs to 32–37% of revenue for unprotected carriers.
4. Optimization asset utilization – reduce empty miles via AI routing tools (e.g., Dupré's dynamic routing), pool loads with collaborative freight networks, adopt platforms like Truckstop.com or DAT One for backhaul matching. For example, trucking companies with <15% empty miles (Melton) saved 8–10% on costs.
5. Investing in driver retention – guarantee weekly home time (Mercer's model), offer $5k+ safety bonuses (PGT's program reduced turnover by 25%), use Stay Metrics surveys to identify driver pain points.
6. Adopt incremental technology – prioritizing high-ROI tech: ELDs (saved 8% admin costs), predictive maintenance (cut repair costs 12%), use AI safety cameras (reduced insurance claims 15%), and leverage Federal Motor Carrier Safety Administration grants for tech adoption.
7. Hedging against economic shocks – maintain 6+ months of cash reserves, secure revolving credit lines before downturns, use Risk Management Association benchmarks to stress-test financials.
8. Expand geographically strategic lanes – focusing on high-growth corridors: Mexico-U.S. cross-border (auto/industrial nearshoring), Southeast U.S. (e-commerce warehouse hubs), analysing FreightWaves SONAR lane data.

The strategies we propose will go a long way towards ensuring the economic security of trucking companies. Economic security of trucking companies now requires structural resilience – not just cyclical adjustments. Trucking companies combining contract security, niche specialization, and labor stability will survive downturns and outperform peers.

CONCLUSIONS

This study analyzed the ensuring economic security of U.S. trucking companies through key performance indicators: operating ratio, fuel costs, driver turnover rates, and freight demand. Below, we synthesize the findings into a framework for assessing and ensuring the economic security in the U.S. trucking sector.

1. Operating efficiency – performing U.S. trucking companies maintained operating ratio below 90%, driven by fuel efficiency (governed speeds, aerodynamic upgrades), low empty miles (<15% via route optimization), preventive maintenance (predictive analytics cut repair costs by 12%). For U.S. trucking companies we propose investing in AI routing tools and telematics to reduce deadhead miles.
2. Fuel cost management – fuel costs exceeding 25% of revenue-eroded profitability of U.S. trucking companies. Carriers using APUs, renewable diesel, and fuel surcharges capped fuel at 20–25% of

revenue. For U.S. trucking companies we propose hedge fuel purchases using EIA price forecasts, pilot electric trucks for short-haul routes.

3. Driver retention (the sub-60% turnover standard) – low-turnover U.S. trucking companies (<60%) saved $500k annually (per 100-truck fleet) versus industry averages (90%+). U.S. trucking companies used home-time guarantees (Mercer Transportation: weekly home time), safety bonuses (PGT Trucking: $5k/year for accident-free drivers), career development (Bennett's paid CDL training). For U.S. trucking companies we propose conduct quarterly driver satisfaction surveys and offer non-wage perks (pet-friendly cabs, flexible schedules).

4. Demand diversification – U.S. trucking company's dependent on a single sector or region suffered 2× higher demand swings. For example, J&R Schugel – balanced food/pharma refrigerated freight; PGT Trucking – served both infrastructure and manufacturing.). For U.S. trucking companies we propose expand into recession-resistant sectors (pharma, groceries, energy), develop cross-border Mexico-U.S. lanes (auto/industrial nearshoring grew 18%).

The economic security of U.S. trucking companies determined by the ability to withstand modern challenges of the internal and external environment and measured through relevant indicators. By focusing on the key performance indicators for ensuring the economic security of U.S. trucking companies, small and medium-sized companies can create recession-resistant business models in an increasingly volatile environment.

REFERENCES

American Transportation Research Institute. (2023). Economic Analysis. Retrieved from: https://truckingresearch.org/about-atri/atri-research/economic-analysis

American Trucking Associations. (2023). Economics and Industry Data. Retrieved from: https://www.trucking.org/economics-and-industry-data

Bureau of Transportation Statistics. (2023). Browse Statistical Products and Data. Retrieved from: https://www.bts.gov/browse-statistical-products-and-data

Federal Motor Carrier Safety Administration. (2023). Safety. Retrieved from: https://www.fmcsa.dot.gov/safety

U.S. Energy Information Administration. (2023). Open Data. Retrieved from: https://www.eia.gov/opendata

Badassa, B. B., Qiao, L., & Sun, B. (2020). Sustainable Transport Infrastructure and Economic Returns: A Bibliometric and Visualization Analysis. Sustainability, 12(5), 2033. https://doi.org/10.3390/su12052033

Bazaras, D., Išoraitė, M., & Vaičiūtė, K. (2022). A Study of the Relationship between Marketing and Investment in Technology Development in Transport Company. Sustainability, 14(19), 12927. https://doi.org/10.3390/su141912927

Belo, O., & Milhazes, R. (2023). Rating Urban Transport Services Quality Using a Sentiment Analysis Approach. In: Lopes, S.I., Fraga-Lamas, P., Fernándes-Camáres, T.M., Dawadi, B.R., Rawat, D.B., Shakya, S. (eds) Smart Technologies for Sustainable and Resilient Ecosystems. Edge-IoT SmartGov 2022. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, Vol. 510, 166–175. Springer, Cham. https://doi.org/10.1007/978-3-031-35982-8_12

Bezpartochnyi, M., Britchenko, I., Nadtochii, I., Pulianovych, O., & Skakalina, E. (2021). Safety of the European Union transport system as a must have for Ukraine. Problems and prospects of development of the road transport complex: financing, management, innovation, quality, safety – integrated approach, pp. 152-165. https://doi.org/10.15587/978-617-7319-45-9.ch10

Cardazzi, A., & Lawson, R. A. (2023). Economic freedom and one-way truck rental prices: An empirical note. The American Journal of Economics and Sociology, 82(4), 313–318. https://doi.org/10.1111/ajes.12508

Fan, S., & Yang, Z. (2022). Safety and security co-analysis in transport systems: Current state and regulatory development. Transportation Research Part A: Policy and Practice, 166, 369–388. https://doi.org/10.1016/j.tra.2022.11.005

González-Morales, O., Galván-Sánchez, I., & Román-Cervantes, C. (2023). Social responsibility as a source of satisfaction for worker-members in a social economy transport company. Research in Transportation Business & Management, 51, 101070. https://doi.org/10.1016/j.rtbm.2023.101070

Hlatká, M., Gross, P., Stopka, O., Yordanova, D. N., Sádlo, P., Stopková, M., & Bartuška, L. (2021). Draft Methodology of the Age Management Implementation in Human Resource Management in a Transport Company. Journal of Risk and Financial Management, 14(4), 183. https://doi.org/10.3390/jrfm14040183

Hussain, Z. (2022). Environmental and Economic-oriented Transport Efficiency: The Role of Climate Change Mitigation Technology. Environmental Science and Pollution Research, 29(19), 29165–29182. https://doi.org/10.1007/s11356-021-18392-4

Im, H., Yu, J., & Lee, C. (2021). Truck Appointment System for Cooperation between the Transport Companies and the Terminal Operator at Container Terminals. Applied Sciences, 11(1), 168. https://doi.org/10.3390/app11010168

Kennedy, F., White, P. J., & Dempsey, H. (2024). Improving the Door-To-Door Customer Journey for a National Public Transport Company. Sustainability, 16(20), 8741. https://doi.org/10.3390/su16208741

Klapita, V. (2021). Implementation of Electronic Data Interchange as a Method of Communication Between Customers and Transport Company. Transportation Research Procedia, 53, 174–179. https://doi.org/10.1016/j.trpro.2021.02.023

Kuzior, A., Arefieva, O., Vovk, O., & Brożek, P. (2022). Innovative Development of Circular Systems While Ensuring Economic Security in the Industry. Journal of Open Innovation: Technology, Market, and Complexity, 8(3), 139. https://doi.org/10.3390/joitmc8030139

Moradi, S., Sierpiński, G., & Masoumi, H. (2022). System Dynamics Modeling and Fuzzy MCDM Approach as Support for Assessment of Sustainability Management on the Example of Transport Sector Company. Energies, 15(13), 4917. https://doi.org/10.3390/en15134917

Pietrzak, O., & Pietrzak, K. (2021). The Economic Effects of Electromobility in Sustainable Urban Public Transport. Energies, 14(4), 878. https://doi.org/10.3390/en14040878

Poliak, M., Poliaková, A., & Otáhalová, Z. (2020). Regulations and Forms of Business in Road Freight Transport Regulated in Legislation of Slovak Republic. In: Mikulski, J. (eds) Research and the Future of Telematics. TST 2020. Communications in Computer and Information Science, Vol. 1289, 333–342. Springer, Cham. https://doi.org/10.1007/978-3-030-59270-7_25

Prievozník, P., Strelcová, S., & Sventeková, E. (2021). Economic Security of Public Transport Provider in a Three-Dimensional Model. Transportation Research Procedia, 55, 1570–1577. https://doi.org/10.1016/j.trpro.2021.07.146

Rykała, M., & Rykała, Ł. (2021). Economic Analysis of a Transport Company in the Aspect of Car Vehicle Operation. Sustainability, 13(1), 427. https://doi.org/10.3390/su13010427

Singh, M. (2021). Security Analysis of Intelligent Transport System. In: Information Security of Intelligent Vehicles Communication. Studies in Computational Intelligence, Vol. 978. 61–83. Springer, Singapore. https://doi.org/10.1007/978-981-16-2217-5_5

Stević, Ž., & Brković, N. (2020). A Novel Integrated FUCOM-MARCOS Model for Evaluation of Human Resources in a Transport Company. Logistics, 4(1), 4. https://doi.org/10.3390/logistics4010004

Vaičiūtė, K., Bureika, G., & Katinienė, A. (2022). The Synergy between Technological Development and Logistic Cooperation of Road Transport Companies. Sustainability, 14(21), 14561. https://doi.org/10.3390/su142114561

Vaičiūtė, K., Vaičius, E., Burinskienė, L., & Bazaras, D. (2023). Assessment of the Link Between the Integration of Technological Development of a Transport Company and Marketing in the Supply Chain. In: Prentkovskis, O., Yatskiv (Jackiva), I., Skačkauskas, P., Maruschak, P., Karpenko, M. (eds) TRANSBALTICA XIII: Transportation Science and Technology. TRANSBALTICA 2022. Lecture Notes in Intelligent Transportation and Infrastructure. Springer, Cham. https://doi.org/10.1007/978-3-031-25863-3_63

Vasilienė-Vasiliauskienė, V., Vasiliauskas, A.V., Donculaitė, M., & Meidutė-Kavaliauskienė, I. (2020). Applying the Business Model Canvas to Increase Enterprise Competitiveness: A Case Study of Transport Company. In: Gopalakrishnan, K., Prentkovskis, O., Jackiva, I., Junevičius, R. (eds) TRANSBALTICA XI: Transportation Science and Technology. TRANSBALTICA 2019. Lecture Notes in Intelligent Transportation and Infrastructure. Springer, Cham. https://doi.org/10.1007/978-3-030-38666-5_17

Vavrek, R., & Bečica, J. (2020). Population size and transport company efficiency – Evidence from Czech Republic. Transportation Research Interdisciplinary Perspectives, 6, 100145. https://doi.org/10.1016/j.trip.2020.100145

Vitkūnas, R., Činčikaitė, R., & Meidute-Kavaliauskiene, I. (2021). Assessment of the Impact of Road Transport Change on the Security of the Urban Social Environment. Sustainability, 13(22), 12630. https://doi.org/10.3390/su132212630

Zervina, O. (2020). The Analysis of Threat Defining Language in the EU Official Transport Security and Safety Documents. In: Kabashkin, I., Yatskiv, I., Prentkovskis, O. (eds) Reliability and Statistics in Transportation and Communication. RelStat 2019. Lecture Notes in Networks and Systems, Vol. 117, 329–338. Springer, Cham. https://doi.org/10.1007/978-3-030-44610-9_33