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Taxing New Mobility Providers

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Executive Summary

Transportation network companies (TNCs), which provide ride-hail service, and shared electric scooter (e-scooter) firms have grown exponentially in large U.S. cities. These new mobility providers (NMP) often promote themselves as providing innovative solutions to pressing transportation needs; at the same time, they also share a reliance on public infrastructure, contributing to wear and tear on roadways, driving up maintenance costs, and exacerbating transportation problems like congestion and vehicle emissions.

This report presents a national scan of how the 50 most populous U.S. cities use taxes or fees to regulate new mobility providers. We develop a set of three TNC and three e-scooter profiles that examine cities along several axes, including their level of intervention, inclusion of incentives for socially- or environmentally-beneficial behaviors, and provisions to mitigate potentially regressive effects of pricing.

Divergent patterns exist in the occurrence of fiscal instruments across these two types of NMPs. A sizable but still minority share ($n=20/40\%$) of cities had fiscal instruments in place for ride-hail trips; ride-hail providers were present in all 50 cities. Ride-hail fees included per trip flat or percentage based amounts, but were rarely structured in obvious ways for transportation policy goals. Shared e-scooter firms had operated in fewer cities: 39. Where they had operated, however, e-scooter providers almost universally—in 37 of 39 instances—were subject to taxes or fees.

Different regulatory dynamics fundamentally shape the incidence of and implementer of taxes and fees in and by cities. States largely preempted cities from levying their own taxes and fees for ride-hail; 39 of the 50 cities studied could not levy their own fees. Thus, even the incidence of ride-hail

fees above is greater than the number of cities which instituted their own fees. We find scant occurrence of alignment between transportation policy goals and TNC fiscal instruments. On the other hand, state preemption has not greatly shaped city adoption of e-scooter fiscal instruments. The most noteworthy dynamic for e-scooter firms has been city utilization of pilots before allowing scaled up provision of scooters. Equity goals were apparent in many city-based scooter programs, and four cities designed fiscal instruments in ways to support equity aims.

This descriptive scan indicates several areas for further research and policy discussion. Although each mode has social benefits and costs, the environmental costs of ride-hail appear much greater than those of e-scooters, but ride-hail trips are relatively less commonly taxed. This scan demonstrates innovation in the taxing space that cities can occupy—e-scooters—but not yet benefits or costs of these innovations. The scan also provides evidence that city actors currently are largely unable to capture the social costs of ride-hail use because of widespread preemption, let alone design pricing that would support environmental and equity policy goals.

1. Introduction

Transportation network companies (“TNCs”, including Lyft, Uber, and Via) and shared electric scooter (“e-scooter”) firms have grown exponentially in large U.S. cities. Collectively, these new mobility providers (“NMP”) share several features. They employ a corporate organization structure, operate simultaneously in multiple states and cities nationwide, and use a direct-to-consumer, platform-based (or “app”) service model. Their rapid expansion has been facilitated through significant investment from venture capital firms and private equity funds, as well as through acquisitions of competing platforms. In this, TNCs and scooters are examples of the platform economy as applied to transportation and mobility services.

However, the question of how these technology-enabled mobility firms fit into comprehensive planning or regulatory frameworks remains unclear. New mobility firms often promote themselves as providing innovative solutions to pressing transportation needs; at the same time, they also share a reliance on public infrastructure, contributing to wear and tear on roadways, driving up maintenance costs, and exacerbating transportation problems like congestion and vehicle emissions. This poses a further question of how those costs should be distributed and paid for. As cities have begun to tax and regulate new mobility firms, this research report seeks to assess the range and character of city approaches to pricing these unaccounted-for costs and incentivizing equitable and/or sustainable transportation options.

We do so by scanning the national landscape to examine how U.S. cities – specifically, the 50 largest cities by population – have used taxes or fees to regulate new mobility providers (TNCs and for-profit e-scooter providers). This scan forms the basis for development of a taxonomy of how aggressive or permissive cities have been in using fiscal tools to regulate NMPs, through which we

aim to assess how cities have connected different fiscal mechanisms to their overall transportation policymaking (for instance, by incentivizing shared rides or accessible transportation options). More specifically, this report has two primary goals. First, we aim to update and expand existing national data collection efforts (BERK Consulting, 2019; Kim & Puentes, 2018) by using a data collection protocol to assess the extent of local fees or taxes on both TNCs and e-scooters. This captures the incidence, magnitude, and structure of such fiscal instruments for a study period through August 2020, including any geographic, social, or environmental incentives or exemptions. Our methods (described more fully in Section 3, below) involve documentary review of City ordinances and proposals, public hearing transcripts and records, third-party analyses and reports, and local media coverage. Second, we seek to analyze the assembled dataset to compare the factors shaping the scope for transportation priorities, following in the footsteps of earlier work focused on typologies of regulatory responses (cf. Spicer et al., 2018). We develop a set of programmatic profiles that examine cities along several axes including their level of intervention, inclusion of incentives for socially- or environmentally-beneficial behaviors, and provisions to mitigate potentially regressive effects of pricing. We aim to use these profiles to inform future research into the distributional politics of new mobility regulation.

Our rationale for focusing on taxes and fees is two-fold. First, taxation represents the most recent axis of expansion for local and state regulation of NMPs (Quinton, 2015). The push for systematic local regulation of NMPs dates back over a decade to the first expansion of TNC firms such as Uber and Lyft in the late 2000s. However, the initial focus for city and state legislation was the alignment of TNC-enabled drivers with taxis, livery, and car-for-hire services, which typically have much more onerous requirements for licensing and

caps on number of vehicles (Collier et al., 2018). Cities challenged the ability of TNCs to operate outside of taxi regulations, in many cases issuing cease-and-desist orders for flouting controls on market entry and taxi pricing (Collier et al., 2018). These initial regulatory conflicts also extended to “driver background checks, vehicle requirements, insurance, operational requirements, data reporting, and enforcement, among others” (BERK Consulting, 2019, p.3).

As cities have increasingly settled those conflicts by accepting TNCs’ “business model of low-cost service with dynamic pricing, frictionless entry of drivers, and no vehicle caps” (Collier et al., 2018, p.920), they instead turned to implementing (and often routinely increasing) per-ride fees or taxes as a way to harmonize the playing field with taxis and livery drivers. With the recent introduction and rapid expansion of shared e-scooters in U.S. cities, many of these same fiscal mechanisms have been applied to scooter firms, shaping new controversies over “over-regulation” and “rent-seeking” on the part of cash-strapped local governments (Brus, 2019). The pace of change points to the need both for regular data collection to assess a rapidly evolving fiscal landscape for NMPs, as well as for comparative analysis across different modes/platform models to better understand the range of fiscal approaches undertaken by large cities.

This points to a second rationale for our focus on taxes and fees, and that is to examine cities’ employment of fiscal tools relative to NMPs as transportation policy mechanisms. This approach represents one of the primary novelties of this study. Whereas earlier studies have examined driver regulations from the viewpoint of efficient markets and public choice economics (emphasizing, for instance, the desirability of freedom of entry and exit for drivers (Feeney, 2015)), we explicitly look for applications of taxes and fees as ways to incentivize socially-beneficial transportation

outcomes. This emphasis comes from different directions. On the one hand, the turn to taxes and fees is not just a trend in regulatory thinking but represents a pragmatic response by local governments to the explosion of drivers and scooters on city streets and rights-of-way. As of 2018, there were 1.5 million Lyft drivers and 750,000 Uber drivers in the U.S. (BERK Consulting, 2019, p.4), with the market for rides doubling in under 10 years. The business model of instantaneous demand has thus been accompanied by significant increases in congestion; one study of San Francisco found that TNCs increased weekday vehicle hours of delay by 62% between 2010 and 2016 (Erhardt et al., 2019). With few cities successful in regulating the numbers of TNC drivers, fiscal mechanisms such as per-ride taxes have emerged as one of the primary means to manage demand, reduce congestion and vehicle miles traveled, and compensate city agencies for other negative externalities including reduced transit system revenue. A similar deployment of taxes and fees is now evident with the recent rapid (and in many cases unauthorized) deployment of shared mobility devices, such as e-scooters¹, onto city streets and sidewalks in many U.S. cities.

On the other hand, fiscal mechanisms also offer new ways to incentivize socially or environmentally beneficial behavior or to mitigate regressive aspects of NMPs. These could be as simple as reducing the cost of shared rides or increasing the supply of wheelchair-accessible vehicles, or they could use geographic zones or other tiered fee structures to encourage rides in underserved sections of the city. Whereas a full analysis of how NMPs align with other transportation options is beyond the scope of this report, we are interested in charting how taxes and fees on NMPs are at the center of an evolving regulatory agenda to encompass public goods, coordinate with public transit, and otherwise shape socially beneficial transportation options. While this report does not comprehensively address

¹ We focus solely on e-scooters for the purposes of this report, as they are more widespread than e-bicycles and more universally provided through the NMP model. E-bicycles systems are sometimes integrated into publically managed bikeshare models.

this broad regulatory framework, it adds a national picture on NMP taxes and fees that contributes to understanding the evolving national landscape.

This report proceeds through six main sections. Section 2 examines the rapid rise of NMPs over the 2010s, which has raised significant concerns over environmental and social costs. This context in turn frames the main goal of this research report, that being to detail the use of fiscal mechanisms – taxes and fees – to shape environmentally- and socially-beneficial outcomes from TNC and shared e-scooter activity. In Section 3, we detail our approach to this question through a scan of the 50 largest cities in the country; our analysis compiled a dataset of taxes,

fees, and associated enabling legislation for a study period from January to August 2020. In Section 4, we turn to a presentation of our findings. Whereas we found that the incidence of taxes and fees on TNC rides was severely curtailed due to state preemption, we noted widespread use of innovative permitting rules being applied to shared e-scooters as they are being rolled out in cities across the country. In Section 5, we turn to closer examination of six cities which we see as illustrative of the trends in taxation of either TNC or shared e-scooter activity. Section 6 concludes the report with a discussion of the broader implications for urban transportation policy of the uneven use of fiscal mechanisms.

2. Background on New Mobility Providers

This section briefly reviews the TNC and shared e-scooter industries to contextualize our focus on the quickly evolving landscape of city taxes and fees.

TNCs: The Origin and Growth of Ride-Hailing in the United States

Ride-hail firms, also known as transportation network companies (TNCs), emerged in the early 2010s as application-based services enabled by the proliferation of smartphone and global positioning system (GPS) technologies. TNCs promote themselves as technology companies that use their app platforms to link riders and drivers (the latter classified as independent contractors “sharing” their privately owned vehicles) (National Academies of Sciences, Engineering, and Medicine [NASEM], 2016).² Uber, which currently has more than 65 percent of the ride-hail market in the U.S. and Canada (Uber, 2020), dates its first trip to 2010 in San Francisco. It commenced shared or pooled ride-hail trips, also first in San Francisco, in 2014. The second largest TNC, Lyft, launched from predecessor Zimride

in 2012 (Lyft, 2019). By 2016, these two TNCs accounted for more than 76 million ride-hail trips nationally each month (Brown, 2018). Other TNCs exist, notably Via, which only provides shared or pooled rides. Lyft and Uber have continued to grow nationally and globally. Uber reported 32 percent year-over-year growth in 2019, including expanded services such as freight and food delivery (rides still account for 76% of gross bookings) (Uber, 2020). During the period from April 2018 through December 2019, Lyft grew from 14.2 million active riders to 22.9 million (Lyft, 2019). Both Uber and Lyft have recently become publicly traded companies; however, the initial public offerings did not mark a shift to profitability for either firm. Indeed, both observed in their 2019 Annual Reports that they may not become profitable; Uber had a \$16.4 billion accumulated deficit (Uber, 2019), while Lyft reported a loss of \$2.6 billion in 2019 alone (Lyft, 2019).

² California passed legislation which changed employee versus independent contractor classifications, and the California Public Utilities Commission ruling that TNC drivers are employees in 2020. However, this was overturned in November 2020 through a statewide ballot measure (Conger, 2020).

Scooters: The Origin and Growth of Shared E-Scooters in the United States

Large-scale adoption of shared e-scooters is more recent, with none of the major firms comprising this segment of the NMP market in operation prior to 2017. Now, numerous scooter firms exist, underwritten by significant venture capital investment; Chicago's 2019 pilot alone, for instance, had 10 scooter providers (City of Chicago, 2020). The growth of e-scooter use has been very rapid: in 2018, the first year of significant activity, major e-scooter firms (including Bird, Spin, and Lime) logged 38.5 million trips (National Association of City Transportation Officials [NACTO], 2019). Significant growth occurred in 2019, with 86 million trips on shared e-scooter systems across 109 cities (NACTO, 2020). Chang et al. (2019) suggest that use of e-scooters will grow further based on the "delight"—freedom, excitement, and convenience—they provide users in addition to basic transportation services. Unlike TNCs, scooter firms own the vehicles used (electric scooters) while using a variety of labor models to service and redistribute them. Although non-smartphone access options exist, e-shared scooter users typically locate, unlock, and pay for e-scooter rental trips using GPS enabled smartphones. Since the early "start-up" phase of the industry, many scooter providers have been acquired by larger corporations (e.g., Ford acquired Spin; Uber acquired JUMP). Bird and Lime, in fact, are each valued at \$2 billion, even as scooter firms may have trips costs that are greater than per trip revenue (Chang et al., 2019). With widespread city shutdowns of e-scooter programs in spring 2020 due to the COVID-19 pandemic, the long-term success of the shared e-scooter model remains in question. Whereas several cities (including Chicago) have approved the resumption of e-scooter rentals alongside the easing of COVID-19 restrictions, increased health and safety protocols and reduced user demand may challenge the financial viability of the model for some time to come (Hawkins, 2020).

The Regulatory Landscape

The regulatory landscape for both TNCs and shared e-scooters has evolved rapidly. In general, regulatory oversight of TNCs, which sometimes entered cities without prior approval, has been lighter than that of taxi companies and drivers (Collier et al., 2018; NASEM, 2016). As we noted in the introduction, this is partly due to cities having settled their regulatory conflicts with TNCs through acceptance (be it tacit or explicit) of a "business model of low-cost service with dynamic pricing, frictionless entry of drivers, and no vehicle caps" (Collier et al., 2018, p.920). Instead, TNC regulation has tended to be state and local legislation setting minimum standards in areas including "driver background checks, vehicle requirements, insurance, operational requirements, data reporting, and enforcement, among others" (BERK Consulting, 2019, p.3). Moran et al. (2017) reported that 48 states and the District of Columbia had at least one item of TNC legislation, and by 2019 only Oregon did not have state legislation on TNCs (BERK Consulting, 2019).

As this report will examine, not only were per-ride fees or taxes late additions to the regulatory toolbox for cities, but earlier rounds of state-level activism by TNCs promoted legislation templates that resulted in most states preempting local ability to regulate ride-hail providers (Rosewood, 2019; BERK Consulting, 2019; Collier et al., 2018). Preemption limits the ability of municipalities to regulate and tax TNCs but may include carve outs and/or set city or zone-specific fees. By 2018, the Eno Center for Transportation (Kim & Puentes, 2018) reported seven city-specific TNC fees and 12 state TNC fees that included a mix of flat and percentage-based fees and that were used for a wide variety of purposes. Not surprisingly, Uber (2019) and Lyft (2019) both cite regulations as challenges in their investor reports, with financial concerns about the potential reclassification of drivers.

Shared e-scooters have varied legal status

by state and local jurisdiction, again with a quickly evolving landscape of regulations. Fang et al. (2019) studied state regulations of personal mobility devices, including but not limited to e-scooters (e.g., kick scooters, skateboards, hover boards, rollerblades, wheelchairs, etc.). They found highly inconsistent and incomplete regulations. In addition to regulations for vehicle type, states and cities have regulations which impact the legality of shared e-scooter provision, although pending legislation in some cases could preempt city oversight of scooters (NACTO, 2019). Scooter firms, like TNCs, identify regulations and fees as challenges. For example, Uber's subsidiary JUMP pulled its scooters (and bicycles) out of San Diego, blaming regulations ("Uber pulls Jump scooters", 2019). Bird left Oklahoma City, blaming "onerous regulations," yet Lime sought to enter the market there (Brus, 2019).

Social Costs and Benefits

TNCs and shared e-scooters are popular with users, indicating some perceived mobility benefits at the individual scale, but there are debates regarding the social costs and benefits of each mode. For the purposes of this report, we are interested in how NMP modes fit into social goals around sustainability, particularly around global climate change and air quality, and equity, which we conceive of inclusively to mean any effort to enhance transportation options for populations identifying as low-income, disabled, Black, indigenous or persons of color. These goals can be in tension, but we are interested in any fiscal provisions advancing either of these broad areas inclusively defined (see Taylor & Tassiello Norton, 2009 for a typology of equity pricing in transportation).

While personally owned and operated vehicles still contribute more to urban congestion and air pollution, TNC vehicles are a notable contributor to the number of cars on streets, with varied impacts across cities (Balding et al; 2019; Roy et al., 2020). TNCs compete with mass transit (Clewlow

& Mitra, 2017), and their entry in a city is associated with increasing cumulative annual drops in heavy rail and bus ridership (Graehler et al., 2019). TNC use has a large environmental impact; on average TNCs trips increase pollution 69 percent over the trips they replace, causing more pollution even than personal vehicle use (due to distances travelled without passengers) (Union of Concerned Scientists [UCS], 2020). On the whole, TNCs users are disproportionately affluent (Clewlow & Mitra, 2017), but TNCs may fill important mobility gaps for disadvantaged workers commuting when or where transit service does not exist or when safety barriers to using it do (Coren & Lowe, 2020). Furthermore, TNC service is substantially less inequitable for Black riders relative to taxis (Brown, 2018).

Knowledge about e-scooters' social benefits and costs is still quite nascent. While scooter firms and backers have promoted them as a sustainable replacement for vehicle trips, early, non-random surveys in Denver (Denver Public Works [DPW], 2019) of dockless device users and Portland (Portland Bureau of Transportation [PBOT], n.d.) of scooter users showed the plurality of trips replaced an even more sustainable mode—walking. Similarly, some have suggested scooters are a first/last mile connector to transit, but these user surveys showed some competition with transit use. Still, a notable number of users reported scooter trips that replaced less sustainable automobile trips (whether personal vehicles or TNCs): approximately 43 percent in Chicago's pilot (City of Chicago, 2020), 33 percent in Denver (DPW, 2019), and 36 percent in Portland (PBOT, n.d.). Each of these surveys also showed users were disproportionately high income, but Dill and McNeil (2020) find some evidence of shared e-scooter use among lower-income populations and that use may also be more racially representative than docked bikeshare systems. E-scooter users are, however, disproportionately young and male across the existing studies they review. Safety concerns about e-scooters have arisen, but limited knowledge exists about their

inherent risks and what infrastructure might support safer use. An Austin Public Health study did find a third of observed injuries—of those seeking emergency medical care—occurred on a rider’s first trip (City of Austin Department of Public Health, 2019), and more e-scooter deaths have occurred than those linked to bicycle sharing (Felton, 2019).

These persistent debates over the social costs and benefits of NMPs motivate the three research questions guiding this study.

1. Incidence. To what extent have cities implemented taxes, fees, or other fiscal

mechanisms on TNCs and e-scooter providers?

2. Regulatory Dynamics. What factors have shaped the availability and range of fiscal instruments across cities?
3. Transportation Policy Priorities. How have cities used fiscal instruments to promote equitable or sustainable transportation options (following the inclusive notion of equity discussed above), and/or to distribute social costs back onto NMPs or their users?

3. Methods

This project scanned the national landscape to assess how cities have instituted taxes and fees on new mobility providers, which include TNCs and for-profit e-scooter providers. Our focus was on the largest 50 U.S. cities, based on 2018 U.S. Census Bureau data.³ Based on the initial scan, we selected three case studies each for scooter and TNC taxing programs to demonstrate the scope of different taxing schemes. The bounds of these cities, which encompass 28 states and the District of Columbia, range between New York City as the most populous city (almost 8.4 million residents) and New Orleans as the fiftieth-most populous city (at just over 391,000 residents). These cities are relatively evenly distributed between the east and west coasts, midwest, south, and west, and include eight California cities, seven Texas cities, and three Florida cities. No other state has more than two cities in the selected cities.

Data collection was conducted between January and August 2020 via document review of legislation, local and national media, internet websites, pilot program regulations, and personal correspondence. We included taxes and fees in our dataset if they were current at any point during our study period.

Thus, data for a city collected and accurate in January 2020 may not reflect August 2020 conditions but still provides an important snapshot of the regulatory landscape. The data collection protocol involved scanning legislation and other data sources for variables reflecting the diversity in city fee programs, including: date when tax was approved; tax rate and structure (flat rate, percentage of trip cost, or levy per day per vehicle); variations by ride type (such as solo, shared, or wheelchair accessible vehicle); special geographic or temporal applications (such as congestion zones or rush hour/event taxes); other fees (such as for licensing, use of public right-of-way, or supporting infrastructure), regulating agency; and how collected revenue is used. Not all variables were available for all cities and taxes; for instance, airport regulation of TNCs is often not reflected in legislation, and the only information available is the per-trip fee levied on TNC pick-ups and/or drop-offs.

For shared e-scooters, data was also collected on whether taxes or fees were implemented pursuant to pilot or permanent programs. Even as e-scooters firms have expanded rapidly since their 2017 U.S. debut, city approval of their use has been variable; to address

³ U.S. Census Bureau, American Community Survey, 1-year data, Table B01003.

this, we included e-scooter programs in our dataset even if they were temporary pilots or suspended. Additionally, the onset of the COVID-19 pandemic during data collection left numerous unresolved questions in the project's data collection for shared e-scooters. The pandemic forced indefinite shutdowns of scooter service in many cities, projecting an uncertain future. This project could not definitively determine which cities the scooters would return to or when, and whether or not previously agreed-upon regulatory terms would remain viable for operators.

After identifying the incidence and parameters

of NMP taxation, the analysis turned to classification of cities based on the variety of taxation and fees applied to NMPs as well as the differing scope for transportation priorities. We sought to distinguish cities based on their level of fiscal intervention as well as the degree to which they incentivize environmentally beneficial behaviors and/or mitigate potentially regressive effects. This analysis is descriptive in nature and focused on developing typologies for further study. It does not attempt to evaluate the effectiveness of taxation methods or execution.

4. National Scan Findings

This section discusses in greater detail the common patterns and noteworthy items identified in research for both TNC (ride-hail) and shared e-scooter taxes and fees.

TNCs: Preemption Limits the Use of City-Enacted Fiscal Mechanisms for Transportation Policy

TNCs now operate in all 50 of the largest cities in the U.S. We noted in Section 2 that these companies' rapid expansion in the early-to-mid 2010s resulted in significant disruption in urban transportation. However, due to a wide diversity of when and how states chose to regulate them (or chose *not* to regulate them), in 2020 we find a patchwork of highly inconsistent taxes and fees across the nation's largest cities. The findings of our scan yield three main insights: the relatively limited incidence of taxes and fees on TNC rides, especially those enacted locally; the significance of state legislative preemption in removing local taxing authority over TNC firms; and the unique but limited capacity of airports to levy fees on TNCs. Together, these dynamics leave few cities using taxes and fees to shape socially or environmentally beneficial outcomes from the expansion of ride-hail activity.

The Limited Incidence of State and Local TNC Taxes and Fees

In contrast to the widespread application of taxes and fees to scooters (see below), our scan found that state and local taxes per trip are far from prevalent for TNCs. Overall, our scan identified that TNC rides are subject to a tax, surcharge, or fee per trip in 20 of the 50 cities (40%). These fees can be charged by the city, state, or both, and can take the form of flat fee per ride or a tax charged as a percentage of the total ride cost. In the remaining 30 cities, we identified no such tax or fee.

Among cities with per-ride fees, 14 (70%) were levied as a fixed fee per ride. In a majority of those cases (11 out of 14) the fee was nominal, ranging from \$0.10 to \$0.25 per ride. These "low fee" cities include Los Angeles and Boston, both of which have state-enacted fees. Only three cities had per trip fees of \$0.50 or more: Portland, New Orleans, and Chicago. Chicago had the highest flat rate at \$1.25 per ride for solo travelers (with higher fees in some instances as explained later).

The remaining six cities⁴ had a tax or surcharge as a percent of the total cost of the ride. Tax rates were much more varied here than in the group of fixed fee cities. At the low end of the spectrum, Pennsylvania has enacted a 1.40 percent tax for ride-hail trips in Philadelphia, which for a \$10 ride would result in a \$0.14 surcharge – in line with the nominal flat fees discussed above. Four cities had tax rates of between 3 percent and 6 percent of ride cost, which would increase the charge on a \$10 ride to between \$0.30 and \$0.60. Two cities had higher tax rates per ride – Atlanta TNC trips have a state-enacted tax of 8.90 percent on total ride cost, while New York State charges 8.875 percent plus a surcharge of 2.5 percent on any amount tipped to the driver.

However, our identification of 20 cities with taxes or fees does not reflect the degree to which municipalities have used fiscal mechanisms to address public goods issues or shape socially-beneficial transportation outcomes. We identified several TNC ride fees/taxes that are levied by states rather than cities; these could apply either to all rides in the state or only to rides within a specific city. For instance, California levies a \$0.10 fee per ride on all rides across the state, to help fund accessible transportation; in Massachusetts a similar statewide fee is \$0.20. State-enacted fees in Pennsylvania and New York, on the other hand, apply to specific cities, including a \$0.20 state fee on all rides in Philadelphia, and a congestion zone surcharge levied by the State of New York that applies to rides in New York City.

As a result, only seven of the 20 cities (14% of all cities in the dataset) had levied fees or taxes on TNC rides under their own authority (2 have both types: San Francisco and Seattle). These “local taxing” jurisdictions include Chicago, Washington DC, Portland, Baltimore, San Francisco, Seattle, and New Orleans. In 13 out of 20 cities, taxes or fees were levied by the state or pursuant to state

legislation. This included nearly all of the “low fee” cities charging flat rates of \$0.20 per ride or less. However, it also included New York City, which had the second highest tax rate (8.875% of total ride cost) among the cities in the dataset. In two of seven “local taxing” jurisdictions – San Francisco and Seattle – the city actually levies a local tax on top of a state-imposed fee.

Finally, two cities had no identifiable legal impediments to taxation of TNC rides but had opted not to institute such a per trip tax as of July 2020. These “no tax” cities were Omaha and Minneapolis. Minneapolis does, however, have an annual TNC license fee.

Preemption and the Reorganization of Taxing Authority Away from Cities

The findings of limited incidence of taxes and fees on TNC rides and limited evidence of local taxing jurisdictions follow one of the more significant aspects of the TNC regulatory landscape, that being state preemption of local regulation of TNCs. No single factor determining cities’ abilities to regulate these companies looms larger than preemption. Preemption involves state legislation “occupying the field” in a way that often, but not always, removes jurisdiction over regulatory matters from sub-state units of government such as municipalities and counties (cf. Fowler & Witt, 2019). These state-level laws, most of which passed during the early growth of TNCs between 2015 and 2017, often forbid any sub-state units of government such as municipalities and counties from enacting taxes, fees or other regulation upon TNCs. This is consistent with what Collier et al. (2018, p.920) call “disruptive regulation,” wherein taxation of TNCs by local governments is thwarted and the “new entrant largely prevails” because the rules of the game have been “reset” through state legislative action

Our dataset bears this out. All but one of the 28 states examined (excluding Washington,

4 These remaining six do not include San Francisco where there are both city and state-enacted fees.

DC) have statewide legislation regulating TNC operators; the sole exception is Oregon. In many cases, statewide legislation establishes basic regulatory requirements for TNC drivers, including insurance requirements or background checks. However, our analysis found that 20 out of 28 states in the dataset had state preemption of local taxation, representing 39 out of the 50 largest cities. Two Colorado cities, Denver and Colorado Springs, may also be preempted, but the language in Colorado's TNC legislation is unclear to local and state agency officials (personal correspondence). In most of these states, the law preempts cities entirely from imposing their own taxes, fees, or other regulations. However, some states' TNC regulation laws provide for exceptions or carve outs for specific aspects of regulation or taxation on the part of cities or other local government entities (including airports; see below). Not all of these carve outs grant home rule powers or equivalent over TNCs; Louisville was preempted on all but a minimal annual permit fee by Kentucky's TNC

legislation while being granted authority to regulate TNC driver qualifications.

As we noted, state preemption of local taxing authority does not necessarily mean no taxation or fees levied by the state itself; 13 of 20 cities with per ride fees have them pursuant to state law (see Table 1). This includes two of the "high tax" jurisdictions identified above: New York and Atlanta. Close examination of the regulatory landscape for TNCs also shows exceptions or exemptions within state preemption legislation authorizing taxing powers for specific cities or government entities. In San Francisco, for instance, the state allowed an exemption to facilitate local taxing authority in 2018, with part of the rationale being congestion management.

Table 1: Preemption and TNC Taxes/Fees by City⁵

| Preempted (39) | | Limited/uncertain (2) | Not preempted (9) | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| TNC Per Trip-Tax or Fee (13) | No TNC Per-Trip Tax or Fee (26) | No TNC Per-Trip Tax or Fee (2) | TNC Per-Trip Tax or Fee (7) | No TNC Per Trip Tax or Fee (2) |
| New York, NY ⁶ Los Angeles, CA Philadelphia, PA ⁷ San Diego, CA San Jose, CA Columbus, OH Boston, MA Las Vegas, NV Fresno, CA Sacramento, CA Atlanta, GA Long Beach, CA Oakland, CA | Houston, TX Phoenix, AZ San Antonio, TX Dallas, TX Austin, TX Jacksonville, FL Fort Worth, TX Charlotte, NC Indianapolis, IN El Paso, TX Detroit, MI Nashville, TN Memphis, TN Oklahoma City, OK Louisville, KY ⁸ Milwaukee, WI Albuquerque, NM Tucson, AZ Mesa, AZ Kansas City, MO Miami, FL Raleigh, NC Virginia Beach, VA Tulsa, OK Arlington, TX Tampa, FL | Denver, CO Colorado Springs, CO | Chicago, IL San Francisco, CA ⁹ Seattle, WA Washington, DC Portland, OR Baltimore, MD ¹⁰ New Orleans, LA ¹¹ | Omaha, NE Minneapolis, MN |

Nevertheless, preemption occurs without taxes or fees in 25 of the 50 largest cities in the country. Further, nearly all of the “low fee” cities charging flat rates of \$0.20 per ride or less have their fees enabled through state

legislation that preempts local regulatory action. This weakening of fiscal mechanisms has significant implications for transportation policymaking, which we will address in the section on the limited scope of transportation

5 * Has state-wide per trip fee or tax. Cities are organized in descending order of population.

6 State law establishes NYC specific taxes: 8.875% of total fare on rides originating within NYC 4% assessment on the gross trip fare of every TNC prearranged trip originating outside NYC \$2.75 for each for-hire transportation trip within congestion zone (south of 96th Street).

7 State legislation creates a 1.4% assessment for trips originating in first class cities (Philadelphia only). Municipalities cannot regulate TNCs, but legislation carves out authority for the parking authority (state unit of government for oversight of for-hire vehicles) in Philadelphia.

8 Louisville is preempted on all but a minimal annual permit fee (\$30) while being granted authority to regulate TNC driver qualifications.

9 California has state-wide preemption on taxation of “public utilities” (which include rideshare companies) but special legislation allowed San Francisco to levy a tax (see case profile).

10 A 2015 Maryland law allows cities to tax ride-hail up to cap of \$0.25 per ride, but Baltimore is exempted from this cap.

11 New Orleans cannot raise its fees, per state law, as 2019 LA legislation limits fees to those in place 3/1/19 (or for those w/o fees 1%).

priorities in taxing below.

Airport Authorities Acting Outside Preemption

One limited area where sub-state entities have levied fees for TNC rides has been airports. Airports, which can operate as independent authorities, as units of state government or as city agencies, have almost universally implemented their own surcharge on ride-hail trips to or from the airport, even in situations where the state law has otherwise preempted sub-state taxation. Our scan found that major airports serving at least 49 of the 50 largest U.S. cities have applied their own flat rate surcharge, typically between \$2 and \$5 per passenger pick-up. In select examples, such as Chicago, this surcharge is also applied to airport drop-offs. While a deeper dive into airport taxing authority was beyond the scope of this study, we did note that airports were more able to levy taxes and fees due to longstanding legal authority to charge private vendors for the right to conduct revenue-generating activities on airport property (City of Phoenix Aviation Department, 2019). Further, a number of airport authorities successfully tied the growth of TNC drivers to the decline of parking or shuttle revenue and the overall impairment of the airport's business position. In select examples, such as Florida, these surcharges survived state preemption or were integrated as an exemption.¹² However, under federal law, airport revenues must be used exclusively for airport purposes, meaning that taxes on airport TNC rides cannot be redistributed in support of transportation initiatives elsewhere in the city.

The Limited Scope of Transportation Priorities in TNC Taxing

For TNCs, the prevalence of state preemption means the majority of cities do not have legal

authority to institute taxes or fees as tools to manage driver or rider behavior. For those cities with per-trip ride-hail fees, most are instituted pursuant to state law, which in our analysis translates into token amounts that are rarely structured for obvious transportation policy goals. This leaves only a few cities evidencing a clear connection between TNC taxes and an integrated approach to transportation management or funding. Two cities, New York City and Chicago, have "congestion zones" with higher fee rates, although New York City's regulation is written into state law. In these cities, ride-hail passengers pay a significantly higher fee for entering a central business district as ostensibly a congestion management tool. In addition, two cities, Chicago and San Francisco, incentivize shared rides with a lower fee rate, with potential equity benefits.

Shared E-Scooters: Pilot Programs Lead the Way in Implementing Taxes and Fees

Shared electric scooters ("e-scooters") exploded into the United States market in late 2017 and 2018. In many early examples, such as Santa Monica and San Francisco, scooter firms – perhaps taking a page from the early introduction of TNCs – simply deployed hundreds of vehicles without prior notice or municipal approval (Said, 2018b). Since then, many cities elsewhere have engaged in extensive rulemaking prior to allowing e-scooter firms to operate. This has resulted in some significant differences in the incidence and focus of taxes and fees on e-scooter firms compared with TNCs. Notably, we found extensive use of taxes and fees applied to shared e-scooters in those cities that had authorized their operation. We also identified a diversity of fiscal instruments being implemented by the cities in our study,

¹² A recent example was a controversy over a proposed increase in Phoenix Sky Harbor International Airport's ride-hail pick-up/drop-off surcharge (Estes, 2019; Thorbecke, 2020). The increase was challenged in court by Uber and Lyft under a voter-approved constitutional amendment that banned Arizona cities from implementing new taxes on services after the end of 2017. The city of Phoenix, which is otherwise preempted from implementing a fee by Arizona TNC legislation, maintained that the airport fee increase was legal as it represented a charge for usage of property rather than a tax. On April 2, 2020, the court unanimously ruled that the fee does not violate the state constitution, and the new fees took effect on May 1 (Stone, 2020).

often tied to creative structuring of device operating permits. We found this creativity was often tied to pilot programs or exploratory rulemaking processes which sought to design comprehensive approaches for e-scooter regulation. In turn, these more comprehensive approaches have shaped a more explicit connection between local taxing authority and transportation priorities than was evident with TNCs.

Cities Have Used Permitting to Implement a Variety of Taxes and Fees on E-Scooter Firms

Our scan found that scooters are not as prevalent in U.S. cities as TNCs. By the end of 2018, shared e-scooters had appeared in 30 of the largest 50 U.S. cities, and as of July 2020 have operated in 39 of them (Table 2). The remaining 11 cities have not ever allowed these companies to legally operate,

sometimes pursuant to statewide prohibitions on e-scooters.¹³

On top of the more limited availability of shared e-scooters, we found two important distinctions with TNCs regarding the use of fiscal instruments. First, whereas a majority of cities had no TNC tax or fee beyond airport rides, 37 out of 39 cities had imposed a tax or fee on shared e-scooter use. The only exceptions were Detroit and Virginia Beach, although the latter is planning to institute franchise license fees after suspending its scooter program in late 2019. On top of more widespread application of fiscal instruments to shared e-scooters, we found a second important distinction with TNCs: in almost all cases, taxes and fees on scooter operators were levied under city authority, as there was far less evidence of state preemption.

¹³ This includes New York State, which only voted to approve e-scooters as we were completing our scan in spring 2020 (Hogan & Meyer, 2020).

Table 2: E-Scooter Taxes/Fees by City¹⁴

| Both Registration & Device Fee (26) | Registration Fee Only (6) | Device Fee Only (5) | No Taxes or Fees (2) | No Scooters (11) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Los Angeles, CA* Chicago, IL* San Antonio, TX* San Diego, CA Dallas, TX* San Jose, CA Jacksonville, FL* Columbus, OH San Francisco, CA* Indianapolis, IN Washington, DC* El Paso, TX* Nashville, TN* Portland, OR* Memphis, TN* Oklahoma City, OK Louisville, KY Milwaukee, WI* Albuquerque, NM* Sacramento, CA Kansas City, MO* Miami, FL* Omaha, NE* Long Beach, CA* Oakland, CA Tampa, FL* | Phoenix, AZ* Denver, CO* Baltimore, MD* Tucson, AZ* Mesa, AZ* Atlanta, GA | Austin, TX Raleigh, NC Minneapolis, MN* Tulsa, OK Charlotte, NC* ¹⁵ | Detroit, MI* Virginia Beach, VA | New York, NY Houston, TX Philadelphia, PA Fort Worth, TX Seattle, WA Boston, MA Las Vegas, NV Fresno, CA Colorado Springs, CO Arlington, TX New Orleans, LA |

Our scan, summarized in Table 2, found significant variation in the scope and application of fiscal instruments on the part of cities; these include permitting and renewal fees, parking and right-of-way levies, and taxes levied per device and/or per trip. Here, we can usefully distinguish three primary types of fiscal instruments: registration fees charged to the e-scooter *provider*; permit fees charged for each e-scooter *device* deployed; and per-ride fees typically paid directly by *users*.

The most common type of fiscal instrument employed by cities is a registration or licensing fee charged to e-scooter firms for the right to

operate in a jurisdiction; we found these fees in 32 of 39 cities that had allowed e-scooter operators. These can take the form of an initial registration fee or a license renewal fee. Some cities waived up-front fees during an initial trial or pilot period (only 18 cities charged such a fee), but 30 cities charged a license or registration fee upon renewal. We found considerable range in the level of registration fees charged by cities. The highest registration fees were levied by Baltimore, Miami, and Omaha, which all charged at least \$50,000 per year or more (\$70,000 in Baltimore). San Francisco and Oakland charged between

14 Text in red indicates cities with an additional per-trip fee. “*” indicates e-scooter pilot programs. Cities are organized in descending order of population.

15 Charlotte’s device fee applies only when the e-scooter is parked. We discuss this as a variant of a per trip fee below.

\$25,000 and \$50,000 per year, and a further 11 cities charged between \$10,000 and \$25,000 per year, including large cities such as Los Angeles as well as smaller markets like Tampa, Albuquerque, and Long Beach. At the low end of the range, Columbus charged an \$80 initial fee, and Tulsa required a \$1 renewal fee be paid by e-scooter firms.

The second most common type of fiscal instrument used by cities is a permit or license fee charged for each e-scooter deployed by an NMP; we found these fees used in 31 of the 39 cities with active e-scooters programs during our study period. As before, we found considerable range in the approaches taken by cities. Some charged fees on a daily basis whereas others set the length of a device permit to biannually, annually, or for a custom period pegged to the length of a trial or pilot period. In order to compare device fees with different time frames, we annualized the permit fee amount. We found wide variety in the annualized fee levels charged by cities, ranging between \$10 in Jacksonville to \$365 in six cities.

Several cities have more complex per device fee structures. Louisville, for example, charges \$50 per year plus \$1 per each day that a scooter is actually used (up to \$365 per year). Atlanta only mandates a \$50 per device permit fee for e-scooter firms deploying over 500 scooters. We also identified a small set of cities using dynamic permit pricing and other creative applications to incentivize scooter use; for instance, the city of Portland charges a daily right-of-way fee that ranges from \$0.20 downtown to \$0.05 per scooter depending on the neighborhood in which it is available.

The third most common type of fiscal instrument used by cities is a fee charged per ride, used by 10 out of 39 cities with scooters. These include Austin, Baltimore, Charlotte, Oakland, Omaha, Phoenix, Portland, Sacramento, San Antonio, and Tucson. Unlike the approach taken with TNCs, which varies between flat fees and tax rates, per ride fees for shared e-scooters

are exclusively flat amounts and not scaled to the length of the ride. While other types of fees may not be directly passed onto riders, the fees cities charge on each ride typically are. However, in Oakland and Charlotte fees accrue not when the device is in use but when it is parked. These per ride fees are also more consistent between cities than are other fiscal instruments, ranging from \$0.05 in Omaha and \$0.25 in San Antonio and Portland.

Our scan also found a limited number of other taxes or fees beyond these three major types, including fees for street infrastructure upgrades, surcharges for right-of-way usage, and daily storage fees charged for unclaimed, impounded e-scooters. Whereas 14 out of 39 cities employed these diverse fiscal instruments, no one instrument had widespread adoption in the manner witnessed with registration, device, and ride fees. For instance, a small subset of cities levied additional special fees to compensate for the use of sidewalk or roadway rights-of-way for parking areas or stations; these could be geographically targeted to each docking station, as in Louisville and Albuquerque, or they could be one-time, broad-based taxes charged to each new scooter company entering the city (as in San Antonio's \$25,000 infrastructure fee). San Francisco similarly charges a \$2,500 public property repair and maintenance endowment fee.

The disposition of scooter revenues was much harder to discern in most cases. Most scooter programs either did not specify a disposition, sent the revenue to a general fund, or were to simply cover the cost of scooter program administration. Some cities employing unique funding dispositions include Kansas City, where all scooter revenues go towards the construction of affordable housing, San Francisco, where some fees paid for new bike racks, and Seattle, where a planned 2020 pilot program tied fees to funding for scooter-specific parking infrastructure.

Scooter Deployment Has Typically Been Through Pilot Programs

One factor shaping the application and range of fiscal instruments across cities with shared e-scooters has been the use of pilot programs. Pilot programs have emerged as flexible regulatory spaces where cities can proactively apply and layer regulations, including taxes and fees on e-scooter firms and users, and use program evaluation to determine if and under how the devices would be allowed in the city permanently (Orr et al., 2019).

Our scan found significant usage of pilot programs among case cities; as indicated in Table 2, at least 26 of the 39 cities with active shared e-scooters during our study period utilized a pilot program approach, while the other 13 cities went straight to a permitting process for permanent operation. Pilots ranged in length between four and 12 months; in select cases, including Chicago, Kansas City, and Tampa, pilots have been extended or cities have introduced a second pilot. As of July 2020, no city that has implemented a pilot program has consequently permanently banned them from future operation (Virginia Beach temporarily suspended scooter use). However, it must be noted that our analysis encompassed the COVID-19 pandemic, during which many e-scooter operators shut down and/or cities suspended regulatory permission for scooters. For this reason, our criterion for inclusion in the dataset was whether a city had legal, regulated scooters at any time prior to May 31, 2020.

Expanded Scope for Transportation Priorities

Analysis of scooter fees included whether the taxes/fees had provisions that address social equity or address negative externalities from the deployment of e-scooters. An exhaustive review of all scooter program details—beyond taxes and fees—was outside the scope of this project, but equity program provisions were apparent in many cases. At least four cities allowed additional numbers of devices

deployed if devices were placed in structurally disadvantaged locations. At least 15 cities had minimum deployment by zone; Dill and McNeil (2020) find that equitable proximity to shared vehicles is a necessary but insufficient condition for equitable patterns of use. At least 14 cities had a low-income program or discount, at least 10 had options alternative to credit cards, and at least 10 required non-smartphone options.

Examples of taxes or fees being structured to incentivize social equity priorities were more limited; we identified four cities exhibiting such an approach, all on the West Coast (see Program Profiles in Section 5). In Los Angeles and Sacramento, the per device fee is reduced based on spatial location (prioritizing disadvantaged neighborhoods). Similarly, San Diego has a reduced device fee that applies to operators participating in the equity program, through which providers can adopt a range of measures that may include the spatial distribution of devices but can also be operationalized through discounts or non-smartphone usage options. Portland combines differential right-of-way surcharges based on location with a waiver of the per trip fee for low-income plan members. Whereas Charlotte has a complicated per trip fee model with differential rates to promote public transit, our analysis identified other features of the model with more mixed equity implications (see below). We thus did not include Charlotte in our count of cities with equity-oriented taxing/fee structures.

While some cities adopted scooter program elements that appeared to address equity, several cities had deployment designs that appear to hinder equity. For example, El Paso limits scooters to a combined downtown and streetcar area study and also bans them on a university and on roadways owned by the Texas Department of Transportation. San Antonio (profiled below) also has a downtown orientation for its program.

5. Program Profiles

Having described the findings of our national scan of TNC and shared e-scooter taxes and fees in the previous sections, we now turn to a closer look at implementation of fiscal instruments at the municipal scale. We do this through a series of six program profiles: three for TNCs (Chicago, Boston, and San Francisco) and three for shared e-scooters (Charlotte, San Antonio, and a group of west coast cities including Los Angeles, Sacramento, San Diego, and Portland). Our goals with these profiles are, first, to capture the range of approaches taken by cities in designing and implementing taxes and fees on NMPs, and, second, to highlight factors influencing the scope for transportation priorities within those fiscal instruments. Our analysis stopped short of examining the impacts or efficacy of fiscal instruments in shaping the behavior of users or NMPs, nor did we attempt to systematically identify best practices. Nevertheless, our profiles uncover several themes regarding the taxation of NMPs, including the pressures to balance fiscal imperatives with transportation policy goals (in cities such as Chicago) and the contradictory effects on social equity of intersecting urban policy goals (such as enhancing transit integration in Charlotte or promoting tourist-led economic development in San Antonio).

TNC Profiles

1) Chicago: Balancing Fiscal Pressures with Transportation Objectives

The City of Chicago acted relatively early to tax ride-hail services (referred to as “transportation network providers” in city ordinances), with several iterations of structures and fees. An initial set of rules, implemented in 2014, used a license system to create two tiers of fees based on the average number of hours worked per week by each driver; they also instituted a supplemental “WAV” fee charged to non-wheelchair accessible vehicles (City of Chicago Department of Business Affairs and

Consumer Protection [BACP], 2014; 2016). The two-tier system was consolidated into a single fee structure, retaining the WAV incentive, in 2016. Several incremental increases in fees occurred over the next few years alongside more substantial changes designed to manage congestion in key areas of the city: a “special zone” fee was levied on pick-ups and drop-offs at the city’s two airports, and two tourist zones (Navy Pier and McCormick Place) were designated in 2015 with higher fees for pick-ups and drop-offs (BACP, 2015).

In 2019, a new mayoral administration proposed, and Chicago City Council approved, major changes to the structure of TNC taxes. A City analysis noted a 271 percent increase in TNC rides over the previous four years, associating that rapid growth with the concentration of weekday rides in downtown and, correspondingly, increased congestion and decreased transit use (City of Chicago, 2019). The 2019 changes thus turned to congestion-oriented fees, increasing general per ride fees (including WAV fee) from \$.72 to \$1.25, but more significantly adding a downtown zone surcharge of \$1.75 on weekdays and retaining the special venue surcharge for trips to and from airports and two major visitor destinations (Navy Pier and McCormick Place). Thus, TNC single trips with an origin or destination in the downtown zone were subject to a \$3 fee and those that combined the downtown zone and the special venue fee became \$8. This was seen as a first step in a larger program of congestion based pricing.

At the same time, the City increased incentives for accessible vehicles and shared trips by exempting them from the downtown zone fee and reducing general trip fees by \$0.07 (BACP, 2019). The City also sought to incentivize TNC rides in areas “underserved by ground transportation vehicles” by implementing a 50 percent credit

against the tax imposed for all rides into and out of areas so designated, up to a limit of 15 percent of a TNC's total taxable rides during the month.

While the program design seemed to incorporate transportation goals of addressing congestion, incentivizing accessible and shared trips, and addressing inequitable distribution of ground transportation options, the ground transportation taxes function more as revenue generators than as transportation strategy. The changes instituted in 2019 were expected to generate an additional \$43.9 million annually (City of Chicago, 2020, p.39), with the majority slated for general revenue amid a projected budget shortfall for 2020 of \$838 million (City of Chicago, 2020; Hinz, 2019). The new legislation did dedicate \$16 million annually to support capital expenditures by the Chicago Transit Authority, with some \$2 million reportedly directed to improving bus service on the city's predominately Black and Latinx South and West sides (Kim, 2019). However, this represents less than 10 percent of the estimated \$190.5 million in ground transportation tax revenue for 2020, with the remainder slated for the City's corporate fund, and in 2020 the mayor's budget proposed cutting this transfer of funds (Vance, 2020).

While some local transportation stakeholders applauded the tax increase strategy (Kim, 2019), TNCs criticized it, as did several Black community religious leaders who raised equity concerns and cited inadequate transit options in their communities (Meyers, 2019). Other transportation stakeholders (Irvin, 2019) countered with analysis showing the costs would primarily be borne by users on the North Side (where white, affluent residents are concentrated) because that is where solo (not shared) and downtown-bound trips were concentrated. On the other hand, the majority of shared trips begin or end on the South or West sides. Of course, these aggregate analyses do not preclude that individual users with constrained financial resources will sometimes pay the increased fees. Chicago-

based research, in fact, found disadvantaged South and West side job seekers sometimes use ride-hail to adapt to inadequate public transit or personal safety concerns (Coren & Lowe, 2020).

2) Boston: Mismatch between State Fee and Local Transit Funding Needs

In 2016, Massachusetts lawmakers passed legislation that—like many other states—prohibits other government entities (with the exception of the Massachusetts Port Authority, which operates Boston Logan International Airport) from imposing taxes on TNCs. However, the legislation also instituted a statewide \$0.20 per trip tax (in addition to another assessment to cover the Department of Public Utilities' oversight of the program). These funds have been used to pay for some municipal transportation improvements in the City of Boston. This makes Boston an interesting alignment of state preemption and local transportation investment.

Under a revenue sharing arrangement, Massachusetts municipalities receive 50 percent of the state tax revenue for trips originating within their boundaries. Municipalities can use the funds for TNC impacts on infrastructure and transportation purposes including Complete Streets (streets supporting all user types such as transit riders, pedestrians, and bicyclists). A further 25 percent of the per trip fee goes to MassDevelopment (for supporting the taxi and livery industries, including workforce development) and the remaining 25 percent to the Commonwealth's Transportation Fund. Boston received about \$4.2 million in revenue (about half of the city fund in the Commonwealth) and reported 2018 spending on transportation projects ranging from sidewalks and other pedestrian enhancements to traffic signal retiming, as well as \$715,475 saved for future uses.

Despite the transportation investments enabled by the state fee, there is a mismatch between the scale of congestion and other

negative spillovers from TNC operations and the amount of revenue raised through the statewide tax. The Metropolitan Area Planning Council (MAPC) estimated a 2018 loss of approximately \$20 million to the Boston region's mass transit system due to competition from the ride-hail industry (MAPC, 2019). In 2019, Boston's mayor proposed Commonwealth legislation that would replace the flat fee with a percentage tax on total ride cost; this would increase the fee on all but the shortest trips, differentiate between shared and solo trips, and add a per mile tax for travel without passengers (Enwemeka, 2019). The City Council has held a hearing on ride-hail fees, recording the City's desire for an increase in fees and oversight alongside concerns about ride-hail's role in congestion (Cotter, 2019). In 2020, Governor Baker proposed an increase in the fee to \$1 per trip, with some of the increase dedicated to supporting Boston's public transit system (Vaccaro, 2020). However, as of August 2020 ride-hail fees remained at 2016 levels.

3) San Francisco: Overcoming State Preemption

The State of California defines ride-hail services as a public utility. Under Article XII of the California state constitution, passed in 1974, cities, counties, or other public bodies are banned from regulating public utilities. As such, the California Public Utilities Commission (CPUC) oversees ride-hail fees on a statewide level, and California municipalities are preempted from imposing any regulations or taxes on ride-hail companies. Like Massachusetts, California levies fees on all TNC operators in the state, with funds dedicated in part to transportation priorities; these include a \$1,000 license fee that ride-hail companies must pay to begin operations in the state, a \$100 license renewal fee due every three years, 0.33 percent of all quarterly revenues, and a \$0.10 fee on each ride that is directed towards on-demand wheelchair accessible vehicle (WAV) services.

Within this robust framework for state-level regulation of TNCs, San Francisco provides

an illustrative example of a city acting on the state-level to gain the ability to tax TNCs. The multi-year process involved passing both state authorizing legislation and a two-thirds majority of San Francisco voters.

An October 2017 analysis by the San Francisco Transportation 2045 Task Force, a group formed by the City Transportation Authority (SFCTA), sought to evaluate potential funding sources for transportation improvements. While projecting that a per-ride fee on each ride-hail trip between \$0.20 and \$1 could result in anywhere from \$12.5 million to \$62.5 million annually, the report recognized that this proposal "cannot initiate locally without authorizing state legislation." The report also noted a recent study had found up to 25 percent of downtown vehicles in peak hours to be ride-hail vehicles, although a fee on ride-hail vehicles could also have a disproportionate impact on lower income households. Despite the complexity that implementation would require, a ride-hail tax was highly recommended in a vote of Task Force members (SFCTA, 2017).

By July 2018, a plan to tax ride-hail companies locally was in place, agreed upon by the SFCTA, Supervisor Aaron Peskin, and Uber and Lyft. The *San Francisco Chronicle* reported that state Assemblyman Phil Ting (D-San Francisco) would author the bill allowing the San Francisco to impose such a tax. If that were to pass at the state level, it would then go to a November 2019 ballot measure in San Francisco, where a two-thirds voter approval would be required as the tax would be directed to a specific purpose—transportation improvements—rather than the general fund. "Since the city, lawmakers, and the companies agree on the tax, and there is no known opposition, those steps are not formidable" (Said, 2018a). The proposed tax structure included a 3.25 percent tax on solo ride-hail trips and 1.5 percent on shared rides. The financial incentive toward shared rides was intended to mitigate adverse impacts on lower-income riders, while all funds were to be split between the city's transit system and the

SFCTA for capital improvement projects. This structure was projected to generate between \$30 million and \$35 million total each year.

The state bill passed and was approved by Governor Jerry Brown on September 21, 2018. Despite this approval to tax ride-hail companies coming at the state level, the language of the bill clearly stated that it was only intended for San Francisco, and that the tax rates were not to exceed those of this specific proposal. Finally, on November 5, 2019, San Francisco voters narrowly passed the bill with 67.7 percent of the vote (City and County of San Francisco, 2019). The tax went into effect on January 1, 2020 and is scheduled to remain in place until 2045.

While all other California cities currently remain preempted from regulating ride-hail companies at the local level, San Francisco’s example demonstrates that political and public support can overcome overriding state legislation. Elected officials in other California cities, namely Los Angeles and Oakland, have also expressed interest in similar plans in recent years, although none have yet been authorized at the state level (Nelson, 2019; Rodas, 2020).

Scooter Profiles

4) Charlotte: Promoting Transit Integration with Unclear Equity Impacts

Shared e-scooters first arrived in Charlotte in May 2018 as part of a pilot program. Operators Lime, Bird, and Spin each brought between 50 and 300 scooters for the program, which would extend through the following September (Yakowicz, 2018). By the end of the program, the city quickly moved towards a permitting process that would allow for the permanent operation of shared e-scooters, based on an evaluation “that dockless bikes and e-scooters are a valuable addition to transportation choices available to Charlotte residents and visitors” (City of Charlotte Department of Transportation [CDOT], 2018, p. 1).

Many rules of the permit program are similar to those found in other cities, such as a speed limit of 15 mph, a ban on sidewalk riding along a downtown corridor, and mandated rider use of helmets (CDOT, 2018). However, Charlotte’s program stands out in two significant ways which encourage usage and tie into the city’s existing public transit network: a “dynamic cap” on fleet size and a variable hourly parking fee based on location.

Figure 3: Charlotte E-Scooter Parking Rates

| Zone | Description | Parking Rate per Hour | |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|
| | | Duration | Rate |
| Low Price Zone (Transit Areas) | Areas that are directly linked to transit in Charlotte and include areas with the top 10 (based on ridership) bus routes (500’), CityLYNX Goldline stations (500’), and LYNX Blue Line stations (1/4 mile) | 0-30 minutes | Free |
| | | 31-90 minutes | \$.01 |
| | | 91-150 minutes | \$.02 |
| | | 151+ minutes | \$.03 |
| Medium Price Zone (Remainder of City) | Areas consisting of neighborhoods, corridors, mixed-use activity areas and industrial areas | 0-30 minutes | Free |
| | | 31-90 minutes | \$.04 |
| | | 91-150 minutes | \$.08 |
| | | 151+ minutes | \$.12 |
| High Price Zone (Uptown Area) | The area that represents Uptown Charlotte (bounded by Interstate 277 and Interstate 77) | 0-30 minutes | Free |
| | | 31-90 minutes | \$.08 |
| | | 91-150 minutes | \$.12 |
| | | 151+ minutes | \$.16 |
| Automatic Enforcement Zone | Automatic Enforcement Zones in Charlotte include: Freedom Park, Metrolina Association for the Blind and the Charlotte Transportation Center | 0-60 minutes | Free |
| | | 61+ minutes | \$25.00 |

CDOT, 2019, p. 8

The dynamic fleet size cap allows the three permitted operators, Bird, Lime, and Spin, to add 50 scooters at a time to their fleet, if they are able to demonstrate their scooters are being used at least three times per day for 30 days. If the average number of daily rides per scooter falls below two, the operators must remove scooters (Portillo, 2019).

Parking fees, as seen in Table 3, are charged by scooter, by the hour, at a rate dependent on location, identified by integrated GPS devices. The first 30 minutes after a scooter's last use are not charged, followed by an hourly parking rate which escalates through the first two hours parked. In a Low Price Zone, which are those within 500 feet of the city's light rail, streetcar, or 10 busiest bus lines, these fees scale from one to three cents per hour. In the High Price Zone, which is the entirety of the Uptown central business district, the fees scale from eight to 16 cents per hour. The Medium Price Zone, which is the remainder of the city, scales between four and 12 cents per hour. This fee is charged in lieu of a typical permit fee, and the escalating rates serve to incentivize operators to further encourage as many rides as possible per scooter. The zones, meanwhile, encourage operators to place more scooters along busy transit corridors, providing a last-mile connection from bus and train lines. Scooters are not charged by the city during active rides (CDOT, 2019).

The bottom line for shared e-scooters in Charlotte: a regulatory structure that heavily incentivizes high usage on every scooter, and strong fiscal reward for aligning the devices as a last-mile solution along transit corridors. However, as this system of incentives is entirely dependent on where the busiest Charlotte transit lines run, equity impacts are likewise wholly dependent on the degree to which those lines serve those with the greatest mobility needs.

5) West Coast: Progressive Incentives

While many of the most populous 50 U.S. cities that have allowed shared e-scooters to operate have included recommendations

for equity provisions, if not requirements, four cities on the West Coast have provided proactive examples of equity taxing structures in various forms. As throughout the report, we adopt an inclusive concept of equity and include any tax and fees that are structured to enhance mobility for individuals or communities disadvantaged on the basis of race, ethnicity, income or disability.

San Diego charges operators \$150 per year, per scooter. Scooters that are in an approved equity program, however, are only charged \$135 per year. Equity programs, in this case, are those designed to enhance access for low-income individuals. Participating operators must provide evidence of these programs to receive the discount but have some latitude in their design, with the City guidelines suggesting discounts, targeted spatial distribution, and non-smartphone and/or non-credit card access as potential components (City of San Diego, 2019).

Los Angeles took this strategy further, reducing its annual fee of \$130 per scooter to \$39 per scooter located in a disadvantaged community (LA Department of Transportation [LADOT], 2018). The definition of disadvantaged relies on California Communities Environmental Health Screening Tool which combines pollution levels with sociodemographic characteristics and vulnerabilities (e.g., low-income with high housing costs) (see California Environmental Protection Agency, 2017). While not part of its fee structure levied on operators, San Diego also mandated that they have equity plans that include non-smartphone and cash payment options, as well as discounted low-income plans with unlimited free trips under 30 minutes. However, according to a February 2020 interdepartmental correspondence between the Los Angeles Department of Transportation and City Council, a survey found 84 percent of customers were completely unaware of existing equity payment and pricing programs. A second pilot beginning in September 2020 was to have a significantly more intentional outreach component for equity programs and,

for the first time in Los Angeles, mandated fleet distribution guidelines in equity zones (Reynolds, 2020).

Sacramento reduces the annual fee to \$104 from the standard \$136 for scooters in “Opportunity Areas” (Sacramento City Council, 2019). In addition to the financial incentive, at least 20 percent of a scooter fleet must be made available in designated opportunity areas. The City’s ordinance gives the city manager authority to define opportunity areas, which are described in a subsequent City Council report as “disadvantaged” but without explicit criteria (City of Sacramento, 2020). Sacramento requires operators to report on their equity programs which must include outreach, and discounted programs for public housing residents and recipients of several public assistance programs (City of Sacramento, n.d.).

Portland, Oregon also features equitable fleet distribution guidelines, such as a required minimum of 15 percent of a permittee’s scooters to be made available in designated eastern neighborhoods of higher need. However, compliance with these guidelines is reinforced by an added financial incentive: rather than a flat annual fee for each operating scooter, operators are charged daily at varying rates depending on area need. Specifically, operators are charged \$0.20 per scooter, per day in Central City, \$0.10 in Inner or Western Neighborhoods and River Pattern Areas, and \$0.05 in Eastern Neighborhoods. Also, a \$0.25 fee per ride is waived for members of the low-income pricing plan (Portland Bureau of Transportation, 2020).

6) San Antonio: Downtown Use over Citywide Equity

San Antonio’s dockless scooter program is managed by its Center City Development

and Operations Department (CCDO), which primarily oversees major downtown events, street vending, some venues, and the city’s river walk. This is a unique arrangement—San Antonio is the only studied city which has enlisted a downtown development organization to oversee the scooter program. Almost all other cities designated oversight to either transportation, public works, or business licensing departments. San Antonio’s scooters are permitted beyond downtown, however, and the CCDO remains responsible for scooters outside of downtown as well.

The CCDO has stated a desire to maintain three regular scooter operators in the city. During the application process, it used a scoring system to select three of the nine competing companies. However, the top two scoring applicants, Lyft and Lime, both pulled out within a month of each other, in December 2018 and January 2019, respectively. Both companies claimed that San Antonio’s regulations rendered them unable to sustain operations there (Selcraig, 2020). CCDO’s one-time infrastructure fee of \$25,000 is the second-highest initial fee among the 50 cities, and its \$0.25 fee on each ride tied Portland, Oregon as the highest. Operators are also subject to a \$500 renewal fee every six months (City of San Antonio, 2019).

Meanwhile, the program has been criticized for poor equity outcomes. While the scooters are permitted in numerous lower-income areas with acute transportation needs, most scooters are typically found downtown. Scooter operators are required to offer cash and non-smartphone payment options as well as reduced rates for low-income users, but there are no specific fleet distribution guidelines in areas of high need (Selcraig, 2019).

6. Discussion and Implications

Recent scholarship on NMPs from within transportation studies has often focused on the viability of ride-hail or shared e-scooters as means to fill in critical gaps in transit infrastructure, as well as the availability of those modes on a socially equitable basis. For instance, Dill and McNeil (2020) and Palm et al. (2020) express optimism regarding the potential for shared vehicles and new mobility options to integrate with transit systems, despite a lack of compelling evidence to date that these modes overcome existing social and geographic inequities. At the same time, there is increasing evidence of the social costs and negative externalities resulting from the rapid growth of TNCs and shared e-scooters in U.S. cities. These include increased congestion (Balding et al., 2019) and emissions for TNCs (Union of Concerned Scientists, 2020), new public health hazards associated with e-scooter use (Austin Public Health, 2019), and diminished revenue for transit systems resulting from competition from NMPs (Graehler et al., 2018). In this study, we have focused on the application of fiscal instruments to NMPs and the resulting implications for these twin concerns over equity and social costs. Using a scan of the 50 largest U.S. cities, we examined the incidence of taxes and fees applied to TNCs and shared e-scooters, along with the regulatory dynamics driving variation between cities and across modes as well as the *prima facie* alignment of taxes and fees with transportation policy priorities. In this concluding section, we begin by summarizing the main findings of the study before turning to consideration of implications and questions for future research.

Summary of Findings

Beginning with the incidence of taxes and fees, we found quite divergent patterns in the use of fiscal instruments when comparing across the two types of NMPs. Whereas ride-hail providers were present in all 50 cities, we found only a minority share (n=20) had fiscal instruments in place for ride-hail trips. The relatively recent introduction of shared

e-scooter firms meant that fewer cities (n=39) had active scooter programs; however, those cities with scooters had almost universally applied taxes or fees. Further, e-scooter taxes appeared to be evolving quickly, with cities (such as Virginia Beach) moving to license them with associated fees even in the midst of the COVID-19 pandemic.

Just as the presence of fiscal instruments differed by mode, we observed different regulatory dynamics shaping the fiscal landscape for NMPs across cities. For TNCs, we found that the low incidence of taxes and fees was due to extensive state-level preemption, which prevented 39 out of our 50 cities from levying their own taxes or fees. The majority of TNC taxes/fees identified were actually levied at the state level (see Table 1, above); we found only seven cities where cities had adopted ride-hail fees under their own authority. As highlighted in our Boston profile, these state fees are often set too low or are allocated in a way that they offer scant compensation to local governments struggling with the social costs of NMPs. Still, select examples, such as New York City, show that state preemption is not inconsistent with more aggressive taxation of TNC rides, and examples like Philadelphia and San Francisco show how large cities have been able to carve out targeted state fees or exemptions on a selective basis.

Unlike TNCs, state preemption of City fiscal instruments has not been a significant factor relative to city adoption of taxes or fees on shared e-scooters. Rather, the most noteworthy development for e-scooter firms has been city utilization of pilot programs as a condition for permitting. We found that most cities had not only adopted taxes or fees pursuant to their pilot programs, but in many cases had layered multiple fiscal mechanisms as part of a comprehensive approach to scooter regulation. (e.g., per trip or vehicle as well as). For instance, annual licensing or permit fees per scooter are often configured

to manage the overall size of the scooter fleet, whereas per trip fees are designed to incentivize or discourage use in different areas of the city. This approach to fiscal regulation appears (at the current juncture) to be durable, as we found no cities that had permanently banned scooters after pilot experimentation (although some had yet to initiate full scale licensing or permitting).

Turning to the question of social costs and equity, our findings follow these regulatory dynamics closely. For TNCs, the prevalence of state preemption means the majority of cities do not have legal authority to institute taxes or fees as tools to manage driver or rider behavior. For those cities with per-trip ride-hail fees, most are instituted pursuant to state law, which in our analysis translates into token amounts that are rarely structured for obvious transportation policy goals. Our case profiles demonstrate that state preemption is not wholly inconsistent with expanded scope for transportation priorities. Boston's state-level fee allowed ride-hail revenue to be directed towards transportation investment on a limited basis (New York's on a much more expansive basis), while San Francisco provides an example of a city successfully lobbying for a carve out from state pre-emption to adopt pricing differentials favorable for environmental or equity transportation goals. Nevertheless, the TNC regulatory landscape is such that only a few cities - notably New York and Chicago - evidenced a clear connection between TNC taxes and an integrated approach to transportation management. Even here, transportation priorities must often compete with fiscal pressures as rising ride-hail tax revenue represents an asset for cash-strapped municipalities facing budget shortfalls. This point was driven home by the recent experiences in Chicago, where the city backed out of a commitment to fund transit through its TNC fee, instead diverting the funds to fill a general revenue gap in the 2021 budget.

Transportation goals were more apparent in shared e-scooter programs. Not only did we find greater incidence of taxes and fees

being applied to e-scooters, but we also identified a number of cities implementing fiscal instruments designed to directly support transportation equity aims or reimburse cities for use of public right-of-ways. This included varying fees to encourage increased scooter supply in underserved geographies, to promote greater integration with transit, or to fund scooter-related infrastructure. Nevertheless, the example of Charlotte highlights the unclear equity implications of incentivizing transit connections if the underlying bus lines do not adequately serve those with the greatest mobility needs. Further, our analysis identified tensions between configuring scooters taxes in pursuit of these transportation priorities as opposed to other, competing policy goals; for instance, our profile of San Antonio highlighted how cities capitalize on scooters as a source of "delight" (Chang et al., 2019) to prioritize their use in downtown areas or tourist districts as part of an economic development strategy focused on visitors.

Implications and Further Research

This descriptive scan indicates several areas for further research and policy discussion.

First, despite a theoretical rationale for applying taxes or fees to address social costs or equity implications of NMPs, there is not yet evidence that taxes and fees are currently in place at a level sufficient to accomplish those goals. Indeed, regulatory dynamics such as preemption would appear to have the opposite effect; even as the environmental costs of ride-hail appear much greater than those of e-scooters, ride-hail trips are relatively less commonly taxed. Before such strategies are replicated as best practices more evaluation of these models and comparison with regulatory mandates as policy instruments is needed.

For instance, evaluations of Portland's e-scooter pilot indicates that a significant proportion of scooter users had incomes below 80 percent of area median income. To what extent did differential ride pricing, rooted in

a sliding city fee structure, incentivize lower-income users to participate at greater levels? Palm et al. (2020) suggest that pilots could better evaluate whether equity measures, such as options for unbanked individuals or those without smartphones, yield equity benefits when considering what they term new mobility technologies (including but not limited to e-scooters and ride-hail). We see attention to the incentive structures created by different taxes and fees as a logical extension of this concern.

Second, while the externalities and limitations of both TNCs and shared e-scooters have been widely noted, we see a need for more comprehensive accounting of the benefits and costs arising from rapid growth of NMPs in U.S. cities. We have noted that the social costs of both modes, but especially ride-hail, are not fully covered by existing levels of taxation. However, the politics around NMPs at the city scale are evolving rapidly, with some proponents of micro-mobility suggesting public subsidies for e-scooter firms and TNCs advocating for public-private partnerships and full integration of ride-hail with public transit systems (Uber, n.d.). This debate is being shaped by the current public health and economic crises, which have impacted NMP firms equally with diminished riders and increased costs. As many TNC and shared e-scooter firms were already losing money, the current challenges may reinforce a push for more systematic public support for NMPs as part of post-pandemic transportation planning. A more rigorous accounting of the costs and benefits of NMPs, which might quantify the mismatch between social costs and the scant contributions to the public fisc through taxes collected, could greatly inform these debates.

Finally, more research and discussion is needed about the potential and limitations related to the appropriate level of government for the implementation of NMP taxes and fees. Whereas it may seem intuitive that the city level is where the greatest alignment between fiscal instruments and transportation priorities

is achieved, we observed divergent patterns between e-scooters and TNCs regarding the enabling or impeding of that alignment. At both scales, there was rarely obvious alignment between fiscal instruments and transportation policy goals for TNCs. Many of the costs associated with TNCs are borne out at the neighborhood or city level, and yet examples such as New York City point to the possibilities of progressive statewide action in pursuit.

Further, local discretion in cities like Chicago positions TNC tax revenue as a potential means to plug budget gaps or address other, non-transportation policy priorities. In regards to shared e-scooters, where they were legal, cities almost universally implemented taxes and fees, often in creative explorations to support policy goals. This report does not provide sufficient evidence that cities would inherently create fiscal instruments that effectively captured the costs of TNCs. However, given these divergent dynamics and the potential for more intervention to capture costs and enhance social benefits, more discussion of city roles in NMPs taxation merits additional research and debate.

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Appendix A: TNC: Fiscal Instruments

Cities listed in descending order of population

| City | State Preemption? | Per Trip Fee: City/State | Per Trip Fee: \$ of % | Airport fee? | Shared Ride Incentive? | Zone Fee? | WAV fee? | Supports transit? |
|----------------------|-------------------|--------------------------|----------------------------|--------------|------------------------|-----------|----------|-------------------|
| New York, NY | Yes | state | 11.38% | Yes | No | Yes | No | Yes |
| Los Angeles, CA | Yes | state | \$ 0.10 | Yes | No | No | Yes | No |
| Chicago, IL | No | city | \$ 1.25 | Yes | Yes | Yes | Yes | Yes |
| Houston, TX | Yes | - | - | Yes | No | No | No | No |
| Phoenix, AZ | Yes | - | - | Yes | No | No | No | No |
| Philadelphia, PA | No | city | 1.40% | Yes | No | No | No | No |
| San Antonio, TX | Yes | - | - | Yes | No | No | No | No |
| San Diego, CA | Yes | state | \$ 0.10 | Yes | No | No | Yes | No |
| Dallas, TX | Yes | - | - | Yes | No | No | No | No |
| San Jose, CA | Yes | state | \$ 0.10 | Yes | No | No | Yes | No |
| Austin, TX | Yes | - | - | Yes | No | No | No | No |
| Jacksonville, FL | Yes | - | - | Yes | No | No | No | No |
| Fort Worth, TX | Yes | - | - | Yes | No | No | No | No |
| Columbus, OH | Yes | state | 5.75% | Yes | No | No | No | No |
| San Francisco, CA | No | both | \$0.10 state / 3.25% city | Yes | Yes | No | Yes | Yes |
| Charlotte, NC | Yes | - | - | Yes | No | No | No | No |
| Indianapolis, IN | Yes | - | - | Yes | No | No | No | No |
| Seattle, WA | No | both | \$0.75 city / \$0.10 state | Yes | No | No | Yes | Yes |
| Denver, CO | Unclear | - | - | Yes | No | No | No | No |
| Washington, DC | No | city | 6.00% | Yes | No | No | No | Yes |
| Boston, MA | Yes | state | \$ 0.20 | Yes | No | No | No | No |
| El Paso, TX | Yes | - | - | Yes | No | No | No | No |
| Detroit, MI | Yes | - | - | Yes | No | No | No | No |
| Nashville, TN | Yes | - | - | Yes | No | No | No | No |
| Portland, OR | No | city | \$ 0.50 | Yes | No | No | No | No |
| Memphis, TN | Yes | - | - | Yes | No | No | No | No |
| Oklahoma City, OK | Yes | - | - | Yes | No | No | No | No |
| Las Vegas, NV | Yes | state | 3.00% | Yes | No | No | No | No |
| Louisville, KY | Yes | - | - | Yes | No | No | No | No |
| Baltimore, MD | No | city | \$ 0.25 | Yes | No | No | No | No |
| Milwaukee, WI | Yes | - | - | Yes | No | No | No | No |
| Albuquerque, NM | Yes | - | - | Yes | No | No | No | No |
| Tucson, AZ | Yes | - | - | Yes | No | No | No | No |
| Fresno, CA | Yes | state | \$ 0.10 | Yes | No | No | Yes | No |
| Mesa, AZ | Yes | - | - | Yes | No | No | No | No |
| Sacramento, CA | Yes | state | \$ 0.10 | Yes | No | No | Yes | No |
| Atlanta, GA | Yes | state | 8.90% | Yes | No | No | No | No |
| Kansas City, MO | Yes | - | - | Yes | No | No | No | No |
| Colorado Springs, CO | Unclear | - | - | Yes | No | No | No | No |
| Miami, FL | Yes | - | - | Yes | No | No | No | No |
| Raleigh, NC | Yes | - | - | Yes | No | No | No | No |
| Omaha, NE | No | - | - | No | No | No | No | No |
| Long Beach, CA | Yes | state | \$ 0.10 | Yes | No | No | Yes | No |
| Virginia Beach, VA | Yes | - | - | Yes | No | No | No | No |
| Oakland, CA | Yes | state | \$ 0.10 | Yes | No | No | Yes | No |
| Minneapolis, MN | No | - | - | Yes | No | No | No | No |
| Tulsa, OK | Yes | - | - | Yes | No | No | No | No |
| Arlington, TX | Yes | - | - | Yes | No | No | No | No |
| Tampa, FL | Yes | - | - | Yes | No | No | No | No |
| New Orleans, LA | No | city | \$ 0.50 | Yes | No | No | No | No |

Appendix B: Scooter Fiscal Instruments

| City | Ever operated | Pilot | Permit Fee: Initial | Permit Fee: Renewal | Permit fee period | Annualized per device fee | Per trip fee | Equity: fee/tax mechanism | Equity: Notes |
|-------------------|---------------|-------|---------------------|---------------------|------------------------------------------------------------------|---------------------------|--------------|---------------------------|--------------------------------------------------------------------------------------------------------|
| New York, NY | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| Los Angeles, CA | Yes | Yes | \$ - | \$ 20,000 | annual | \$ 130 | \$ - | Yes | Device cost reduced to \$39 in disadvantaged areas |
| Chicago, IL | Yes | Yes | \$ - | \$ 250 | 5 month pilot | \$ 288 | \$ - | No | |
| Houston, TX | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| Phoenix, AZ | Yes | Yes | \$ 500 | \$ 5,000 | 6 months | \$ - | \$ 0.10 | No | |
| Philadelphia, PA | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| San Antonio, TX | Yes | Yes | \$ 25,000 | \$ 500 | 6 months | \$ 20 | \$ 0.25 | No | |
| San Diego, CA | Yes | No | \$ 5,141 | \$ - | - | \$ 150 | \$ - | Yes | 67.5 per device in equity program |
| Dallas, TX | Yes | Yes | \$ 808 | \$ 404 | renewal annual | \$ 42 | \$ - | No | |
| San Jose, CA | Yes | No | \$ - | \$ 2,500 | annual | \$ 124 | \$ - | No | |
| Austin, TX | Yes | No | \$ - | \$ - | - | \$ 60 | \$ 0.15 | No | |
| Jacksonville, FL | Yes | Yes | \$ - | \$ 150 | annual | \$ 10 | \$ - | No | |
| Fort Worth, TX | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| Columbus, OH | Yes | No | \$ 80 | \$ 500 | not specified | \$ 75 | \$ - | No | |
| San Francisco, CA | Yes | Yes | \$ 5,132 | \$ 36,613 | annual | \$ 75 | \$ - | No | |
| Charlotte, NC | Yes | Yes | \$ - | \$ - | - | \$ - | \$ 0.16 | Yes | Low price zones based on transit access |
| Indianapolis, IN | Yes | No | \$ - | \$ 15,000 | annual | \$ 365 | \$ - | No | |
| Seattle, WA | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| Denver, CO | Yes | Yes | \$ 150 | \$ 15,000 | for one year pilot | \$ - | \$ - | No | |
| Washington, DC | Yes | Yes | \$ 325 | \$ 100 | renewal annual | \$ 60 | \$ - | No | |
| Boston, MA | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| El Paso, TX | Yes | Yes | \$ - | \$ 371 | one year pilot | \$ 21 | \$ - | No | |
| Detroit, MI | Yes | Yes | \$ - | \$ - | - | \$ - | \$ - | No | |
| Nashville, TN | Yes | Yes | \$ - | \$ 500 | annual | \$ 35 | \$ - | No | |
| Portland, OR | Yes | Yes | \$ 500 | \$ - | - | \$ 80 | \$ 0.25 | Yes | Per trip cost waived for low-income fare; incentivized zones with differential daily right of way fees |
| Memphis, TN | Yes | Yes | \$ 10,000 | \$ 1,000 | renewal annual | \$ 365 | \$ - | No | |
| Oklahoma City, OK | Yes | No | \$ - | \$ 302 | annual | \$ 30 | \$ - | No | |
| Las Vegas, NV | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| Louisville, KY | Yes | No | \$ 2,000 | \$ 1,000 | annual fee after 2,000 first time probationary six month license | \$ 50 | \$ - | No | |
| Baltimore, MD | Yes | Yes | \$ - | \$ 70,000 | one year permit program | \$ - | \$ 0.10 | No | |
| Milwaukee, WI | Yes | Yes | \$ - | \$ 300 | - | \$ - | \$ - | No | |
| Albuquerque, NM | Yes | Yes | \$ 250 | \$ 12,000 | annual | \$ 365 | \$ - | No | |
| Tucson, AZ | Yes | Yes | \$ 4,000 | \$ 7,500 | six month pilot | \$ - | \$ 0.20 | No | |
| Fresno, CA | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| Mesa, AZ | Yes | Yes | \$ - | \$ 400 | - | \$ - | \$ - | No | |

| City | Ever operated | Pilot | Permit Fee: Initial | Permit Fee: Renewal | Permit fee period | Annualized per device fee | Per trip fee | Equity: fee/tax mechanism | Equity: Notes |
|----------------------|---------------|-------|------------------------------------------------------------|---------------------|---------------------------------|---------------------------|--------------|---------------------------|-------------------------------------------------------|
| Sacramento, CA | Yes | No | \$ 4,440 | \$ 2,220 | annual or expansion application | \$ - | \$ 0.10 | Yes | \$104 (reduction) of scooter fee in opportunity areas |
| Atlanta, GA | Yes | No | \$ 100 | \$ 12,000 | annual | \$ - | \$ - | No | |
| Kansas City, MO | Yes | Yes | \$ 250 | \$ 15,000 | annual | \$ 365 | \$ - | No | |
| Colorado Springs, CO | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| Miami, FL | Yes | Yes | \$ - | \$ 50,000 | - | \$ 365 | \$ - | No | |
| Raleigh, NC | Yes | No | \$ - | \$ - | - | \$ - | \$ - | No | |
| Omaha, NE | Yes | Yes | \$ 50,000 | \$ - | - | \$ 183 | \$ 0.05 | No | |
| Long Beach, CA | Yes | Yes | \$ - | \$ 25,000 | annual | \$ 100 | \$ - | No | |
| Virginia Beach, VA | Yes | No | \$ - | \$ - | - | \$ - | \$ - | No | |
| Oakland, CA | Yes | No | \$ 2,500 | \$ 30,000 | annual | \$ 64 | \$ 0.10 | No | |
| Minneapolis, MN | Yes | Yes | \$ - | \$ - | - | \$ 100 | \$ - | No | |
| Tulsa, OK | Yes | No | Shared active transportation permit (initial and renewal). | \$ 1 | annual | \$ 50 | \$ - | No | |
| Arlington, TX | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |
| Tampa, FL | Yes | Yes | \$ - | \$ 20,000 | one year pilot | \$ 365 | \$ - | No | |
| New Orleans, LA | No | - | \$ - | \$ - | - | \$ - | \$ - | No | |