

# Emergent Curbside Intercity Bus Industry Chinatown and Beyond

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**The first study of the emerging curbside intercity bus industry, commonly called the Chinatown bus, is presented. The study of this relatively unknown industry addresses three research questions. First, why and how did the intercity curbside bus industry develop? Second, what services are operated by the curbside carriers and how do these services compare with competing travel options? Finally, how do the economics of operating curbside buses differ from those of traditional bus companies? The research speaks to policy questions about the appropriate role of regulation in transportation and the competition between private and public transportation providers. The findings indicate that in the past 10 years, curbside buses have grown to become an important transportation provider in the Northeast Corridor: more than 2,500 low-fare bus trips per week connect New York City to Washington, D.C.; Philadelphia, Pennsylvania; and Boston, Massachusetts. More than 100 buses depart each week to more than 30 other cities, traveling as far as Atlanta, Georgia, and Toronto, Canada. Traditional bus companies, such as Greyhound Lines and Peter Pan, have begun their own curbside intercity bus services either to mitigate the competition from new companies or because they recognize the competitive advantages of curbside operations. It is found that curbside bus operations offer significant cost savings compared with traditional bus services by lowering labor costs and avoiding terminal fees, although at the cost of limited accessibility for disabled passengers, reduced passenger safety, and other social concerns.**

In passenger transportation, intercity bus operations are the stepchild of the industry: they lack the glamour or mystique often associated with airplanes, trains, ocean liners, and riverboats (1).

This perception is only half right. Intercity buses lack glamour, but there is a mystique surrounding a particular, growing sector of the bus industry: the curbside intercity bus market. These buses, popularly known as Chinatown buses, have garnered headlines with bafflingly low prices, mysterious origins in immigrant communities, and shocking reports of deadly crashes, fires on the highway, and several murders and assaults between rival companies. Beyond the salacious details is a potentially important new travel option throughout the country, having the largest impact on the East Coast.

According to most accounts, curbside intercity buses began operating in the United States in 1998 when a group of Chinese immigrants in New York City chartered a local jitney van to take them to Boston, Massachusetts. This service quickly expanded along with competing bus companies, forming a network of bus routes concentrated on the East Coast and expanding throughout the United States.

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Curbside intercity buses are distinct from established intercity bus services, such as Greyhound Lines and Peter Pan, primarily because they stage on city streets instead of at bus terminals and charge low fares relative to traditional bus companies. In the last few years, traditional bus companies have initiated their own curbside bus service, indicating that curbside buses are influencing planning and operations of traditional bus companies.

New York City serves as the primary hub for intercity curbside buses. From there, curbside buses travel to more than 35 cities, offering a range of service levels from a few trips per week to 60 daily departures to cities in the Northeast Corridor. This study focuses on three routes: from New York to Boston, Massachusetts; Washington, D.C.; and Philadelphia, Pennsylvania. These routes have the highest number of daily bus trips and compete directly with other transportation modes: auto, airlines, traditional bus companies, Amtrak, and commuter rail (between New York and Philadelphia).

Despite the rapid growth of this sector of bus transportation, its extensive network, large number of bus trips, and impact on intercity travel, academics have not acknowledged the curbside bus industry. Existing knowledge of the curbside bus industry is limited to news reports and anecdotes that perpetuate the mystique. This paper presents an exploratory study of the curbside bus industry, providing evidence that curbside buses are an important transportation provider in the Northeast Corridor with potential impacts on travel behavior and competing transportation options. Three research questions are addressed to provide an understanding of the curbside bus industry: What is the history of the curbside intercity? What services do curbside buses offer? How does the economics of operating curbside buses differ from that of traditional intercity buses?

## DEFINING CURBSIDE INTERCITY BUS MARKET

Curbside buses are defined by the following four characteristics: intercity service, low fares, primary reliance on curbside pickups, and regularly scheduled service. Only those curbside bus services that have attracted a diverse ridership base and thus have broad potential impact on transportation providers and travel behavior are included. The colloquial term “Chinatown bus” refers to a specific group of curbside bus companies based on location and the ethnicity, language, and culture of some riders. However, this term is not useful because many curbside buses share the same operational characteristics but are operated by owners of diverse backgrounds in many different neighborhoods with a diverse ridership.

Niche intercity bus services are excluded from the study. Buses studied here differ from previously studied “camionetas” and transnational bus and van services operating throughout the Southwest United States and Mexico, many of which use bus terminals, operate long-distance routes, and have not attracted a diverse ridership (2, 3).

For similar reasons, this study excludes long-distance intercity buses that provide transport primarily for Chinese immigrant workers from employment agencies in New York to jobs throughout the country (4). Also excluded are local or commuter-oriented curbside services, such as jitneys (5, 6). Finally, this study excludes other niche services such as tour, charter, airport, and casino buses.

The curbside bus market competes for passengers with several modes, depending on the route. The primary competitor is traditional intercity bus companies, which, in the Northeast, are Greyhound and Peter Pan. Additionally, bus services compete with Amtrak along the Northeast Corridor and with commuter rail between Philadelphia and New York. (Passengers can use transfers between New Jersey Transit and SEPTA at Trenton, New Jersey, to make this trip.) Finally, intercity buses compete with airlines between New York and Boston and Washington, although airlines are not included in this study.

## RESEARCH QUESTIONS

In the past 10 years, curbside intercity bus travel has emerged as a new transportation option for many urban markets, yet little is known about these bus services and their potential impacts have not been evaluated. Instead, the perception of curbside intercity buses has been shaped by the media's fascination with the inexpensive fares, alleged illegal activity, and the fact that immigrants own and operate many of the buses. This paper offers a first study of the curbside intercity bus industry.

Why and how did the intercity curbside bus industry develop? The current obscurity of the curbside bus creates an atmosphere in which spurious information, gossip, and stereotyping, if unchecked, can lead to misinformed policies.

What level of service do curbside buses offer and how do these services compare with competing transportation providers? Most accounts of curbside buses narrowly focus on one or two providers, missing the larger picture that curbside buses may be eclipsing other intercity travel modes. Understanding the extent of curbside bus service reveals its impact on other transportation providers and travel behavior.

How does the business model of the curbside bus industry differ from that of traditional bus companies? Despite the lack of robust financial reporting, curbside buses gain considerable economic savings because of lower labor costs and terminal fees. This analysis answers questions about how curbside bus companies can offer such low fares and indicates the sustainability of curbside bus businesses.

## SIGNIFICANCE

This research documents the history, extent, and characteristics of a relatively unknown sector and is motivated by a question of whether curbside buses are a significant transportation provider with potential impacts on competitors, neighborhoods, and travel behavior. If curbside buses are an important transportation option, then studying curbside buses speaks to larger questions about the role of regulation in transportation and the impact of private competition on other transportation providers.

For policy makers, a rapidly expanding curbside bus industry raises questions about the appropriate role of regulation of the curbside bus industry. Current regulations for licensing, federal monitoring, and insurance have enabled a flourishing industry and increased consumer welfare via lower fares and increased frequency, but at

the possible expense of social welfare. In neighborhoods where buses arrive and depart, passengers bring economic benefits, but the buses bring air and noise pollution and traffic congestion. The rapid unplanned growth of this industry warrants an evaluation to determine the balance of market forces and regulations that will increase benefits and mitigate social costs.

A vibrant curbside bus industry offers conditions for analyzing the impact of competition among transportation providers. Competition provides an impetus for innovation in amenities and services, threats that curbside carriers poach riders, and potential for attracting new riders. Between Philadelphia and New York, where private companies compete with public transit, public transit operators may find opportunities to improve by adopting practices from private companies, but unlike private companies, these agencies must balance possible responses with obligations to the public.

## METHODOLOGICAL ISSUES

Several aspects of the curbside bus industry present challenges for studying these buses. First, companies often begin in the informal economy and transition to the formal economy as their ridership grows. Second, most operators are small companies running one or two routes. Third, it is not uncommon for a bus company to close and reopen with a different name and thus avoid regulations, to add and remove bus routes without notice, to update schedules frequently, and to contract out buses from other companies on their routes. The following illustrates the difficulty associated with determining a bus company name: According to the lettering near its luggage compartment, a vehicle is owned by Kristine Travel and is operated by Lucky River, but the sign on its side reads Travel Pack, and its ticket agents call the company Lucky Star (7).

For these reasons, this study focuses on the Northeast Corridor. Information on the bus operations was gathered by consulting online sources and newspaper articles and through field observation in New York, Washington, and Philadelphia.

## RELEVANT LITERATURE

The Bus Regulatory Reform Act of 1982 was the last of the major transportation deregulation legislation of the late 1970s and early 1980s. The act liberalized pricing and reversed the previous criteria for entering markets, which had been in place since the Motor Carrier Act of 1935 (1). The new regulation required only that bus companies meet fitness standards (insurance) and "impose[d] a burden upon objecting carriers to demonstrate that the transportation proposed 'is not consistent with the public interest'" (8). As a result, regulators have approved almost all applicants since 1982.

Deregulation has led to declines in service to rural areas, declines in revenue for large bus companies, and a general consensus that deregulation did not result in "significant falls in fare levels," even on the heavily traveled routes, as proponents had predicted (9, 10). Despite these declines, intercity bus companies recently experienced an increase in passenger use for the first time in 50 years (11).

From a planning perspective, deregulation affects the public planner's ability to coordinate services and plan intermodal transportation systems (12). More generally, private companies are not directly accountable to public concerns about the economic, environmental, or social impacts (12). Although the public remains concerned about safety, the English experience with deregulation of the bus industry

since the 1980s showed no increase in bus accidents (13). However, the curbside bus industry's growth in ridership amidst public safety concerns raises questions about whether existing research on bus safety in other contexts applies in this case.

Analysis of local buses in England by Gómez-Ibáñez and Meyer offers relevant findings about the behavior of firms in response to deregulation and privatization. They found that firms entering the market had gained advantages from lower wages and greater operational flexibility than established bus companies (14). Additionally, they describe three significant stages of private firm response to deregulation: first, small firms enter the market; second, large holding companies with bus operations in several countries enter the market; finally, "incumbents" respond to the new competition (14).

The literature on immigrant entrepreneurship explains the emergence of the curbside bus industry. Waldinger argues that entrepreneurs emerge from within an immigrant community because that community, "has a special set of needs and preferences that are best served, and sometimes can only be served, by those who share those needs and know them intimately, namely, the members of the immigrant community itself" (15, p. 19). However, if entrepreneurs do not expand beyond the immigrant community, their "potential for growth is sharply circumscribed" because of limits on size and economic capacity of the market (15, p. 20). This expansion beyond serving only an immigrant community is what separates the curbside buses in Chinatown from niche transportation services.

Finally, the example of the evolution of the Hispanic bus industry in the Southwest offers insights into the possible future of the intercity curbside bus industry in the Northeast. The Hispanic bus industry has routes extending throughout the southwestern United States and into Mexico. According to Kemper et al., the effects of increasing regulation in the Hispanic bus industry resulted in increased formalization, scrutiny from immigration officials, and an increase in multinational corporations entering the market while the number of Hispanic bus companies declined (3).

## HISTORY

The curbside bus industry is not a new phenomenon. In the early 1900s, the first bus services began as informal jitneys or taxi services and slowly increased the size of vehicles and the level of regularity and formality of the services (16). During these early years, bus companies relied on curbside pickups instead of bus terminals and faced stiff competition for choice locations (17). As businesses grew and large bus companies emerged, so did no-frills bus companies (16, 17). Pressure from a public concerned with passenger safety and from a railroad industry concerned with competition led to the Motor Carrier Act of 1935, which regulated safety, fares, and entry and exit in the market until the 1980s (16).

## Emergence

The current manifestation of the curbside bus industry began 10 years ago by chance rather than design. The Fung Wah Transportation Company at that time was a local jitney van owned by Pei Lin Liang that transported Chinese immigrant workers between Brooklyn and Manhattan. In 1998, a group of Chinese immigrants approached Liang to charter a van to visit their children at college in Boston (18, 19). By August 1998, Liang had a permit from the U.S. Department of Transportation to operate passenger service and began

offering daily trips to Boston. Within a month, the company operated three trips a day and within a year offered seven daily trips each way (19, 20). In 1999, New Century Travel, a shuttle service based in Philadelphia, began offering daily trips for Chinese workers between Philadelphia and New York (19). With low fares, these companies gradually increased ridership and service.

Had it not been for the events of September 11, 2001, the curbside bus industry might have remained a niche market. The decline in tourism that fall resulted in a 70% decline in charter bus business to New York's Chinatown. Thus, charter bus companies had many idle buses and were losing money rapidly (19, 21). Increased airport security, inconvenience, and fear of traveling on planes led to increased bus travel (19). Charter bus companies noticed the success of Fung Wah and New Century and began using their idle buses for regularly scheduled curbside intercity service (19).

## Bus Wars

The new competition among curbside operators in Chinatown quickly led to reductions in fares, increased passenger ridership, expansion of routes, violence, and increased regulatory oversight. Between 2002 and 2003, bus companies reduced fares by half or more; tickets for Philadelphia dropped from \$10 each way to \$5; for New York to Boston from \$25 to \$10 each way; and for Washington from \$25 to \$15 each way (19, 21). In addition, in newspapers along the Northeast Corridor, articles began appearing describing college students, often non-Asian, who had "discovered" the inexpensive intercity bus services (22–24). As a result, new ridership continued to increase, including among non-Chinese passengers. This is evident in a 2003 survey by Dragon Coach, which "showed that a third of all its passengers are non-Chinese; on weekends that number grows to half" (21).

Not all the news from Chinatown was positive. Between 2002 and 2003, the curbside bus industry was beset by several brutal acts of violence. The violence included two murders, two bus fires, and an assault in which a driver from one company repeatedly backed a bus into the owner of a rival company, "smashing his pelvis" (20, 25–27). Six months later, the attacking bus driver was murdered (19). The violence eventually disappeared from the news after at least one bus company moved its bus staging operations out of Chinatown to Midtown Manhattan, next to New York's Penn Station.

## Big Business

Despite the competition, new companies continue to enter the crowded market for intercity travel, most notably the entry of multinational corporations into the marketplace. In 2006, Megabus, a subsidiary of a large Scottish bus company, began operating 16 routes from Chicago, followed by five routes from Los Angeles, and at the end of May 2008 it began operating six routes from New York (28). In 2008, Greyhound and Peter Pan jointly funded BoltBus, which provides a new low-cost service from New York to Boston, Washington, and Philadelphia (29).

The 10-year history of the curbside bus industry indicates similarity to the response to privatization and deregulation in England described by Gómez-Ibáñez and Meyer (14). First, new firms begin operations—in the United States, these are the early bus companies in Chinatown. Second, multinational holding companies start local bus operations—in this case, MegaBus. Finally, traditional companies respond to these new factors, as Greyhound and Peter Pan did with BoltBus.

## CURBSIDE BUS OPERATIONS

This section provides an overview of the curbside bus industry, as it appeared in late spring 2008, cataloging the options offered to travelers throughout the Northeast and an analysis of the safety and regulation concerns facing federal and local governments. An analysis of the level of service provides an indication of the potential impact of the curbside bus industry

### Level of Service

Tables 1 through 3 summarize three operational aspects of low-cost buses important to passengers: number of trips, trip cost, and travel time. Data for this table represent a snapshot of the transportation options for the week of Monday, April 28, through Sunday, May 4, 2008. Although not included in this analysis, many of the buses to and from Washington make a Baltimore, Maryland, stop. Amtrak's express Acela services are excluded from this comparison.

Comparing curbside buses with traditional bus companies and commuter rail shows that curbside buses offer more scheduled and frequent departures and cheaper fares. Although curbside buses are slower than Amtrak, they are faster and significantly cheaper than other options. The online prices for traditional bus companies that are close in price to curbside carriers are an attempt by established companies to match the fares on the competition. On both the routes between New

York and Boston and between New York and Washington, curbside buses account for 63% and 61%, respectively, of trips on curbside buses, traditional bus companies, and Amtrak. Between New York and Philadelphia, curbside buses account for 44% of trips on curbside buses, traditional bus companies, Amtrak, and commuter rail. Although capacity may be higher on competing rail modes, the curbside bus share of the trips on these routes demonstrates the importance of these buses in this market.

To show how these services break down among the competing curbside bus companies and compared with the other modes, Figure 1 gives daily departures for Wednesday, April 30, 2008, from Philadelphia to New York for the four currently operating curbside bus companies, traditional bus companies (Greyhound and Peter Pan), commuter rail, and Amtrak (excluding Acela service).

The top four lines show the schedules for individual curbside bus companies, with New Century Bus at the very top. Between 8:00 a.m. and 8:00 p.m., New Century buses depart every hour and half hour; thus, New Century offers both the most daily departures and the most consistent service. Consistency is also apparent in the schedules of other curbside bus companies, to a lesser extent commuter rail, and practically not at all on traditional bus companies or Amtrak. This high level of service on New Century confers a significant advantage for flexibility; essentially, passengers can arrive at the bus stop at any time and know that a bus will depart every half hour.

These operational characteristics indicate several advantages of curbside buses, but important comparisons of the quality of service

TABLE 1 Travel Characteristics: Number of Trips

	Curbside Buses: Trips per Day and Week								Other Modes: Weekly Totals		
	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Total	Traditional Buses	Amtrak	Commuter Rail
NY-BOS	58	57	56	58	62	58	63	412	194	61	
BOS-NY	59	59	58	59	65	61	65	426	179	61	
NY-PHL	68	60	58	61	67	66	68	448	153	223	173
PHL-NY	65	59	57	57	62	64	66	430	152	223	191
NY-DC	58	54	50	55	88	64	91	460	143	163	
DC-NY	59	57	54	59	87	70	93	444	145	132	

NOTE: NY = New York City; BOS = Boston; PHL = Philadelphia; DC = Washington, DC.

TABLE 2 Travel Characteristics: Costs

	Curbside Buses (\$)	Traditional Buses (online price, walk-up price) (\$)	Amtrak (\$)	Commuter Rail (\$)
NY-BOS	15	19, 29.50	59-84	
NY-PHL	10-12.50	13, 22	43-61	20
NY-DC	17-25	19, 36.50	69-98	

TABLE 3 Travel Characteristics: Travel Time

	Curbside Buses	Traditional Buses	Amtrak	Commuter Rail
NY-BOS	4:30 (4:00-5:00)	5:03 (4:19, 7:25)	4:17 (3:50, 4:37)	
NY-PHL	2:00	2:13 (2:00, 2:50)	1:25 (1:17, 1:38)	2:27 (2:05, 2:53)
NY-DC	4:30	4:57 (4:20, 6:05)	3:20 (3:08, 3:55)	

NOTE: Minimum (maximum) in hours.

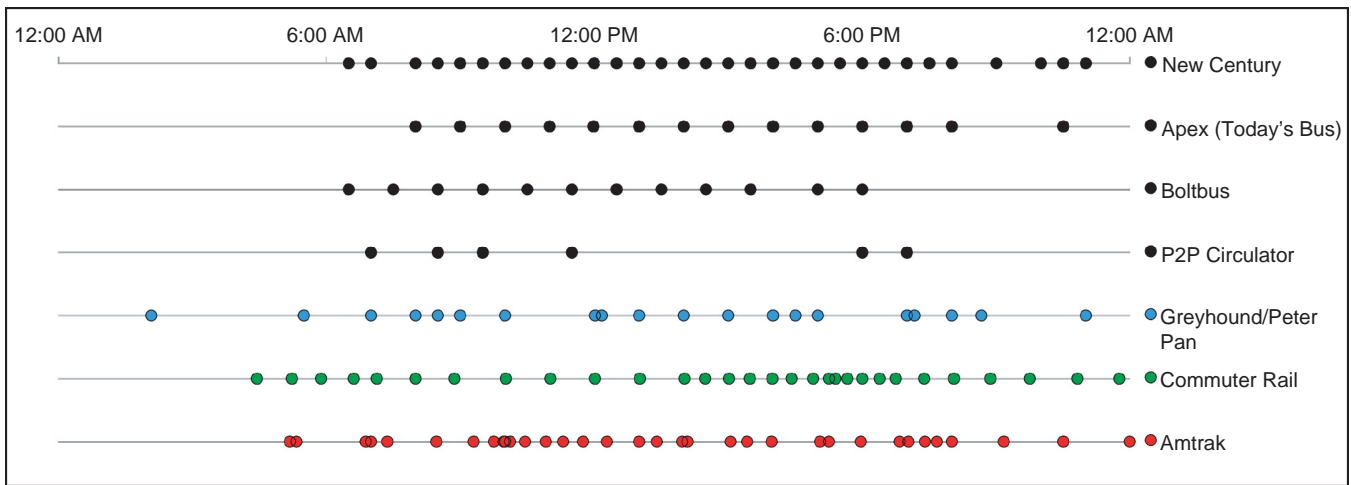


FIGURE 1 Departures by time of day and operator.

are not included. For example, this analysis does not provide information about on-time performance, occupancy, comfort, availability of tickets for the desired departure, and passenger safety. The level of service may favor curbside carriers, but anecdotal evidence in the numerous newspaper accounts of curbside adventures indicates extreme variability in quality of service (22, 23, 30).

**Curbside Bus Network**

Curbside buses now serve many cities other than New York, Boston, Philadelphia, and Washington. Figure 2 illustrates the extent of the curbside bus service to and from these three cities; the thickness of each route indicates the number of trips offered for a typical Wednesday in May. The map clearly shows that the routes from New York to Boston, Philadelphia, Baltimore, and Washington have at least 10 times the level of service of any other routes.

In addition to curbside bus operations in the Northeast region, smaller bus hubs or networks have developed in Chicago, Los Angeles, and Florida. These regions and secondary cities in Figure 2 may become more important for curbside carriers as the services mature.

**Safety and Regulations**

Between 2004 and 2008, curbside buses were involved in at least seven bus crashes, which injured 76 people and caused two deaths, as well as three bus fires and one accident with a pedestrian whose legs had to be amputated (25, 31, 32). These accidents have been widely publicized and raise concerns about whether curbside operators are less safe than traditional bus companies. The safety concerns prompted New York Senator Charles Schumer to request that the U.S. Department of Justice look into the bus companies in 2005 (33).

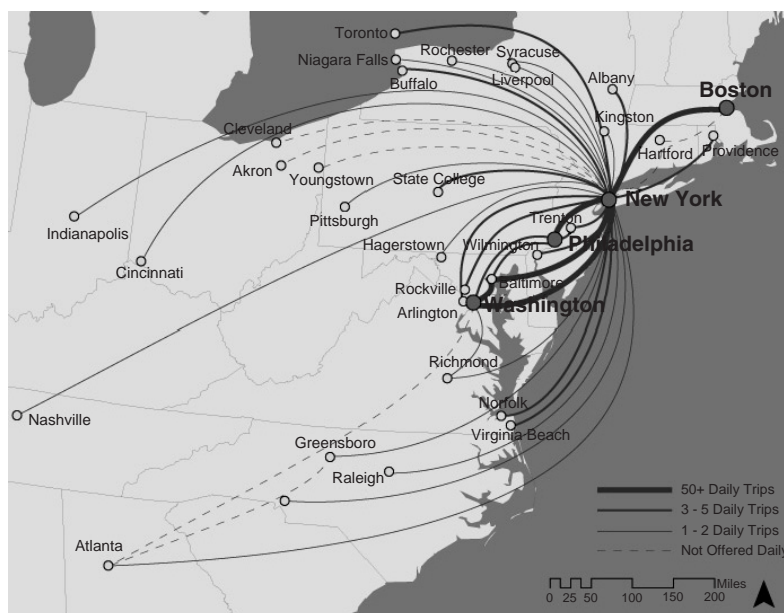


FIGURE 2 Northeast region curbside bus network.

Although the Federal Motor Carrier Safety Administration (FMCSA) maintains a database of safety statistics, the validity of the data is dependent on companies registering with FMCSA and authorities performing roadside inspections, reporting traffic violations, and reporting accidents (34). When reported, this information is added to FMCSA's SafeStat database, which provides the safety of each company relative to all other companies. Because of the large number of bus companies, the broad geography, and the limited number of inspectors, SafeStat does not have reliable data on every bus company. To address the concerns about data reliability and safety of the curbside bus industry, FMCSA developed both a task force and a strike force to increase roadside inspections of the curbside bus industry and to improve reliability of administrative data. This may not address the fact that bus companies unexpectedly change names, contract services, and close to reopen as different companies, possibly to avoid regulations, which, of course, increases the difficulty of maintaining accurate records.

An evaluation of the database revealed widely varied scores for curbside buses, some of which were consistently among the lowest percentile in driver-safety rating among all bus companies, much worse than traditional bus companies. The specifics of this analysis are not presented because of the unreliability of the data. Given the bus crashes in recent years and lack of valid safety information, more evidence is needed before any conclusions can be drawn about the safety of curbside buses.

In addition to safety concerns, the U.S. government has fined curbside bus companies for ignoring compliance with the Americans with Disabilities Act (ADA). FMCSA inspections of curbside buses found that 11 of 14 inspected buses failed to meet ADA compliance. However, FMCSA has not made operating licenses dependent on ADA compliance. Additionally, the Massachusetts attorney general won a lawsuit against Fung Wah for refusing to sell bus tickets to a blind person accompanied by a guide dog (35).

The unplanned curbside bus industry caught many cities off guard, unsure how to handle the hundreds of buses that arrive each day in various neighborhoods, but attempts to increase regulation of curbside buses are now being made. Curbside bus companies are run by entrepreneurs who take advantage of a deregulated industry, make decisions without consulting transportation planners, and are not directly accountable to the public or neighborhoods where they stage. For neighborhoods where curbside buses stage, the buses bring passengers and economic benefit from passenger retail but also increase congestion and air and noise pollution. Private companies, regulators, and municipalities have only recently begun to address some of the negative externalities of curbside bus operations. Boston, amid pressure from traditional bus companies, increased ticketing of curbside bus companies until it was too expensive not to use bus terminals (29). The District Department of Transportation (DDOT) in Washington regulated curbside buses to use a single bus staging area at L'Enfant Plaza instead of locations spread throughout the city, but several weeks later that order was suspended after opposition from bus companies and the public (36). The efforts by DDOT and Boston to gain control over the curbside bus industry are signs that the next era of curbside buses may be an era of oversight of the industry.

### Economics of Curbside Buses

Besides the operational advantages of curbside buses, questions remain about whether the economics of the industry is different from that of traditional bus companies. If the business model of curbside buses is different and has significant economic advantages, then, barring regulation, the curbside bus industry is likely to expand further.

Although academics dispute whether intercity buses yield economies or diseconomies of scale, curbside bus companies are claiming to yield substantial revenue (9, 37, 38). In 2006, the owner of Fung Wah and Megabus both claimed that they have or will have several million dollars in revenue from operations in the United States (39, 40).

The primary economic advantages of curbside buses rest on lower labor costs and utilizing taxpayer-provided streets as staging areas. These two factors are possible because of technological advances that allow for online ticketing, a deregulated environment allowing curbside staging, and the fact that labor has little power to press for higher wages. Additionally, although this is not included in this analysis, to the extent that curbside buses fail to comply with ADA regulations, defer maintenance, and obtain sufficient insurance and proper licensing, they achieve the monetary savings of companies. For example, retrofitting buses with lifts for disabled passengers may cost \$30,000 to \$35,000, excluding training expenses, according to representatives from Peter Pan. Further, because curbside buses require little infrastructure, companies can quickly and easily adapt to changing demands and operations, allowing them to test new markets with a relatively inexpensive investment. Despite the absence of financial reporting by curbside buses, which prevents a detailed calculation comparing costs, the following analysis describes two significant cost advantages of curbside businesses compared with traditional bus companies.

The first operational cost reduction for curbside buses is labor, which typically accounts for 60% to 75% of operating costs (41). Depending on the company, curbside buses reduce the number of employees or reduce wages or both. By limiting ticket sellers, baggage handlers, and bus terminal employees, curbside buses decrease the number of employees needed per bus (42). For example, by using online ticketing and dispensing with baggage handlers, BoltBus and Megabus require only one person: the bus driver. Another wage-reduction technique for many curbside bus companies is simply to pay low wages. According to newspaper accounts, some companies pay bus drivers approximately half the wage of Greyhound drivers (\$10 to \$12 per hour versus \$20 per hour), and tickets sellers may earn as little as \$1 per ticket sold (20, 43, 44). The labor savings of new entrants is consistent with Gómez-Ibáñez and Meyer's findings in England after deregulation of local bus service (14).

The second cost advantage over traditional buses comes from staging buses on publicly provided curbs instead of paying for space in a bus terminal. Transferring the costs of providing space to taxpayers saves considerable expense. Use of the Port Authority Bus Terminal in New York, the main hub in the curbside bus network, costs each company \$40 per departure plus annual fees of \$6,500 for platform use and \$13,000 to \$19,000 per gate depending on the location. At this rate, the costs for departure fees alone for New Century Bus, with approximately 200 weekly departures from New York, adds up to \$416,000 per year. To put this in perspective, New Century Bus would have to accrue an average \$1,140 in parking and moving violations each day to match the terminal fees at Port Authority. Currently, Boston is the only city where curbside buses must use bus terminals, and this occurred after months of intense ticketing of curbside buses (29).

### DISCUSSION OF RESULTS

Given the economic advantages of curbside buses, it is no surprise that 25 years after deregulation, curbside bus companies have quickly grown to become important transportation providers in urban neighborhoods. According to Greyhound and Peter Pan estimates, approximately 60% of the almost 7 million intercity bus trips in the Northeast

Corridor in 2007 were taken on curbside buses (personal communication, March 4, 2009). Further, during the last 10 years, as the market for intercity bus travel has grown 75%, traditional bus companies have seen their ridership decline by 25% (personal communication, March 4, 2009).

In addition to low fares, high frequency of departures, greater consistency in scheduling, and new staging areas within cities, the curbside bus industry presents several innovations in intercity travel. Bus companies have quickly embraced new business practices, such as online ticketing and yield management policies for bus fares, which lower the costs of operation and raise revenue. Passengers on board some buses take advantage of amenities such as wireless Internet service and onboard power outlets. These innovations represent significant improvements for riders, who are clearly the winners. On the other hand, the losers include competing transportation providers who have lost passengers to curbside buses, the neighborhoods where buses have their staging operations and to which they bring additional congestion and pollution, bus terminals that lose potential revenue, employees of bus companies who may be taken advantage of, and riders, whose safety may be threatened or who may be discriminated against because of disabilities.

This paper presents a foundation for subsequent research, which will evaluate curbside buses and their impact on travel behavior in this region. In addition to descriptive information about passenger demographics, trip purpose, satisfaction, and mode choice, future research will address three policy concerns raised by curbside buses. First, how has this bus service affected the competing transportation providers? Second, what lessons from the success of the curbside bus industry can be applied to other providers? Third, what is the appropriate role of regulation in private transportation given the interests of passengers, planners, bus companies, and business and residents in the neighborhoods where buses stage?

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