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Labor Market Impacts of Compliance, Safety, and Accountability (CSA) on the Trucking Industry: Supply and Demand Issues For the Future

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Executive Summary

The purpose of this project was to research the labor market impacts of Compliance, Safety, and Accountability (CSA), a recent federal safety initiative for the trucking industry, including:

1. A review of the current trucking industry response to CSA;
2. An assessment of potential labor market supply and demand issues;
3. Examining trucking employment trends over the past three decades;
4. Tracking supply and demand for truckers throughout 2011;
5. Reviewing the labor market response to CSA since its implementation in December, 2010, and;
6. Presenting a likely post-CSA supply and demand scenario for the trucking industry.

This study provided an overview of trucking regulation in the U.S. to show the level of involvement of government in the industry, focusing in particular on safety rules and guidelines and the relationship between those conditions and industry outcomes. To establish context, the study discussed why and how CSA emerged, provided a brief summary and overview of the CSA initiative, and described new processes and procedures as well as how CSA differed from earlier safety regulations that the initiative replaced. The research described the overall carrier industry response to the implementation of CSA. Exploring context further, this study showed two decades of productivity trends in the trucking industry, with attention to labor market indicators. In terms of the labor market, this study presented several decades of data and information from the Bureau of Labor Statistics, and *The Occupational Outlook Handbook* showing trends in employment and in employment projections for the trucking industry. Carrier employment projections were discussed in conjunction with previous studies of the trucking

industry labor market, and national and industry unemployment rates were compared as well. Finally, the impact of CSA implementation on employment in the trucking industry is discussed.

CSA is a Federal Motor Carrier Safety Administration (FMCSA) initiative, under the U.S. Department of Transportation, designed to improve large truck and bus safety and ultimately to reduce crashes, injuries, and fatalities that are related to commercial motor vehicles. CSA replaced the former enforcement and compliance process to ensure that large commercial motor vehicle carriers and drivers are complying with safety rules, and to intervene more quickly with those who are not. Supply and demand for drivers is perceived as the most fragile chronic condition of the industry, so it was not surprising that the initial industry response to CSA was characteristically dramatic. CSA is data driven, attentive, and consistent and proposes to provide an immediate response to the following specific trucker/carrier carrier conditions:

- Unsafe driving—speeding, reckless driving
- Fatigued driving—hours of service and log book violations
- Driver fitness—CDL or medical violations
- Controlled substance and alcohol abuse or violations
- Vehicle Maintenance—brakes, lights, and other mechanical defects, and failure to make required repairs
- Cargo-Related—failure to properly prevent shifting loads, spilled or dropped cargo, overloading, and unsafe handling of hazardous materials on a CMV
- Crash Indicator—histories or patterns of high crash involvement, including frequency and severity, based on information from state-reported crashes.

Overview of Trucking Regulation in the U.S.

Historically, the U.S. transportation sector in general and trucking industry in particular has been subject to regulations established by the Interstate Commerce Commission (ICC).

Market entry was strictly limited and the rates applied by existing carriers were required to be filed and reviewed by the ICC. In the late 1970s, a series of federal administrative and legislative measures were initiated to deregulate the trucking industry.

Today, the trucking sector remains subject to minor regulations and antitrust laws requiring mergers to be reviewed by the federal antitrust agencies. Entry to the industry is no longer restricted and barriers are limited. Rates are no longer filed or reviewed for reasonableness, and states no longer control the economic regulation of intrastate transport. However, significant consumer protection regulation continues for shipments of household goods, chemicals, and other designated products.

Trucking deregulation was expected to lower shipping costs. As expected, entry of nonunion firms and expansions by existing firms, combined with deregulated rates, encouraged carriers to negotiate lower rates. The elimination of route restrictions allowed many truck companies to achieve more operating flexibility to reduce empty backhauls, and to reduce costs.

In terms of employment in the trucking industry during the period of economic deregulation and the expansion of safety and consumer protection, the decades saw consistent growth. Throughout the 1980's employment in the trucking industry increased by 29.2 percent as deregulation measures were enacted—growing from 1.368 million employees in 1980 to 1.767 million in 1987. Even though employment was increasing dramatically, employees in trucking were experiencing lower wages. This was due partially to a decline in union negotiation power as numbers of nonunion carriers entered the trucking industry and were gaining a competitive advantage over higher labor cost unionized carriers.

Safety Regulations in Trucking Industry

Commercial truck drivers work long hours under physically demanding conditions. Ensuring that drivers get enough rest is a critical component of truck safety. Consequently, the Federal Motor Carrier Safety Administration (FMCSA) imposed Hours of Service (HOS) regulations and documentation requirements that have been modified consistently over the past decade as the industry has attempted to maximize its flexibility in a regulatory and competitive environment through routine litigation. In May 2000, the FMCSA proposed new hours of service and fatigue rules and invited public comment. The final rule adopted in April 2003, however, diluted the safety protections afforded in the proposed rules and industry safety advocates challenged changes to the final regulations in court.

The regulations, designed to prevent accidents involving commercial truck drivers, naturally are effective only with compliance. Compliance with the federal safety regulations remains difficult to enforce since most drivers are paid by the mile, which builds into the system an incentive for the drivers to break the Hours of Service rules. To assist in enforcing the regulations, drivers are required to record their status throughout the day. In 2004, the FMCSA proposed a rule that required drivers to maintain supporting documents to verify the entries recorded in the driver's log. In response to the proposed rule, however, the FMCSA received a large number of negative comments, mostly from within the trucking industry and anticipated lobbying pressure and litigation ensued.

Emergence of the CSA Initiative

CSA replaced the former enforcement and compliance process, including the former compliance review (CR) program and SafeStat, the previous system for measuring safety performance. According to the official CSA website, the CR program was found to be resource

and time-intensive and reached a limited number of motor carriers, making it difficult to improve safety in the trucking industry overall. SafeStat was found to be inadequate as it grouped too many safety problems and did not focus on the potential conditions that lead to crashes. As such, the former system was found to have limitations and in need of updates. CSA was intended to provide a better indication of how well large commercial motor vehicle carriers and drivers are complying with safety rules, and to intervene earlier and more effectively with those who are not.

Tested in 2008 and 2009 in nine states, and initiated nationally in December 2010, the program established a new enforcement and compliance "Operational Model" that utilized FMCSA's resources and those of its state enforcement partners more efficiently and effectively with the goal of making the roads safer for everyone. The new CSA model included three major components: measurement, evaluation, and intervention. The measurement component operationalizes safety performance by using inspection and crash results to identify carriers whose behaviors could reasonably lead to crashes.

CSA uses a "Safety Measure System ' (SMS) to quantify the on-road safety performance of carriers and drivers to identify candidates for interventions, to determine the specific safety problems the carrier or driver exhibits, and to monitor whether safety problems are improving or worsening.

Trucking Industry Response to the Implementation of CSA

When CSA was first announced, the trucking industry's response, as a whole, was unsupportive, critical and opposing. The CSA regulations were met with fear and uncertainty concerning how the scoring systems would work, how roadside inspections would be affected, and what auditors would actually do during an audit. Drivers were unsure of the exact criteria

for rating a driver's safety, and did not know how the information was to be retrieved. Those uncertainties led to anxiety throughout the industry. Industry critics claimed that CSA would result in increased quit-rates, an inability to hire qualified drivers, an increase in commercial insurance rates and an effect on driver pay rates.

Other critics claimed that CSA would take 175,000 drivers off the road immediately with more to follow as more audits occurred. However, not all of the industry responses to CSA were negative, noting the measure's concern for safety.

But, despite some positive comments, most large organizations directly related to the trucking industry voiced major concerns with CSA—most notably the American Trucking Associations (ATA). ATA is a united federation of motor carriers, state trucking associations, and national trucking conferences representing over 34,000 carrier companies of all types.

In terms of driver responses, a recent report by the American Transportation Research Institute found that drivers neither supported nor strongly disapproved of CSA. In fact, the report noted that, overall; most drivers generally lacked an understanding of CSA.

Trends in Productivity in the Trucking Industry

In general, for the trucking industry, productivity indicators for the past several decades have been positive. During three decades of deregulation, declines in trucking prices increased industry productivity. Public capital increases between 1953 and 1973 resulted in increased productivity. In the period between 1992 and 1997, on-board computers doubled productivity. Between 1989 and 1999, lowered barriers to intra-regional trade increased productivity. The increased proportion of long-distance traffic increased productivity. Improvements in traffic composition—long haul versus short haul—improved productivity. Changes in speed limits and the dimensions of vehicles improved productivity.

While labor productivity in the industry had some periods of slight decline, overall between 1998 and 2008 productivity increased by 11.1 percent, at an average rate of one percent per year. Similarly, output per worker showed a positive trend from 1998 to 2008, with a cumulative increase of 15.0 percent since the base year, and an annual average increase of 1.4 percent. Trucking industry output grew by almost 20.0 percent during the decade under study, at an average rate of 1.8 percent per year. The hours worked also increased in the last decade by about 9.0 percent, which was less than the increase in output—demonstrating upward trends in the productivity measures. On average, the numbers of hours worked in long-distance trucking increased annually by .8 percent.

Employment remained relatively stable for more than half of a decade from 2002 (815,036 workers) to 2007 (819,133 workers). Employment increased at a slow rate of half of a percent per year on average from 1998 to 2008. Total increase in the number of workers in trucking industry for the ten years was 4.5 percent for an annual average increase of less than a half of a percentage point. However overall economic conditions produced a decline of 4.2 percent in 2008. The cost of operating long-distance trucking decreased by 11.5 percent in a decade and showed an annual average drop of more than one percentage point. This decline in the labor costs reflected improvements in productivity. Even though compensation levels in the industry declined in some years during early 2000's, overall the decade saw an increase of about 8.2 percent from 1998 to 2008, at an annual average rate of .75 percent, while the annual average cost-of-living increase was 2.7 percent.

Trends in Employment in the Trucking Industry

Over the past two decades, the labor market in the trucking industry has increased consistently. Historically, from 1990 to 1999, the industry labor force grew from 608,600 to

758,100 through 1999 representing a more than 24.5 percent jump in the labor force employed in this industry. During the early 1990's, from 1993 to 1997, employment in this industry grew at an average annual rate of 4.6 percent. The growth continued through the 1990's though at a more modest annual average rate of 1.4 percent. Employment increased slowly averaging half of a percent per year from 1998 to 2008. With recessionary forces in play, annual reductions in employment of 9.2 percent and 2.6 percent occurred from 2008 to 2009 and again from 2009 to 2010, respectively but the industry saw an average annual increase of 4.5 percent per decade.

Employment Projections in the Trucking Industry

Each recent edition of the OOH reported favorable opportunities in trucking because this industry has among the highest number of job openings each year in the United States relative to other sectors. This outlook has been repeated year after year for the past decade and a half, evidenced by the fact that the number of jobs in the trucking industry has increased steadily, from 2.9 million in 1994 to 3.2 million in 2010, making trucking one of the largest occupations.

Each year since 1996, the OOH has maintained that employment opportunities should be favorable for persons interested in trucking. Employment projections for truck drivers have been reported historically to increase as fast as average or better among all sectors for trucking occupations and employment in the trucking industry is expected to continue to be in demand in the future.

Job availability in the trucking industry will continue to increase in the future. Also, despite the regulations and guidelines which target the trucking industry and fluctuations in the economy and the demand for goods to be transported, historically the demand for trucking jobs has remained consistently upward, and it is expected to continue in the near future.

Carrier Employment Projections

Historically, the trucking industry has warned each year of an impending shortage of drivers. The trucking industry as a whole continues to project shortages of qualified drivers in the trucking industry ranging from several tens of thousands to hundreds of thousands. *The Trucker*, a blog about all things trucking recently wrote that by the year 2012 there would be an acute shortage of around 40,000 driver jobs faced by trucking companies.

Previous Studies of Employment in the Trucking Industry

In 2009, Harrison and Pierce produced a study of turnover and retention in the trucking industry where labor shortage predictions in industry trade publications and public relations pieces were common. Looking at several decades of literature, a consistent theme throughout the study was the trucking industry exaggeration of labor shortages. The study concluded in that most of the information on turnover, retention and the motor carrier labor market is anecdotal and has been provided by the industry itself or by industry consultants. The trucking industry is highly competitive and basically opaque.

For the trucking labor market, independent investigations are uncommon, independent surveys are rare, and academic studies have been forced to rely on limited industry data and publications. Much of the data on trucking are proprietary, and the industry has a history of providing information primarily for influence or for public relations. Therefore conclusions about the industry should be guided by an awareness of source information.

As no trucking company has successfully demonstrated that the costs associated with attacking turnover can be offset by profits gained from increased retention, the assumption could be made that the level of turnover and retention is appropriate for the prevailing business climate

in the motor carrier industry and industry reports of labor shortages are designed to support that condition.

Comparing National and Trucking Industry Unemployment Rates

An important indicator of labor market supply in an industry is the relative unemployment rate. Unemployment rates provide an indication of what an industry's labor market is experiencing in terms of joblessness.

For most of the past dozen years the national unemployment rate has been slightly higher than the jobless rate in the trucking industry. Only in response to the December 2007- June 2009 recession did trucking unemployment rise above the national rate. Between 2000 and 2008, unemployment in trucking ranged from a difference of .21 percent below the national rate to 1.16 percent below the national rate—meaning that for those eight years there were fewer individuals looking for work in the trucking industry than there were people looking for work in the nation as a whole.

Mirroring the national economy's response to recessionary forces in 2007, unemployment rose in trucking in conjunction with the nation although at a slightly higher rate for the subsequent three years peaking at 10.57 percent in 2010. Like the nation, the labor market in trucking began to recover in 2011.

The Impact of CSA Implementation on Employment in the Trucking Industry

As reported in an earlier sections, there were industry predications of sever labor shortages because CSA requirements would restrict trucking firms' ability to attract qualified drivers, that requirements would alarm current drivers causing them to leave the industry, that record keeping infringements would negatively impact the availability of employees, and that stricter enforcement of regulations and increased transparency would limit hiring potential for

both carriers and job-seekers. Did changes in trucking employment in relation to percentage changes in freight tonnage reflect those predictions?

Throughout the year the trucking industry labor market increased routinely, even with nearly half the year seeing decreases in freight tonnage. On average trucking payrolls increased by 3,700 individuals monthly even when there were month over month declines in tonnage. After the initial large increase in freight tonnage in January 2011, with a corresponding increase in the workforce of 10,000 in February 2011, the industry continued to hire throughout the year in spite of freight tonnage decreases. The trend over the year, suggested that even with the implementation of CSA, the labor market in trucking continued to grow—industry predictions to the contrary. There has been nothing in industry analyses to imply that 2011 was a labor market replacement year where earlier workforce shortages would catch up regardless of carrier freight demand. This suggested that the implementation of CSA did not have the industry-predicted negative impact on hiring in trucking, although it could be argued that without CSA the industry might have experienced even higher payrolls.

In conclusion, this study found that for several decades the labor market in trucking has paralleled the national economy, the labor supply for trucking has been readily available in spite of industry projections, measures of productivity have been high, employment has remained healthier than the nation as a whole, unemployment has remained consistently below the the national rate, industry wages have not reflected cost-of-living increases, wages remained stagnant during recessionary periods and during recovery, employment projections have remained high, and CSA failed to have a negative impact on hiring qualified drivers following implementation in December of 2010. It can be anticipated that in the near future the trucking

industry will continue to maintain a perception of chronic shortages, but the availability of qualified drivers should remain strong just as it has for most of the past three decades.

Section 1: Introduction

For the past three decades, at least, industry reports concerning a nationwide shortage of truck drivers and the problems associated with low truck driver retention rates have been well documented (Federal Motor Carrier Safety Administration, 2003). The purpose of this project is to research the labor market impacts of Compliance, Safety, and Accountability (CSA), a recent federal safety initiative for the trucking industry, including:

1. A review of the current trucking industry response to CSA;
2. An assessment of potential labor market supply and demand issues;
3. Examining trucking employment trends over the past three decades;
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Bureau of Labor Statistics, and *The Occupational Outlook Handbook* showing trends in employment and in employment projections for the trucking industry. Carrier employment projections are discussed in conjunction with previous studies of the trucking industry labor market and national and industry unemployment rates are compared as well. Finally, the impact of CSA implementation on employment in the trucking industry is discussed.

CSA is a Federal Motor Carrier Safety Administration (FMCSA) initiative, under the U.S. Department of Transportation, designed to improve large truck and bus safety and ultimately to reduce crashes, injuries, and fatalities that are related to commercial motor vehicles *(http://csa.fmcsa.dot.gov)*. CSA replaces the former enforcement and compliance process to provide a better view into how well large commercial motor vehicle carriers and drivers are complying with safety rules, and to intervene earlier with those who are not. Supply and demand for drivers is the most fragile chronic condition of the industry, so it is not surprising that the industry response is characteristically dramatic. Of particular concern, is the CSA data driven, close, consistent and immediate response to the following specific trucker behaviors:

- Unsafe driving—speeding, reckless driving
- Fatigued driving—hours of service and log book violations
- Driver fitness—CDL or medical violations
- Controlled substance and alcohol abuse or violations

These factors coupled with the fact that large numbers of drivers are approaching retirement age with far fewer age cohorts available for replacement have led some industry observers to report anticipated huge shortages of drivers.

Section 2: Regulation in the Trucking Industry

Overview of Trucking Regulation in the U.S.

Historically, the U.S. transportation sector in general and trucking industry in particular have been subject to regulations established by the Interstate Commerce Commission (ICC). Market entry was strictly limited and the rates applied by existing carriers were required to be filed and reviewed by the ICC (Daniel & Kleit, 1995).

In 1935, the Congress passed the Motor Carrier Act known as the 1935 Act, which was initially designed to protect an unstable and newly emerging, fledgling, motor carrier sector from instability[1]. Under this system, the ICC was given the authority to restrict entry into the trucking business and to approve specific routes (*Motor Carrier Act of 1935, later renamed Part II of the Interstate Commerce Act*).

In 1948, with the motor carrier industry facing antitrust lawsuits and investigations by the Department of Justice (DOJ) and several states regarding collective activity, Congress passed the *Reed-Bullwinkle Act*. The act allowed "rate bureaus" operating under ICC-approved agreements to set rates collectively, and immunized the activities of bureaus from the antitrust laws. In an environment of wide regulation, customers paid the undiscounted rates set for classes of goods and published by the bureaus for their member carriers. The bureaus also calculated and published adjustments to across-the-board rates for member carriers to account for changes in labor and fuel costs. All rates were subject to regulatory oversight.

Beginning in the late 1970s, a series of administrative and legislative actions were taken at the federal level to liberalize regulation of the trucking industry. Similar deregulating

[1] The underlying rationale of the 1935 Act was that the motor carrier sector was economically unstable and that aggressive competition might destroy the fledgling industry. Proponents of regulation argued that government should allow emerging transportation industries to grow in a market protected from harsh competition.

initiatives took place in the railroad industry and were followed by the abolition of the ICC in 1995. A year later the Surface Transportation Board (STB) was established as an independent adjudicatory body housed within the U.S. Department of Transportation (DOT), with jurisdiction over certain surface transportation economic regulatory matters. At the time, the main regulatory focus was the pre-existing system of railroads, which was dominating the transportation of manufactured goods in U.S. However, as an adequate interstate highway system was being built, the motor carrier industry continued to develop and achieve financial stability.[2] The regulatory environment for trucking industry has changed substantially since the enactment of the *Motor Carrier Act of 1980* followed by similar deregulation of railroad rates. Prior to 1980, interstate motor common carriers collectively set their general freight rates (both the less-than-truckload general freight sector rates and truckload rates) through regional rate bureaus that enjoyed broad antitrust immunity. The collective rates were subject to review by the ICC. No deviations by independent individual motor carriers were allowed from the rates publicly set by the bureaus. After 1980, the antitrust immunity of the rate bureaus was reduced and collectively agreed single-line rates (except for the general rate increases, GRIs)[3] were required to comply with the antitrust laws.

The *Motor Carrier Act of 1980*, made room for antitrust agencies to actively propose trucking deregulation and advocate in favor of competition in the sector. The Federal Trade Commission (FTC) made deregulating efforts directed towards state governments that retained

[2] In 1980, approximately 70% of the nation's total freight expenditures were paid to motor carriers, compared with 87% in 2004.

[3] A rate bureau was allowed to establish "rate adjustments of general application based on industry average carrier costs." 49 U.S.C. § 13703(a)(1)(G). Antitrust immunity was still given to collective action with respect to specific routes and joint rates, rates for the transportation of household goods, classifications, mileage guides, rules and divisions. 49 U.S.C. §13703(a)(1).

some power to regulate intrastate trucking[4]. At the same time changes in public policies—the nationwide 55 mile per hour (mph) speed limit, and changes in the stock of capital invested in the nation's highway system increasing nation's highway stock in the 1960's through the mid-1970's impacted the industry as well (Keeler, 1986).

Today, the trucking sector remains subject to minor regulations and antitrust laws requiring mergers to be reviewed by the federal antitrust agencies. Entry is no longer restricted and barriers to entry are low. Rates are no longer filed or reviewed for reasonableness[5] and states no longer have control of the economic regulation of intrastate transport. However, significant consumer protection regulation continues to be in place for shipments of household goods. Deregulation efforts are ongoing. Effective January 1, 2008, the Surface Transportation Board (STB) completed a review of the status of rate bureau agreements and determined not to renew their immunity.

According to the FTC, federal and state regulations of trucking placed upward pressure on prices and encouraged inefficient practices. Trucking regulation increased freight rates significantly, between 30.0 percent to 50.0 percent, and increased the freight bill to U.S. industries by $5.5 to $7.3 billion per year (FTC, 1998). Increased prices and protection from competition generated higher than normal profits for carriers owning operating certificates and significantly higher wages for union members employed in the industry. Even during the years of high fuel prices in the mid 1970's, major carriers earned on average a 50.0 percent higher rate of return than similar firms operating in other sectors of the economy (Owen, 1998).

[4] In a submission to the Railroad Commission of Texas, the FTC presented evidence that by deregulating the interstate market in Texas the shipping costs of a common consumer product would decrease from $2.52 per mile to $1.46 per mile. The FTC further brought evidence of positive effects of deregulation in states that had taken the initiative: lower prices, continued service to small communities, and undiminished service.

[5] Rates and rules relating to movements of household goods and to non-contiguous domestic trade (i.e., involving Alaska or Hawaii) are subject to review by the STB to ensure fairness. Filing requirements are limited to non-contiguous domestic trade.

Trucking deregulation was projected to lower shipping costs. As expected, free entry of nonunion firms and expansions by existing firms, combined with having deregulated rates, encouraged a majority of carriers to negotiate lower rates. The elimination of route restrictions allowed many truck companies to achieve more operating flexibility to reduce empty backhauls, and to reduce costs. The average interstate "truckload" (TL) rates decreased by 25.0 percent by 1998 comparing to the 1977 rates, when the reform was not in place (Owen, 1998).[6] During the same period, the average "less-than-truckload" (LTL) rates fell about 12.0 percent, which is less than the TL rates because more truckers entered the truckload part of the industry adding downward competitive pressure on prices. Notably, these reductions in shipping rates occurred during a period when fuel prices more than doubled, and remained low after the first adjustment of the industry to deregulation. Discounting the rates became a common practice in the industry, while the service quality improved (Moore, 1986; Winston, 1998) or remained constant[7]. For the LTL trucking, the carriers substantially reduced their empty miles and their real operating costs per vehicle dropped in the post--deregulation decade by 35.0 percent. For TL trucking, costs have fallen by at least 75.0 percent (Winston, 1998).

Keeler (1986) found that the 55 mph speed limit had a negative and significant effect on costs, but increased infrastructure investment had no impact on costs. This latter result suggests that additional spending in road construction and improvement resulted in an increased quality of truck services, rather than in lower costs. In addition, the 1982-1983 recession influenced the post-deregulation productivity decline in general.

[6] The trucking industry is composed of two sectors: "less-than-trucking" (LTL) and "truckload" trucking (TL). The LTL uses a network of terminals to consolidate shipments of more than one shipper's goods in a truck. The TL provides point-to-point service for one shipper's goods that fill an entire truck.

[7] Some studies found that there is no change in service quality post deregulation in trucking.

Daniel and Kleit (1995) examined the relationship between price and three specific types of regulations--rate regulation, entry regulation, and the provision of antitrust immunity for decisions made jointly by agencies such as rate bureaus. By comparing the degree of regulation for shipments within particular states with shipping costs, they found that for LTL carriers each type of regulation was positively related to the cost of trucking services. Rate regulation increased the cost of TL shipping and free entry effectively regulated shipping costs in smaller markets such as state markets, but also at the national level.

Following deregulation, the number of LTL carriers of large size (having over $10 million in revenues) decreased from more than 600 in 1976 to around 50 in 1995 (Morrison and Winston, 1999). Consequently, competition in LTL trucking increased from alternative smaller shipments carriers such as UPS and FedEx (Boyer, 1989; Morrison & Winston, 1999). The TL industry continued to exhibit high levels of competition regardless of regulation. However, the number of competitors increased from about 20,000 small TL carriers in 1980 to almost 55,000 in 1995 (Morrison & Winston, 1999). After 1995, the competition intensified because of the growth of mega-carriers having annual revenues of about $1 billion.

Throughout the 1980's employment in the trucking industry has increased by 29.2 percent since deregulation from 1.368 million employees in 1980 to 1.767 million in 1987.[8] Even though employment was rising dramatically, those employed in trucking were experiencing lower wages. This was due to a decline in Union negotiation power as nonunion carriers were entering the trucking industry and were gaining a competitive advantage over higher labor cost unionized carriers (FTC, 1988).

Finally, deregulation has given the carriers an opportunity to use resources more efficiently, which resulted in cost savings in the industry and reductions in shipping cost. Before

[8] FTC study,1988.

the deregulation, private fleets transported more than 50.0 percent of the nation's TL freight, mainly because the shipping rates quoted by common carriers under operating restrictions were extremely high. Many firms were forced to divert their resources from their primary line of business and accept empty backhauls imposed on private carriers by regulation. After deregulation, those extra costs were eliminated. Carriers were able to offer lower prices and more efficient services by dramatically reducing their costs of moving and storing raw materials and the costs of transporting finished products (Owen, 1998).

Opponents of trucking deregulation have argued that partial deregulation would result in fewer carriers serving small and/or remote communities, would harm consumers due to competition practiced by well-financed LTL carriers, would inject more inefficiencies, and would cause highway safety to deteriorate due to pressures to maintain low rates (Owen, 1998). However, available data shows that trucking deregulation has been beneficial for consumers. By significantly decreasing transportation cost, which is a major component of the retail price, deregulation contributed to increase consumers' surplus (Winston, 1998).

In the regulated market, carriers' service to small towns function at rates below cost by setting larger city rates above competitive levels. After deregulation, some carriers indicated that with increased competition they would be unable to keep city rates sufficiently high to generate enough revenue to maintain the service to small and/or remote towns. However, most studies found that service to small communities stayed constant or improved since deregulation. An ICC study concluded that, "the Motor Carrier Act of 1980 has not harmed shippers in small and isolated communities. In fact, evidence suggests that small communities have actually benefited from this legislation" and rural shippers were the first to adopt the legislative changes (Beilock & Freeman, 1984).

Additional results indicate federal deregulation of trucking industry promoted more efficiency in pricing systems. In the pre-regulatory system, the ICC actively exercised control over maximum and minimum rates. Because truck freight rates could not be reduced selectively, rates could not be adjusted across routes of similar distances, preventing shippers to take advantage of economies of scale. After deregulation, freight brokers emerged as intermediaries between shippers and carriers in response to the growing complexity of traffic management. Their responsibility was to assist shippers to place loads on trucks in such a way to eliminate empty backhauls, and efficiently use capacity to respond to demand. Electronic data exchange systems were set in place to allow shippers to obtain rate information in real time. Collectively, these changes suggest that by removing federal and state antitrust immunity for collective ratemaking, the trucking industry not only increased price efficiency, but also encouraged innovation.

Safety Regulations in the Trucking Industry

> *Compliance, Safety, Accountability (CSA) is a Federal Motor Carrier Safety Administration (FMCSA) initiative to improve large truck and bus safety and ultimately reduce crashes, injuries, and fatalities that are related to commercial motor vehicles. It introduces a new enforcement and compliance model that allows FMCSA and its State Partners to contact a larger number of carriers earlier in order to address safety problems before crashes occur (http://csa.fmcsa.dot.gov/about/default.aspx).*

Commercial truck drivers work long hours under physically demanding conditions. Ensuring that drivers get enough rest is a critical component of truck safety. Consequently, the Federal Motor Carrier Safety Administration (FMCSA) has imposed Hours of Service (HOS) regulations. In May 2000, the FMCSA proposed new hours of service and fatigue rules and invited public comment. The final rule adopted in April 2003, however, diluted the safety protections afforded in the proposed rules. The changes to the final regulations lead consumer

safety advocates to challenge the new rule in court. In its decision invalidating the new rule, the Court of Appeals for the District of Columbia criticized the rule changes as "arbitrary and capricious." Among other things, the court criticized the new rule for increasing from 10 to 11 the number of consecutive hours drivers may drive before resting and for failing to require the use of electronic on-board recording devices to assure compliance with the rules despite evidence that these changes may be detrimental to public safety.[9]

In July 2004, Congress temporarily delayed the new regulation by allowing it to become effective after the FMSCA considered and addressed the federal court's criticisms. In August 2005, additional research and written opinions enabled FMSCA to implement a rule virtually identical to the one already in place. Consumer advocacy groups again challenged the regulation in Court, again maintaining that the changes were detrimental to public safety. In a July, 2007 opinion, the D.C. Circuit Court of Appeals again invalidated portions of the new regulations, finding that the FMSCA failed to publicly disclose its methodology in studying the new rules in time to allow public comment as required by law. In December 2007, the U.S. Senate held hearings about the new Hours of Service regulations.[10] The debate has continued for more than a decade centered on the conflict between public safety and trucking company profits.

Commercial truckers transporting property are subject to daily and weekly limits on the number of hours they are permitted to work. Generally, drivers are allowed to work no more than 14 consecutive hours, of which they are allowed to drive for maximum 11 hours, while the remaining time may be devoted to paperwork, loading and unloading, etc. After exhausting these limits, drivers are required to spend a minimum of 10 consecutive hours off duty. There

[9] U.S. Court of Appeal, For the District of Columbia Circuit, On Petition for Review of an Order of the U.S. Department of Transportation, Decided on July 16, 2004. Document is available at: http://www.cadc.uscourts.gov/internet/opinions.nsf/913124065C680A9485256F82006D4C34/$file/03-1165a.pdf .

[10] These hearing can be viewed at C-Span website: http://www.c-spanvideo.org/program/203138-1 .

are also weekly limits on the number of hours commercial truck drivers are permitted to work. The regulations prohibit driving after the driver has been on-duty 60 hours in 7 consecutive days, or 70 hours in 8 consecutive days. Drivers may restart the 60 or 70-hour clock by taking no less than 34 consecutive hours off duty.[11]

The regulations are designed to prevent accidents involving commercial truck drivers, and naturally, are effective only with compliance. Compliance with the federal safety regulations remains difficult to enforce (Green, 2008). Most drivers are paid by the mile, which builds into the system an incentive for the drivers to break the Hours of Service rules. To assist in enforcing these regulations, drivers must record their status throughout the day as "off-duty", "sleeper berth", "on duty, not driving", or "driving." Evidence found in truck crash litigation attests that falsifying logbooks must always be considered as a possibility (i.e. some drivers may falsify their driver logs to circumvent the rules).[12]

In 2004, the FMCSA proposed a rule that required drivers to maintain "supporting documents" to verify the entries recorded in the driver's log. In response to the proposed rule, however, the FMCSA received a large number of negative comments, mostly from within the trucking industry. As a result, the FMCSA withdrew the proposed changes October 25, 2007. Revised in March of 2010, the Federal Motor Carrier Safety Regulations 49 CFR, Part 395 Hours of Service changed. These new rules provide an increased opportunity for drivers to obtain necessary rest while recognizing the business needs of drivers and motor carriers. In spite

[11] Available at U.S. Department of Transportation, Federal Motor Carrier Safety Administration, 49 CFR Ch. III, 10-1-07 Edition.

[12] Logbook entries are necessary but not sufficient in determining whether a trucking crash was caused by a violation of the Hours of Service rules. Additional evidence is required to be considered including receipts for fuel and food, credit card statements, cell phone records, bills of lading and other shipping records, loading dock security logs and surveillance tapes, and GPS tracking data. This process makes it difficult to verify compliance with the federal hours of service regulations.

of difficulties in both passing safety regulation and enforcing it, there has been a decrease in the number of truck-involved fatalities by 32.0 percent between 2004 and 2010.

Emergence of the CSA Initiative

CSA replaces the former enforcement and compliance process, including the former compliance review (CR) program and SafeStat, the former system for measuring safety performance. According to the official CSA website, the CR program was found to be resource and time-intensive and reached only a number of motor carriers, making it difficult to improve safety in the trucking industry overall. SafeStat was found to be less than ideal, as it grouped too many safety problems together and did not focus on the potential behaviors which lead to crashes. As such, the former system was found to have limitations and in need of updates.[13] CSA is intended to provide a better view into how well large commercial motor vehicle carriers and drivers are complying with safety rules, and to intervene earlier and more effectively with those who are not.

Tested in 2008 and 2009 in nine states and initiated nationally in December 2010, the program establishes a new enforcement and compliance "Operational Model" that will better utilize FMCSA's resources and those of its' state enforcement partners more efficiently and effectively, thus making the roads safer for everyone. FMCSA carefully planned and developed CSA over the past few years. The first step involved a thorough review of the agency's compliance review process, followed by the development of the Safety Measurement System (SMS) that used all roadside inspection and crash data and the development of a new interventions toolbox to deal proficiently and successfully with a variety of safety problems according to the degree of designated severity (as identified in the SMS). The expanded set of intervention tools enable investigators to systematically evaluate why safety problems occur in

[13] http://csa.fmcsa.dot.gov/about/csa_why.aspx

order to recommend remedies, encourage corrective action(s), and, where corrective action is inadequate, invoke strong penalties.

The new CSA model has three major components: measurement, evaluation, and intervention. The measurement component operationalizes safety performance by using inspection and crash results to identify carriers whose behaviors could reasonably lead to crashes. The evaluation component involves the correction of high-risk behavior by contacting more carriers and drivers with interventions tailored to their specific safety problem. Intervention is focused on how enforcement officials can intercede most successfully and efficiently to improve safety on our roads.

CSA uses a "Safety Measure System " (SMS) to quantify the on-road safety performance of carriers and drivers to identify candidates for interventions, to determine the specific safety problems the carrier or driver exhibits, and to monitor whether safety problems are improving or worsening. SMS uses a motor carrier's data from roadside inspections, including all safety-based violations, state-reported crashes, and the Federal motor carrier census to quantify performance in the following "Behavior Analysis and Safety Improvement Categories" (BASICs)[14]:

- Unsafe Driving--Speeding, reckless driving, improper lane change, and inattention.
- Fatigued Driving (Hours-of-Service)--Exceeding Hours-of-Service (HOS) regulations, maintaining an incomplete or inaccurate logbook, and operating a commercial motor vehicle (CMV) while ill or fatigued.
- Driver Fitness--Lack of training, experience, or medical qualifications.

[14] http://csa.fmcsa.dot.gov/

- Controlled Substances/Alcohol--Operation of commercial motor vehicles (CMVs) by drivers who are impaired due to alcohol, illegal drugs, and misuse of prescription or over-the-counter medications.
- Vehicle Maintenance--Brakes, lights, and other mechanical defects, and failure to make required repairs.
- Cargo-Related--Failure to properly prevent shifting loads, spilled or dropped cargo, overloading, and unsafe handling of hazardous materials on a CMV.
- Crash Indicator---Histories or patterns of high crash involvement, including frequency and severity, based on information from state-reported crashes.

A carrier's evaluation for each BASIC depends on the number of adverse safety events (e.g. violations related to that BASIC or crashes), the severity of violations or crashes, and when the adverse safety events occurred (more recent events are weighted more heavily). After a measurement is determined, the carrier is then placed in a peer group (e.g., other carriers with similar numbers of inspections). Percentiles from 0 to 100 are then determined by comparing the BASIC measurements of the carrier to the measurements of other carriers in the peer group—where a percentile of 100 indicates the worst performance.

There is no indication that previous drug use, previous DUIs, etc., would be factored into the calculation of BASICs for a driver. The actual regulation regarding alcohol and drug use by drivers of CMVs states that, "No driver shall report for duty or remain on duty requiring the performance of safety-sensitive functions when the driver uses any controlled substance[15]…." Pre-employment testing is required for CMV drivers. Drivers mandated for testing must receive a pre-employment drug test, must present a clear three-year drug and alcohol violation history, and must submit to random drug and alcohol testing throughout employment and receive a health

[15] http://www.fmcsa.dot.gov/rules-regulations/administration/fmcsr/fmcsrruletext.aspx?reg=382.213

certification. Motor carriers who do not conduct these screenings and provide required documentation are considered non-compliant and subject to fines. Lack of compliance will impact the motor carrier's SMS rating.[16] When CSA was being developed and tested in various states in 2008 and 2009, rumors began to surface in the trucking industry that the information used to provide a driver a safety score was going to be from a three-year look-back from a driver's Drive-A-Check (DAC) report[17]. A DAC employment report is a detailed summary of a trucker's work history in the trucking industry. Most trucking companies today participate in sharing this information about truckers. The DAC report contains a professional driver's complete job history including accidents/incidents, Motor Vehicle Record (MVR), drug/alcohol test history, plus criminal history. Approximately 90.0 percent of all U.S. long haul commercial carriers use the DAC Report for pre-employment screening[18]. CSA does not use DAC reports in the calculation of BASIC scores.

SMS has replaced SafeStat in the new operational model. SMS makes greater use of roadside inspections than SafeStat the former database provided and maintained by the FMCS, which included information sent into the database through the Department of Transportation (DOT) roadside inspections by DOT officers[19]. Initially the industry perceived that violations by drivers and carriers would be obtained through the former SafeStat database, however, SMS uses a motor carrier's data from roadside inspections to calculate BASIC scores. There is no indication that previous drug or alcohol consumption data is used in the calculation of these scores. Claims that disclosure of data related to the CSA program would have disastrous consequences for many trucking companies fail to recognize that similar data have been

[16] http://www.hireright.com/Blog/post/csa-drug-testing.aspx
[17] http://hubpages.com/hub/CSA-2010-Truck-Driver-Safety-vs-Trucker-Job-Loss
[18] http://www.thetruckersreport.com/the-truckers-dac-problem-tips-and-tricks/
[19] http://hubpages.com/hub/CSA-2010-Truck-Driver-Safety-vs-Trucker-Job-Loss

available for more than a decade without causing such problems, the Federal Motor Carrier Safety Administration told a federal appeals court in Dec. 6, 2010. Although CSA's Safety Measurement System looks at inspection and crash data in a different way than SafeStat, the type of information available to the public is the same, FMCSA said. Even the percentile rankings that have generated the most concerns with CSA are available for safety evaluation areas within SafeStat. And as with SafeStat, the data alone will not be used — at least not now — to establish a safety fitness determination, the agency said[20]

Trucking Industry Response to the Implementation of CSA

When CSA was first announced, the trucking industry's response, as a whole, was unsupportive, critical and opposing. The CSA regulations were met with fear and uncertainty as to how the scoring systems would work, how roadside inspections would be affected, and what auditors would actually do during an audit (Justin K., 2010, August 24). Drivers were unsure what the exact criteria would be for rating a driver's safety, nor did drivers know from where the information was going to come (Smith, 2010). These uncertainties lead to anxiety throughout the industry. Bert Mayo, senior loss control consultant for The Lockton Companies, said, "There's been a lot of misunderstanding about [CSA]" (Weber, 2011). David Parker, senior legal counsel for Great West Casualty Co., said, "CSA is still something of an unknown as it remains a work in progress" (Kilcarr, 2010).

The magnitude of CSA and the number of changes occurring routinely in the trucking industry could be seen as overwhelming, making the concern of truckers understandable (Weber, 2011). According to a survey done by American Transportation Research Institute (ATRI)—a trucking industry consulting research trade group—in 2010, truckers listed the economy, CSA and government regulation as the top three concerns in the trucking industry; this was the first

[20] http://www.truckersnews.com/agency-defends-csa-2010/

year CSA was listed as a top ten concern in this annual survey[21]. The changes made because of CSA affect the entire trucking industry. Jim Mele, Editor-in-Chief of *Fleet Owner*, made the following statement (Mele, March, 2010):

> *"The new Federal safety rating system [CSA] is creating a great deal of anxiety among fleets, and for good reason. It's going to change the way fleets and their drivers work."*

As with the testing period, when CSA was first implemented reports abounded throughout the industry, including the most common one that the information used to give a driver a safety score was going to be from a three-year look-back from the DAC report (Smith, 2010). Again, a DAC report is a detailed summary of a trucker's work history in the trucking industry including the number of accidents, reasons for quitting or why they were fired, if they are eligible for re-hire, type of driving, commodities hauled, and types of trailers pulled as well as personal information such as social security numbers, driver's license numbers, criminal reports, and worker's compensation reports.[22] Many truckers have claimed previous employers knowingly added false information to drivers' DAC reports that is difficult to remove (Smith, 2010). Drivers would naturally be concerned that their CSA safety scores could be based on erroneous DAC reports.

Critics of CSA claimed that it would result in increased quit-rates, an inability to hire qualified drivers, an increase in commercial insurance rates and an effect on driver pay rates (Lockridge & Britton, 2010, August 19). This industry response came despite the fact that insurance providers informed the trucking industry not to be "overly" concerned with CSA affecting insurance rates, since there are a multitude of factors used in analyzing risk (Kilcarr,

[21] http://www.atri-online.org/ATRI_2010_Top_Industry_Issues.pdf
[22] http://www.thetruckersreport.com/the-truckers-dac-problem-tips-and-tricks/

2010). Other critics claimed that CSA would take 175,000 drivers immediately off the road with more to follow as more audits occur (Admin, 2010, January 21). The sentiment of the trucking industry could arguably be best described by Owner-Operators United, Inc., president Dan Little (Admin, 2010, January 21):

> *"I feel that this new program will cripple this industry and cause thousands of people nationwide to lose everything they have. This program could not have come at a worse time for this country."*

There were also claims that the new CSA system could be easily manipulated resulting in abuse of the program forcing responsibilities to be unjustly placed on drivers (Smith, 2009). Other critics claimed that the FMCSA itself projected that 47.9 percent of trucking companies would fail (Smith, 2010). Hank Seaton, partner at Seaton & Husk, L.P. in Vienna, Va. said that CSA is highly flawed in its current format, has a current methodology that is fatal to the economy, has major impacts on shippers and freight brokers, increases fuel consumption, and increases deadhead mileage (Berman, 2011). Fortunately, those fears failed to materialize.

Many criticisms have centered on the data used by CSA. Some of these criticisms involved the change in the method by which driver safety is being calculated, with some individuals complaining that data used might not be 100% accurate (Weber, 2011). Others have been concerned that data on individual truckers would be open to the public.

However, not all responses to CSA have been negative. Below is the reaction from a truck accident lawyer (Leizerman, February 10, 2011):

> *"I commend the FMCSA for focusing on early intervention. Rogue trucking companies routinely ignore important safety requirements year after year, making the roads less safe for all of us. The new FMCSA processes will raise the bar for*

safe trucking practices, and make it easier for authorities to find unsafe companies and bring them into compliance."

Responses from others in the trucking industry also emphasize the concern for safety. Tom Voelkel, President and Chief Operating Officer, Dupre Logistics, made this statement to TruckingInfo: "All of our families share the road with the trucking industry, and the safer we are, the better it is for everyone." (Lockridge & Britton, August 19, 2010). Blog posts on popular trucking sites also contained some positive comments, such as "I think CSA 2010 is a good thing!" However, these kinds of sentiments were rare on trucking blog posts, which tended to be negative and suspicious. Below is a more common response from a trucking blog regarding CSA rules[23]:

"Blah blah blah same old crap about safety. I've been driving off and on since I was 18 years old and now I can't get a job because of no recent experience. This CSA crap is the same old song and dance and will eventually be used against the driver just like the DAC. But that's okay there's plenty of illegal aliens that'll haul the freight. You drivers better wake up and see whats coming for you."

In an interview by Jim Klepper of the Trucker News Services, David Freymiller, president of Freymiller Inc., a truckload carrier located in Oklahoma City, made the following statements when asked if CSA would improve safety in the trucking industry (Freymiller, 2009):

"Yes, I believe with the focus that is being placed on the driver and his driving record across multiple employers it will result in a good driver becoming a better driver due to the attention to detail that the driver will have to become acclimated to. On the other hand it will also empower the FMCSA and the carriers to remove the problematic drivers that have been plaguing the industry for quite some time. I can envision a more focused driver, which will have a direct affect on accidents and highway fatalities."

More support for CSA came from the trade publication, *Fleet Owner* (Rohlwing, 2011):

[23] http://roadking.com/2011/07/going-rates/

"It's not often that the federal government can be credited with a good idea, but… [I] believe that CSA has already made a difference."

Despite some positive comments, most large organizations directly related to the trucking industry have had major concerns with CSA. Most notably has been the American Trucking Associations (ATA), a united federation of motor carriers, state trucking associations, and national trucking conferences representing over 34,000 companies of all kinds in the American trucking industry[24]. In June of 2010, a representative from the ATA told a Congressional panel:

> *"FMCSA deserves to be applauded for its development and implementation of CSA 2010 to date. The agency has gone to great lengths to test the program, develop and implement an extensive outreach and education program, and demonstrated a willingness to accept stakeholder input…However, ATA has a number of serious concerns relating to how CSA 2010 will work that, if not addressed, will have a dramatic impact on motor carriers and on highway safety."*

Also, three other trucking groups, National Association of Small Trucking Companies, The Expedite Alliance of North America and the Air & Expedited Motor Carriers Association, were so against CSA, that they filed a lawsuit in an attempt to block the implementation of CSA or prohibit the release of certain CSA data[25]. In March of 2011, the FMCSA announced that an agreement had been reached over the lawsuits and that some changes would be made to CSA to accommodate the complaints filed in the lawsuit (Vise, March, 2011).

Another primary arm of the industry are its drivers. How did they respond to the implementation of CSA? A recent report by the American Transportation Research Institute found that neither drivers who are overtly supportive or disapproving of CSA, nor those who

[24]http://www.truckline.com/Newsroom/ATA%20Comments%20Filed/ATA%20Response%20to%20FMCSA%27s%20Draft%20Strategic%20Plan.pdf

[25] http://roadscholartransport.wordpress.com/2010/11/30/lawsuit-filed-in-attempt-to-stop-csa-2010-from-completion/

have no opinion of CSA, could be considered to be experts of the new rules and regulation which CSA has put into place (Lueck, 2011). In fact, the report shows that most drivers have an overall, general lack of understanding of CSA. Below are some of the specific misconceptions from the drivers surveyed[26]:

- 87% falsely believed that traffic tickets/convictions are part of FMCSA's SMS calculations. The data kept by a state (i.e. tickets, citations, written warnings, convictions) and the data that are kept in the SMS (i.e. violations from RI and crash reports) are separate.
- 78% of drivers incorrectly believed that a trucking company inherits past violations from new hires. Carriers do not inherit any of a newly hired driver's past violations; only those inspections that a driver receives while driving under a carrier's authority can be applied to a carrier's SMS record.
- 72% falsely believed that FMCSA could revoke a commercial driver's license (CDL) under CSA regulations. CSA does not give FMCSA the authority to remove drivers from their jobs and cannot be used to rate drivers or to revoke a CDL; only State agencies responsible for issuing licenses, CDL or otherwise, have the authority to suspend them.
- 68.6% of drivers falsely believed that CSA takes into account a driver's personal vehicle driving record. Tickets or warnings that CMV drivers receive while operating their personal vehicles do not count in the SMS.
- 58.5% of drivers falsely believed that the federal motor carrier safety regulations have changed as a result of CSA. CSA has not changed any of FMCSA's regulations, although FMCSA is advocating for a future rule change to alter the carrier safety rating process for determining whether or not a carrier is unfit.
- In addition, 99% could not correctly identify which 5 carrier BASIC scores are publicly available, and 98% did not know that FMCSA enforcement staff is the only group of people who can access official driver scores.

Overall, the study commissioned by the American Transportation Research Institute shows that 41.5 percent of drivers surveyed were opposed to using CSA to measure driver safety (versus 32% neutral and 26.5% supportive) (Lueck, 2011). The majority of drivers also indicated that they expected CSA to worsen the driver shortage in the trucking industry (83.6%) and to fail to lessen the number of truck crashes (79.5%) (Lueck, 2011).

[26] http://www.truckinginfo.com/news/news-detail.asp?news_id=74396&news_category_id=3

Those drivers who had misconceptions about CSA were more likely to voice their opposition to the program and more likely to believe the program would do little to decrease crashes (Lueck, 2011). However, drivers who indicated they had directly observed improved safety behaviors on the job were more likely to indicate positive attitudes towards CSA (Lueck, 2011). Overall, those drivers who had correct knowledge about CSA were more likely to see its benefits and think positively of the program.

It is not surprising that results from this study show that almost two-thirds of drivers expressed some (32.5%) or extreme (32%) fear that they would lose their jobs as a result of CSA (Lueck, 2011). High job insecurity has been linked to role ambiguity (when an individual doesn't know his/her responsibilities and goals for the job) and role conflict (when workers experience demands from various sources resulting in increased uncertainty) (e.g., Ameen, et al., 1995; Ashford et al., 1989). It could be argued that drivers in the trucking industry are experiencing some role ambiguity and role conflict as their goals and responsibilities are shifting and their roles are changing (e.g., focus on safety), all as a result of CSA. Job insecurity has also been linked to poor organizational communication (e.g., Mauno & Kinnunen, 2002) and experiences with reorganization (e.g., Østhus, 2007), both of which seem to be occurring in the trucking industry with regard to the implementation of CSA.

Section 3: Productivity in the Trucking Industry

The importance of the transportation sector for domestic and international competition cannot be overstated[27]. The trucking sector is crucial to the U.S. economy as almost every product sold in the country spends at least some time in a truck. No other form of logistics transportation has the same level of flexibility as a trucking. According to the *21st CASS Annual State of Logistics Report*, trucking represents 78.0 percent of total national logistics costs. Deregulation and changes in the marketplace exert operating pressure on the trucking industry. Companies must deal with competitive pressures, customer demands, rising capital investment and reinvestment costs, driver turnover, rising insurance costs, increasing wages and benefits for their employees, and routine increases in fuel costs. In this challenging environment, revenues often grow rapidly without a corresponding increase in profitability.

Productivity variations in the trucking industry incorporate a multitude of possible influences. The concept of productivity--the relation between output (i.e. produced goods) and inputs (i.e. consumed resources) in a manufacturing environment is widely applied as one of the most important variables governing economic activities (Singh et al., 2000). There are different definitions of productivity. From a less rigorous perspective, productivity is the rate at which goods or services are produced and is measured as output per unit of input (capital, energy, material, and personnel) consumed in that period. At the firm level, productivity is a measure of the efficiency of production.

[27] Data from the 14th edition of the CASS Annual State of Logistic Reports shows that the total logistics costs were $910 billion in 2002, equivalent to 8.7% of the U.S. GDP in the same year. Of the total logistics costs, transportation accounted for 63%, while inventory-carrying costs accounted for 33%, of which interest costs account for 8%. Transportation costs, the largest component of logistics costs, are largely composed of trucking costs. Intercity (50%) and local trucking (more than 27%) make up a combined total of nearly 80%, which is more than 10 times as large as the second largest mode, railroads (6%).

Generally, productivity is a relative concept that varies over time. Improvements in productivity can result if any one or more of the following occur (Misterek et al., 1992):

- Output and input increases, but the increase in input is proportionally less than the increase in output.
- Output increases while input stays the same.
- Output increases while input is reduced.
- Output stays the same while input decreases.
- Output decreases while input decreases by more than the reduction in output

According to the BLS, productivity is a measure of economic efficiency of a person, machine, factory, system, etc., which shows how effectively economic inputs are converted into output. Higher productivity means that an economy has the ability to produce more goods and services over time with the same or fewer inputs (such as labor time). Advances in productivity by making production more efficient are a significant source of increased potential national income. The most commonly used productivity measure is labor productivity defined as output per unit of labor (hours worked). This measure is widely used because labor is an easily identified input to virtually every production process.[28] So, productivity is output per unit of input (measured in dollar terms). Higher productivity is to produce the same output with fewer resources or to produce larger quantities with the same amount of inputs.

[28] BLS reports that in the U.S. nonfarm business sector, labor cost represents more than sixty percent of the value of output produced.

Freight Productivity in Trucking

Freight Productivity in trucking is defined as the ratio of freight outputs (freight carriage services) to inputs measured in dollar terms.[29] Increased productivity leads to a lower unit costs of carrying freight. Labor productivity is the ratio of the output of goods and services to the labor hours devoted to the production of that output.

Specifically, in the trucking industry the following are used as alternative measures of productivity: average annual miles per truck, average pounds per loaded truck, empty hauls or empty movements, and miles per gallon or ton-miles per truck. In a report prepared by the Federal Highway Administration (2000), additional industry productivity measures include: average load factors / percent of vehicle miles empty, average length of haul, and other multi-factor productivity measures related to the utilization of labor and equipment in the trucking industry.

Labor Productivity in Trucking

Industry labor productivity describes the relationship between industry output and the labor time involved in production and shows the changes from period to period in the amount of goods and services produced per hour of work. Although labor productivity measures defined this way relate output to hours of all persons in an industry, they do not measure the specific contribution of labor or any other factor of production. They reflect the joint effects of many influences, including changes in technology; capital investment; utilization of capacity, energy, and materials; the use of purchased services inputs, including contract employment services; the organization of production; managerial skill; and the characteristics and effort of the workforce.

To measure productivity in trucking industry, the literature generally focuses on a single type of equipment (the enclosed van operated by heavy tractors) operated by single drivers.

[29] U.S. Department of Transportation, Federal Highway Administration, Freight Management and Operations.

Given this driver/truck combination required to generate production in this industry, labor productivity is defined as ton-miles per truck per driver. An alternative measure of labor productivity in trucking industry is average miles per day per driver. The following includes a number of terms used to measure trucking productivity.

Output in the Trucking Industry

Output is the measure of the outcome of an operation. For the trucking industry, the standard measure of the final output –the result of all the activities of the industry– is the number of ton-miles covered[30] to deliver goods. Any intermediate steps, such as pickup and delivery, platform work, billing, and collecting, are considered to be subsumed in the final output. As the technology advances, an increase in the number of ton-miles without an increase in labor results in greater productivity. Other measures of output include hours of travel, hundred weight units, and the number of trips.[31]

Output per worker

This is the measure of the productivity based on output per unit of labor. For trucking industry, it is the measure of effective miles covered per day (average) per unit operator.

Worker hours--Number of average weekly work hours an employee spends at job. In trucking industry, this would equate to number of hours a driver operates the truck before getting relieved.

All workers--This refers to the total number of employees in this industry.

[30] For more information of how the industry output estimates are computed see working paper by Scott M. Dennis (2004).

[31] Notably, the indexes of industry output used in measuring labor productivity and unit labor costs are calculated by the BLS with a formula (named Tornqvist formula) which aggregates the growth rates of the various industry products between two periods using the products' shares in industry value of production, averaged over the two periods, as weights.

Unit labor costs

Unit labor costs represent the cost of labor input required to produce one unit of output. Unit labor costs also describe the relationship between compensation per hour labor productivity. In general, unit labor costs are calculated by dividing total labor compensation by productivity. Thus, increases in productivity lower unit labor costs while increases in hourly compensation raise them. If both move equally, then unit labor costs will be unchanged.

Labor compensation

According to the BLS, compensation, defined as payroll plus supplemental payments, is a measure of the cost to the employer of securing the services of labor. Payroll includes salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind. Supplemental payments include legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of federal old age and survivors insurance, unemployment compensation, and workers compensation. Payments for voluntary programs include all programs not specifically required by legislation, such as the employer portion of private health insurance and pension plans. Increases in hourly compensation increase unit labor costs; increases in labor productivity offset compensation increases and lower unit labor costs.

Measures of Productivity in Trucking Industry

Generally, manufacturing and service industries have different growth rates over time because in manufacturing there is a greater opportunity to substitute capital for labor and thus have higher rates of productivity increase. In the trucking industry, there is a limited ability to substitute capital for labor, which impedes productivity increases. According to the Baumol

hypothesis (Baumol, 1967, 1968, 1972), this is the reason why service sectors in general have inflation rates that are consistently in excess of the overall rate of price increases in the economy as a whole.

However, it is likely also that the reduced transportation costs have played a role in increasing productivity in the overall economy. Some have argued (Aschauer, 1989; Fernald, 1999) that lowering trade barriers to intra-regional trade, which in turn decreased the cost of trucking, contributed to general economic prosperity, but that the actual increase in industry productivity was less significant.

Fernald (1999) reported a significant association between increases in public capital in period from 1953-1973, and unusually large productivity increases in transportation industries, of which trucking is the largest part. For three decades, declines in trucking prices and the rise in industry productivity that followed deregulation of the interstate industry in 1980 have been reported in the research literature (Grimm, Corsi & Jarrell, 1989; McMullen & Stanley, 1988; McMullen, 1987). Ying (1990) found that the immediate effect of trucking deregulation was negative, but followed large annual increases accumulating to 23.0 per cent by 1984. More recent productivity studies of the trucking industry have focused on the effects of increases in public capital (Fernald, 1999) or the adoption of information technology (Hubbard, 2003). Using data from 1992 and 1997, Hubbard (2003) evaluated the effect of the adoption of information technology and, not surprisingly, found that the use of on-board computers doubled the productivity of long-haul trucks. Hubbard's study was among the earliest to find significant productivity improvements because of the adoption of information technology in this industry.

Boyer et al. (2003), maintained that while the cost of trucking declined drastically between 1977 and 1997, only a fraction of the reduced cost could be attributed to improved

productivity. Instead, they reported that the declining cost of trucking led to a large increase in long-distance trucking relative to short- distance, lower per-mile costs of trucking made possible for manufacturers to access distant markets (Boyer et al., 2003). In the subsector where the demand was growing rapidly, productivity went up. The result being an increase in productivity in general freight trucking, which was due to an increasing proportion of more productive long-distance traffic. In a later study, the same authors argued that productivity advances[32] resulted from improvements in ton-miles per unit of input that are due to changes in the composition of traffic (i.e. long-haul vs. short haul traffic) (Boyer & Burks, 2006).

After accounting for traffic composition, Boyer and Burks (2006) found that trucking has been a lagging sector of the economy, and the productivity increases observed in the data were more likely due to changes in speed limits and the dimensions of vehicles than adoption of information technology. However, the authors find evidence of some slow improvements in the quality of trucking services (reliability, predictability, speed, order tracking, etc.) in the last quarter century. Boyer and Burks (2006) maintain that the measurement of productivity in trucking is sensitive to traffic composition and accurate measurements of productivity should control for traffic mix.

According to data from the 21st CASS Annual State of Logistics Report, transportation represents more than 62.0 percent of total logistics costs, of which trucking is the vast majority at 78 percent of total transport costs. The report points out the effects of the recent recession on the freight sector. All logistics costs in 2009 were equal to about $1.1 trillion--a drop of $244 billion (or 18.2 percent) over 2008. The trucking industry lost more than 2000 firms in 2009, an equivalent of 12.5 percent of its total capacity. Heavy truck utilization currently is at about 75.0 percent, and not many carriers are expected to invest in trucks.

[32] Time period 1977-1997.

Trends in Productivity in the Trucking Industry

The overall economic environment affects trends in the long-distance freight trucking industry. Long-term trends or averages over time tend to be reliable indicators of the performance of the trucking industry as opposed to year-to-year changes.

Table 1.

Annual Percent Change of Industry Labor Productivity

Industry and Year NAICS 48412	Labor Productivity
1998	-0.6%
1999	-0.3%
2000	2.8%
2001	1.2%
2002	3.7%
2003	2.8%
2004	-0.7%
2005	1.6%
2006	-0.7%
2007	1.4%
2008	-0.1%

* Source: BLS, available at www.bls.gov/lpc/ipr_airt.pdf

Note: The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

While labor productivity in this industry had some periods of slight decline, overall between 1998 and 2008 productivity increased by 11.1 percent, at an average rate of one percent per year. The widespread adoption of onboard computer systems, satellite-based tracking, and wireless Internet has contributed to substantial increases in efficiency in this industry.

Table 2.

Annual Percent Change of Industry Output per Worker

Industry and Year NAICS 48412	Output per worker
1998	-1.0%
1999	0.9%
2000	3.4%
2001	-0.4%
2002	4.9%
2003	2.8%
2004	2.0%
2005	0.8%
2006	-0.7%
2007	0.5%
2008	1.8%

* Source: BLS, available at www.bls.gov/lpc/ipr_airt.pdf
Note: The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

Similarly, output per worker shows a positive trend from 1998 to 2008, with a cumulative increase of 15.0 percent since the base year, and an annual average increase of 1.4 percent.

Table 3.

Annual Percent Change of Industry Output

Industry and Year NAICS 48412	Output
1998	3.2%
1999	2.7%
2000	4.0%
2001	-2.8%
2002	2.0%
2003	-0.1%
2004	6.3%
2005	4.9%
2006	1.7%
2007	0.1%
2008	-2.4%

* Source: BLS, available at www.bls.gov/lpc/ipr_airt.pdf
Note: The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

The trucking industry output grew by almost 20.0 percent during the decade under study, at an average rate of 1.8 percent per year.

Table 4.

Annual Percent Change of Industry Worker Hours

Industry and Year NAICS 48412	Worker hours
1998	3.8%
1999	3.0%
2000	1.1%
2001	-4.0%
2002	-1.7%
2003	-2.8%
2004	7.1%
2005	3.3%
2006	2.5%
2007	-1.3%
2008	-2.3%

* Source: BLS, available at www.bls.gov/lpc/ipr_airt.pdf
Note: The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

The hours worked also increased in the last decade by about 9.0 percent, which is less than the increase in output—demonstrating upward trends observed in the productivity measures. On average, the numbers of hours worked in long-distance trucking increased annually by .8 percent.

Table 5.

Annual Percent Change of Industry Number of Workers

Industry and Year NAICS 48412	All workers
1998	4.2%
1999	1.7%
2000	0.5%
2001	-2.4%
2002	-2.8%
2003	-2.8%
2004	4.2%
2005	4.1%
2006	2.4%
2007	-0.4%
2008	-4.2%

* Source: BLS, available at www.bls.gov/lpc/ipr_airt.pdf
Note: The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

As seen in Table 5, employment remained relatively stable for more than half of a decade from 2002 (815,036 workers) to 2007 (819,133 workers). Employment increased at a slow rate of half of a percent per year on average from 1998 to 2008. Total increase in the number of workers in trucking industry for the ten years was 4.5 percent for an annual average increase of less than a half of a percentage point. However overall economic conditions produced a sharp decline of 4.2 percent in 2008.

Table 6.

Annual Percent Change of Industry Unit Labor Costs

Industry and Year NAICS 48412	Unit labor costs
1998	0.9%
1999	-1.5%
2000	-3.9%
2001	-1.9%
2002	-5.6%
2003	-3.1%
2004	1.0%
2005	1.5%
2006	1.7%
2007	0.6%
2008	-1.2%

* Source: BLS, available at www.bls.gov/lpc/ipr_airt.pdf
Note: The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

Table 6 shows that the cost of operating long-distance trucking decreased by 11.5 percent in a decade and showed an annual average drop of more than one percentage point. This decline in the labor costs reflected improvements in productivity.

Table 7.

Annual Percent Change of Industry Labor Compensation

Industry and Year NAICS 48412	Labor compensation
1998	4.1%
1999	1.1%
2000	-0.1%
2001	-4.6%
2002	-3.8%
2003	-3.1%
2004	7.4%
2005	6.5%
2006	3.5%
2007	0.8%
2008	-3.6%

* Source: BLS, available at www.bls.gov/lpc/ipr_airt.pdf
Note: The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

Even though there have been some drops during early 2000's in compensation levels in this industry, overall the decade saw a modest increase of about 8.2 percent from 1998 to 2008, at an annual average rate of .75 percent. Table 8 shows percentage changes in consumer prices or the cost-of-living covering 1998-2008. Comparing the relationship between labor compensation in the trucking industry and changes in the Consumer Price Index (CPI) shows that the 8.2 percent increase in compensation over the decade was accompanied by a 29.9 percent increase in the cost-of-living.

Table 8.

Percent Change--Consumer Price Index, U.S. City Averages: 1998-2008

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1.6%	2.2%	3.4%	2.8%	1.6%	2.3%	2.7%	3.4%	3.2%	2.9%	3.8%

Source: BLS; Base year is 1982 (Data available at: http://data.bls.gov/pdq/SurveyOutputServlet and extracted on: February 24, 2012).

The annual average compensation increase over the decade was .75 percent in trucking, while the annual average cost-of-living increase was 2.7 percent. For half the decade trucking compensation fell compared to the previous year, often well below the annual cost-of-living increase, and was significantly below the average change. An industry whose wages over time are substantially below the annual year over year change in the cost-of-living, is experiencing a decline in the demand for the industry's product or service—thus a decline in the demand for additional employees. By May 2010, there was reportedly an excess of 300,000 drivers in the labor force primarily due to low relative and inconsistent compensation (Goodall, 2010).

In summary, for the trucking industry:

- During three decades of deregulation, declines in trucking prices increased industry productivity;
- Public capital increases between 1953 and 1973 resulted in increased productivity;
- In the period between 1992 and 1997, on-board computers doubled productivity:
- Between 1989 and 1999, lowered barriers to intra-regional trade increased productivity;
- The increased proportion of long-distance traffic increased productivity;
- Improvements in traffic composition—long haul versus short haul—improved productivity, and;
- Changes in speed limits and the dimensions of vehicles improved productivity.

- While labor productivity in this industry had some periods of slight decline, overall between 1998 and 2008 productivity increased by 11.1 percent, at an average rate of one percent per year. The widespread adoption of onboard computer systems, satellite-based tracking, and wireless Internet has contributed to substantial increases in efficiency in this industry.
- Similarly, output per worker showed a positive trend from 1998 to 2008, with a cumulative increase of 15.0 percent since the base year, and an annual average increase of 1.4 percent. The trucking industry output grew by almost 20.0 percent during the decade under study, at an average rate of 1.8 percent per year.
- The hours worked also increased in the last decade by about 9.0 percent, which is less than the increase in output—demonstrating upward trends observed in the productivity measures. On average, the numbers of hours worked in long-distance trucking increased annually by .8 percent.
- Employment remained relatively stable for more than half of a decade from 2002 (815,036 workers) to 2007 (819,133 workers). Employment increased at a slow rate of half of a percent per year on average from 1998 to 2008. Total increase in the number of workers in trucking industry for the ten years was 4.5 percent for an annual average increase of less than a half of a percentage point. However overall economic conditions produced a decline of 4.2 percent in 2008.
- The cost of operating long-distance trucking decreased by 11.5 percent in a decade and showed an annual average drop of more than one percentage point. This decline in the labor costs reflected improvements in productivity.

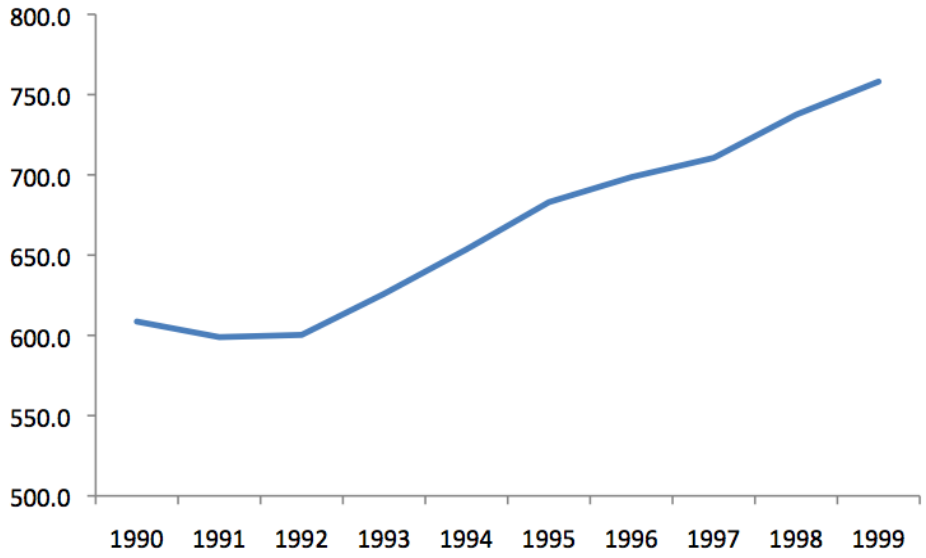
- Even though there have been some drops during early 2000's in compensation levels in this industry, overall the decade saw an increase of about 8.2 percent from 1998 to 2008, at an annual average rate of .75 percent, while the annual average cost-of-living increase was 2.7 percent.

Section 4: Employment in the Trucking Industry

Trends in Employment in the Trucking Industry

Within the transportation and warehousing industry sector, truck transportation (excluding couriers and messengers) employs the most workers. Moreover, within this industry more than half of all employees work in general freight long-distance trucking. Figure 1 describes historical trends for general freight long-distance trucking employment between 1990 and 1999.

Figure 1: Employment in General Freight Long-Distance Trucking 1990-1999

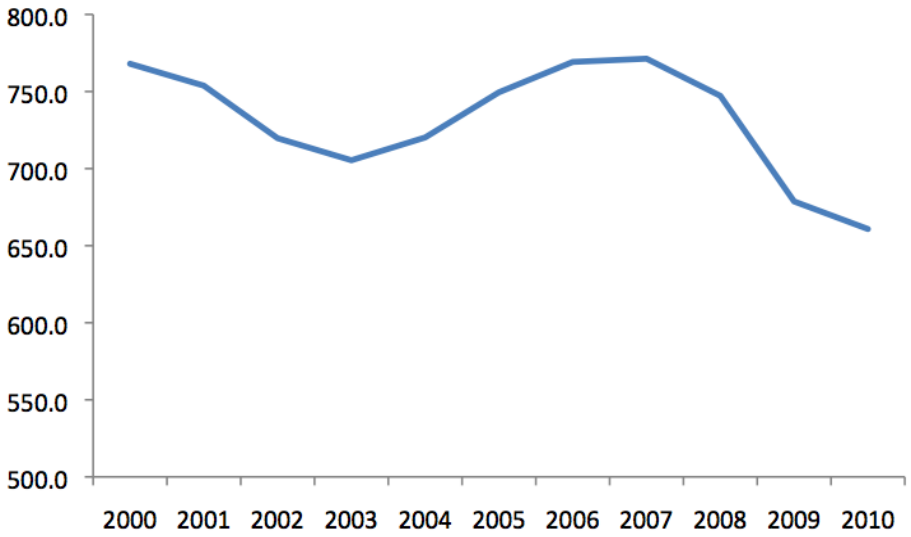


* Source: BLS, data from "Employment, Hours, and Earnings from the Current Employment Statistics" survey (National), in thousands of employees available at http://bls.gov/data/#employment .

Over this decade, Figure 1 shows that the labor market in the trucking industry has increased consistently. Historically, from 1990 to 1999, the industry labor force increased from 608,600 to 758,100 through 1999 representing a more than 24.5 percent jump in the labor force employed in this industry.

Figure 2 indicates that the most recent decade was punctuated by fluctuations and a general decline in trucking employment. For the industry labor market, 768,000 people

Figure 2. Employment in General Freight Long-Distance Trucking 2000-2010



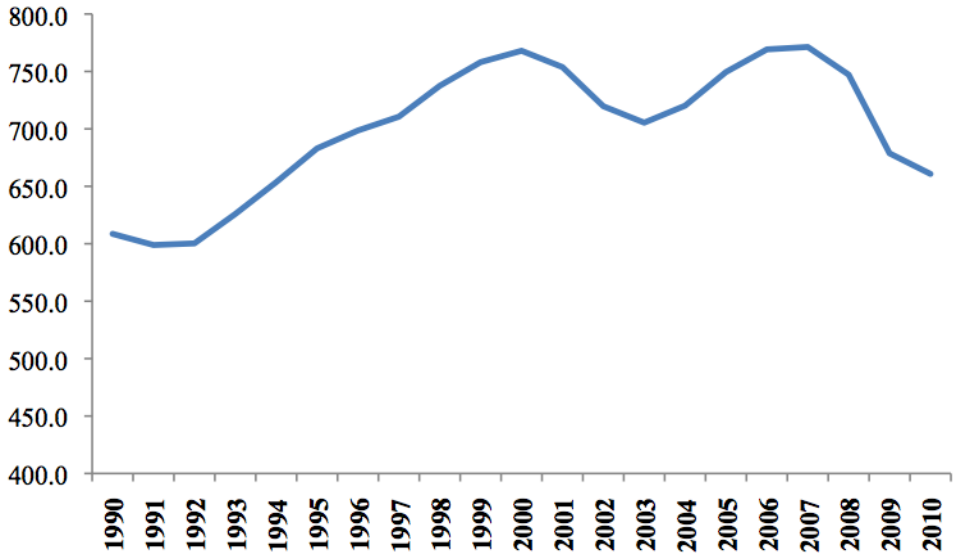
* Source: BLS, data from "Employment, Hours, and Earnings from the Current Employment Statistics" survey (National), in thousands of employees available at http://bls.gov/data/#employment .

were working in long-distance trucking in 2000, but in less than three years industry employment declined by slightly than 8.2 percent of its labor force (705,400 employees in 2003). Employment peaked in 2007 with 771,300 employees accounting for more than a half of the total employment in transportation (1,488,000). By 2010, trucking long was employing 660,800 employees, 14.0 percent lower than the peak year.

Figure 3 provides a slightly different perspective summarizing changes in employment in trucking for the entire period 1990 to 2010. Again, the chart shows that employment in the trucking industry fluctuated between 598.9 million in 1991 to 771.3 million in 2007, averaging

703.3 million employed annually through the two decades. But the chart shows a consistently upward trend in employment except for recessionary pressures early and late in the 2000's.

Figure 3. Employment in General Freight Long-Distance Trucking 1990-2010



* Source: BLS, data from "Employment, Hours, and Earnings from the Current Employment Statistics" survey (National), in thousands of employees available at http://bls.gov/data/#employment .

Table 9 shows number of employees, in thousands, in trucking from 1990 to 2010. The overall economic environment affects trends trucking as it does in other primary sector industries. The same was true during the past decade. Employment increased slowly averaging half of a percent per year from 1998 to 2008. With recessionary forces in play, annual reductions in employment of 9.2 percent and 2.6 percent occurred from 2008 to 2009 and again from 2009 to 2010, respectively for an average annual increase of 4.5 percent per decade.

Table 9.

Employment in Long Distance Trucking: 1990-2010

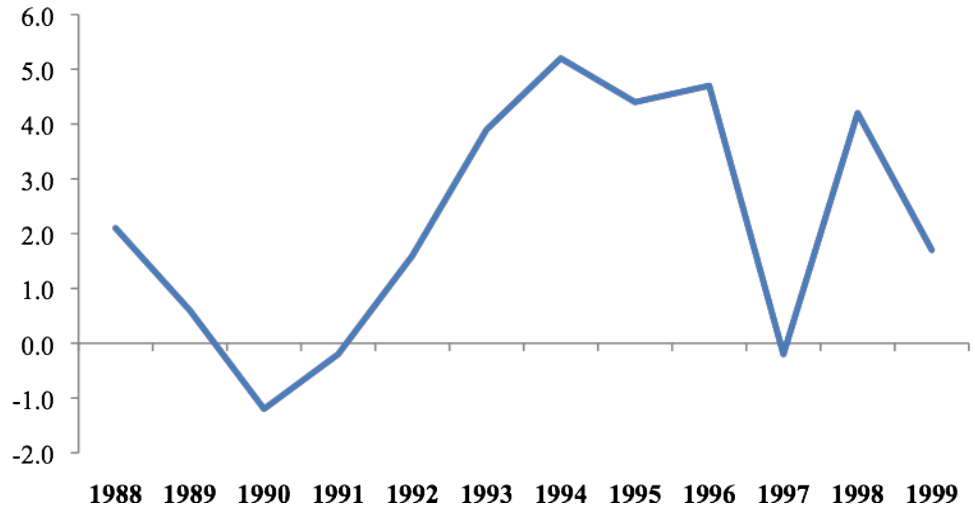
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
608.6	598.9	600.3	625.9	653.6	683.0	698.6	710.6	737.5	758.1	768.0

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
768.0	753.8	719.7	705.4	720.2	749.5	769.2	771.3	747.2	678.7	660.8

Source: BLS, data from "Employment, Hours, and Earnings from the Current Employment Statistics" survey (National), in thousands of employees.

Figure 4 shows that during the early 1990's, from 1993 to 1997, employment in this industry grew at an average annual rate of 4.6 percent. The growth continued through the 1990's though at a more modest annual average rate of 1.4 percent.

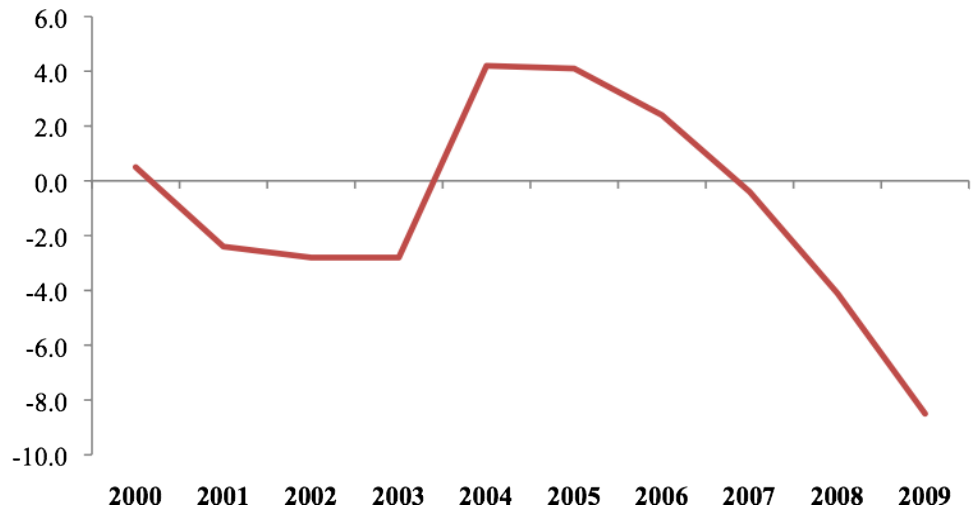
Figure 4. Percent Change in General Freight Long-Distance Trucking Employment, 1988-1999



Source: BLS (employment is expressed as percent change from year ago).

September 11, 2001 was followed by lay-offs in trucking, and employment fell by an average of 2.7 percent annually in the three years following 9/11. A period of recovery in 2004 saw a 4.2 annual increase in the number of trucking employees. In 2005, the industry employed an additional 4.1 percent of workers over the previous year, followed by a more attenuated increase in employment in 2006. However, a decline of 4.2 percent occurred in 2008 due to recessionary conditions that continued to deepen through the next year and reached an 8.5 percent annual employment level a year later. In general, the annual percent change in employed labor in long-distance freight trucking was stable until the recessions of 2001 and 2007.

Figure 5. Percent Change in General Freight Long-Distance Trucking Employment, 2000-2009



Source: BLS (employment is expressed as percent change from year ago).

The accelerated growth of truck tonnage in 2004, gave a boost to the output and employment in trucking, which increased by 6.3.0 percent and 4.2 percent respectively relative to the base year 2002. Growth continued in industry output and employment until recessionary forces in 2008 saw the output index decrease by an annual 2.4 percent, while employment

suffered an annual decline of 4.2 percent relative to 2002. Over the decade of 1998-2008, output index increased by 1.8 percent relative to the base year 2002. Industry employment showed almost insignificant changes at an average annual growth of 0.4 percent relative to 2002. This industry may have experienced congruence in its life cycle. The performance reflected in the fluctuations in employment observed in the last five years can be attributed primarily to the recession's impact on freight. The industry moved in line with the wider economy. As the economy improves and demand for more freight traffic increases, industry revenue and profit would be expected to rise. With some delay, as recovery measures are evidenced there will be another potential increase in industry employment (*See Technical Note on BLS reporting methodology of employment data.).

Summary of Occupational Outlook Handbook (OOH) Employment Projections for the Trucking Industry: Forecasts for the Past 15 years

The *Occupational Outlook Handbook (OOH),* provided by the Bureau of Labor Statistics in the United States Department of Labor, offers information on the nature of work, working conditions, job qualifications, job outlook, earnings and other information for occupations covering 90 percent of jobs in the economy. It is the gold standard for consistent, reliable, competent information about jobs and careers. The OOH is revised every two years and is used by individuals to help make career decisions and by industry to prepare job requirements for human resource purposes. One of the industries highlighted in the OOH has been the trucking industry. The following is a summary of the information provided by the OOH about the trucking industry for the past 15 years.

Each recent edition of the OOH notes that opportunities in trucking should be favorable because this industry has "among the greatest number of job openings each year" in the United States (U. S. Department of Labor, 1999, 2001, 2003). This outlook has been repeated year after

year for the past decade and a half, and evidenced by the fact that the number of jobs in the trucking industry has increased steadily, from 2.9 million in 1994 to 3.2 million in 2010, making trucking one of the largest occupations (U.S. Department of Labor, 2011).

The OOH also outlines qualifications and standards for jobs in the trucking industry. Both state and the federal government provide these guidelines and regulations. The U.S. Department of Transportation has established minimum qualifications of truck drivers, including age requirements and physical requirements in a number of areas (e.g., hearing, vision, blood pressure). In addition, drivers are not allowed, obviously, to use controlled substances, and may be tested at random to ensure their adherence to these guidelines. Drivers must also be able to speak and read English well enough to read road signs, prepare reports and communicate with others. Drivers must also take a written examination on the Motor Carrier Safety Regulations of the U.S. Department of Transportation.

Many states also have historically maintained minimum requirements for truckers, including obtaining a state driver's license from the state in which they live. Securing a state license often includes passing both written and driving exams. An example is Maine, which has required prospective drivers to complete a course at a school certified by the Professional Truck Drivers Institute (PTDI) before drivers can obtain their Commercial Drivers License. PTDI-certified schools provide training that meets Federal Highway Administration guidelines for training tractor-trailer drivers. Based upon the last decade and a half, it is expected that these regulations (e.g., physical, license and training requirements) will continue to exist in the trucking industry in the future.

As a result of the passage of the *North America Free Trade Agreement* (NAFTA) in 1994, a significant expansion of trade with Mexico and Canada occurred. Because of the relative

ease with which materials can be transported between Canada and the U.S., this development provided increased opportunities for individuals in the trucking industry. However, trucks traveling between the U.S. and Mexico have faced more difficulty. The United States has been resistant to allowing Mexican trucking into the country because of concerns over safety and environmental standards as well as security concerns (Cullen, 2011). In retaliation, the Mexican government has placed tariffs on American goods (Cullen, 2011). Together these issues mean that an increased use for trucking goods between these two countries has yet to be realized (OOH 2010-2011). However, recent negotiations between the U.S. and Mexico hope to open U.S. highways to Mexican trucks[33]. It is expected that these recent developments will allow the transportation of goods via trucking to increase, resulting in an increased demand for truck drivers in the U.S.

Also, the OOH notes that many trucking companies actually have more strict standards and regulations than those described by state and federal governments. Many trucking companies require a driver to be older than federal regulations allow, that is, at least 22 verses 21, respectively. In addition, a large number of trucking companies have certain physical requirements (e.g., ability to lift heavy objects) and annual physical examinations beyond what is prescribed by law. Based upon the history of regulations required for drivers from trucking companies, it is expected that these trucking companies will continue to have strict standards which go above and beyond state and federal guidelines.

Each year since 1996, the OOH has maintained that the opportunities should be favorable for persons interested in trucking. Also, employment projections for truck drivers has been historically expected to increase at least "as fast as average" for all trucking occupations. These

[33] http://www.bbc.co.uk/news/world-us-canada-12640830

projections have been based upon a number of criteria. The main reason for the expected growth in trucking every year has been the economy. The OOH maintains that as the economy grows and the amount of freight carried by trucks increases, so will the demand for truck drivers to carry that freight. As the economy strengthens and demand increases for deliveries, companies will need to hire more drivers. Conversely, as the economy slows, trucking companies hire fewer drivers or even lay off some drivers. So although employment projections have generally been favorable for truck drivers, the OOH does point out that the number of actual jobs in trucking will vary from year to year as the economy fluctuates.

Despite the potential decrease in the need for the transportation of goods during economic slowdowns, growth in the trucking industry is less likely to be greatly affected due to the nature of the goods been transported by truck. According to the OOH (2006-2007), demand for long-distance trucking is likely to remain strong because trucks generally move time-sensitive and perishable goods more effectively than other modes of transportation. Although competing forms of transportation, such as air, ship and rail, provide some competition for the trucking industry, none of these methods are as reliable and timely as transporting materials by truck. Also, the increased use of air, ship and rail transportation necessarily increases demand for truckers as goods are moved between ports, airports, warehouse and depots not connected to these other modes of transportation. The need for shipment of perishable and time-sensitive goods and for movement of goods between different modes of transportation is expected to remain high in the future. Therefore, based upon the information provided by the OOH over the last 15 years, employment in the trucking industry is expected to continue to be in demand in the future.

Another reason for the continuing increase in employment projections in trucking has been the expectation that as experienced drivers approach retirement large numbers may leave the occupation soon. Thus, due to retirement, transferring to other occupations, or leaving the labor force for other reasons, the number of trucking jobs is expected to continue to increase. As these experienced drivers exit the industry, trucking companies will be compelled to hire drivers to take the place of the experienced drivers. It is expected that in the future the trucking industry will continue to replace drivers as they leave for a variety of reasons.

Lastly, additional growth in the trucking industry can be attributed to the changes in logistics and supply chain management that are occurring. That is, as manufacturers outsource more functions to trucking companies, such as warehousing of goods, companies will hire more drivers. As new inventory management systems and technologies are utilized, it is expected new jobs will be created for trucking. For example, with the increase in just-in-time shipping (meaning that goods arrive just before they are needed), efficiency is increased and the need for the warehousing of items is reduced, implying an increased reliance on trucking companies to constantly deliver goods—in effect mobile warehousing. This is likely to translate into an increase in the need for more truck drivers. Also, as more consumers and businesses buy products via the Internet, the expansion of e-commerce will increase demand for these goods to be shipped via trucking.

Based upon these conditions, job availability in the trucking industry will continue to increase in the future. Also, despite the regulations and guidelines which target the trucking industry and fluctuations in the economy and the demand for goods to be transported, historically the demand for trucking jobs has remained consistently upward and it is expected to continue in the near future.

In summary, factors that will continue to routinely influence supply and demand affecting the number of trucking jobs according to the OOH:

- Amount of freight being moved because of the economy; as the strength of the economy goes up so does demand for goods and the need for more drivers to transport those goods
- Integration of truck and railroad long-distance freight transportation; Increased use of air, rail, and ship means truck drivers will be needed to pick up and deliver these goods; trucking is the most reliable and fastest way to transport time-sensitive and perishable goods
- Experienced drivers leaving the industry to retire, work in other fields or leave the labor force
- The emphasis on just-in-time delivery and the increase in technologies in trucking (e.g., RFID tracking) increase the demand for transportation to move goods as needed.

Bureau of Labor Statistics Trucking Industry Employment Projections

The Bureau of Labor Statistics (BLS), U.S. Department of Labor, projects industry and occupational employment. Those projections are completed every other year and provide projected employment 10 years into the future. For example, in 2000 the BLS projected employment numbers for industries and occupational for the year 2010. The projections are made using the following information[34]:

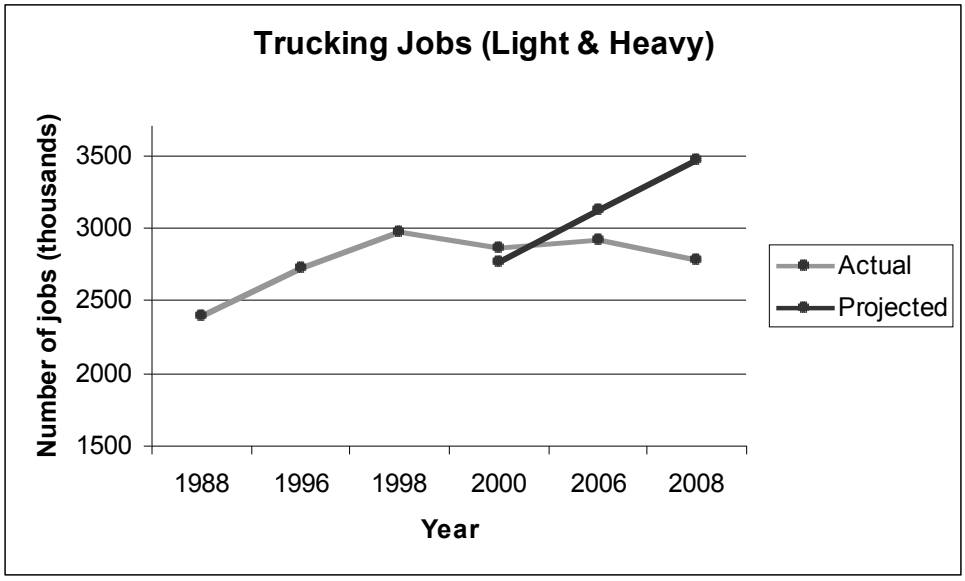
- The labor force (based on projections of the future size and composition of the current population).
- The aggregate economy (based on a commercial econometric model of the U.S. economy).
- The final demand (GDP) by consuming sector and product (includes information about personal consumption expenditures, gross private domestic investment, foreign trade, and government demand).
- Industry output (projected levels of industry and commodity output required to satisfy projected final demand).
- Industry employment (the industry employment necessary to produce the projected output) and,
- Employment and openings by occupation.

[34] http://www.bls.gov/emp/ep_projections_methods.htm

These projections are used by economists and policy-makers as well as by employment counselors and students to make career decisions (Wyatt, 2010). The BLS evaluates its projections regularly and makes this information available to the public. For example, a recent evaluation of the 1996-2006 employment projections showed that these projections outperformed other models, but did include some inaccuracies because of the inability to predict the burst of the "housing bubble" or the rise in oil prices at that time (Wyatt, 2010). However, other evaluations of BLS employment projections have found the projections to be relatively accurate (Fullerton, 2003).

Before 2000, BLS calculated employment projections for the entire trucking industry including both light and heavy (i.e., tractor-trailer) drivers. Figure 6 represents a summary of employment projections for the both the light and heavy trucking industry as well as actual employment data for that period.

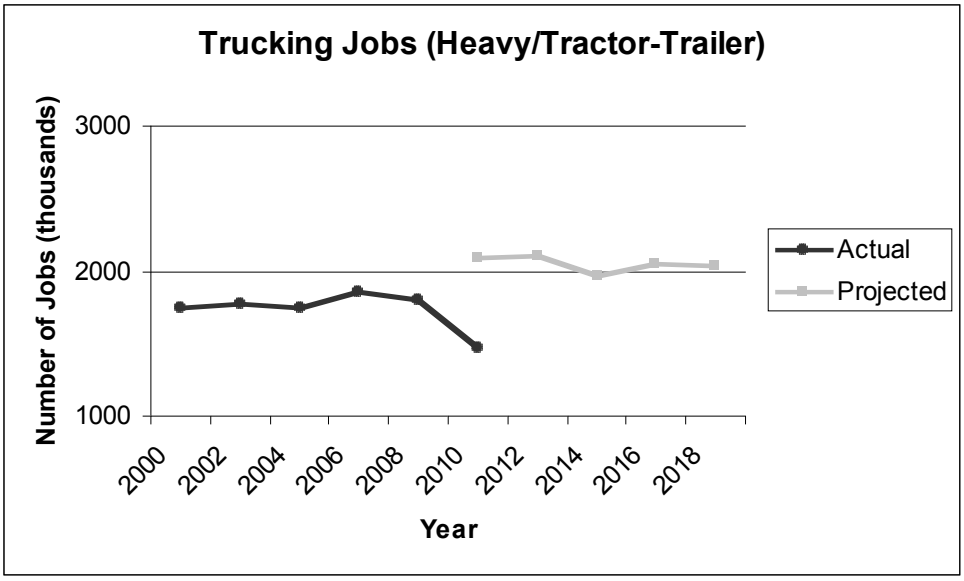
Figure 6. Actual and Projected Trucking Jobs: 1988 - 2008



As evidenced by Figure 6, employment projections do rely on current employment data and are effected by changes in the level of current employment. For example, as the number of actual trucking jobs rose from 1988 to 1998, so did the employment projections for 2000 to 2008. Although other criteria are used to calculate employment projections (e.g., GDP, aggregate economy), it is evident that current employment information influences those projections and arguably is tied intrinsically to the other criteria used in the calculation process. This graph also shows that while the number of projected jobs for the year 2000 was close to the actual number of jobs, the number of projected jobs for 2006 and 2008 was much higher than the actual number of trucking jobs for those years.

Beginning in 2000, the BLS began to differentiate between light and heavy/tractor-trailer employment projections. Figure 7 represents the actual and projected employment numbers for heavy and tractor-trailer drivers.

Figure 7. Actual and Projected Trucking Jobs: 2000 – 2018



Again, Figure 7 indicates how projections rely on current employment numbers. For example, the number of actual heavy trucking jobs does not vary much between 2000 and 2008 (1,738,000 to 1,798,400) and neither does the number of projected jobs for 2010 to 2018 (1,962,000 to 2,104,000). Figure 7 also indicates the drop in actual employment numbers for heavy trucking during recessionary and post-recessionary conditions from 2008 to 2010 (a loss of 331,700 jobs). This was the first major decline in heavy trucking jobs since at least 2000 and a loss of almost 400,000 jobs since the peak of heavy trucking employment in 2006. It is yet to be seen how this recent decline in employment numbers will affect future employment or employment projections for 2020 as they have yet to be released. What is evident is that the number of projected jobs for 2010 (1,738,000) from 2000 data is significantly lower than the actual number of jobs for 2010 (1,466,700). In other words, the employment projection for the year 2010 is 628,300 more than the number of actual jobs available for 2010. Obviously, employment projections made in 2000 cannot predict the lingering effects of the recession on employment numbers for the trucking industry for 2010.

Carrier Employment Projections

Historically, the trucking industry has warned each year of an impending shortage of drivers. In 2001, Jennifer Corkery wrote, "[T]here's such a shortage of drivers, an owner-operator can find more work than he can handle…" (Corkery, 2001). In 2004, the CEO of a large trucking company referred to the driver shortage as the worst it had ever been (Quesada, 2004). Also in 2004, USA Today reported that, "A severe shortage of drivers could hurt the U.S. economy" and that, "[t]he shortage is unlikely to end soon." (Hagenbaugh, 2004).

In 2005, the American Trucking Associations (ATA) projected the trucking industry was experiencing a shortage of approximately 20,000 drivers because of various factors, including an aging workforce and increasing amounts of freight (Global Insight, 2005). In 2006, the truck driver shortage was referred to as "the worst…in 28 years" (Drivers.com staff, July 7, 2006). The trucking industry has even attempted to recruit couples to become long-haul drivers to address a perceived shortage of truckers (Gallagher, 2007).

Dick Lower, writing for a trucking employment website, recently wrote an article where he reflected on projections he had made about the trucking industry over the years. In 2000, Dick Lower said the trucking industry was facing a shortage of drivers. In 2002, Lower wrote that trucking jobs were not as "readily available" as they were in 2000, implying that the number of trucking jobs had receded with the downward economy. In an update in 2004, Lower stated that the high demand for drivers in the trucking industry never did "go away as some thought" (Lower, undated).

The trucking industry continues to focus on their projection of shortages of qualified drivers in the trucking industry. *The Trucker*, a blog about all things trucking (findfreightloads.com), recently wrote that, "It is presumed that by the year 2012 there will be an acute shortage of around 40,000 driver jobs faced by the trucking companies" (Anonymous, January, 2011).

However, others in the industry dispute the standpoint that the trucking industry has historically had a shortage of drivers. Todd Spencer, executive vice president of the Owner-Operator Independent Drivers Association, told NPR news that, "[i]t's not a shortage; the problem is retention…you won't be able to keep good people if you don't pay them comparatively for the demands that you ask." (Morris, 2011). An anonymous post from a

trucking website said that, “in reality, there may really be no shortage of available truck drivers out there, but [instead a] short supply [of] *qualified* truck drivers.” (Anonymous, 2011).

Previous Studies of Employment in the Trucking Industry

In 2009 Harrison and Pierce produced a study of turnover and retention in the trucking industry where labor shortage predictions in industry trade publications and public relations pieces were common. Looking at several decades of literature, a consistent theme throughout the study was the trucking industry exaggeration of labor shortages (Harrison & Pierce 2009). One of the few quantitative models developed to examine the existence of labor shortages in industries (Venieri, 1999) did not find the conditions necessary to define a labor shortage in the trucking industry in sector studies between 1991 and 1998. Occupations reporting anticipated shortages through anecdotal reports were not confirmed in that study. Venieri (1999) concluded that neither labor market statistics nor anecdotal reports alone are adequate to define a labor shortage.

Throughout the late 1990s and early 2000s, reports of labor shortages in the trucking industry were reported in the academic, trade, and popular literature culminating in a frequently cited report in 2005 prepared by Global Insight, consulting for the American Trucking Associations. This document, *The U. S. Truck Driver Shortage: Analysis and Forecast,s* predicted a crisis in the in the supply of drivers necessary to maintain the industry.

The study relied on labor market projections published by the Bureau of Labor Statistics (BLS)—which has projected industry growth for each of the past successive five decades, and two proprietary documents reported the trucking industry need for thousands of additional drivers annually between 1994 and 2005. However, the authors acknowledged that 80.0 percent of that demand resulted from intra-industry churning and only 8.0 percent from industry

growth—not an indicator of an impending labor shortage. Delery (2007)—who had been studying motor carrier effectiveness as an academic researcher for over a decade—called it a "never-ending problem."

In terms of labor shortages, researchers remind the trucking industry that labor supply is a function of good pay and high-quality working conditions as much as an absence of available people in the labor market. For example, the Federal Reserve, in the January 2006 *Beige Book*, reported that although motor carriers in the Cleveland District said they experienced difficulty finding and retaining truck drivers, few planned to increase wages (Federal Reserve, 2006).

Harrison and Pierce concluded in their 2009 study that:

- Most of the information on turnover, retention and the motor carrier labor market is anecdotal and has been provided by the industry itself or by industry consultants. The trucking industry is highly competitive and basically opaque;
- For the trucking labor market, independent investigations are uncommon, independent surveys are rare, and academic studies are forced to rely on limited industry data and publications.
- Much of the data on trucking are proprietary, and the industry has a history of providing information primarily for influence or for public relations.
- Therefore conclusions about the industry should be guided by an awareness of source information.
- As no trucking company has successfully demonstrated that the costs associated with attacking turnover can be offset by profits gained from increased retention, the assumption could be made that the level of turnover and retention is appropriate for

the prevailing business climate in the motor carrier industry and industry reports of labor shortages are designed to support that condition.

Comparing National and Trucking Industry Unemployment Rates

Another indicator of labor market supply in an industry is the relative unemployment rate. Unemployment rates provide an indication of what an industry's labor market is experiencing in terms of joblessness. The rates illustrate the percentage of an industry that is looking for work, and those rates also show—comparatively—how an industry is faring relative to the national job market. Unemployment rates gauge the growth rate of an industry and, as a lagging indicator, can be a confirmation of other forces at work in an economy such as recessions or expansions. If an industry's unemployment rate is declining or is trending below the national average, the business is viewed as being healthy enough to hire (Summers, 2008). Conversely, the rates can suggest the speed with which a sector is losing jobs relatively and comparatively. What have been the characteristics of unemployment rates in the trucking industry? Table 10 summarizes a comparison between unemployment rates in the trucking industry with national unemployment rates from 2000 through 2011.

Table 10.

Trucking and National Unemployment Rates

Year	Unemployment Rate (%)		Rate Difference
	Trucking	National	
2000	3.52	3.97	0.45
2001	4.51	4.74	0.23
2002	4.71	5.78	1.08
2003	5.78	5.99	0.21
2004	4.58	5.54	0.96
2005	3.92	5.08	1.16
2006	4.01	4.61	0.60
2007	4.32	4.62	0.30
2008	5.99	5.80	-0.19
2009	9.57	9.28	-0.30
2010	10.57	9.63	-0.94
2011	8.95	8.95	0.00

Note: A positive rate difference indicates the National unemployment rate was greater than the Trucking unemployment rate. National and Trucking Industry unemployment rates calculated with data from the Bureau of Labor Statistics' Current Population Survey (CPS), 2000-2011.

Table 10 shows that for most of the past dozen years the national unemployment rate has been slightly higher than the jobless rate in the trucking industry. Only in response to the December 2007- June 2009 recession did trucking rise above the national rate. Between 2000 and 2008, unemployment in trucking ranged from a difference of .21 percent below the national rate to 1.16 percent below the national rate—meaning that for those eight years there were fewer individuals looking for work in the trucking industry than there were people looking for work in the nation as a whole. Mirroring the national economy's response to recessionary forces in 2007, unemployment rose in trucking in conjunction with the nation although at a slightly higher rate for the subsequent three years peaking at 10.57 percent in 2010. Like the nation, the labor market in trucking began to recover in 2011.

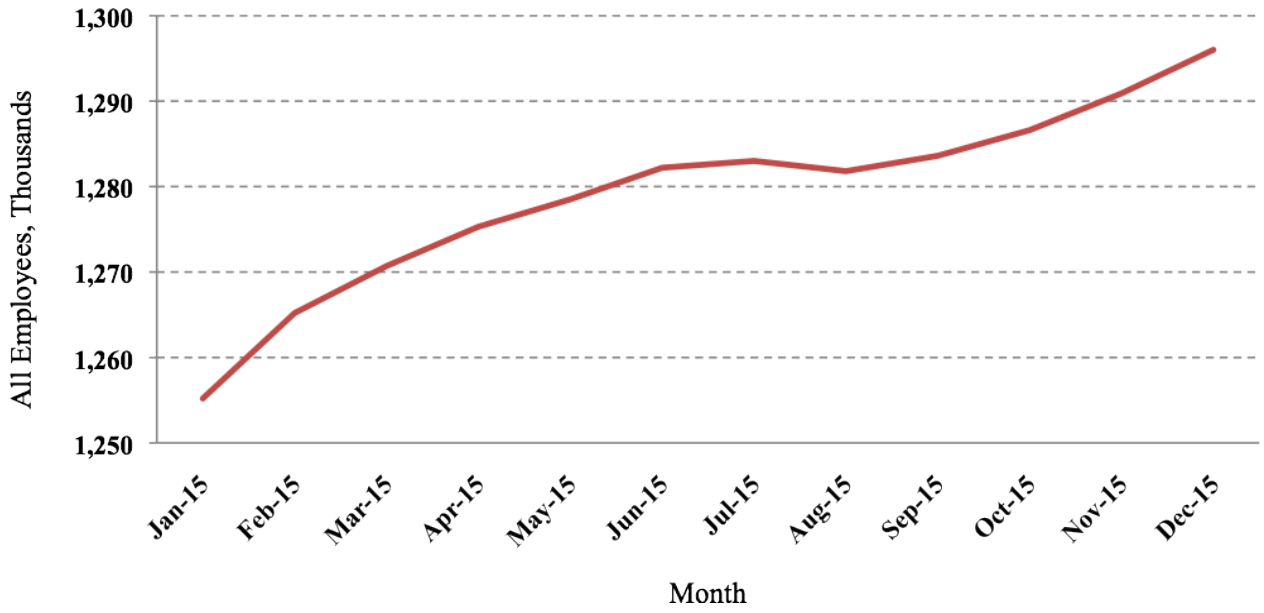
Section 5: The Impact of CSA Implementation on Employment in the Trucking Industry

One purpose of this study was to examine what happened to the labor market in trucking after the implementation of CSA in December 2010 beginning in January 2011through the end of the year. As reported in an earlier sections, there were industry predications of sever labor shortages because CSA requirements would restrict trucking firms' ability to attract qualified drivers, that requirements would alarm current drivers causing them to leave the industry, that record keeping infringements would negatively impact the availability of employees, and that stricter enforcement of regulations and increased transparency would limit hiring potential for both carriers and job-seekers.

Other sections of this study have noted the industry's decades long proported need for employees and its characteristic description of a labor market plagued by shortages. However, academic studies of the industry have not shown predicted shortages and efforts to quantify labor shortages in the industry have been inconclusive. The review of the complex impact of regulations, on productivity, output, wages, and employment in the industry showed generally positive outcomes. So, after CSA was implemented, what happened?

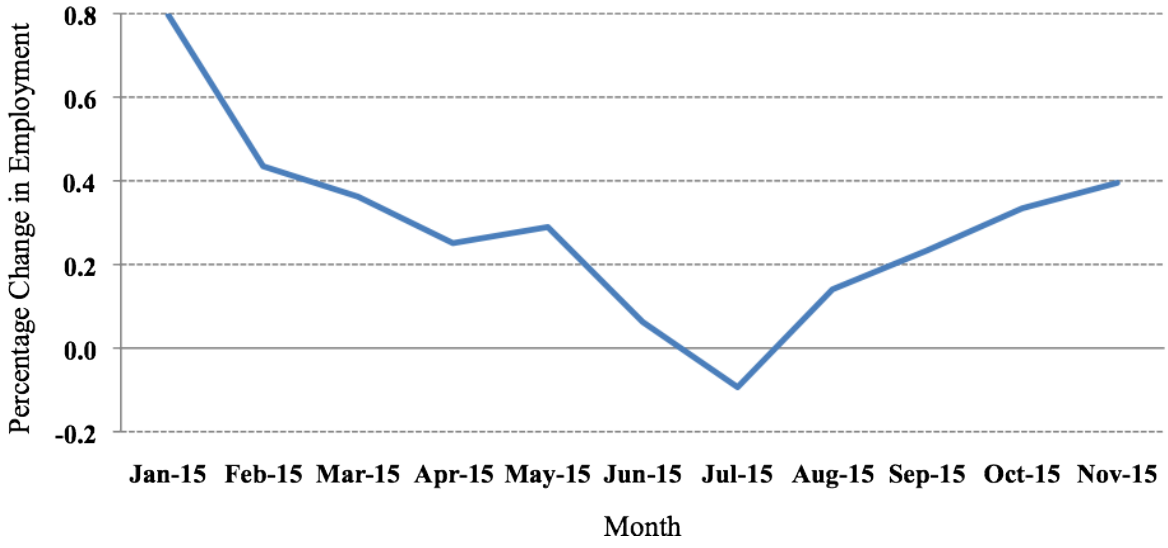
One way to examine changes in trucking employment is its relation to percentage changes in freight tonnage. BLS tracks 110,000 for-hire carriers to secure industry employment and ATRA publishes industry monthly tonnage percentages. Increases and decreases in the month over month percentage of freight tonnage are reportedly reflected in current industry employment (Cassidy, 2011).

Figure 8. Total Employment in Truck Transportation (NAICS 484) from the Current Employment Statistics national survey: 2011



Source: Bureau of Labor Statistics, Data series CES4348400001 extracted on January 13, 2012 (available at: http://data.bls.gov/pdq/SurveyOutputServlet).

Figure 9. Percentage Change in Employment in Truck Transportation (NAICS 484) from the Current Employment Statistics national survey: 2011



Source: Bureau of Labor Statistics, Data series CES4348400001 extracted on January 13, 2012 (available at: http://data.bls.gov/pdq/SurveyOutputServlet).

Following the implementation of CSA, January 2011 was accompanied by a 3.5 percent increase in freight tonnage—the largest increase in 2011—and the addition of 10,000 employees (0.8 percent) in February 2011. This tonnage increase was followed by a 2.7 percent decline in freight tonnage in February 2011 but the March employment response added another 5,500 individuals to the trucking labor market—a .04 percent increase. In March 2011, freight tonnage increased 1.9 percent followed by a near .04 percent April employment increase (4,600) in the trucking industry. April 2011 closed with a minus 0.6 percent in tonnage. However in spite of the previous month's decline, in May 2011 trucking employment added another .02 percent.

May freight tonnage fell 2.0 percent, but June employment was up by 3,700, a .03 percent increase. Rebounding, June tonnage rose by 2.6 percent and July 2011 added 800 employees over the previous month. Freight tonnage declines in July (-1.3 percent) along with earlier declines produced the year's only labor market decline for trucking of .01 percent or a 1200 trucking employment decline over the previous month. August tonnage declined another 0.2 percent but the September 2011 trucking labor market added 1,800 employees.

In September freight tonnage rebounded over the previous month by 1.5 percent and October added .02 percent or 3,000 employees to trucking over the previous month. In October 2011, freight tonnage increased by 0.4 percent followed by a .03 percent increase of 4,300 employees in November 2011. As the year ended, November 2011 had a 0.3 percent increase in freight tonnage, with a .04 increase on December employment of 5,000 individuals.

Overall for the year, the industry experienced a net decrease in freight tonnage of -0.1 percent while seeing an employment increase of 1.02 percent or 40,700 trucking employees added to the labor force throughout the year. Tonnage decreases occurred in five separate

months, ranging from -0.2 percent in August to -2.7 percent in February. Employment fell only in August 2011 by 1,200 individuals. Increases in month over month employment through the year ranged from a high of 10,000 in February to a low of 800 in July 2011.

In the industry, workforce growth or declines have been expected to follow increases or decreases in freight tonnage (Cassidy 2011). How tightly growth in trucking employment is tied to increases in freight tonnage may be somewhat debatable, since industry experts have suggested that trucking companies could be reluctant to increase their workforce faced with economic uncertainty (Cassidy, 2011). However, the current study did not find that to be the case. Throughout the year the trucking industry labor market increased routinely, even with nearly half the year seeing decreases in freight tonnage. On average trucking payrolls increased by 3,700 individuals monthly even when there were month over month declines in tonnage. After the initial large increase in freight tonnage in January 2011, with a corresponding increase in the workforce of 10,000 in February 2011, the industry continued to hire throughout the year in spite of freight tonnage decreases. The trend over the year, suggests that even with the implementation of CSA, the labor market in trucking continued to grow—industry predictions to the contrary. There has been nothing in industry analyses to imply that 2011 was a labor market replacement year where earlier workforce shortages catch up regardless of carrier freight demand. This suggests that the implementation of CSA did not have the industry predicted negative impact on hiring in trucking, although it could be argued that without CSA the industry might have experienced even higher payrolls. Throughout the past three decades, the trucking industry has produced anecdotally based predictions of serious driver shortages that have not been reflected in the data or in independent research analyses. Again, the Executive Vice-President of the Owner-Operator Independent Drivers Association told National Public Radio in

an October 2011 interview on a predicted 125,000 shortage of drivers said the claim was a myth (Morris, 2011). There is no shortage, he said, there is a problem of retention that can be corrected by paying employees comparatively to the demands of the job—a supposition suggested by earlier studies (Harrison & Pierce, 2009).

Section 6: Summary and Conclusions

The purpose of this project was to research the labor market impacts of Compliance, Safety, and Accountability (CSA), a recent federal safety initiative for the trucking industry, including:

1. A review of the current trucking industry response to CSA;
2. An assessment of potential labor market supply and demand issues;
3. Examining trucking employment trends over the past three decades;
4. Tracking supply and demand for truckers throughout 2011;
5. Reviewing the labor market response to CSA since its implementation through 2011, and;
6. Presenting a likely post-CSA supply and demand scenario for the trucking industry.

This study provided an overview of trucking regulation in the U.S. to show the level of involvement of government in the industry, focusing in particular on safety rules and guidelines and the relationship between those conditions and industry outcomes. To establish context, the study discussed why and how CSA emerged, provided a brief summary and overview of the CSA initiative, and described new processes and procedures as well as how CSA differed from earlier safety regulations that the initiative replaced. The research described the overall carrier industry response to the implementation of CSA. Exploring context further, this study showed two decades of productivity trends in the trucking industry, with attention to labor market indicators. In terms of the labor market, this study presented several decades of data and information from the Bureau of Labor Statistics, and *The Occupational Outlook Handbook*

showing trends in employment and in employment projections for the trucking industry. Carrier employment projections were discussed in conjunction with previous studies of the trucking industry labor market, and national and industry unemployment rates were compared as well. Finally, the impact of CSA implementation on employment in the trucking industry was discussed.

CSA is a Federal Motor Carrier Safety Administration (FMCSA) initiative, under the U.S. Department of Transportation, designed to improve large truck and bus safety and ultimately to reduce crashes, injuries, and fatalities that are related to commercial motor vehicles. CSA replaced the former enforcement and compliance process to ensure that large commercial motor vehicle carriers and drivers are complying with safety rules, and to intervene more quickly with those who are not. CSA is data driven, attentive, and consistent and proposes to provide an immediate response to the following specific carrier conditions:

Trucking Industry Response to the Implementation of CSA

When CSA was first announced, the trucking industry's response, as a whole, was unsupportive, critical and opposing. The CSA regulations were met with fear and uncertainty concerning how the scoring systems would work, how roadside inspections would be affected, and what auditors would actually do during an audit. Drivers were unsure of the exact criteria for rating a driver's safety, and did not know how the information was to be retrieved. Those uncertainties led to anxiety throughout the industry. Industry critics claimed that CSA would result in increased quit-rates, an inability to hire qualified drivers, an increase in commercial insurance rates and an effect on driver pay rates.

Other critics claimed that CSA would take 175,000 drivers off the road immediately with more to follow as more audits occurred. However, not all of the industry responses to CSA were

negative, noting the measure's concern for safety. But, despite some positive comments, most large organizations directly related to the trucking industry voiced major concerns with CSA—most notably the American Trucking Associations (ATA). ATA is a united federation of motor carriers, state trucking associations, and national trucking conferences representing over 34,000 carrier companies of all types.

In terms of driver responses, a recent report by the American Transportation Research Institute found that drivers neither supported nor strongly disapproved of CSA. In fact, the report noted that, overall, most drivers generally lacked an understanding of CSA.

Trends in Productivity in the Trucking Industry

In general, for the trucking industry, productivity indicators for the past several decades have been positive. During three decades of deregulation, declines in trucking prices increased industry productivity. Public capital increases between 1953 and 1973 resulted in increased productivity. In the period between 1992 and 1997, on-board computers doubled productivity. Between 1989 and 1999, lowered barriers to intra-regional trade increased productivity. The increased proportion of long-distance traffic increased productivity. Improvements in traffic composition—long haul versus short haul—improved productivity. Changes in speed limits and the dimensions of vehicles improved productivity.

While labor productivity in the industry had some periods of slight decline, overall between 1998 and 2008 productivity increased by 11.1 percent, at an average rate of one percent per year. Similarly, output per worker showed a positive trend from 1998 to 2008, with a cumulative increase of 15.0 percent since the base year, and an annual average increase of 1.4 percent. Trucking industry output grew by almost 20.0 percent during the decade under study, at an average rate of 1.8 percent per year. The hours worked also increased in the last decade by

about 9.0 percent, which was less than the increase in output—demonstrating upward trends in the productivity measures. On average, the numbers of hours worked in long-distance trucking increased annually by .8 percent.

The decline in the labor costs reflected improvements in productivity. Even though compensation levels in the industry declined in some years during early 2000's, overall the decade saw an increase of about 8.2 percent from 1998 to 2008, at an annual average rate of .75 percent, while the annual average cost-of-living increase was 2.7 percent.

Trends in Employment in the Trucking Industry

Over the past two decades, the labor market in the trucking industry has increased consistently. Historically, from 1990 to 1999, the industry labor force grew from 608,600 to 758,100 through 1999 representing a more than 24.5 percent jump in the labor force employed in this industry. During the early 1990's, from 1993 to 1997, employment in this industry grew at an average annual rate of 4.6 percent. The growth continued through the 1990's though at a more modest annual average rate of 1.4 percent. Employment increased slowly averaging half of a percent per year from 1998 to 2008. With recessionary forces in play, annual reductions in employment of 9.2 percent and 2.6 percent occurred from 2008 to 2009 and again from 2009 to 2010, respectively but the industry saw an average annual increase of 4.5 percent per decade.

Employment Projections in the Trucking Industry

Each recent edition of the OOH reported favorable opportunities in trucking because this industry has among the highest number of job openings each year in the United States relative to other sectors. This outlook has been repeated year after year for the past decade and a half, evidenced by the fact that the number of jobs in the trucking industry has increased steadily, from 2.9 million in 1994 to 3.2 million in 2010, making trucking one of the largest occupations.

Carrier Employment Projections

Supply and demand for drivers is perceived as the most fragile chronic condition of the industry, so it was not surprising that the initial industry response to CSA was characteristically dramatic. Historically, the trucking industry has warned each year of an impending shortage of drivers. The trucking industry as a whole continues to project shortages of qualified drivers in the trucking industry ranging from several tens of thousands to hundreds of thousands. *The Trucker*, a blog about all things trucking recently wrote that by the year 2012 there would be an acute shortage of around 40,000 driver jobs faced by trucking companies.

Previous Studies of Employment in the Trucking Industry

In 2009 Harrison and Pierce produced a study of turnover and retention in the trucking industry where labor shortage predictions in industry trade publications and public relations pieces were common. Looking at several decades of literature, a consistent theme throughout the study was the trucking industry exaggeration of labor shortages. The study concluded in that most of the information on turnover, retention and the motor carrier labor market is anecdotal and has been provided by the industry itself or by industry consultants. As no trucking company has successfully demonstrated that the costs associated with attacking turnover can be offset by profits gained from increased retention, the assumption could be made that the level of turnover and retention is appropriate for the prevailing business climate in the motor carrier industry and industry reports of labor shortages are designed to support that condition.

Comparing National and Trucking Industry Unemployment Rates

An important indicator of labor market supply in an industry is the relative unemployment rate. Unemployment rates provide an indication of what an industry's labor market is experiencing in terms of joblessness.

For most of the past dozen years the national unemployment rate has been slightly higher than the jobless rate in the trucking industry. Only in response to the December 2007- June 2009 recession did trucking unemployment rise above the national rate. Between 2000 and 2008, unemployment in trucking ranged from a difference of .21 percent below the national rate to 1.16 percent below the national rate—meaning that for those eight years there were fewer individuals looking for work in the trucking industry than there were people looking for work in the nation as a whole.

The Impact of CSA Implementation on Employment in the Trucking Industry

As reported in an earlier sections, there were industry predications of sever labor shortages because CSA requirements would restrict trucking firms' ability to attract qualified drivers, that requirements would alarm current drivers causing them to leave the industry, that record keeping infringements would negatively impact the availability of employees, and that stricter enforcement of regulations and increased transparency would limit hiring potential for both carriers and job-seekers. Did changes in trucking employment in relation to percentage changes in freight tonnage reflect those predictions?

Throughout the year the trucking industry labor market increased routinely, even with nearly half the year seeing decreases in freight tonnage. The trend over the year, suggested that even with the implementation of CSA, the labor market in trucking continued to grow—industry predictions to the contrary. This suggested that the implementation of CSA did not have the industry-predicted negative impact on hiring in trucking, although it could be argued that without CSA the industry might have experienced even higher payrolls.

In conclusion, this study found that for several decades the labor market in trucking has paralleled the national economy, the labor supply for trucking has been readily available in spite

of industry projections, measures of productivity have been high, employment has remained healthier than the nation as a whole, unemployment has remained consistently below the national rate, industry wages have not reflected cost-of-living increases, wages remained stagnant during recessionary periods and during recovery, employment projections have remained high, and CSA failed to have a negative impact on hiring qualified drivers following implementation in December of 2010. It can be anticipated that in the near future the trucking industry will continue to maintain a perception of chronic shortages, but the availability of qualified drivers should remain strong just as it has for most of the past three decades.

Technical Note:

BLS reporting methodology of employment data: 48412 Employment in General freight trucking, long-distance vs. Occupational Employment and Wages, 53-3032 Heavy and Tractor-Trailer Truck Drivers

BLS reports 1,466,740 heavy and tractor-trailer truck drivers employed as of May 2010. This number is significantly larger than the six digits employment (660,800 employees) in general freight trucking, long distance. There are two reasons behind such differences.

First, the industry employment reported by the BLS is based on the National Employment, Hours, and Earnings from the Current Employment Statistics survey, while the employment in this occupation is an estimate calculated with data collected from employers in all industry sectors, all metropolitan and nonmetropolitan areas, and all states and the District of Columbia.[35] Secondly, the two statistics are based on two different classification systems: the Standard Occupational Classification code (please see http://www.bls.gov/soc/home.htm for further details) and the North American Industry Classification System code (please see http://www.bls.gov/bls/naics.htm for further details).

According to the BLS definition, heavy and tractor-trailer truck drivers include employees who drive a tractor-trailer combination or a truck with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW), may be required to unload truck, and have a commercial drivers' license. These drivers are potentially employees in numerous industries. In Table 3, the industries with the top 40 highest published employment and wages for this occupation are provided. As seen in this table, general trucking (NAICS classification code 484000) employs 720,940 workers in this occupation, of which according to the BLS and based on the NAICS classification code 48412, 660,800 drivers worked in general freight trucking, long distance, in 2010.

[35] BLS, http://bls.gov/oes/current/oes533032.htm#ind .

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