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## Unleashing Innovation: The Deregulation of Air Cargo Transportation

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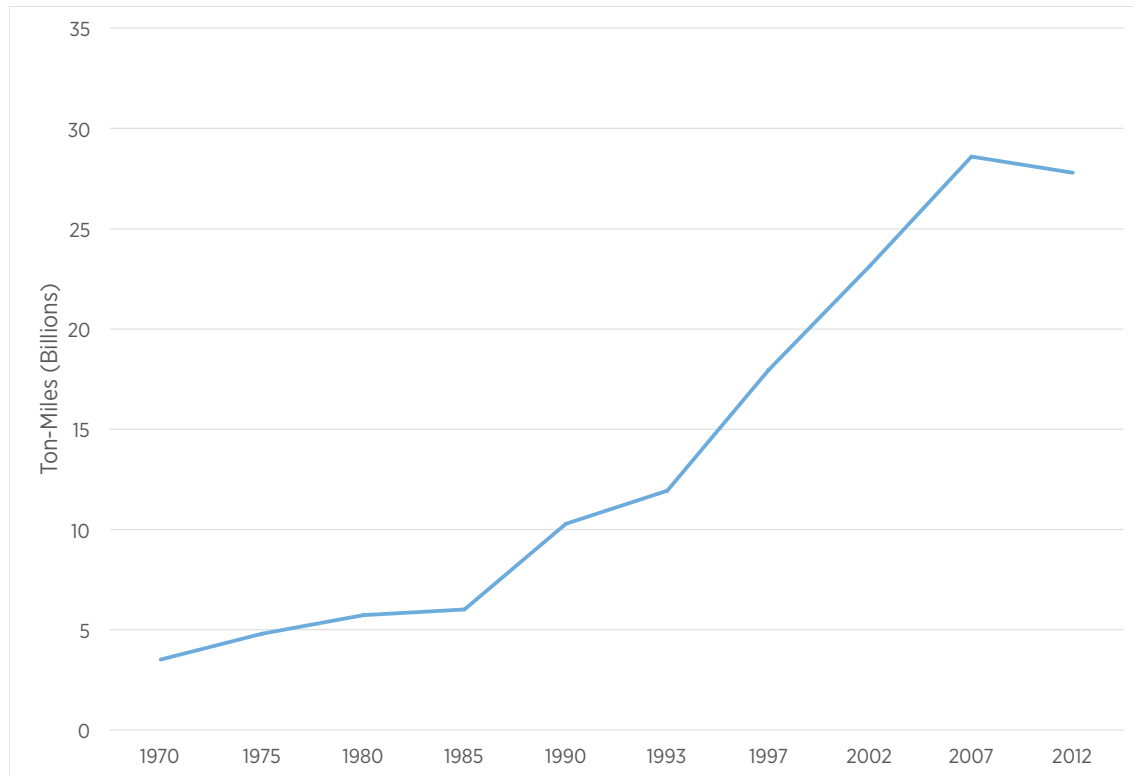
**A**irline deregulation in the late 1970s led to expanded cargo service, generally reduced cargo rates, and spurred substantial innovation in the types of services offered. In particular, nationwide overnight shipping became more affordable and virtually ubiquitous. The unanticipated nature of some of the results of deregulation in the 1970s suggests the possibility of further gains awaiting discovery in other regulated areas, including those portions of the air cargo industry that remain regulated.<sup>1</sup>

### BACKGROUND

As part of a broader deregulatory movement, Congress passed Public Law 95-163 in 1977 essentially to remove economic regulation over the air cargo industry. Soon after, express air services spread across the country, allowing rapid increases in the amount and variety of products shipped.

Before this deregulation, the Civil Aeronautics Board (CAB) oversaw the interstate air transport industry (passenger as well as cargo), controlling entry into both the overall market and specific routes. In the twenty years prior to deregulation, the CAB refused to certify the entry of any new cargo carriers or the expansion of existing ones into new routes and limited the size of plane allowed for air cargo hauls.<sup>2</sup> Thus under this regime carriers such as FedEx, which was classified as an express (rather than cargo) service, could only use small planes even when larger ones were the more efficient choice. Supporters of deregulation pointed to air passenger prices provided by unregulated intrastate airlines that were about half that of the regulated interstate carriers as evidence of the benefits of ending economic regulation of the industry.<sup>3</sup>

Figure 1. Air Freight and Express Ton-Miles



Source: Airlines for America, "Annual Results US Airlines," accessed November 4, 2014, <http://airlines.org/data/annual-results-u-s-airlines-2/>; and Research and Innovative Technology Administration, US Department of Transportation, "Table 1-49: US Ton-Miles of Freight" (December 10, 2013), [http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/national\\_transportation\\_statistics/index.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/national_transportation_statistics/index.html).

Deregulation of the airline industry occurred in two stages: the first happened with the passage of Public Law 95-163 deregulating interstate air cargo transport in 1977; this was followed a year later by the Airline Deregulation Act of 1978 deregulating the air passenger industry. The effects of deregulation were dramatic. In 1977 air and parcel service (FedEx, UPS, etc., which involve multimodal transportation) accounted for 5.4 percent of domestic shipments by value.<sup>4</sup> By 2012, this had risen to 14.5 percent.<sup>5</sup> The growing importance of air cargo transport is shown in the accompanying chart. Air passenger service likewise experienced growth following decreases in fares and expansion in services. Estimates of ensuing welfare gains are in the tens of billions of dollars per year.<sup>6</sup>

## AIR CARGO INNOVATION

The innovations arising from deregulation of the air cargo industry may be categorized as first-order and second-order innovations. First-order innovations are those that arose as a direct result of deregulation.

Important among these was Federal Express's rapid initiation of overnight delivery service after deregulation. Under CAB regulation, if a parcel needed extremely rapid transport it could be shipped "belly hold" over routes for which an airline had passenger authority, thus limiting overnighting to point-to-point routes available under passenger air flight regulations. The availability of shipping space was unpredictable, as it was subject to the amount of space left over after passenger luggage was loaded into the belly of the plane. The deregulation of passenger services increased the options available for belly hold cargo. The 1977 deregulation of air cargo allowed carriers, such as FedEx, to use larger aircraft for overnight shipping over any route, with prices determined by the market. This makes it possible for a lobsterman in Maine to ship crates of fresh lobster from Bangor to Bismark, or nearly anywhere else in the nation.

Absent route restrictions, the air cargo industry began using hub-and-spoke models that made widespread overnight shipping possible.<sup>7</sup> The dramatic impact of this model is illustrated by the scale of operations at

FedEx's primary hub in Memphis. FedEx's presence has made Memphis among the world's largest cargo airports, utilizing 15 million square feet of sort space and 179 gates, handling 2.2 million packages per day in 2010.<sup>8</sup> Hub-and-spoke operations were accompanied within two years of deregulation by other logistical innovations, including computerized information systems and digitally assisted dispatch.<sup>9</sup> The advent of the internet facilitated the integration of communications technology into the online tracking systems that characterize the modern cargo industry.

Free from operational restrictions imposed by the CAB and the Interstate Commerce Commission (ICC), shippers increased reliability and provided a multitude of delivery speed, time, and method combinations.<sup>10</sup> Nearly simultaneous deregulation of trucking and railroads allowed parcel carriers to become multimodal and offer intermodal services.<sup>11</sup> This variety of services made available illustrates two important points about regulation: First, because regulatory bodies were developed in a specific historical context in which shipping was segregated by mode, the industry was then locked into that structure, with modal segregation enforced by regulation.<sup>12</sup> Second, much of the innovation by parcel carriers has been possible only because both the CAB and the ICC regulatory systems were partially or entirely dissolved at around the same time; thus, deregulation across multiple sectors can lead to innovations inherently unimaginable to regulators and whose joint product outweighs the sum of the benefits arising from deregulation of the industries singly.

These basic innovations arising in the immediate postregulation environment provided a foundation without which many of the second-order innovations characterizing the modern economy would not be possible. The expansion of lean manufacturing and lean retailing processes are among the most important of these second-order innovations. These rely heavily on just-in-time delivery services offered by carriers such as UPS and FedEx. An example of this is the PC industry. Stocking every possible PC configuration would require maintaining massive, costly inventories. Instead, many PC makers wait until a customer's order is received and then install the needed components (which may themselves be shipped from suppliers using just-in-time delivery), shipping the finished product to the customer rapidly via delivery systems made possible by a parcel carrier utilizing combinations of air and surface transportation.<sup>13</sup>

Another example of the second-order innovations made possible by deregulation is repairs with a rapid turnaround time; for instance, in 2000 SonicAir, a UPS subsidiary, built a logistics center at the end of the runway at UPS's Louisville hub that made it possible for customers of tech companies with which SonicAir had a contract to ship their printers and scanners for repairs. These repairs were then completed overnight at the airport and returned in working order to the customer in the morning, reducing parts inventory for the manufacturer and improving customer service.<sup>14</sup>

Of course, the mostly readily recognizable second-order innovation facilitated by deregulation is e-commerce, as typified by online retail giant Amazon.com and online auction house eBay.com. These market-making platforms, as well as the online presence of countless individual retailers, have become an important component of the modern economy. As FedEx notes in its annual report, "e-commerce . . . is projected to reach \$1 trillion in sales by 2016. . . . online sales are growing more than three times faster than offline sales."<sup>15</sup> The interaction between online retailers and air cargo deregulation is important: the rise of parcel shippers able to support the complex supply chains makes possible the rapid 1–2 day shipping of goods and tracking of shipments characteristic of modern e-commerce. When ordering online, consumers can often choose between slower shipping times or 24–48 hour shipping options—a choice not widely available before deregulation. For instance, the 1975 Sears Catalog (the pre-Internet equivalent of Amazon) lists only surface transport rates; 1–2 day shipping was not an option.<sup>16</sup> Although it is impossible to guess what would have happened had air cargo not been deregulated, it is difficult to imagine e-retailing being anywhere near as successful in a world without parcel shippers such as FedEx and UPS.

## CONCLUSION

Deregulation of the US domestic interstate airline industry in 1977 and 1978 has proven beneficial. Deregulation of air cargo was a key element in the emergence of modern supply chain management and allowed wider access to goods supplied by domestic and international sources. It also facilitated American trade to foreign markets. Efficiencies in widespread use of hub-and-spoke models for air cargo, by reducing total costs, enable more American products to reach foreign markets.

As UPS expressed, “The efficiency and flexibility of our international air transportation network is dependent on DOT [Department of Transportation] and foreign government regulations and operating restrictions.”<sup>17</sup> The lesson is clear: continued success and innovation in air transport and the many industries that have grown up around it depend on a consistent light-touch regulatory environment. Remaining inefficiencies in air cargo are found in the parts still subject to economic regulation—the airports. Seventy percent of transit time for air cargo is spent on the ground, waiting in line at congested terminals.<sup>18</sup> As time is air cargo’s comparative advantage, this represents a significant impediment to realizing the full benefits of air cargo. Policymakers should take this to heart and consider the possibility of allowing market forces to find innovative solutions to the remaining problematic areas in the air transport industry—specifically, air traffic control systems and airport capacity—areas that, not coincidentally, remain heavily regulated.

11. Morlok, Nitzberg, and Balasubramaniam, “Parcel Service Industry in the U.S.,” iv–vi.
12. *Ibid.*, 1.
13. *Ibid.*, 33.
14. *Ibid.*, 35.
15. FedEx, “Online Shopping: Fuel for Growth,” *FedEx Annual Report*, accessed December 9, 2013, <http://annualreport.van.fedex.com/2013/Online.aspx>.
16. Sears, Roebuck and Company, *Sears Catalog* (Spring/Summer 1975): 560–62. Microfilm.
17. United Parcel Service, “United Parcel Service, Inc. Annual Report on Form 10-K,” *United States Securities and Exchange Commission EDGAR Database* (December 1, 2012), <http://www.sec.gov/Archives/edgar/data/1090727/000109072713000005/ups-12312012x10k.htm>.
18. John Bowen and Jean-Paul Rodrigue, *The Geography of Transport Systems* (New York: Routledge, 2013), <https://people.hofstra.edu/geotrans/eng/ch3en/conc3en/ch3c5en.html>.

## ENDNOTES

1. Elizabeth E. Bailey, “Air Transportation Deregulation” (American Economic Association Conference Papers, January 2008), 10, [http://www.aeaweb.org/annual\\_mtg\\_papers/2008/2008\\_264.pdf](http://www.aeaweb.org/annual_mtg_papers/2008/2008_264.pdf).
2. *Ibid.*, 4.
3. *Ibid.*, 3.
4. Edward K. Morlok, Bradley F. Nitzberg, and Karthik Balasubramaniam, “The Parcel Service Industry in the U.S.: Its Size and Role in Commerce” (Philadelphia: Systems Engineering Department, School of Engineering and Applied Science, University of Pennsylvania, 2000), 22, <http://www.seas.upenn.edu/~morlok/morloklpage/parcellfullrpt.pdf>.
5. Research and Innovative Technology Administration, United States Department of Transportation, “2012 Commodity Flow Survey United States” (December 10, 2013), [http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/commodity\\_flow\\_survey/2012/united\\_states/table1.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/commodity_flow_survey/2012/united_states/table1.html).
6. Jerry Ellig and Robert Crandall, “Economic Deregulation and Customer Choice: Lessons for the Electric Industry” (Fairfax, VA: Center for Market Processes, 1997), 38, <http://mercatus.org/publication/economic-deregulation-and-customer-choice-lessons-electric-industry>.
7. Bailey, “Air Transportation Deregulation,” 9.
8. David Frasnelli, “Inside the FedEx Memphis ‘Super Hub,’” recorded December 8, 2010, FedEx, <http://www.youtube.com/watch?v=iYzQ7JSBIGU>.
9. Bailey, “Air Transportation Deregulation,” 9.
10. *Ibid.*

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