

# MOTOR CARRIER REGULATION AND LAST MILE DELIVERY: HAVE WE COME FULL-CIRCLE WITH CARRIER PRACTICES?

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## **ABSTRACT**

*The focus of logistics has been to deliver products to customers as quickly and consistently as possible without a severe loss in profit. The growth of multichannel retailing in connection with the recent surge in on-line ordering, has forced the logistics industry to evaluate current transportation practices and make innovative adjustments.*

*In our work, we reflect on the changes to motor carrier transportation over time through the lens of regulation. Concerns about rates, entry to markets, and the safety of carriers were common around the Great Depression. Policy makers took notice and imposed economic and social regulation. Motor carrier strategies changed to meet these new policies and the motor carrier industry settled into decades of stability.*

*Midway through the 20th century many began to question the efficiency of the industry. Entry was difficult, rates were considered high, but safety issues were of little concern at the time. Deregulation became widely popular with policy makers, and the industry changed its strategies again to comply with deregulated policies.*

*Today, technology has become a prominent tool for all. Together, e-Commerce, Omni-Channel Distribution, Last Mile Delivery and Gig Delivery are poised to change motor carrier practices again. So, where does the industry go from here? Some think that it is headed back to economic and social regulation policies of the past.*

*We examine the impact of previous legislation on the transportation industry, specifically motor carriers, which led to deregulation of motor carriers in the 1990's. Considering the growth of on-line sales, we attempt to look forward, using the past, to hypothesize how they may operate in the future.*

## **KEYWORDS**

*Transportation management, Supply chain management, Logistics, Trucking, Ground delivery, Strategy, Government regulation*

## **1. INTRODUCTION**

The base level of business practice is, always, to minimize costs while attempting to maximize revenue in a competitive marketplace. The transportation industry is no exception to this practice. Many in the motor carrier industry have seen their strategies for delivery change through the years. In the beginning, or pre-stock market crash, it was easy to get into the business. All someone needed was a vehicle and a purchase order for delivery. Unfortunately, competition was fierce, and rates fell to a point where safety became an issue and regulation was needed to ease the fears of the public.

With regulation, entrance into the industry became difficult. Proof to a regulatory body that “public convenience and necessity” for a route was needed for carriers to make service additions. The additions were so hard to get that motor carriers strategically deployed vehicles in an attempt to maximize their benefit. Strategies were developed to provide city-to-city service via large vehicles, while smaller vehicles were performing commercial and residential deliveries within the boundaries of their jurisdiction.

Regulation of the motor carrier industry went on for several decades until there was a push by lawmakers to deregulate it (or semi-regulate it) and let the competitive pressures of the industry set rates for routes. The inability for motor carriers to take on a “backhaul” led many to believe that there were many inefficiencies in the industry. Such deregulation allowed those in the industry to rethink their current fleet practices. Not only were larger vehicles used for city-to-city routes, but firms began to use them for door-to-door routes too. Conversely, smaller vehicles were still used for door-to-door deliveries, but now they were available for quick city-to-city services for smaller (hot shot) loads.

With the increased use of technology in commerce today, choices for consumers have surfaced that allow for retail consumption. Traditional brick-and-mortar retail facilities are still around, but the infusion of e-Commerce and Omni-Channel distribution into the mix has had a tremendous effect on logistics. Now, customers can pick how they would like to take ownership of their purchases. For instance, they can go to the retail facility and pick up their purchases either on their own or with the help of in-store pickers with curbside delivery. Or, they can make use of e-Commerce systems and have their purchases sent directly to their homes or businesses from the retail facility or fulfilment (distribution) center. To many, delivery directly to one’s home or business has been given the title “Last Mile” delivery (the final step in the entire delivery process - and arguably, the most important one!). Once again, Last Mile delivery is reshaping the motor carrier industry and its practices. In our work, we review the history of the motor carrier industry and how Last Mile delivery may have brought it back to its roots of regulation with fleet strategies for economies of scale and distance services.

## 2. FORMS OF REGULATION

Through the years, the federal government in the United States has historically taken a special interest in regulating certain industries. Controlling the transportation industry through federal and state regulation is one of them. It all dates to the passage of the *Act to Regulate Interstate Commerce* passed on February 4, 1887, which created the Interstate Commerce Commission.[1] Slightly before that, in 1870, the *Granger Laws* regulated railroads. But it was in 1887 that the federal government became active in protecting the public interest with respect to a firm’s performance and its ability to provide such services.

Like most forms of regulation, transportation regulation can be grouped into two categories. These are **economic** regulation and **social** regulation:

***Economic Regulation:*** Seeks to achieve its goals of industry growth, service availability, stability and fair prices, by controlling entry, rates, and service routes in all forms of transportation infrastructure – roadways, waterways, airports and seaports [2].

***Social Regulation:*** Establishes safety initiatives in equipment design, hazardous material classification, packaging, and handling to protect the public from increased environmental and liability issues [2].

While most regulatory forms focus on economic regulation, recent proposals have more and more been directed toward social regulation for public safety, such as traffic, noise, air quality, etc.

### 3. THE MOTOR CARRIER ACT OF 1935

The *Motor Carrier Act of 1935* (P.L. 74-255, 49 Stat. 543, n.d.) [3] was one of many statutes enacted during the 1930s that brought key components of U.S. business under government regulation. Many believed that an unregulated transportation marketplace was partly to blame for the Great Depression of 1929, otherwise harming the public [1].

To be more specific, the economic problems of the motor carrier industry are closely related to the overall state of the U.S. economy. It was argued that the motor carrier industry problem was that entry was much too easy. Entry into the industry only required a driver and ownership (or at least financial responsibility) of a truck. The high level of unemployment during the Great Depression made entry into the motor carrier industry quite attractive. Many argued that overcapacity within the industry drove motor carrier rates to a level where it was difficult to maintain equipment and consequently, safety took a low priority. Thus, regulation was needed in the presence of excessive, or destructive competition [4].

Supporters of regulation argued that these statutes could prevent a recurrence of such devastating market events. Therefore, the Interstate Commerce Commission (ICC) supported the need for significant control over motor carrier operations and rates to maintain a stable transportation industry through an application process.

The 1935 Act divided motor carriers into two categories: Common Carriers and Contract Carriers. *Common Carriers* were defined as carriers who offered their services to the public, while *Contract Carriers* were defined as service agents who had agreements with one or a limited number of customers. Applications by new truck or bus companies, or applications by existing companies to expand their operations could only be granted if the proposed service met the "public convenience and necessity" clause of the statute. This requirement restricted the ability of new firms to enter the transportation marketplace and existing firms to expand in new areas. It also inhibited competition between motor carriers and railroads, and between common and contract carriers. The 1935 Act also required that the rates charged by motor carriers be "just and reasonable" and could not discriminate among customers of similar circumstances. In addition, the Act required motor carriers to file rates at least thirty days before they were to become effective allowing existing companies to protest [4].

The 1935 Act also specifically exempted certain individuals, companies, and products from regulation. Large carrier company trucks, individuals using their own trucks as part of their own business, school buses, taxi services, and motor vehicles operated by farmers for agricultural needs were some of the few. The effects of the Act encouraged motor carrier firms to create designated fleets. A large truck fleet carried goods for the long haul (city-to-city), while smaller truck fleets carried goods for the short haul (door-to-door).

### 4. THE MOTOR CARRIER ACT OF 1980

From the 1940's until 1980, new or expanded entry into the industry to transport goods was practically impossible to obtain unless no existing firm opposed an ICC application. Even if the new or expanded service was not offered by existing carriers, the ICC held that a currently certificated trucker who expressed a desire to carry the goods should be given the opportunity to do so above the desire of the new applicant. Therefore, the applicant would be denied. The effect of the ICC position restricted competition from new carriers. Purchasing the rights of an existing motor carrier became the only practical approach to entering a particular market [5].

Such regulation reduced competition and made trucking inefficient. Routes, and the goods carried over them, were narrowly specified. Motor carriers with authority to carry a product from one city to another often-lacked authority to haul anything on the return trip (known in the industry as a backhaul).

In the 1960s the winds of motor carrier regulation began to change. President Kennedy was the first president to ask Congress to recommend a reduction in the regulation of what he referred to as surface freight transportation. Next, President Ford called for legislation to reduce motor carrier regulation. He aided the process by appointing several commissioners to the ICC who favored competition. Finally, President Carter, after deregulation of the airline industry and facing strong opposition from unions, enacted the *Motor Carrier Act of 1980 (P.L. 96-296, 95 Stat. 793, n.d.)* [6].

The then-new Motor Carrier Act greatly limited the ICC's authority over trucking. The 1980 Act made it significantly easier for a motor carrier to obtain a certificate of "public convenience and necessity." The 1980 Act also required the ICC to remove most restrictions on what goods could be transported, on routes that motor carriers could use, and on the regional areas they could serve. The 1980 Act also authorized motor carriers to price their services more freely within a "zone of reasonableness," meaning motor carriers could negotiate rates from current levels by  $\pm 15$  percent without question. In addition, it allowed motor carriers to make independent rate filings with even larger price changes [5].

Benefits have been numerous since motor carrier deregulation. Some of the more obvious benefits include lower carrier rates, higher employment for both union and nonunion workers, and less fuel consumption. Other not so obvious benefits include a reduction in rates for less-than-truckload (LTL) shipments and more timely deliveries in support of just-in-time activities by firms[5].

Deregulation allowed motor carriers to rethink their original fleet concepts. The 1980 Act provides for large trucks to perform city-to-city (economies of scale) as well as door-to-door (Last Mile) deliveries. In addition, small trucks perform door-to-door (Last Mile) deliveries but can also perform city-to-city (hot shot) deliveries.

## **5. THE ICC TERMINATION ACT OF 1995**

The final step to deregulate motor carriers happened in 1995. It was during a period when deregulation was still quite popular. President Bill Clinton signed into law the abolishment of the Interstate Commerce Commission through the *ICC Termination Act of 1995 (Public Law 104-88, 109 Stat. 803)* [7].

In its place, the U.S. Surface Transportation Board (STB) was created. Through this board, the Secretary of Transportation would now preside over motor carriers, water carriers and freight forwarders. Regulated rail carrier jurisdiction was also transferred to the STB. Motor carrier regulations became split under the new law. It was now loosely regulated on safety, but not on rates. This occurred through the Department of Transportation's Federal Motor Carrier Safety Administration (FMCSA) [8]. Through strong lobbying efforts, collective ratemaking was left unchanged.

## 6. E-COMMERCE AND ITS EFFECT ON LOGISTICS

Moving toward the turn of the century, technology created new pressures for businesses. Consumers, or newly created Digital Shoppers, now have choices for making purchases along with the logistics practices that deliver them. The term e-Commerce (electronic commerce) is defined as *the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet* [9]. These business transactions occur either as business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer or consumer-to-business within a supply chain.

The use of e-Commerce began in the 1960s, when businesses started using EDI to share business documents with other companies. Since its inception, e-Commerce has grown exponentially. Figure 1 (*Retail e-Commerce Sales Worldwide, 2014-2023*) below illustrates the trend. In 1979, the American National Standards Institute developed ASC X12 as a universal standard for businesses to share documents through electronic networks. After the number of individual users sharing electronic documents with each other grew in the 1980s, the rise of eBay and Amazon in the 1990s revolutionized the e-commerce industry [10].

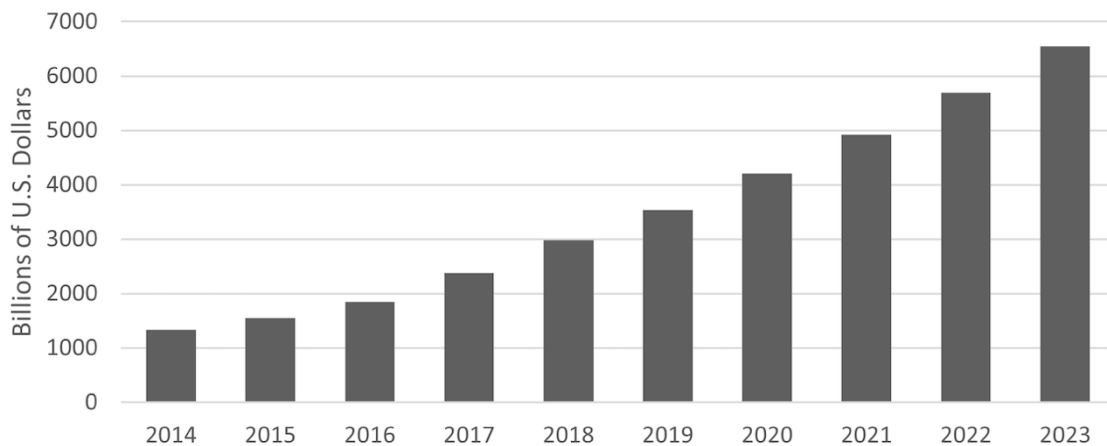


Figure 1. Retail e-Commerce Sales Worldwide, 2014-2023 (Source data drawn from Statista’s “Global Retail e-Commerce Sales”) [11]

The Internet enables consumers to enter the global economy, they can compare prices across areas, find out how they vary by request, and become aware of substitution. Buyers subsequently obtain a distinct advantage. Thanks to market openness, consumers can conveniently compare e-Commerce offerings from different websites.

Many consumers now buy items online from e-Commerce-only vendors (also called *e-tailers*) and brick-and-mortar stores that have e-Commerce capabilities. Since the COVID-19 pandemic of 2020, almost all retail companies are integrating online business practices into their business models. With shoppers confined to their homes for an extended period, e-Commerce jumped to a record high of 16.4% in the second quarter of 2020, according to the U.S. Census Bureau, and has increased the needs of logistics practices creating a new method for distribution known as Omni-Channel distribution [12].

## 7. OMNI-CHANNEL DISTRIBUTION AND LOGISTICS GROWTH

Omni-Channel distribution is defined as *one-touch integration between operations and physical product flows across all channels to provide a seamless shopping experience* [13]. In other words, Omni-Channel distribution is a system that enables customers to complete a purchase and receive orders from any distribution channel they choose. The most frequently used channels in the e-Commerce market are referral websites, ads, search engines, mobile marketing, social media, etc. The success of an e-Commerce marketing strategy depends on the ability to manage all of the various distribution channels at once.

In addition to all of this, the retailers usually face issues on how to track and improve sales, or what software to choose for e-Commerce campaigns. Consumers want plenty of choices including when, where and how their orders will be fulfilled. They no longer shop by the two methods of online or brick-and-mortar locations. They have expanded their expectation to include shopping online, pick up in physical stores, or purchase in physical stores and require shipment to another location [13]. The integration between physical stores and online stores has become more pervasive. This new expectation by customers has increased the number of distribution channels and increased logistics complexity, especially in transportation.

## 8. LAST MILE DELIVERY

Datex Corporation defines Last Mile delivery as *the movement of goods from a transportation hub to the final delivery destination* [14]. That final delivery destination is typically a personal residence, and this segment of the delivery route typically incurs the highest cost per item. Figure 2 (*Last Mile Delivery in the Supply Chain*) below illustrates the delivery “miles” – including the “Last Mile” that is the focus of the present research - in the supply chain [15].

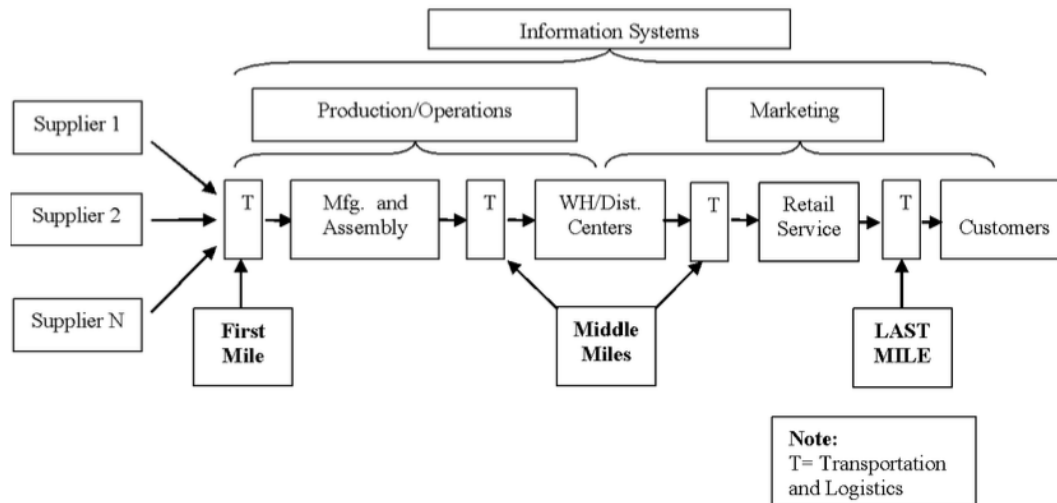


Figure 2. Last Mile Delivery in the Supply Chain

The objective of logistics has always been to deliver products to customers as quickly as possible without a severe loss in profit. In densely populated areas, delivering huge volumes of packages rapidly is easier and faster than in rural areas, simply because of the logistics involved.

Businesses understand this and carefully plan new strategies to optimize efficiency, reduce travel time, and keep costs under control. Besides retail establishments, having warehouses, distribution centers and fulfillment centers in optimal locations adjacent to population centers has been instrumental in the Last Mile delivery logistics process to date. Some of the most important factors for consumers when considering delivery options include cost, speed, flexibility, reputation, and service.

Due to the growing need for faster shipping, changing regulations and infrastructure limitations, transportation providers have begun to research and offer alternative delivery solutions. These alternative delivery solutions include: click-to-collect, robots, Uber, drones, and other local delivery services. Transportation firms have recognized the following as areas of interest for future development: improved tracking, improved alerts, Sunday deliveries, improved re-delivery options, delivery to safe place options, and delivery to locker banks. Twenty-eight percent of total transportation costs are attributed to Last Mile delivery, the least efficient leg of the supply chain [14].

## **9. THE “GIG ECONOMY” AND NOW, “GIG DELIVERY”**

To meet the ever-increasing expectations of e-Commerce customers, logistics providers are expanding their strategies to find ways to deliver parcels faster and cheaper. By focusing on the Last Mile, combined with the growing “Gig Economy,” delivery-oriented logistics has spawned a new model made up of smaller and more agile carriers. The Gig Economy is an environment in which temporary positions are common and firms contract with independent workers looking for job flexibility for short-term engagements [16].

In a Gig Economy, large numbers of people work part-time or temporary positions. The expectation is cheaper, more efficient services for those willing to use them. While the concept of short-term or same-day delivery is not new, demand for it and more complex delivery services continues to grow. Thus, the need for new and innovative carrier options and delivery tracking software is expected to grow with it.

“Gig Delivery,” or crowd sourced delivery, is an emerging strategy of fulfillment by shippers that leverages networks of local, non-professional couriers to deliver packages to customers' doors. In its beginnings, Gig Delivery was common in meal and grocery delivery. However, that is changing as traditional retailers look for ways to cut costs and maximize Omni-Channel efficiency, especially for Last Mile, same-day deliveries.

As for labor, there are plenty of eligible providers currently working gigs either as their primary or secondary sources of income. “According to the Bureau of Labor Statistics, in 2018 16.5 million people were working in “contingent” or ‘alternative work arrangements,’ with 2.6 million classified as on-call workers (1.7 percent of total employment)” (n.p.) [16]. Demand and the technology are currently in place to support Gig Delivery, and the supply of carriers continues to grow. “According to Intuit, the gig economy is now estimated to be about 34 percent of the workforce and expected to be 43 percent by the year 2020” (n.p.) [16]. Figure 3 (*Growth in Gig Economy Gross Volume Transactions, 2018-2023*) below illustrates just how fast the growth of the Gig Economy has been in the Last Mile delivery space [17].

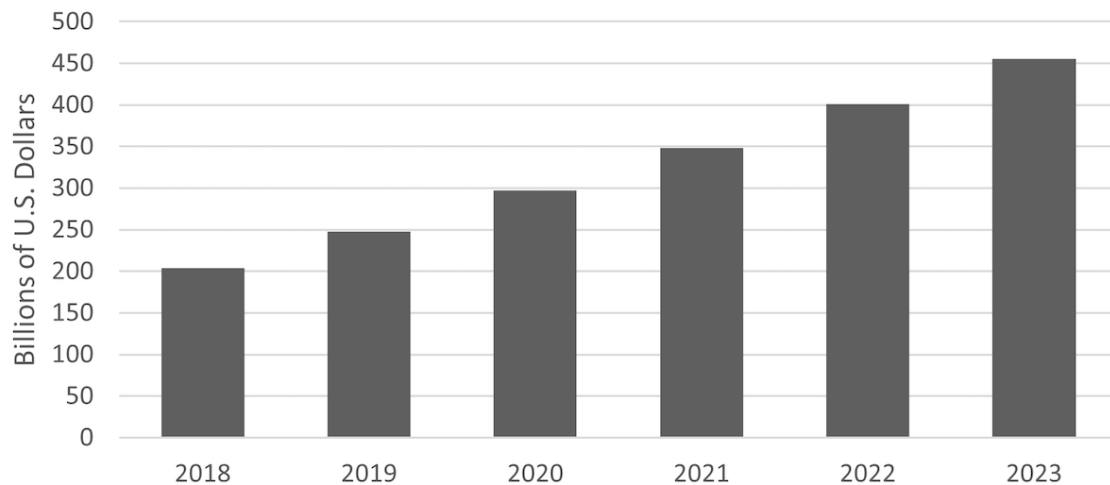


Figure 3. Growth in Gig Economy Gross Volume Transactions, 2018-2023 (Source data drawn from “The Global Gig Economy: Capitalizing on a ~\$500B Opportunity” [17])

Amazon provides an example of the change in motor carrier strategies by firms. For a competitive advantage, Last Mile e-Commerce providers like Amazon try to satisfy the instant-gratification delivery demands required by customers while performing that service at little or no cost. In doing this, Amazon has created its own Gig Delivery fleet, known as Delivery Service Partners, which is similar to the *exempt owner vehicle* classification of long ago.

Delivery Service Partners provide contracted delivery services to Amazon and its customers. As an Amazon delivery carrier, partners work independently, drive an Amazon-branded van, are provided with on-route gas and insurance coverage, and are part of a motivated team that safely delivers Amazon packages to customers in their respective communities. In addition, Amazon works with Delivery Service Partners when reasonable accommodations are required relating to Amazon’s tools, systems, or work areas that necessitates Amazon’s input.

## 10. THE PAST IS OUR FUTURE

Motor carrier transportation delivery services have existed for over a century. In the beginning, it was simple - someone had a vehicle and offered their services to move goods. Over time, economic and social regulation became part of the industry for the good of commerce and for the good of society. However, as we enter a new century the industry is starting to look like its old self again. With deregulation and the introduction of technology, it looks like it is back to a model where someone has a vehicle and offers their services to move goods.

In 1905, George Santayana wrote: “Those who cannot remember the past are condemned to repeat it” (n.p.) [18]. Have we come full circle with motor carrier transportation? Did we learn anything along the way? Where are we headed moving forward? These are all interesting questions that the past may help us solve.

As for economic regulation, rates and entry into the industry seems stable without the ICC. Such regulation hasn’t been on the minds of policy makers lately. However, firms are reviewing the cost of e-Commerce fulfillment. Providers are investing more in setting up distribution centers as close as possible to metropolitan areas to improve Last-Mile delivery performance. In addition, the fleet concept looks restored. Larger vehicles are traveling city-to-city routes for economies of



scale, while smaller vehicles, some utilizing door-to-door Gig Delivery services, are being used for economics of distance.

When it comes to social regulation, public safety and security are of utmost interest. As an example, Amazon, who is a leader in the fulfillment industry, provides its Deliver Service Partners with operations schedules, insurance, and worker accommodations where necessary. Environmental and liability issues are important to them, and others are likely to follow their lead closely.

## 11. CONCLUSION

Moving forward, is the “invisible hand” of the market finally regulating the industry through competition, or are we headed for “expanded” Motor Carrier economic and social regulation? What’s best for the public? We are entering what is, let there be no doubt, a new phase in the evolution of delivery services, where “proof of delivery” technology, carriers becoming salesmen, and autonomous vehicles (drones) are showing growth in the industry. In addition, unions may try to collectively bargain for e-Commerce workers (especially Gig Delivery). In the end, regulation may be needed to provide boundaries for many of these new services. Only time will tell, but history of the industry itself may provide us with a very useful road map to get there, as well as opportunities for future research.

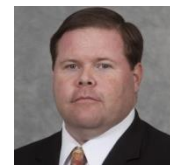
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