MANAGING THE SHARING ECONOMY: MUNICIPAL POLICY RESPONSES TO HOMESHARING, RIDESHARING AND BIKESHARING IN ILLINOIS

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This study offers a statewide perspective on three areas of the sharing economy—homesharing, ridesharing and bikesharing—and associated responses by communities to growth in these sectors. It evaluates data on the prevalence of these services throughout the state to assess notable patterns and gaps in coverage. Results show that collaborative economic activity is widespread and rapidly expanding into lower-density and more suburban locations throughout the state. In response, municipalities are becoming savvy, establishing creative regulations and collaborations intended to ensure that the sharing economy is aligned with economic development and planning goals.

From the expansion of Lyft and Uber to the growing popularity of Airbnb, the dramatic rise of the "sharing economy" is transforming the structure of business operations and models in profound ways, creating both excitement and apprehension in Illinois communities. For municipal governments, the sector's remarkable growth—which has allowed tiny startups to mushroom into commercial giants in only a few years—has coincided with increasing calls for regulations that address stakeholder concerns. In Illinois and elsewhere, these on-demand services have sparked a wide-ranging cultural and political debate about their regulation and their social, economic and environmental effects (A. Smith, 2016). This article shows that peer-to-peer markets are widespread, and that they are expanding into lower-density and more suburban locations throughout Illinois, making it important for local officials to carefully evaluate a range of possible policy approaches prior to taking action.

Most analyses of Illinois municipal policies adopted in response to the sharing economy have focused chiefly on larger and more densely-populated communities within the state (Schwieterman & Livingston, 2018; C. S. Smith & O'Neil, 2018). While useful, these analyses offer an incomplete picture of both the broader trends in and policy options available to communities of

different sizes and characters. As a result, many local officials are left without adequate data or tools to formulate contextually appropriate policies for their communities.

This article addresses this shortfall by reviewing three segments of the sharing economy—homesharing, ridesharing and bikesharing. It discusses trends and provides examples of actions that Illinois municipalities have taken to manage issues presented by these rapidly evolving economic activities. The article collects and combines data from various sources to provide a detailed overview of state-level patterns in the sharing economy—including trends and estimates of the geographic distribution and share of communities where homesharing, bikesharing and ridesharing are active. Finally, it outlines strategies that communities, both large and small, have used to deal with concerns regarding safety, the environment, land use, tax revenues and overall quality of life.

To this end, the article is written primarily for planning departments, municipal leaders and other local stakeholders seeking broad perspectives on issues related to managing or balancing the sharing economy. For the sake of brevity, the article does not consider carsharing (e.g., Zipcar), workspace sharing (e.g., WeWork) or other services that are less prominent outside large urban areas. Likewise, this article does not consider the many political issues being debated at the state level; it focuses instead on strategies being pursued by local governments. Finally, a growing number of academic articles and reports address one or more of the three segments (i.e., homesharing, ridesharing and bikesharing) more exhaustively than we do here (Baron, 2017; Cohen & Shaheen, 2016; Davidson & Infranca, 2016; Miller, 2016; Zervas, Proserpio, & Byers, 2017). We encourage readers seeking more information to review the many works found in this article's reference section or to contact the authors.

HOMESHARING

The emergence of the sharing economy and peer-to-peer platforms has enabled people to make use of underutilized inventory, such as cars and homes, through technology-based fee structures. Homesharing software platforms, such as Airbnb, HomeAway and VRBO, for example, have streamlined participation in short-term rental markets by allowing residents to easily "share," via searchable online listings, entire homes or spare rooms at prices of their choosing. In the sector's parlance, those offering spaces of accommodation at their own nightly, weekly or monthly rates are referred to as hosts, while those who reserve

available properties that match their price and accommodation preferences (e.g., entire house, shared room) are referred to as *guests*. Most homesharing platforms require photographs of the property, as well as information about the hosts, and encourage guests to post reviews and ratings. Prospective guests are also able to browse the approximate locations of listings on a map, such as the neighborhood in which a given property is located; to protect the host's privacy, the address is only disclosed after payment. Since its launch in 2008, the Airbnb online marketplace has experienced rapid growth, with more than 4.85 million active listings globally as of the time of this writing (Airbnb, 2018). A 2016 report by the Pew Research Center estimated that around 1 in 10 Americans has used a homesharing site, such as Airbnb, to arrange for a stay in someone's home (A. Smith, 2016).

For hosts, the economic value of homesharing platforms derives from the ability to flexibly and efficiently list and rent properties to a growing market of prospective guests with relatively low transaction costs (Henten & Windekilde, 2016). Hosts using Airbnb, for example, pay a 3% commission on every booking, while guests pay a 9% to 12% service fee for each reservation, depending on the length of their stay. A 2015 study of Airbnb bookings in four U.S. cities showed that over 80% of hosts were renting out their primary residences for an average of 66 days per year, earning an average of over $7,530 annually (Sperling, 2015). For the median household in the United States, this represents a 14% pay raise, bringing the annual household income upwards of $60,000. In this way, Airbnb and other homesharing platforms have helped create millions of new micro-business owners, similar to small hotel or bed and breakfast operators, who typically use the service to supplement their income (Chandler, 2015; Dillahunt & Malone, 2015).

John Groh, president and CEO of the Rockford Area Convention and Visitors Bureau, has described homesharing as "a welcome addition to the marketplace" (Poulisse, 2017). Groh estimates that Airbnb has been helpful to the city's residents, bringing $300,000 in supplemental income to the hosts of the approximately 30 properties listed in Rockford in 2017. Groh has also noted that "hosts go out of their way to provide personalized amenities and share information about the community with their guests" (Poulisse, 2017).

Beyond the practical and economic benefits accrued by using homesharing platforms, a wide range of interacting environmental, social and experiential factors, such as a desire to experience "local authenticity," also tend to motivate guests to use peer-to-peer services like Airbnb. Segmentation

analysis of responses, submitted by over 800 tourists who stayed at Airbnb accommodations around the world, identified several accommodation choice profiles (Guttentag, Smith, Potwarka, & Havitz, 2018). For example, one segment of Airbnb guests, labeled *pragmatic novelty seekers*, appear to be driven by a combination of economic frugality, as well as the "perceived excitement, uniqueness, and practicality associated with Airbnb accommodations" (Guttentag et al., 2018, p. 355).
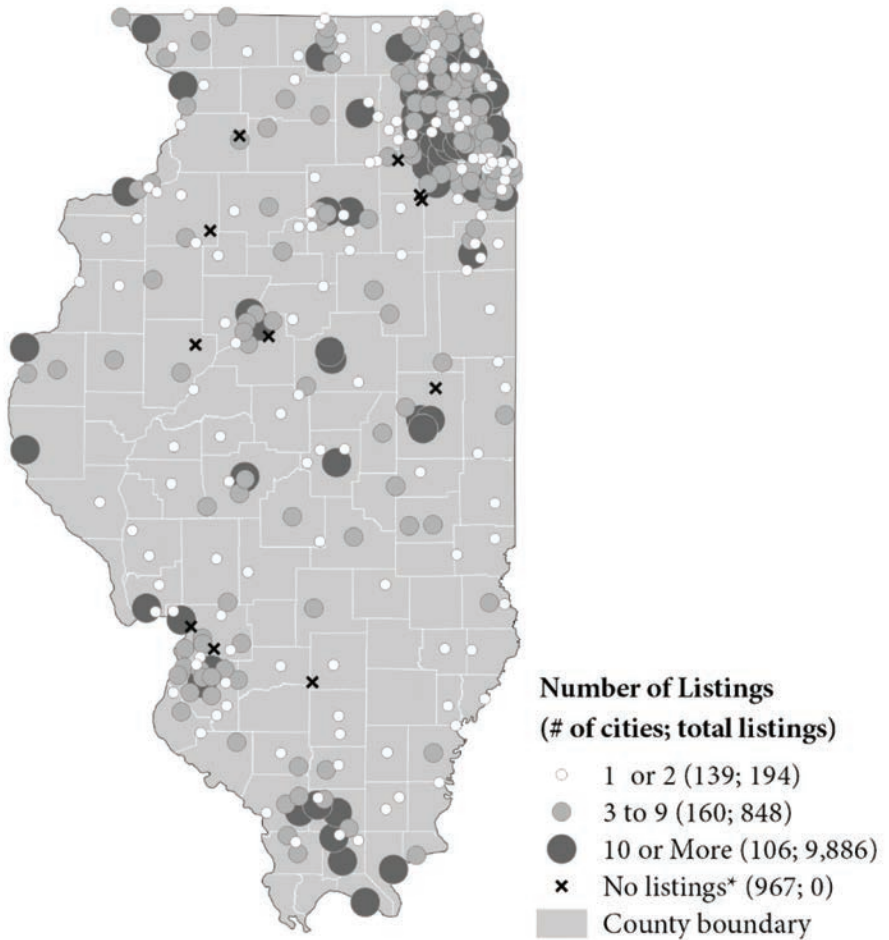
STATEWIDE TRENDS AND DISTRIBUTIONS

Homesharing's spectacular growth makes it essential for municipalities to continually monitor the sector's changing characteristics, presence and role in their communities. To gain a better understanding of statewide trends and distributions in this sector, we extracted and compiled a comprehensive inventory of active rental accommodations in Illinois from the Airbnb website in July 2018. Figure 1 presents the geographic distribution of the 10,914 active listings collected as part of that inventory. In total, 401 (29%) of the state's 1,372 communities (Illinois municipalities and certain unincorporated areas) have at least one property listed on the Airbnb platform; this represents 1 of every 354 households (U. S. Census Bureau, 2017). Airbnb is primarily an urban phenomenon, with 92.5% (10,102) of listings located in metropolitan areas throughout the state, and nearly 67% (7,277) in communities with populations of 75,000 or more (Table 1). More than 84% (9,217) of properties in the statewide dataset are situated within the Chicago metropolitan area, with 6,568 (or 60.1% of the statewide total listings) residing inside the City of Chicago alone.

Outside the Chicago metropolitan area, Airbnb listings tend to be located in communities with populations greater than 40,000, including Champaign (112 listings), Urbana (102), Peoria (69), Belleville (61) and Rockford (56), which collectively account for nearly a quarter of all "downstate" listings. However, smaller communities, with considerable cultural and environmental amenities, also have adequate representation on the Airbnb platform. With 206 listings, historic Galena, for example, has more Airbnb rentals than any other community outside the Chicago metropolitan area; nearly one in every seven households within this architecturally-rich city has a property listed on the platform.

FIGURE 1

AIRBNB LISTINGS BY MUNICIPALITY IN ILLINOIS, 2018

Number of Listings
(# of cities; total listings)

○   1 or 2 (139; 194)

●   3 to 9 (160; 848)

●   10 or More (106; 9,886)

✕   No listings* (967; 0)

   County boundary

Airbnb listings are heavily concentrated in urban areas, university towns and areas near outdoor attractions, such as the Mississippi River and the Shawnee National Forest near the southern tip of the state. Many municipalities in more rural areas have only one or two listings, but few have no listings. (Only communities with populations exceeding 10,000 are displayed on the map.) Source: Data adapted from listings extracted from Airbnb website July 2018 (https://www.airbnb.com).

TABLE 1

AIRBNB LISTINGS, AVERAGE NIGHTLY RATES BY ILLINOIS PLACE CATEGORY, 2018

POPULATION SIZE OR LOCATION	PLACES WITH AIRBNB LISTINGS	AIRBNB LISTINGS (% OF TOTAL IN ILLINOIS)	AVERAGE NIGHTLY RATE	PERCENT OF HH OWNER OCCUPIED	HOUSEHOLDS PER AIRBNB LISTING
Large (≥ 75K)	14	7,277 (66.7%)	$124.42	59.0%	390
Medium (25K to 74K)	80	1,636 (15.0%)	$94.97	69.4%	779
Small (< 25K)	307	2,001 (18.3%)	$146.68	72.9%	1,558
Inside Chicago metro	195	9,217 (84.5%)	$121.26	74.6%	313
Outside Chicago metro	206	1,697 (15.5%)	$129.21	68.9%	783
Illinois	401	10,914 (100%)	$125.34	71.7%	354

Source: Adapted from Airbnb website; American Community Survey, 2012-2016.

Our analysis also shows that Airbnb properties are available for rent in communities across the economic spectrum. In the City of Chicago, for example, while the greatest share of listings are located in middle- to higher-income neighborhoods (the West Town [828], Near North Side [659], and Lake View [540] neighborhoods each have over 500 listings), Airbnb rental properties in lower-income neighborhoods within the city's south and west sides are also prevalent and growing. In 2016, the lower-income, south-side neighborhood of Englewood, for example, was one of the more popular areas for Airbnb hosts in Chicago (Vivanco, 2016). In 2018, the number of active listings in Englewood and West Englewood, combined, exceeded 100.
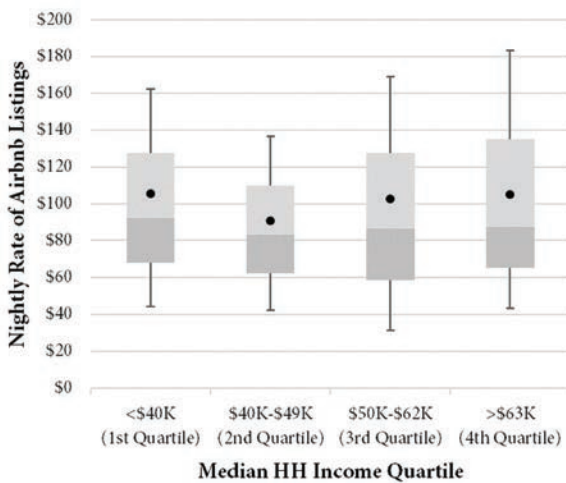
The statewide Airbnb data also suggest that average nightly rates vary across and within communities. Of communities with 40 or more listings, for instance, the average nightly rate ranges from $59.65 in Peoria to $233.79 per night in Galena. Surprisingly, however, the average rates of Airbnb listings across communities, by household income quartile, is rather consistent, with a mean of $105 per night in both lower-income and higher-income communities (Figure 2 and Table 2). Even communities with relatively modest nightly

rates, such as Springfield, averaging $82.02 per night and 12th on our list of communities with 40 or more listings, reportedly made a combined $218,000 from 2,920 guest stays in 2017 (Jiminez & Thomas, 2018).

Overall, college markets tend to experience much more extensive booking activity than other places in the state. Demand is especially strong during commencements at the University of Illinois at Springfield. Hosts in this city appear to be comprised heavily of senior women and empty-nesters with available rooms in their homes, condos or apartments that they are willing to share (Jiminez & Thomas, 2018). This has been interpreted as evidence that homesharing can help older residents with limited incomes stay in their homes. Champaign and Urbana rank 11th and 38th in total population in Illinois, respectively (U.S. Census Bureau, 2017), but rank sixth and seventh in total Airbnb-host earnings. As it does in Springfield, a booking surge tends to occur during the University of Illinois's spring commencement and over homecoming weekend, when hotel rooms can be scarce. In 2017, Champaign's hosts earned $554,000 from 5,140 stays, while Urbana's earned $371,000 from 2,920 stays (Wood, 2017).

FIGURE 2

AVERAGE NIGHTLY RATES OF AIRBNB LISTINGS BY COMMUNITY MEDIAN HOUSEHOLD INCOME QUARTILE, 2018

This box and whisker diagram shows the distribution of nightly rates for Airbnb properties in Illinois communities, grouped by median household-income quartile. The shaded boxes represent the interquartile range, i.e., the range between the 1st (bottom) and 4th (top) quartiles. The line separating the two shaded areas is the median. The whiskers (or vertical lines extending from each box) represent the range of prices, from the minimum to maximum, with outliers removed. These results show that the interquartile range varies little between income categories, but the upper bound tends to be higher in wealthier communities. The black dot represents the mean of the nightly rate in each income category. Data adapted from listings and nightly rates extracted from Airbnb website (https://www.airbnb.com).

TABLE 2

AIRBNB LISTINGS, AVERAGE NIGHTLY RATES BY ILLINOIS PLACE CATEGORY, 2018

PLACE	HH PER LISTING	POPULATION	HOUSEHOLDS	LISTINGS	AVERAGE RATE
Galena	6.7	3,402	1,383	206	$233.79
Forest Park	39.4	14,137	7,287	185	$83.32
Oak Park	73.3	51,989	21,546	294	$88.15
Savoy	81.7	8,118	3,430	42	$78.52
Lincolnwood	149.6	12,637	4,190	28	$78.39
Urbana	152.1	41,941	15,511	102	$107.39
Wadsworth	154.6	3,646	1,237	8	$70.25
Riverwoods	156.0	3,759	1,248	8	$433.75
Evanston	157.9	75,472	28,887	183	$124.40
Chicago	158.7	2,714,017	1,042,579	6,568	$126.57
Carbondale	162.4	26,066	10,068	62	$162.41
Carterville	171.1	5,742	2,224	13	$184.38
Willow Springs	173.8	5,677	2,259	13	$97.31
Calumet Park	188.4	8,320	3,014	16	$82.81
Oglesby	195.5	3,834	1,564	8	$209.75
West Dundee	215.9	7,369	3,023	14	$102.86
Schiller Park	216.8	11,813	4,335	20	$57.25
Stone Park	218.5	4,936	1,311	6	$110.00
Ottawa	221.2	18,707	7,742	35	$159.71
Brookfield	228.8	18,966	6,865	30	$62.60
Hillside	230.4	8,165	2,995	13	$148.38
Lyons	235.2	10,571	3,998	17	$120.24
Wonder Lake	237.2	3,739	1,423	6	$243.33
Anna	241.4	4,332	1,690	7	$512.43
Cherry Valley	244.3	3,129	1,466	6	$141.33
Carmi	250.7	5,065	2,256	9	$123.89
Chicago Ridge	256.4	14,368	5,127	20	$75.75
Libertyville	269.3	20,435	7,541	28	$139.68

Franklin Park	270.0	18,290	6,481	24	$53.50
Metropolis	272.1	6,366	2,721	10	$159.70
Crete	282.1	8,215	3,103	11	$67.55
Sumner	286.0	5,094	286	1	$125.00
Belleville	293.2	42,729	17,884	61	$74.52
Paxton	296.3	4,276	1,778	6	$63.33
Lake Villa	297.8	8,916	2,978	10	$371.90
Sparta	305.5	4,378	1,833	6	$134.17
Morton Grove	313.0	23,413	8,139	26	$78.04
Barrington	318.1	10,449	3,817	12	$98.67
Clarendon Hills	319.2	8,641	3,192	10	$136.60
Marion	320.7	17,703	7,376	23	$274.04
Stickney	334.1	6,778	2,339	7	$58.57
Olympia Fields	334.8	4,888	2,009	6	$516.00
Winnetka	337.0	12,437	4,044	12	$83.83
Woodstock	343.3	25,232	9,268	27	$128.04
Maywood	347.9	24,029	7,307	21	$65.62

This table shows the municipalities with the lowest ratio of households per Airbnb listing. For example, Galena, which ranks at the top, has one Airbnb listing per 6.7 households. Forest Park and Oak Park rank highest in metropolitan Chicago. Average prices also vary widely between locations. Sources: Adapted from Airbnb website; American Community Survey, 2012-2016.

MUNICIPAL ISSUES AND POLICY RESPONSES

The trends outlined above suggest that homesharing is indeed a widespread phenomenon in Illinois, and likely to expand considerably over time due to its popularity among hosts, guests and, increasingly, local leaders (DuPuis & Rainwater, 2017). However, coinciding with this growth are escalating tensions and debate as to whether the immediate-party benefits transfer positively to the broader public and, perhaps of more concern, whether Airbnb-style homesharing complies with or potentially undermines existing municipal regulations and associated quality-of-life goals.

On one side, people argue that existing municipal regulations may be outdated or protectionist, yielding unfair benefits to conventional businesses instead of the general consumers and homeshare hosts who stand to gain most from the

technology. Others counter that software platforms such as Airbnb actually breach important laws and impose social costs on the public at large. For example, homesharing has generated complaints about noise, parking and unfair competition. A nationwide survey found that public safety (57%), non-compliance with current standards (52%) and the inability of cities to collect revenue on this activity (45%) were among the most significant concerns of homesharing among local elected officials (DuPuis & Rainwater, 2017). Critics further contend that homesharing has the potential to undermine labor unions and exacerbate the affordable housing crisis (Lee, 2016). A recent study of the economic effects of the sharing economy on the hotel industry showed an 8% to 10% loss of revenue for incumbent firms, with lower-priced hotels and hotels that do not cater to business travelers being the most affected (Zervas et al., 2017). At a municipal level, the loss of tax revenue from hotels is often an acute problem.

Condominium and homeowner associations are often quickest to respond to concerns about homesharing; such responses represent a form of self-regulation that can reduce pressure on city hall to take action. Recognizing the intensity of critical views, Airbnb entered into a voluntary tax agreement with the State of Illinois in 2015 to collect and remit a 6.17% state lodging tax on behalf of its users. Pursuant to this agreement, Airbnb remitted about $9 million in state lodging taxes from approximately 7,000 hosts in 2017 (Jiminez & Thomas, 2018).

Chicago is one of several cities across the country that has taken a direct-taxation approach, in response to concerns about the mushrooming number of Airbnb listings and compliance with municipal regulations on hotels and motels. A 2016 city ordinance stands out for its complexity and expansiveness (Lentino, 2016). Spanning 63 pages, it subjects homesharing companies to a 21.2% tax, one of the highest tax rates in Illinois, and includes taxes imposed by the county and other levels of government. Significantly, the rate is approximately 4% higher than the rate paid on hotel rooms, with the additional amount (estimated to generate $2.5 million to $3 million annually) designated to fight homelessness.

The ordinance also imposes registration and licensing requirements on hosts (Shafroth, 2016). During registration, hosts must provide their name, address, contact information and primary residence, as well as the listing type (single-family home, unit in a multi-unit building, entire home or single room for rent). This information is stored in a database, available for city use. As an

accommodation to hosts and the platforms serving them, however, the city has made assurances that the information will only be used to regulate compliance and respond to emergencies.

Springfield also directly taxes Airbnb, levying a 7% bed tax, previously applicable only to hotels and motels, which is expected to generate approximately $15,000 annually. Rockford opted to enter into a voluntary agreement with Airbnb that requires the company to collect and remit the city's 5% hotel tax on behalf of its hosts. Naperville, Oak Park and Schaumburg also collect local taxes from Airbnb, and many more cities are likely to enter the fray in the next several years.

Airbnb has also publicized its willingness to work with municipalities to avoid a regulatory response (Ting, 2016). For many cities, the first action typically involves forging voluntary taxation agreements. Over the past four years, Airbnb has entered into such agreements with more than 350 municipalities across the United States (Poulisse, 2017). This is a simpler way for many municipalities to deal with revenue concerns than direct taxation, which can be administratively and legally complex. However, a downside to this approach is that communities often forgo obtaining detailed data on where and when guests are staying, thereby complicating "transparency" issues on the part of Airbnb.

Special events that raise the sector's profile often prompt smaller cities to create policies to deal with homesharing. For example, the Marion city council approved an ordinance regulating short-term rental agreements in advance of the August 2017 total solar eclipse (the city was located in the path of totality where the sun was completely blocked by the moon for over two minutes) in anticipation of a boom in tourist bookings due to the natural phenomenon. The ordinance permits prospective hosts to share their homes, but only for 30 days or less. It also stipulates that hosts pay $50 for a license, and ensure their homes are in compliance with building and fire codes (Kristof, 2017). Prior to this, homesharing had been largely invisible in the community, and as such, only loosely regulated.

At the time of the eclipse, Carbondale had a more established Airbnb market, partly due to the presence of its Southern Illinois University campus. Nevertheless, the solar eclipse drew increased scrutiny to the sector there. In response, the city adopted an ordinance that requires those offering "vacation rental units," including Airbnb hosts, to obtain licenses through the city's

Development Services Department when transient guests are scheduled to stay at a vacation unit for less than 30 consecutive days (Ruch, 2017).

Some communities have focused attention on non-financial aspects of the sector, such as the need for participatory interaction (e.g., public hearings), micro-zoning (allowing community members to vote on banning homesharing in their voting district) and requisite variances when short-term rental activity via homesharing fails to comply with the current zoning category. As the sector evolves, communities are likely to act in response to these and other concerns, while remaining open to the community economic development opportunities afforded by such short-term rental arrangements.

RIDESHARING

Services provided by Lyft and Uber go by several different names, including *ridehailing* and *ridesourcing*.[1] In this article, however, we use the term ridesharing—the term most commonly used by municipal governments— to describe the service of providing on-demand transportation services that are booked and paid for electronically through smartphone-based software applications. Like homesharing services, online applications for ridesharing are also used to rate transaction-specific experiences of producers and consumers, in this case, drivers and passengers. The companies that manage these platforms are often called *transportation network companies or transportation network providers* (TNCs or TNPs), due to their reliance on sophisticated algorithms that optimize customer-routing requests across a large fleet of privately-owned and operated vehicles.

Ridesharing became widely available after Uber's 2009 launch of its now-popular UberX service, which reached one billion trips in 2015 and over 10 billion trips globally as of the time of this writing (Anderson, 2018). Lyft entered the on-demand, ridesharing market in 2012, and quickly spread to most regions of the United States, including smaller metropolitan areas. Although other companies also operate in the for-hire vehicles sector, they tend to be small operations, limited to areas where regulations restrict the scale of Lyft and Uber. Austin, Texas, for example, established its own nonprofit ridesharing program, RideAustin, beginning in 2016, shortly after Uber and Lyft pulled out of the city subsequent to disputes over local regulations.

Since its inception, the ridesharing sector has expanded beyond its standard single consumer, four-passenger economy service to include vehicles of

different sizes that offer wheelchair accessibility, premium and luxury vehicles with professional drivers and carpool services permitting multiple parties to share a ride and split the fare, even when traveling between different locations (Table 3). In some cities, TNCs have also ventured into product delivery (e.g., food) and the active transportation sectors (e.g., bike- and scooter-sharing and their electric equivalents).

This growing selection of shared-mobility services is gaining popularity among riders who are increasingly able to optimize their personal trip-making experiences throughout the day, balancing both convenience and cost. For example, carpool services like Uber Pool (marketed as uberPOOL) and Lyft Line have disadvantages, typically entailing slightly longer journeys due to the loss of privacy and the time devoted to picking up and dropping off other travelers; on the other hand, the average Uber Pool trip price is about 40% less and Lyft Line 25% less than the average trip cost for solo-ride services (Schwieterman & Livingston, 2018). For travelers without pressing time concerns, these *ridesplitting* options (the official term used by the U.S. Department of Transportation) are especially popular. Furthermore, even more fiscally-friendly options are being offered in select large markets; Uber Express Pool, for example, generally requires riders to walk several blocks to and from designated pickup and drop-off points. Riders on these semi-fixed route services typically save around $2 to $4 compared to Uber Pool; as a result, it is not uncommon for Uber Express Pool to cost less than half of UberX, with fares for the shortest trips hovering around $3, only slightly higher than most transit fares. Lyft has rolled out a similar product, Lyft Shuttle, in Chicago, but it remains confined to certain heavily-traveled corridors.

In addition to providing customers with alternative modes of transportation, ridesharing is commonly recognized as creating other social, economic and environmental benefits. Ridesharing provides opportunities for travel in areas with limited accessibility via public transit. Uber and Lyft provide a convenient alternative to getting behind the wheel after a night at the bar, which, according to some, has reduced incidents of drunk driving (Best, 2014). Like homesharing, ridesharing has also created employment opportunities for workers looking to supplement their income or even work full-time with some level of independence. Some ridesharing advocates also point to the potential environmental benefits that ridesharing may afford, including reductions in vehicle use and ownership (SUMC, 2016). In contrast, critics have emphasized a variety of negative outcomes associated with ridesharing, such as a potential

increase in urban traffic congestion, safety concerns among smartphone-distracted rideshare drivers, the competitive relationship that Uber and Lyft have with public transit services and serious concerns over issues of data privacy and security (Henao, 2017), among other concerns.

TABLE 3

PRESENCE AND QUANTITY OF UBER AND LYFT SERVICES IN ILLINOIS BY PLACE AND LOCATION, 2018

CATEGORY	DESCRIPTION	LYFT AND UBER PRODUCTS	AVERAGE RATE IN ILLINOIS (PER MINUTE; PER MILE; BASE)
Economy	Standard cars, drivers that accommodate up to four passengers	Lyft; UberX	($0.18; $0.91; $1.84)
Carpool	Ride costs split between travelers heading in similar direction (i.e., ridesplitting)	Lyft Line; Lyft Shuttle; uberPOOL; Uber Express	($0.17; $1.00; $1.79)
Accessibility	Rides that are wheelchair accessible; come equipped with car seats; or have bilingual drivers	Lyft Access; Uber Wav; Uber Español	($0.21; $1.00; $1.79)
Plus	Larger cars that accommodate up to six passengers	Lyft XL; Uber XL	($0.30; $1.61; $3.21)
Premium	Higher-end cars and drivers of different size classes	Lyft Lux; Lyft Lux Black; Lyft Lux Black SUV; Uber Select; Uber Black; Uber SUV; Uber Lux	($0.43; $3.21; $8.12)
Ridehailing	Hailing of taxis via TNC application	Uber Taxi	Standard taxi rate for area

Data derived from Uber and Lyft application programming interface (API) service endpoints.

A systematic literature review found that the effects of ridesharing on urban development are complicated and, in many cases, uncertain. Recent studies have shown that ridesourcing has the potential to complement and compete with public transit, increase and decrease traffic congestion and raise or lower energy consumption and greenhouse gas emissions, depending on research context and methodology (Jin, Kong, Wu, & Sui, 2018). Adding to this complexity, the Bureau of Labor Statistics Occupational Outlook Handbook states that the growing demand for ridesharing services is likely to increase the number of self-employed workers among taxi drivers, ridehailing drivers

and chauffeurs by 40% between 2016 to 2026, while direct employment by larger firms is projected to decline 15% over the same period (BLS, 2018). The extent to which this tradeoff will affect long-term wages and job security in this occupation remains uncertain.

STATEWIDE TRENDS AND DISTRIBUTIONS

In the early 2010s, shared mobility services in Illinois were primarily confined to higher-density, mixed-use urban communities within the Chicago metropolitan area, as well as Springfield and Urbana (Cohen & Shaheen, 2016). However, over the past three years, ridesharing has expanded to include communities of all sizes throughout the state. In fact, according to our analysis, only 10 communities in Illinois do not have either Uber or Lyft services at present, whereas over 50% (695 of 1,368 places) are served by both companies (Table 4).

Figure 3 shows the geographic distribution of Uber and Lyft services throughout the state, with the size of the circle representing the general population category (small, medium or large) as opposed to the number of trips. A greater share of smaller communities (i.e., with populations under 25,000) have access to Lyft, relative to Uber, services—98.8% versus 48.1%, respectively—whereas the two companies have comparable representation in medium to larger-size communities throughout the state. A total of 406 (or 37.7% of the total) communities *outside of metropolitan Chicago* have both Uber and Lyft services, which indicates that the complete range of ridesharing products is not yet available in all areas. The absence of Uber in smaller communities is likely a source of frustration among municipal leaders seeking to provide the broadest possible range of technology-oriented services to their residents. Carpooling services such as Uber Pool—including the newly introduced Uber Express Pool—and Lyft Line are limited primarily to metropolitan Chicago. Among the four places commonly regarded as Chicago's "satellite cities"—Aurora, Joliet, Elgin and Waukegan—Uber Pool operates in all four, while Lyft Line is available only in Waukegan.

TABLE 4

PRESENCE AND QUANTITY OF UBER AND LYFT SERVICES IN ILLINOIS BY PLACE AND LOCATION, 2018

POPULATION SIZE OR LOCATION	PLACES WITH UBER SERVICES	AVERAGE NUMBER OF UBER SERVICES	PLACES WITH LYFT SERVICES	AVERAGE NUMBER OF LYFT SERVICES	PLACES WITH BOTH UBER AND LYFT SERVICES
Large (≥ 75K)	14 (100%)	5.4	13 (92.9%)	4.9	13 (92.9%)
Medium (25K to 74K)	77 (96.3%)	5.9	77 (96.3%)	5.6	75 (93.8%)
Small (< 25K)	613 (48.1%)	2.2	1,259 (98.8%)	3.0	607 (47.6%)
Inside Chicago metro	290 (100%)	7.0	289 (99.7%)	6.5	289 (99.7%)
Outside Chicago metro	414 (38.4%)	1.2	1,060 (98.3%)	2.2	406 (37.7%)
Illinois	704 (51.5%)	2.4	1,349 (98.6%)	3.1	695 (50.8%)

Source: Data derived from Uber and Lyft application programming interface (API) service endpoints.
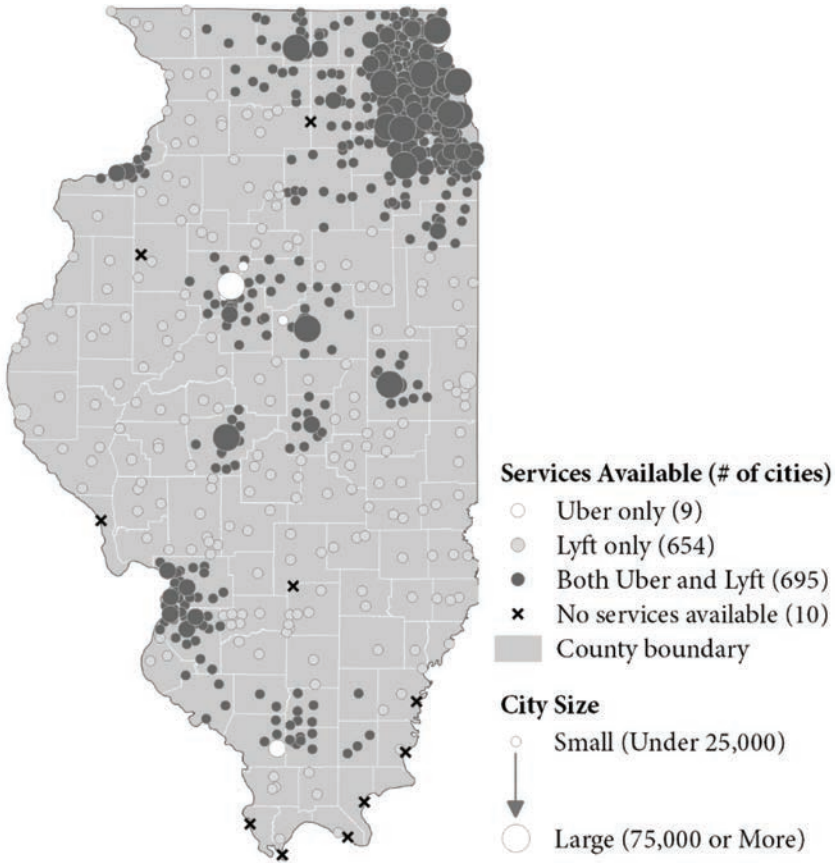
MUNICIPAL ISSUES AND POLICY RESPONSES

Just a few years ago, the rapid growth, excitement and disruption surrounding the emergence of ridesharing was generating confusion among municipalities regarding how to deal with these companies when they first appeared in their towns. Now that ridesourcing is increasingly a part of day-to-day life in many cities, the focus has shifted more to managing community-specific aspects of their benefits and drawbacks relative to a given policy context. Indeed, cities— through legislative bodies, planning commissions, municipal departments and public transit agencies with often shared or overlapping responsibilities—have responded to ridesourcing in different ways.

The extent to which municipalities must or can regulate ridesharing is partly determined by the state. Illinois, like most other states nationwide, created a regulatory class for ridesharing and passed legislation establishing statewide minimum requirements for insurance, driver qualifications, fare

disclosure and more. In July 2015, after a legislative process that included a gubernatorial veto of stricter rules, the Transportation Network Providers Act, 625 ILCS 57/1 et seq., became law. The Act established basic standards with which ridesharing companies and drivers must comply; it also prohibits municipalities from regulating these companies less restrictively.

FIGURE 3

AVAILABILITY OF LYFT AND UBER SERVICES BY PLACE, 2018

Uber remains largely unavailable in most of the smaller downstate municipalities, although Lyft is widely available. Places without either service are limited primarily to places at considerable distances from large population centers, such as locations along the Ohio River in the southeastern part of the state. Source: Information adapted by the Chaddick Institute from data collected via the Uber and Lyft application programming interfaces (API). Only communities with populations exceeding 1,000 are displayed on the map.

Many municipalities, including Aurora, Joliet, Naperville, Champaign, Decatur and Urbana, have not imposed rules beyond the state requirements, while others have intensified via the addition of local provisions. Others have addressed concerns beyond those addressed by the state (Baron, 2017); for example, many jurisdictions throughout the state license TNCs and require them to pay annual fees. Springfield, Peoria and Bloomington have imposed licensing fees, ranging from $1,500 to $3,000, whereas Rockford requires a $2,500 application fee. As of October 2017, Chicago imposes a $10,000 annual fee on TNCs, in addition to other administrative, accessibility and ground transportation per-ride fees.

Municipalities have also adopted various provisions related to driver qualifications, vehicle standards, advertising, operations and pricing (Baron, 2017). While no city in Illinois has capped the number of TNC vehicles in their community—although two Chicago aldermen have considered such a cap (Wisniewski, 2018)—Chicago, Bloomington and Normal have increased the minimum TNC driver age to 21 and require operators to comply with annual vehicle inspections and other vehicle standards. Bloomington and Normal, for instance, require TNCs to use vehicles no more than 10 years old and to submit a proposed plan for conducting background checks on each potential driver through a city-approved, third-party vendor. Chicago and Evanston also ban the display of advertising signage on ridesharing vehicles, partly because of the potential for increased risk of injury to drivers, passengers or pedestrians. Other municipality-specific expansions to the state law regulate TNC operations (e.g., pickup and drop-off zones, as well as the personal hygiene, appearance and conduct of drivers) and dynamic or surge pricing. It should be noted that lawsuits by members of the taxi and livery industries are actively challenging the legality of city policies that regulate ridesharing separately.

Understanding the implications of TNCs for communities is further complicated by the fact that ridesharing companies are not always forthcoming with their data which, in some ways, has made it difficult for government officials to understand the current status, historical trends and magnitude of these services within their communities. Overall, municipal officials in Illinois and elsewhere must continue to evaluate both the trends and municipal responses to the new and transformative changes occurring in the mobility sector.

BIKESHARING

Public bikesharing systems (BSS), which make bicycles available to the general public on an as-needed basis, are increasingly providing neighborhoods and communities throughout Illinois an entirely new option for travel that is invigorating and often faster than walking or even taking a bus or train. The growth of such systems is being fueled by a number of factors, including the latent demand for convenient and efficient non-motorized travel and a desire among municipalities to provide a broader range of mobility options in their communities. For example, while Illinois remains largely auto-dependent, regarding both transportation infrastructure and travel behavior, bicycling has become the fastest-growing mode of transportation over the past several years, partly because of increases in the availability of bicycles via BSS, as well as municipal investments in active transportation, more generally (U.S. Census Bureau, 2017).

Planning for both publicly- and privately-owned bikesharing systems typically occurs at the municipal level, given the reliance of such systems on access to public rights-of-way, including sidewalks, space for system kiosks and, at times, electrical hookups. The initial rollout of BSS in the United States in the early 2010s relied only marginally on conventional models of transportation planning, partly because planners lacked awareness of the associated infrastructure and the information necessary to adequately forecast demand for this new mode of transport (e.g., bicycle counts, surveys). As a result, planners were compelled to swiftly familiarize themselves with BSS technology, negotiate suitable business models with stakeholders and investors, identify optimal system sizes and scopes and, when planning for a dock-based system, determine—often with considerable input from the broader community—locations for bikesharing stations that would best serve the public and simultaneously leverage the existing transportation network (Wiedel, Hurley, Briski, Kubly, & Haley, 2014).

Some cities pursued a more conservative approach to system implementation—opting to delay development to allow time for feasibility analyses and more extensive periods of public input (e.g., Philadelphia, Portland, Los Angeles) while others forged ahead quickly, adopting a higher-risk, "fail-fast" approach characteristic of technology startups (Klein & Vega-Barachowitz, 2015). In some cases, the latter approach led to failures, such as the Orange County Transit Authority's Fullerton and Seattle's Pronto systems. Nonetheless, the initial surge of BSS adoption in U.S. cities over the past eight years has

dramatically elevated the visibility and role of active transportation in urban areas within a relatively short period of time.

Shifts toward greater bicycle mode share are likely to continue, given the latent demand for bicycling via bikesharing. For example, according to a 2015 survey of U.S. residents, 53% of respondents stated that they would like to ride bicycles more, but over half (52%) indicated a lack of access to a working bike (Schmitt, 2015). Bikesharing caters to this unmet demand by removing some of the risks and costs associated with bicycle ownership, including concerns about theft, maintenance and seasonal bike storage. Bikesharing is also being bolstered by demographic shifts and preferences in the population that favor (re)urbanization, active transportation (within urban and suburban settings, as well as across socio-demographic groups) and an overall willingness to participate in sharing economies connected via mobile technologies (McNeil, Macarthur, & Dill, 2017; TED Books, 2013; Townsend, 2013; Wolfe, 2013).

In the early 2010s, the most prevalent type of bikesharing systems in the United States were station- or dock-based systems, where bikes are rented from and returned to fixed stations dispersed throughout a service area. Typically, in station-based systems, the front tire of the bike is locked inside a secure dock when the vehicle is not in use. Bikes are unlocked when riders swipe or scan their credit cards or fob keys on the control device mounted on the pod. When a rider finishes a trip, the bike must be locked back into a docking station, or the rider faces a hefty fee, often exceeding $100.

In the past few years, there has been marked growth in dockless systems. *Dockless-shared bikes* differ from their dock-based counterparts in that users are not required to find a dock at the conclusion of a trip. Rather, these bikes can be parked and secured flexibly and efficiently by utilizing a technology commonly called *wheel-lock tech*, which locks a bike's tire and prohibits wheel rotation so that it cannot be easily ridden away. Like docked systems, which allow users to view the location of bike stations on smartphone applications, dockless bikes are located by riders via an online map. Unlocking them generally requires scanning a quick response code affixed to the bike or punching in a dynamically-assigned code on a locking interface.

This type of bikesharing is generally less expensive than docked systems, for the simple reason that operators do not incur the cost of installing and maintaining docking stations. Clearly defined *geo-fenced areas* (i.e., allowable zones for dropping off bikes) are often created, to ensure that bikes stay within

areas designated for customer use. Annual membership fees are usually not required to use these bikes; users typically pay just $1 to $2 for trips up to 30 minutes, well below the cost that non-members pay for using a docked bike. In addition, companies provide discounts for riders with limited financial means.

A rapidly growing variant of dockless bikesharing is the *dock-based/dockless hybrid*, a form of bikesharing that involves a mix of components of the two major models described above. Boston-based Zagster is currently the leader, and the only company of significant size, in this subcategory. Zagster generally deploys a mix of docked and dockless bikes in the areas it serves. The bikes must be unlocked with a key stored inside and tethered to a lockbox that can only be opened upon payment. Unlike most other providers, this allows Zagster's dock-based bikes to be locked to many different types of fixtures, including bike racks, street poles and street furniture. The benefit to cities that use this type of locking mechanism, called a *lock-to system*, is that it gives users flexibility at the drop-off point while assuring that bikes are ultimately locked to *something*. This prevents bikes from being dropped, for example, in the middle of a driveway or sidewalk.

The dockless movement is being enhanced by the popularity of *e-bikes*, which run on electric power, thereby reducing or eliminating the rider's exertion. These systems are especially popular in hilly areas, where biking can be tiring. Most bikesharing systems using e-bikes utilize a dockless model, as do electronic scooter systems, which have also recently become popular. At this writing, however, Illinois has yet to see bikesharing systems with e-bikes on a significant scale. The state also does not currently have any formal scooter systems. However, this appears likely to change as consumers across the country gain familiarity with them.
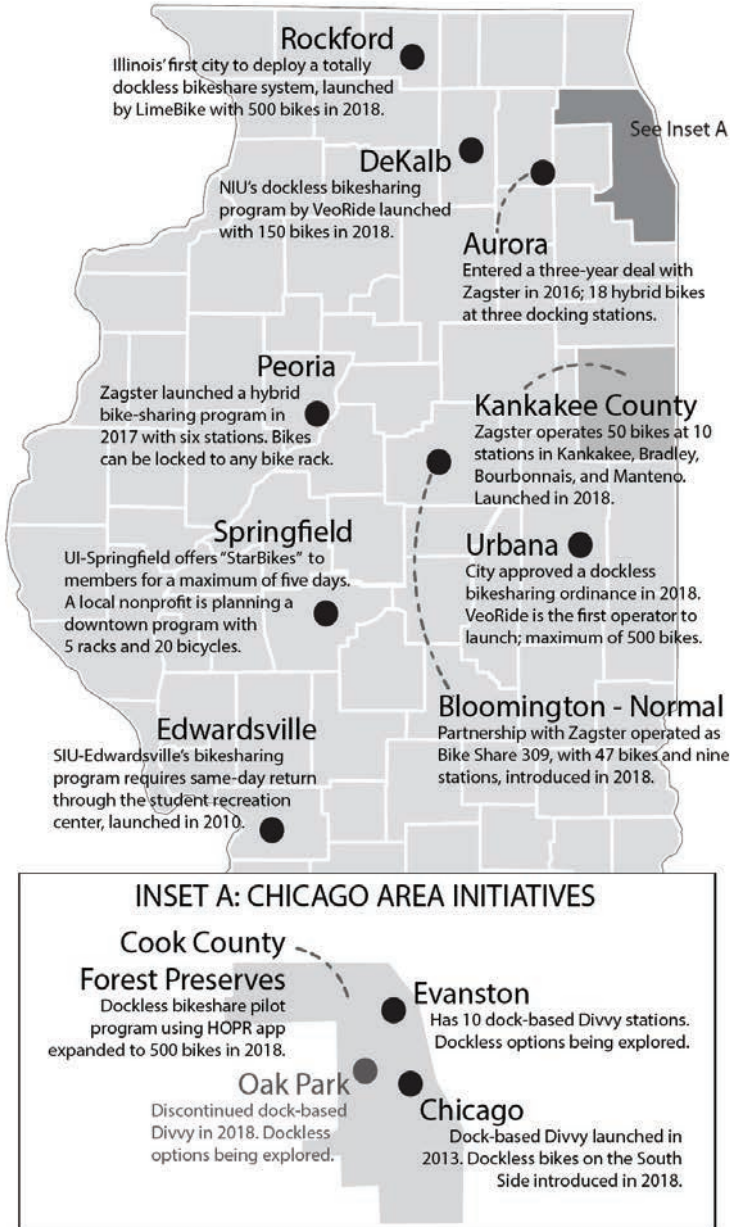
STATEWIDE DISTRIBUTIONS, MUNICIPAL ISSUES AND INITIATIVES

Unlike homesharing and ridesharing, accessing comprehensive data on bikesharing across municipalities is complicated because cities have a relatively large number of vendors from which to choose, and the extent to which each vendor makes their clients' data accessible to the broader public is inconsistent. For these and other reasons, developing a comprehensive state inventory of bikesharing systems is outside of the scope of this article. Nonetheless, we estimate that at least 9 of the 10 largest cities in Illinois offer some kind of

bikesharing service, while some, including Urbana, have recently approved ordinances allowing bikeshare companies to operate (Figure 4).

FIGURE 4

BIKESHARE INITIATIVES IN ILLINOIS BY PLACE, 2018

The size and structure of existing bikeshare systems across the state vary greatly. By far the most extensive system is Chicago's Divvy, a docked public bikeshare system that officially launched in June 2013. With over 13.8 million logged rides across 585 stations through December 2017, and plans to add another 36 stations, Divvy is one of the largest and most successful bikeshare systems in the country. Like other large, dock-based programs across the United States, most of the system's $18 million startup capital costs were acquired via the Congestion Mitigation and Air Quality federal grant program, with the understanding that the bikeshare system would improve Chicago's transportation performance in multiple ways (C. S. Smith & O'Neil, 2018). Drawing from performance characteristics of similar systems implemented prior to Divvy (e.g., Montreal, Washington DC, New York), Chicago's new bikeshare system was expected to replace short automobile trips with bike trips, improve access to transit and replace shorter transit trips, thereby simultaneously reducing private vehicle miles traveled and relieving pressure on congested roads and transit lines. The bikeshare system also aligned with many of the regional transportation goals specified in the Chicago Metropolitan Agency for Planning (CMAP) GOTO 2040 plan (the Chicago region's metropolitan planning organization), which intended, among other objectives, to increase cycling participation and better link "transit, housing, and energy use through livable communities" (CMAP, 2010).

As they have in other cities across the country (Day, 2006; Fishman, 2015; League of American Bicyclists, 2013), criticisms about the extent to which lower-income communities have benefitted from Chicago's Divvy bikeshare system have arisen, with many pointing to a dearth of stations in the city's south and west sides. The lack of dock-based infrastructure in these parts of the city, together with a variety of other factors, led Chicago to pass a dockless bikeshare pilot project on the far south side. Launched in the summer of 2018, the project encourages private companies to distribute their bikes to potential riders, subject to restrictions concerning the geographic extent, fleet size and type of locking technology. The relatively extensive requirements for participation in the program have raised questions about whether the density, distribution and connectivity of the dockless bikes are likely to result in a successful rollout (Bordenkircher & O'Neil, 2018; Greenfield, 2018). Results from the pilot are expected to be publicized by early 2019.

Evanston, which has 10 Divvy stations and 100 bikes, has emerged as another vigorous promoter of bikesharing. The city provides targeted subsidies to make

its bikes widely available. Over the past year, local cycling advocates have pushed for a dockless program that would provide comparative data on the merits of this approach, relative to the more traditional Divvy system (Holtzman, 2018). Oak Park has enjoyed less success than Evanston at promoting this transportation option and, in fact, ended its $80,000 per annum subsidy of Divvy after two years in 2017, resulting in the complete elimination of its 13 bikeshare stations. As in Evanston, local advocates in Oak Park are discussing the possibility of a dockless pilot (McMahon, 2018).

Among Chicago's satellite cities, Aurora is another innovator, partly due to the persistence of Mayor Tom Weisner, who has publicly expressed a desire to make bicycles widely available to give residents and visitors a new way to experience the city (Lord, 2017). To this end, the city entered into a three-year contract with Zagster, which introduced 18 hybrid bikes at three docking stations in and around Aurora's downtown. Riders must be 18 or older to qualify for access to daily, monthly or seasonal passes. Once a pass is purchased, the first hour of riding is included and each hour thereafter costs just $1. Each station costs the city an average of $10,800 per year, resulting in a total expense of approximately $32,400 annually. It is projected that Aurora will recover about 50% of this cost through revenues generated from membership sales and bike rentals. City officials are reportedly considering corporate sponsorships to help lower the costs to the city (Lord, 2017).

Rockford has also been willing to experiment, becoming the first Illinois city to deploy a completely dockless system. In early 2018, the city entered into a three-year contract with Lime Bike to launch a program involving 500 bikes. This program's bikes have a rear-tire locking mechanism that is activated by a QR code scan that uses a mobile app. Users pay $1 for the first 30 minutes, with students paying just $0.50. Early reports indicate that the program is performing well (Curry, 2018).

Peoria's Mayor, Jim Ardis, stated in a news report that bikesharing is an effective way to make the city "more pedestrian and more bicycle-friendly" (Cook, 2017). As such, the municipality collaborated with Zagster in 2017 to create City Cycle, a program initially encompassing six stations and 31 bikes. Costs to users vary according to the type of plan purchased. After paying an annual $25 membership fee ($16 for students), users can ride for the first hour at no additional charge, with each additional hour costing $3 (Tarter, 2017). Non-members have the option of paying $30 to use a bike for a full day.

An even more expansive program exists in Normal, which entered into a contract with Zagster in 2016 to support the Bike Share 309 program that encompasses 47 bikes at nine stations. This is apparently the most extensive program in Illinois outside of metropolitan Chicago. The city pays Zagster an annual fee plus 7% of the rental proceeds. Officials believe the city can recoup 20% of its investment through bike rental fees, with another $10,000 reportedly being collected annually from the BroMenn Medical Center for advertising on bikes and stations (Beigh, 2016). Those affiliated with Advocate Health Care, Illinois State University, Illinois Wesleyan University or the Town of Normal are offered annual memberships at half the cost of the regular $30 fee. For members, the first hour is included; non-members pay $1 per half-hour (visitbn.org). Several college towns in Illinois, including Edwardsville, also have bikesharing systems (Figure 4).

The drafting of technical guides and tools to assist cities with the strategic planning of public bikeshare systems has coincided with this steady expansion of bikesharing in Illinois and across the country. One of the earliest such reports, *Bike Sharing in the United States*, by the Toole Design Group (TDG) and Pedestrian and Bicycle Information Center (PBIC), proposed steps that jurisdictions could take to plan, implement and sustain bikeshare programs. The guide surveyed and documented bikeshare business models, infrastructure considerations, and funding options and shared specific performance metrics useful for monitoring and evaluating system success (TDG & PBIC, 2012).

In the following year, the Institute for Transportation and Development Policy (ITDP) published a global evaluation of BSS to show how cities of different sizes, densities and degrees of development had structured their bikeshare systems. While the document argues against the existence of a single model for bikeshare implementation—rather, the report emphasizes that cities must, ultimately, develop systems specifically adapted to their own local contexts—it does identify critical characteristics of more successful programs, including provisions for dense station networks, fully automated locking systems, real-time monitoring of station occupancy rates and pricing structures that incentivize short trips (ITDP, 2013).

As bikeshare operational frameworks continue to become more intricate, planning documents are becoming more focused in their scope, offering prescriptive design recommendations. For example, the National Association of City Transportation Officials' *Bike Share Station Siting Guide* (2016) emphasized the importance of site location planning in program success,

detailing best practices in station placement and design and explaining how to leverage bikeshare stations to enhance walkability and broaden the reach of transit in urban settings.

CONCLUSION

Past research on the sharing economy in Illinois has typically been limited to a specific economic segment or confined to trends and policies within the Chicago metropolitan area. This article has expanded the area of concern to explore trends in three major areas of the sharing economy and associated responses by communities throughout the state. The services offered by these three segments hardly represent the entirety of the collaborative economy; however, they have, in some cases, led to substantial transformations to everyday employment, travel and mobility opportunities for Illinois residents living in various places, whether large or small.

Indeed, one of the principal findings of this research is that nearly all communities in Illinois are engaged in at least one of these three segments, with several experiencing considerable activity across two or more. Our data suggest that nearly a third of Illinois locales (and all of the larger ones) have at least one Airbnb listing, and all but a handful of communities have access to private ridesharing services. While bikesharing remains largely an urban phenomenon, the rise of dockless systems speaks to their growing appeal among medium-size communities throughout the state, with at least eight such programs launched within the past year. We can also observe that the categories of services provided within these three sectors are growing rapidly, capturing existing market segments while simultaneously becoming more differentiated, inducing consumer demand and fundamentally changing the ways that people experience mobility and accommodation. We anticipate that these technology-based services will continue to evolve, expanding existing services into emerging markets and creating new ones.

This report examined various distributions of the sharing economy throughout the state, summarizing differences in the character of activity according to community population size and location. Future research will go further, analyzing variations across the subcategories of sharing in these segments (e.g., in terms of homesharing, whether hosts are sharing a single room in their house, their entire house or a secondary residence, and, in terms of ridesharing, trends in TNC–public transit partnerships and wheelchair accommodation) to
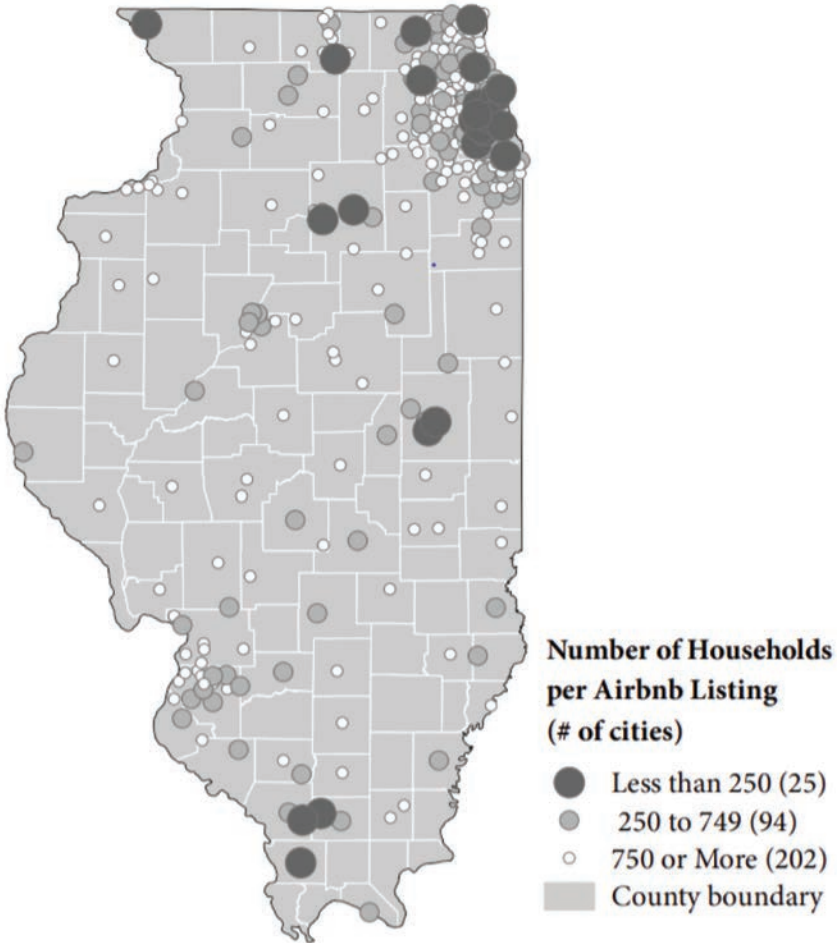
develop more nuanced insights into how such patterns influence and encourage community economic development and opportunities for more sustainable transportation.

We also found that local officials have adapted to, and are assisting in, shaping the sharing economy in their communities. Whether entering into a voluntary taxation agreement with homesharing companies, adopting vehicle standards for ridesharing contractors or specifying locking requirements for bikeshare bikes, communities throughout the state are becoming savvy, developing creative solutions intended to direct collaborative consumption in ways that align with overall municipal goals. A recent National League of Cities' (NLC) report emphasizes, "Technology can improve lives and solve problems, but decision making must be intentional—local leaders ensure every day that our cities are cities for all—and the sharing economy and broader innovation economy is now a core component of our future" (National League of Cities, 2017, p. 16). Illinois is becoming a laboratory for such intentional local solutions.

APPENDIX

FIGURE 5

NUMBER OF HOUSEHOLDS PER AIRBNB LISTING THROUGH ILLINOIS

Number of Households per Airbnb Listing (# of cities)

- Less than 250 (25)
- 250 to 749 (94)
- 750 or More (202)
- County boundary

This map shows the frequency of Airbnb listings relative to the number of households in a municipality. The dark circles represent municipalities in which there is more than one Airbnb listing per 250 households. These areas are most pervasive in metropolitan Chicago and near college campuses. Lighter areas indicate places with proportionately fewer listings per household.

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FOOTNOTES

[1] Joseph P. Schwieterman served as co-author of this section of the study.

[2] A 2018 report by Twelve Tone Consulting (Bordenkircher & O'Neil, 2018) also discusses some critical elements municipalities should consider when planning for dockless systems such as the following: operations and maintenance; ethical standards and data laws; fleet size and rebalancing with regard to parking; and safety. Operations and maintenance focus on several concerns: the city's right to remove bikes and terminate the pilot; placing all liability and fees on dockless vendors; requiring vendor contact information on bicycles; and laying out a detailed bike maintenance checklist. Ethical standards and data laws are intended to ensure fairness: equity in underserved neighborhoods; multilingual and non-smart-phone requirements; Americans with Disabilities Act compliance and mobility options; and data sharing. Fleet size, rebalancing and parking concentrate on multiple system features: the number of bikes allowed in the initial launch; phasing strategy for the fleet number; designated hours for maintaining and rebalancing bikes; and geo-fence boundary requirements. The final elements that cities should consider relate to safety: education; insurance coverage; helmet law considerations; and gamification requirements to incentivize good behavior.

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