The cost to carshare: A review of the changing prices and taxation levels for carsharing in the United States 2011–2016

Joseph P. Schwietermana,b,⁎ Alice Bieszczatc

a School of Public Service, United States
b Chaddick Institute for Metropolitan Development, United States
c DePaul University, 14 E. Jackson, Suite 1600, Chicago, IL 60604, United States

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ABSTRACT

This study explores the changing prices and level of taxation for carsharing in the United States through a review of hourly rates in 80 cities with Zipcar pods, as well as at U.S. locations served by car2go and Maven. The base rate for a one-hour Zipcar carshare between 2011 and 2016 is shown to have fallen from $9.39 to $8.92, a 5.0% drop. In inflation-adjusted terms, this constitutes an 11.2% real reduction. Retail taxes over the period, however, rose from 15.5% to 17.0%, offsetting almost one third of the price reduction. In some cities, taxes on one-hour reservations exceed 30% due to transaction-based fees that apply regardless of the duration of the trip. Interpreted broadly, these results indicate that carsharing is becoming more affordable to urban consumers, while being subject to extensive competition and facing the burden of extensive retail taxes that may hamper efforts to achieve local sustainability goals.

1. Introduction

Despite the existence of an extensive body of research on carsharing, relatively little publicly available data exists on the prices and taxes paid by users, or how these costs have changed over time. This paper attempts to partially fill this void by reviewing the prices charged for hourly reservations by three major providers—car2go, Maven, and zipcar.com (Zipcar)—and the taxes imposed on this sector. The study explores how both rates and taxes changed from 2011 to 2016 and develops a prediction model showing how hourly prices vary between firms and in accordance with a city’s size and population density.

Pricing information was obtained by recording the base prices and applicable taxes at locations in 80 cities throughout the United States. The dataset assembled includes the country’s largest cities in which neighborhood carsharing is available, as well as a stratified sample of an equal number of smaller cities. To determine the prevailing rate of taxation, the analysis considers the price quotes provided for reservations of various durations on the official website for Zipcar (zipcar.com), which is the only major provider that makes tax information readily available to its members prior to a purchase.

The results are provided in six sections. Section 2 offers a background perspective on the growth of the industry and prior literature exploring the carsharing market. Section 3 describes the methods used to measure the cost of carsharing. Sections 4 and 5 summarize the results, starting with an evaluation of changes in the hourly rates charged and concluding with the prevailing taxes paid by the sector. The final Section (6) offers conclusions and recommendations for further study.

2. Background and relevant literature

Carsharing has evolved greatly since Car Sharing Portland, the country’s first large-scale program, emerged on the West Coast in 1998 (Katzev, 1999). This Oregon-based organization, like most of the other early entrants, provided services similar to more established carsharing entities that existed in Canada and Europe at the time. These pioneering operators emphasized a neighborhood residential model and focused on pods strategically scattered throughout dense urban areas. Gradually, carsharing became prevalent in smaller cities as well as specialty locations, including government facilities, residential complexes, and airports. Dozens of universities also now have active carsharing pods.

Although some of the characteristics of carsharing have changed, it still generally operates on a membership-based model, which includes automatic insurance coverage and typically entails an annual fee. Unlike most car rentals, carsharers do not enter a separate contract every time they use a vehicle. Carsharing also involves filling up the tank, with the cost borne by the carsharing company, when fuel runs...
low (many providers, including Zipcar, keep a credit card in vehicles to make fill-ups relatively easy). Members are also expected to clean up after themselves before returning the car or membership may be revoked.

Since their inception, many carsharing providers have aimed to demonstrate their unique value to the community. Formal definitions for “carsharing organizations” require providers to document their commitment to neighborhood improvement and civic-minded goals—requirements that some, but not all, have met (Millard-Ball et al., 2005). Those that do meet this definition are better positioned to attract support, including technical assistance and land for vehicle parking, from local governments and philanthropic organizations under favorable terms.

Along with the sector’s growth, there has come extensive research about its environmental, economic, and social benefits (e.g., Martin and Shaheen, 2016; Millard-Ball et al., 2005; Shaheen and Cohen, 2013). This research points to reductions in emissions, pollution, congestion, and parking requirements made possible by this sector—much of it stemming heavily from the reduction in privately-owned vehicles in urban settings. Carsharing promotes active lifestyles by increasing walking and biking without posing significantly downward effects to transit use. This is partially due to the fact that many carsharing members simultaneously increase their reliance on buses and trains (Martin and Shaheen, 2011a; Shared-Use Mobility Center, 2016; Scott et al., 2003). The reduction in demand for parking spaces afforded by carsharing also increases open space and public safety, and boosts local economies (Shoup, 2005).

Carsharing encompasses both for-profit and non-profit businesses. Zipcar is by far the country’s largest-for-profit provider, with pods in more than 50 U.S. cities. The Boston-based company, which went public in 2011 before being acquired by Avis Company in 2013, serves 38 U.S. states as well as various locations in Canada and Europe, and has reported having more than 10,000 vehicles in its worldwide fleet (Zipcar, 2013). Zipcar primarily operates using a roundtrip model, in which users return the vehicle to the same pod or parking location at which the trip originated. Other providers—both private and non-profit—include City CarShare (San Francisco, CA), eGo CarShare (Denver, CO), Enterprise CarShare (multiple cities), Getaround, and Hourcar (Twin Cities, MN).

Since 2015, automobile manufacturers have made significant inroads into carsharing. Now, Audi, BMW, Daimler AG and General Motors all have footholds in certain U.S. cities, although none are as large as the United States in Zipcar (Table 1) (Lindzon, 2015). Similarly, Hyundai Motors is providing vehicles for Waivecar. The presence of these manufacturers in carsharing has apparently spurred both competition and innovative pricing strategies, such as pay-per-minute pricing and differential fees for time spent driving versus parked (in the case of BMW’s ReachNow). Auto companies are interested in carsharing as an incremental step toward preparing for the dramatic changes in vehicular travel that could occur with the widespread deployment of autonomous vehicles (Lindzon, 2015).

New services, most notably one-way and peer-to-peer carsharing as well as pay-per-mile pricing, have fueled much of the sector’s recent growth (Shaheen and Cohen, 2015). One-way carsharing gives users more flexibility by allowing cars to be dropped off at a different location from where they were picked up. Rather than being assigned to specified pods, these vehicles often circulate freely through cities. Austin-based car2go, owned by Daimler AG, is the market leader in this category, now offering membership in nine metropolitan areas (Martin and Shaheen, 2016). Another relatively new service, peer-to-peer carsharing, allows users to rent cars owned by individuals living nearby.

In 2015, the traditional neighborhood model for carsharing plateaued. According to Susan Shaheen and Adam Cohen of the University of California-Berkeley, the number of available carsharing vehicles (not including peer-to-peer vehicles) rose from 16,811 in mid-2013 to 19,115 in mid-2014, but then dropped to 16,754 by early 2015 (Shaheen and Cohen, 2015). Some of this 11.7% decline may be due to seasonal issues related to the timing of the counts. Or, it may be due to a market correction to vehicle oversupply, possibly stemming from saturation of the market, rather than to a downward shift in demand. Nevertheless, analysis by Shaheen and Cohen also points to modest declines in membership between 2014 and 2015. One reason could be the apparent rise in competition that carsharing faces, including that from ridesourcing companies such as Lyft and Uber (discussed in greater detail below), as well as innovations by traditional car rental services, which have begun to allow for more short-term rentals.

Despite the apparent escalation in competition, relatively little research exists on the prices and demand elasticity of carsharing. Numerous studies survey consumers about the importance of cost in their decision to carshare in specific locations (e.g., Costain et al., 2012; Econsult Corporation, 2010; and Lane, 2005), Shaheen et al. (2005) evaluate membership fees of 26 carsharing organizations, and assess the implications on the sector’s ability to grow. Comparatively little available research exists, however, about the actual prices charged to seasonal issues related to the timing of the counts. Or, it may be due to a market correction to vehicle oversupply, possibly stemming from saturation of the market, rather than to a downward shift in demand. Nevertheless, analysis by Shaheen and Cohen also points to modest declines in membership between 2014 and 2015. One reason could be the apparent rise in competition that carsharing faces, including that from ridesourcing companies such as Lyft and Uber (discussed in greater detail below), as well as innovations by traditional car rental services, which have begun to allow for more short-term rentals.

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Among the factors cited as affecting the viability of carsharing has been the prevalence of retail taxes added to the base price of a reservation. Previous research shows that carsharing’s status as a relatively heavily taxed sector is largely the result of the once-prevalent notion that the incidence of taxes on car rentals will fall almost entirely on out-of-towners, including tourists, business travelers, and conference goers (Bieszczat and Schwieterman, 2013). Many taxes collected on car rentals indeed target those living outside the jurisdiction imposing the tax. As carsharing services expand, however, these taxes are being increasingly felt locally.

3. Methodology

To measure the prices and tax burden facing carsharing, the lowest-priced vehicle available and taxes and fees added by government
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