Ridesourcing and the Taxi Marketplace

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I. Introduction and Policy Conclusions

The regulated taxi marketplace is an industry sector undergoing a period of dynamic disruption due to the entrance of ridesourcing[2] companies such as Uber, Lyft, and Sidecar. Following the example of Rayle et al. I "refer to these services as 'ridesourcing' because [I] believe it succinctly conveys the essential technology – a platform used to 'source' rides from a driver pool" (Rayle 2). While the firms designate themselves as 'ridesharing,' "ridesourcing drivers usually do not share a destination with passengers; instead, the driver's motivation is fare income" (Rayle 2).

As a sector, the American Taxi and Limousine Services industry will generate $11.2 billion in revenues through over 250,000 employees in 2014 (Brennan 31). Estimates by IBISWorld indicate that revenue totals grew at an average annual pace of 3.2% from 2009 to 2014, a pace that is likely to increase due to the rising popularity of ridesourcing services (Brennan 3). Ridesourcing services through mobile transportation applications[3] represent a new sub sector within the taxi and limousine industry. Given industry profit levels of $911 million in 2014, the marketplace represents a large business opportunity for ridesourcing firms, and a strong incentive for taxicab operators to delay disruption (Brennan 3). As private firms, ridesourcing's impact on the sector's growth can only be estimated; as will be shown, early predictions and information display an increase in the marketplace. That is, entrance into the marketplace has increased, as drivers and consumers rapidly adopt ridesourcing as an alternative to taxicabs. However, local governments regulate and restrict taxicab entry, fares, services, and quality in the vast majority of urban areas. Limousine services face a different regulatory environment than taxicab services that will be discussed at a later point. This report aims to

[2] Regulators often call these firms TNCs, or Transportation Network Companies.
[3] Here and throughout the paper, applications refers to mobile applications that typically run on smartphones and other mobile devices.

provide an economic analysis of taxicab regulations, examine past experiences with reform, and illustrate the altered taxicab and ridesourcing marketplace. Following the example of Pautler & Frankena, among others, I conclude "that no persuasive economic rationale is available for some of the most important regulations" (Pautler 1).

Given the conclusion on the industry and marketplace, questions remain surrounding the appropriate regulation of ridesourcing applications and the displacement effects on the taxi marketplace. Specifically, questions surrounding insurance liability, driver backgrounds, and the use of consumer information surround ridesourcing applications. As ridesourcing companies utilize smartphone applications, they gain access to consumer locations in a new and unique manner; such information might require additional regulation as ridesourcing develops further. Much like other data driven companies - such as Facebook and Google - a firm's ability to understand consumer preferences allows for targeted marketing strategies. For instance, a ridesourcing firm's ability to know a person's exact location might allow restaurants to notify consumers of specials upon their arrival to a new neighborhood. The pros and cons of data proliferation will be examined in the upcoming innovation section.

Within the taxi sector, uncertainty envelops the future of taxi medallions and medallion investments. The cost structure of taxis, where most drivers lease vehicles and medallions from medallion owners, means drivers face the economic risks and financial burdens of low demand, while medallion owners continue processing rent payments; thus, concerns arise for the economic well being of these lower income workers. This lease system with flat rent payments has existed since 1979, and "by the mid-1980s nearly all drivers (except owner-drivers) were lessees" (Schaller Consulting 25). The entrance of ridesourcing companies decreases the value of taxi medallions, and raises questions regarding their value in a potentially open marketplace.

II. Taxi Market Regulation Rationales: Pre-Ridesourcing

Here the taxi market refers to the aspect of urban public transportation that includes cruising cabs, cab stand cabs, and radio dispatch cabs.[4] Cruising cabs operate in large downtown areas where there "is a high density of potential riders at random locations" (Pautler 12). Taxicab stands appear near high demand locations – airports, train stations, hotels, etc. – and rely on a predictable stream of riders. Lastly, radio dispatch cabs provide service to less frequented locations upon request. While each market sector faces slightly different challenges, as a whole they face five main areas of regulation.

"The five areas of regulation are: entry restrictions; fare controls, restrictions on the types of service offered, such as ride sharing; requirements to provide certain amounts of service; and quality regulations, which concern vehicle safety, driver qualifications, and liability insurance coverage" (Pautler 2). The stated goal of taxicab regulation is to protect against alleged market imperfections and the potential for inefficient resource allocation. Maximum efficiency serves as the primary economic benchmark with which to measure the taxicab marketplace. Economist Lynne Pepall describes economic efficiency:

> A market outcome is said to be efficient when it is impossible to find some small change in the allocation of capital, labor, goods, or services that would improve the well being of one individual without hurting any others….If we can imagine changes that would somehow allow one person to have more goods and services while nobody else has less, then the current market outcome is not efficient. (Pepall 28)

Within the taxicab marketplace, intricacies such as wait time, cost, and the well-being of local citizens contributes to efficiency. For instance, the ability to more quickly match drivers and riders promotes efficiency within the marketplace. Waiting time and clear information regarding

[4] Limousines, black cars, and liveries operate outside the taxicab regulatory environment, and therefore will not be immediately discussed. Black cars and liveries differ in that black cars must take 90% of there payments through contracts. Liveries offer service to all individuals on a prearranged basis. Lincoln Town Cars are typical for both types (Bloomberg 12).

price most clearly promote efficiency for consumers, as do safety standards. The following indicates the rationale for each aspect of taxi regulation as it relates to efficiency. What began as an open marketplace now stands as one of America's most heavily regulated industry sectors.

Pricing represents the foremost requirement in regulation. By regulating fares through a standard pricing model that includes time and distance, authorities specify the required fare. Fares must be clearly posted in plain view. Moreover, it is commonplace for additional fees for such things as tollways, airport pick-ups and drop-offs, additional passengers, and waiting times. Price controls aim to protect both consumer consumers and drivers. Riders face higher transaction and search costs than drivers; without price controls, drivers – especially cruising cabs – possess the ability to discriminate against riders due to an information gap between the two parties. Similarly, large dispatch services benefit from economies of scale, which could allow them to utilize monopoly pricing in the marketplace. A rider's inability to easily compare taxi fares represents the first information problem solved by government regulation. On the other hand, price controls protect cabstand taxis against a Bertrand competition that would drive price down. Bertrand competition is based on price competition, where consumers will chose between two identical options based on price. In this model, "firm two could capture the entire market by selecting any price lower than [firm one's price]," likewise, firm one's best response is to set a very low price (Pepall 244). In such a model, competition incites firms to put prices at marginal cost rather than sell nothing. Because Bertrand competition is unprofitable for firms, legislators might protect produces by enacting. Given these factors, the "existence of an equilibrium depends on the regulation of fares," and fare ceilings may increase efficiency in the taxi marketplace (Cairns). While the extreme of a regulated price would be government

mandated prices, cities have historically only set fare ceilings[5]. As will be discussed later, price controls served as the major point of contention during previous attempts at deregulation.

If price controls are in place, a second best rationale becomes necessary to ensure service requirements and taxicab operation levels. That is to say, "given that one of the Paretian optimum conditions cannot be fulfilled, then an optimum situation can be achieved only by departing from all the other Paretian conditions" (Lipsey 2). Thus, regulations restrict entry and maintain service requirements for all trips. Theoretically, restrictions on entry aim to move supply to be in line with the regulated price. Prices may be set above the efficient level so as to ensure higher quality of life standards for drivers, among other possible factors[6]. The efficient price level refers to the equilibrium price in an unregulated marketplace given the supply of drivers and demand of consumers; that is, perfectly efficient prices would be set at the level that equals supply and demand. If taxi fares are set above the efficient level, an inefficiently large number of cabs may be induced to enter the industry, thus justifying entry restrictions. Therefore, "if a city does conclude that the number of cruising cabs is inefficiently high, the problem would be inefficiently high fares" rather than lax entry requirements (Pautler 41).

Policy makers state a lower supply of taxicabs also aims to protect against both congestion and pollution. On the extreme end, regulators might argue that "free entry would lead to downtown areas clogged with taxicabs," however this "is refuted by the experience of cities such as Washington, D.C., which has not restricted entry," although geography and density cannot be completely discredited (Pautler 41). Moreover, taxicab restrictions may not even bring a decline in congestion if they increase the number of private automobiles and

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[5] Regulation states that taxicabs must clearly post prices within vehicles. With the existence of only fare ceilings, it is possible for different firms to have different prices in the same city.
[6] Regulations set ceilings on both fares and taxicab lease payments, therefore it would be possible to promote a driver's quality of life through regulation.

accompanying parking problems (Barlett 7). With regard to pollution, regulating vehicle emissions as a whole, rather than the number of cruising taxicabs, would better induce higher air quality. If policymakers consider pollution a strong enough incentive to limit taxicabs, stronger emissions standards must be applied to the automobile industry as a whole. Thus, strong arguments indicate congestion and pollution do not represent sufficient reasoning for entry restrictions.

Information problems – such as an individual's inability to judge vehicle safety and insurance coverage – lead to additional regulation requirements. Safety requirements protect riders against unsafe vehicles and reduce the probability of potential injuries, and insurance requirements protect riders from financial liability. Because of the consumer's inability to fully gauge a vehicle's safety, government regulations should ensure regular vehicle checks and require driver background checks as a means to improving the consumer's safety and peace of mind. Other aspects of quality, such as car cleanliness and the level of service provided might not require regulation because they are factors that influence the level of a driver's tip, although laws state taxicabs must be clean. A potential tip incentivizes drivers to maintain a clean car and provide friendly service, but additional means might be necessary for higher quality.

Because price, entry, and vehicle safety represent potential market inefficiencies, 20th century policy makers aimed to regulate the industry accordingly. Standard fares are set, barriers to entry exist, and vehicle inspections and insurance are required. By examining each aspect of regulation in greater depth, and its coinciding instances of deregulation, it is possible to gain a clearer picture of the taxi marketplace.

III. Regulation Inefficiencies

Regulation's costs stem from regulation policies that actually might decrease efficiency rather than increase it. The main imperfection comes from an inability to properly determine efficient levels of regulated price and taxicab supply. Agencies that determine fare levels, which have administrative costs themselves, have difficulty setting efficient fares, or may choose fares due to other considerations. For instance, Verkuil reports "rate regulation in New York is completely haphazard," indicating regulators do not set fares in an economically efficient manner (Pautler 67). That is to say, fares were not initially set in a manner that best reflects the variable costs and reflects the intricacies of supply and demand. As regulators raise fares due to inflation, the initial misguided price structure remains. The table below displays how New York City fares have changed over time. If regulations are not set in a manner aimed at promoting an efficient outcome, they simply promote continued inefficiency within the marketplace.

Table 1: New York City Taxicab Fares 1952-2006

Table 2. Taxi fares since 1952.

	Initial Charge	Mileage Charge	Wait Time	Charge per Mile	Charge per Minute	Avg. fare
Before 1952	$0.20 first 1/4 mi.	$0.05 per 1/4 mi.	$0.05 per 2 min.	$0.20	$0.03	$0.83
July 1952	$0.25 first 1/5 mi.	$0.05 per 1/5 mi.	$0.05 per 90 sec.	$0.25	$0.03	$1.06
Dec. 1964	$0.35 first 1/5 mi.	$0.05 per 1/5 mi.	$0.05 per 90 sec.	$0.25	$0.03	$1.16
Jan. 1968	$0.45 first 1/6 mi.	$0.10 per 1/3 mi.	$0.10 per 2 min.	$0.30	$0.05	$1.48
March 1971	$0.60 first 1/5 mi.	$0.10 per 1/5 mi.	$0.10 per 72 sec.	$0.50	$0.08	$2.30
Nov. 1974	$0.65 first 1/6 mi.	$0.10 per 1/6 mi.	$0.10 per 60 sec.	$0.60	$0.10	$2.71
March 1977	$0.75 first 1/7 mi.	$0.10 per 1/7 mi.	$0.10 per 60 sec.	$0.70	$0.10	$3.09
July 1979	$0.90 first 1/7 mi.	$0.10 per 1/7 mi.	$0.10 per 60 sec.	$0.70	$0.10	$3.24
April 1980	$1.00 first 1/9 mi.	$0.10 per 1/9 mi.	$0.10 per 45 sec.	$0.90	$0.13	$4.06
July 1984	$1.10 first 1/9 mi.	$0.10 per 1/9 mi.	$0.10 per 45 sec.	$0.90	$0.13	$4.16
May 1987	$1.15 first 1/8 mi.	$0.15 per 1/8 mi.	$0.15 per 60 sec.	$1.20	$0.15	$5.08
Jan. 1990	$1.50 first 1/5 mi.	$0.25 per 1/5 mi.	$0.25 per 75 sec.	$1.25	$0.20	$5.70
March 1996	$2.00 first 1/5 mi.	$0.30 per 1/5 mi.	$0.30 per 90 sec.	$1.50	$0.20	$6.85
May 2004	$2.50 first 1/5 mi.	$0.40 per 1/5 mi.	$0.40 per 120 sec.	$2.00	$0.20	$8.65
Nov. 2006	$2.50 first 1/5 mi.	$0.40 per 1/5 mi.	$0.40 per 60 sec.	$2.00	$0.40	$9.61

Surcharges and flat fares:

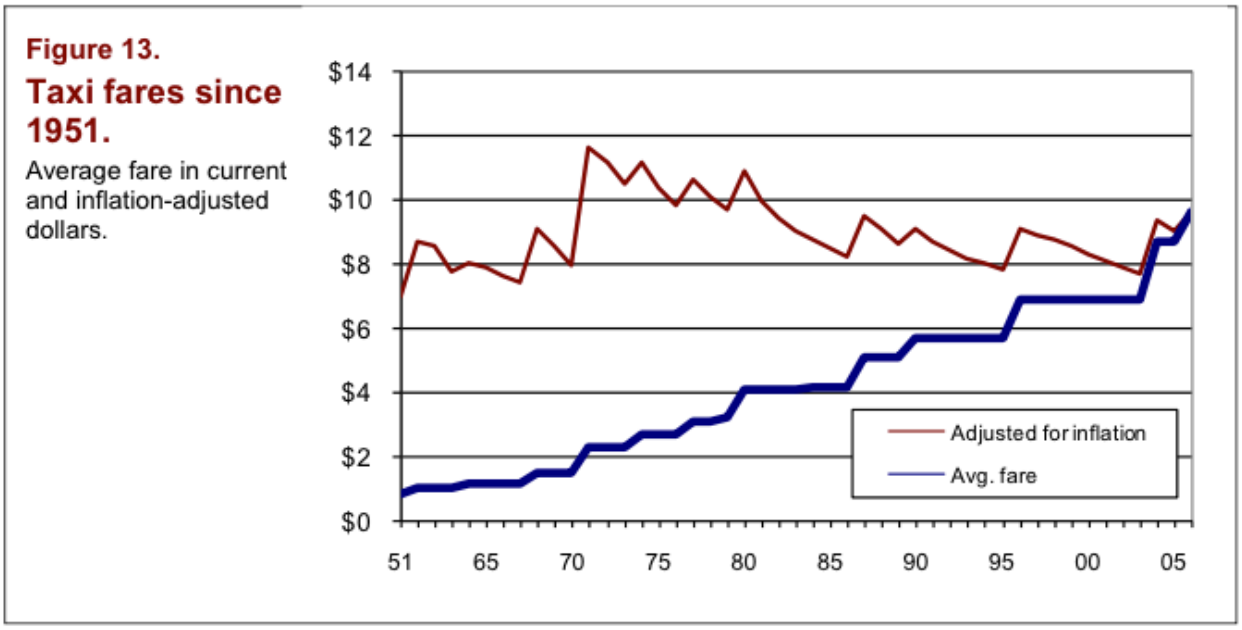
- A night surcharge, applying to trips beginning between 8 p.m. and 6 a.m., was added in May 1981. The surcharge was rescinded in January 1982 for all but the 2,300 fleet cabs. The 50-cent night surcharge was extended to the entire industry in May 1987.
- $1 surcharge for trips beginning between 4 p.m. and 8 p.m. was added in May 2004.
- A $30 flat fare from JFK airport to Manhattan was adopted in January 1996 and increased to $35 in 2001 and $45 in 2004. The flat fare was extended to trips from Manhattan to JFK airport in 2006.
- Surcharge for trips to Newark Airport was increased from $10 to $15 in 2004.

Average fare based on 2.8 mile trip with 4.77 minutes of wait time.

(Schaller Consulting 18)

Examining the New York City fares adjusted for inflation demonstrates that fare increases throughout the last century have been primarily responses to inflation. Table 2 demonstrates that real fare rates have changed little during the past half century.

Table 2: New York City Real Taxicab Fares



(Schaller Consulting 18)

Regulation's official goals do not align with the actual outcome. Instead, it is possible that regulation protects special interests such as those of taxi medallion owners. Pautler makes two key points regarding regulation inefficiencies in the taxi marketplace. First, "most regulations impose an inefficient uniformity on the market," meaning the taxicab marketplace becomes uniform in most (Pautler 67). For instance, fare regulation leads to an inefficient allocation of resources during both peak and off-peak periods. Higher fares during high demand periods correlate with basic economic principles given the restricted supply. However, cities utilize surcharges in a limited manner that does not adequately reflect increases in demand; for instance, New York City charges riders $1 extra for a ride taken between 4 and 8 pm (NYC Taxi & Limousine Commission). Secondly, "evidence suggests that taxi ordinances and the government agencies that regulate taxis may not be motivated primarily by concern for market failures and achievement of an efficient resource allocation" (Pautler 68). Other motivations

include a desire to protect public transit[7], government revenue considerations, promotion of a city's image, and the protection of existing taxi firms from competition. Because certain regulations lack efficiency justification, motivations such as the protection of public transit and existing taxi firms from competition stand out as potential regulatory causes.

The regulation of supply – the medallion system – most greatly affects efficiency through the waiting times associated with hailing a cab. Open entry would allow increased cab service and competition, and decrease waiting time for consumers. Lower waiting time would serve as an improvement in service quality, and thus increase consumer demand. Taxicab consumers stand to benefit the most from supply deregulation. Considerations for taxicab drivers must be made as well because proponents argue that increased supply will decrease driver wages and quality of life. However, it will be argued that increasing the supply of taxicabs decreases rent payments that drivers pay medallion owners, rather than decreasing driver wages.

The information problems encountered by the taxi marketplace since its inception represent efficiency's greatest hurdle. The taxi-meter solved the information uncertainty regarding price, as governments mandated that fares were clearly marked. However, the ability to link riders and drivers still required passenger knowledge of cabstand locations, or happenstance encounters with cruising cabs. For decades, cities relied on taxicab drivers to know the landscape and environment on their own. London represents the extreme case where driver applicants must pass a difficult examination "demanding years of study to memorize the labyrinthine city's 25,000 streets and any business or landmark on them" (Rosen). A taxi driver's success depended on his ability to find customers; therefore, around the clock he must

[7] Public transit refers to areas of the transportation sector that the city operates, normally subways and buses. The protection of public transit refers to making taxi fares expensive as a means to induce riders to take public transportation.

know where potential passengers were located. A more efficient manner of linking drivers and passengers might increase passenger occupancy, and decrease a driver's idle time.

Upon entering a vehicle, passengers are at a disadvantage compared to the driver, especially if the passenger is in unfamiliar territory. For the most part, an unfamiliar passenger relies on an innate trust for a driver's route; the passenger simply assumes drivers take the fastest route. Again, the information disparity between drivers and passengers has historically represented a potential area for taxicab inefficiencies. Regulating information, such as requiring all taxicabs to utilize a global positioning system (GPS) during each fare, is a logical means to negating the information disparity between driver and rider.

The regulatory system's stated goal remains to diminish inefficiencies in the taxi marketplace. While the system reduces some inefficiencies, it also fails to reduce some, and introduces others. As technology becomes increasingly more integrated into the average person's life, the opportunity to further decrease marketplace inefficiencies emerges. Prior to examining potential areas of improvement, it is important to better understand the taxi marketplace.

IV. The Medallion System

In most metropolitan cities across the United States, the taxicab medallion system regulates and restricts the number of cabs within the city. Major cities including New York City, Chicago, Boston, Atlanta, Miami, Houston, San Francisco, and Seattle utilize some form of the medallion system as a regulatory tool. By definition:

> A taxi medallion is a metal plaque placed on the outside of a taxicab to present physical evidence that the vehicle is licensed to be used as a taxicab. The medallion is not assigned to a driver. The owner of the medallion is entitled to receive the revenue stream generated by the medallion, and can hire a driver to operate a taxicab, or lease the right to use the medallion to a driver (Barlett 4).

Medallion proponents state they protect citizens through licensing requirements such as background checks and fleet sizes; while both requirements could be regulated without medallions, the current structure links the ability to hold or lease a medallion to them. By artificially restricting the taxicab market, the medallion system creates barriers to entry in America's largest cities. An oversupply of New York City taxicabs – with levels reaching around 21,000 in 1931 – led to a 1937 ordinance restricting the number of licenses at 13,595. As of 2014, New York City had 13,437 taxi medallions on the market, which authorize "yellow taxicabs with medallions … to pick up passengers by street hail anywhere in New York City" (Bloomberg 12). World War II led to a decrease in the number of New York City taxicabs to 11,414 in 1947, and limited medallion issuances occurred until 1996. Annual passenger trips have increased 16% from 204 million in 1990 to 236 million in 2014 in New York City, while medallions increased 14% from 11,787 to 13,437 over that same period (Schaller Consulting 30, Bloomberg 2).

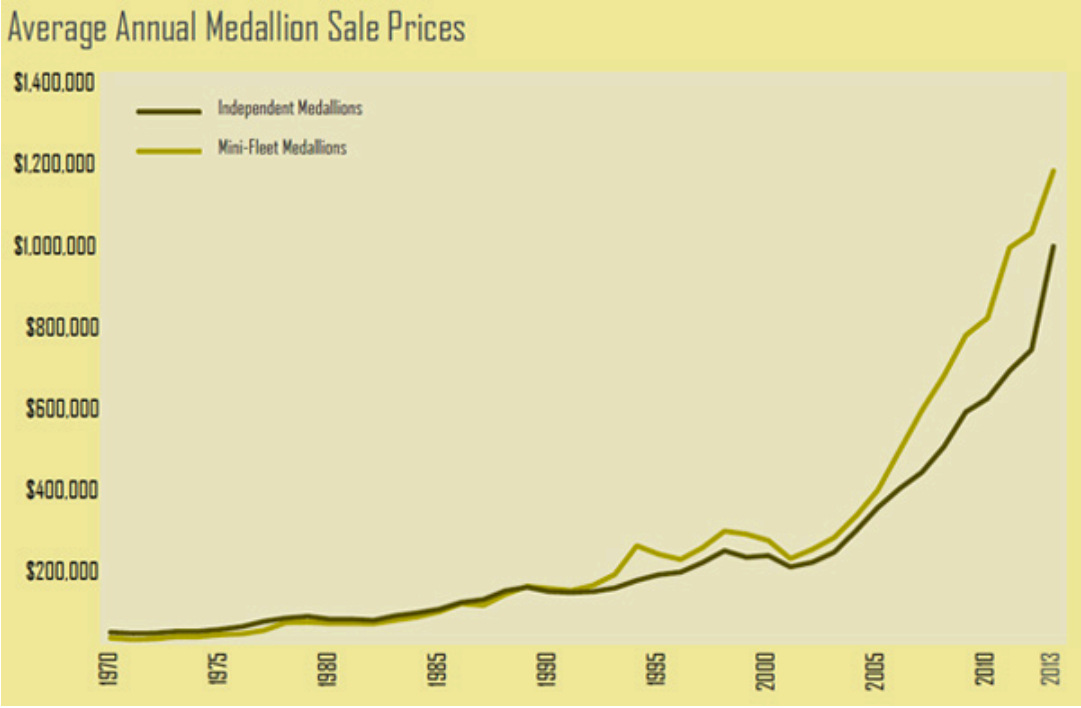
Since the 1970s, the majority of taxi drivers lease taxi medallions from owners. The medallion owner provides insurance, branding, and access to the vehicle in exchange for a flat fee paid by the leasing driver. Shifts last 12 hours, and lease options include both daily and weekly leases. The system shifted drivers from employees of the taxicab company to independent contractors operating on their own accord. "Leasing allowed fleets to drop employee benefits which drivers had previously enjoyed, including health and pension benefits, employer contributions to Social Security, scholarships, legal services, unemployment insurance and disability insurance" (Schaller Consulting 27). Thus, the driver takes on the financial and economic risks of uncertain consumer demand while the medallion owner receives flat, guaranteed payments. Furthermore, the leasing arrangement has relieved owners "of their

obligation to comply with U.S. labor laws involving wages, benefits, and the maximum workday of eight hours" (Cumming 13). The leaser typically rents the medallion and vehicle each week for a specific set of shifts, allowing medallion owners to have multiple leasers per medallion.

The medallion system creates a cartel that protects the owners of taxi medallions due to the classification of transportation as a public utility. Guaranteed income from driver leases, as well as market protection against new entrants, have made medallion prices increase greatly. Pautler describes how taxi medallions gain their value, given the market in which they operate: "If entry were restricted and the right to operate a taxi could be sold or leased, medallions would command a price or rental equal to the present discounted value of the positive profits" (Pautler 34). In contrast, in a competitive market, firms would enter the taxi industry until profits equaled zero at the government imposed fare.

Since the leasing system began in the 1970s, the price of a New York City taxi medallion has increased from about $50,000 in 1976 to $1,320,000 in 2014 – with the largest growth coming in the 21st century.

Table 3: New York City Taxi Medallion Sale Prices



[8]

(Bloomberg 12)

> The average annual price of independent medallions increased 260% between 2004 and 2012 while the average annual price of mini-fleet medallions increased 321% over the same time period. When accounting for inflation, prices still increased 214% for independent medallions and 265% for mini-fleet medallions. The annualized return on investment (ROI) for a medallion over this time would be about 19.5%. In comparison, over the same time, the ROI for a similar investment in the S&P 500 would yield a 3.9% annual return. (Bloomberg 12)

While the medallion system began in most major cities in the 1930s, the ability to lease medallions greatly increased their value. New York City represents the high end of the spectrum, all other cities have seen prices rise as well.[9] "These values capture the degree to which the markets are restricted by these medallions," and represents the high returns medallion owners

[8] Independent medallions are classified so owners may only own one medallion, and the owner is often obligated to drive a minimum number of shifts annually. Income is generated through fares as well as lease fees to other drivers.
Mini-fleet medallions must be owned in a group of at least two. Incomes are derived from lease fees paid by drivers (Bloomberg 12).

[9] Notable peak medallion prices include Boston at $700,000; Philadelphia at $400,00; Chicago at $350,000; Miami at $300,000; and San Diego at $140,000 (Badger 3).

gain from leases (Barlett 1). The massive increases in the value of medallions reflect the income streams that owners obtain from their taxi driver operators.

With over 50,000 drivers in New York City, the supply of drivers is more than four times the number of available taxis at a single point in time (Bloomberg 9). The large supply of drivers means taxi medallion owners can lease medallions out for multiple shifts per week, thus minimizing vehicle idleness and increasing the worth of medallions. Naturally, utilizing the same vehicle for multiple shifts decreases external costs such as vehicle maintenance and cleaning relative to each driver maintaining his own vehicle. The taxi industry attracts a large number of drivers because of "low entry costs, the opportunity to service 'guaranteed' trips at a cab stand and the opportunity to work for oneself" (Schaller 492). Therefore, by limiting the number of taxicabs on the road, medallions in essence protect the income of working drivers by ensuring an over-demand for rides.

Conversely, the large supply of drivers allows for high flat lease fees that make medallions valuable.[10] Because being a taxicab operator is appealing to many individuals, medallion owners gain the ability to charge drivers high lease payments. The desire to ensure driver well being was partially discussed in regards to fare regulations, however, regulating lease payments appears to be a more impactful way of raising a driver's income. Following the exhibit of New York City medallion prices, the mathematics behind medallion prices directly relates to driver lease payments. New York City's 50,000 taxicab drivers compared to 13,437 medallions exhibits an excess demand[11], helping raise rent prices drivers are willing to pay

[10] Like fares, taxi lease fees are legally regulated by taxi commissions by placing lease ceilings on medallions

[11] Theoretically, there are a maximum of 26,874 taxi shifts available each day if each taxicab is leased for a double shift. Additionally, 45% of cabs are leased long term, demonstrating a desire for scheduled shifts (Schaller Consulting 33).

medallion owners. Beyond supply and demand, medallion serve as an investment instrument for owners. Thus, considering the fact that New York City cab drivers lease vehicles for a maximum of $1,587 per week[12], medallion owners can earn a total $82,524 in a year (Salmon). Thus, New York City medallions act as bonds with real yields of $82,524 before vehicle expenses. Estimating expenses of $30,000 a year and a 3.5% interest rate[13], a fair price for medallion would be $1,485,714 at present value. Investors price medallions according to future cash payments, accounting for investment risk by utilizing a higher discount rate than United States Treasury Bonds. Given the recent low interest rate environment, many medallion owners financed their medallions with debt, and pay them off through the collected lease payments. Thus, it is through the medallion's ability to be leased that it gains its value.

In reality, the taxicab medallion marketplace maximizes rent payments to medallion owners rather than earnings to taxicab riders. Medallion owners extract the surplus via driver lease fees and have had high returns since 1980. In summation:

> there is broad consensus among economists that such restrictions allow a small group of private citizens - those who are among the first round of recipients of medallions - to earn windfall profits at the expense of consumers and taxicab drivers who don't receive medallions in the first round. (Barlett 1)

Those who most benefitted from the medallion system purchased or were given medallions in the earliest years, before they gained significant value. In today's environment, it should be assumed that medallion prices closely relate to their equilibrium or fair value based on potential lease fees. It is the dramatic increase in prices since 2004 that is most staggering. It must be assumed that demand for taxi service

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[12] $105 for day shifts, $129 for Thursday-Saturday night shifts, $115 for Sunday-Tuesday night shifts, and $120 for Wednesday night shifts; or $630 for any one-week day shift, and $737 for any one week night shift (NYC Taxi & Limousine Commission)

[13] U.S. Treasury yields for 30 Years are 2.59% as of April 21, 2015.

generates increased demand to become a taxi driver, and therefore increased demand to lease a medallion from owners. The most noticeable change in the marketplace was consistently low real interest rates. Such rates increased the number of individuals able to bid on medallions and provided them the opportunity to finance their investment with affordable levels of debt.

V. Taxi Drivers and the Medallion System

Taxicab drivers enter into the taxi labor force due to the ease of entry into the job and lack of skill required. In New York City, 94.1% of taxicab-licensed drivers are immigrants, and 99% are males (Bloomberg 9). As low skilled workers, the driver's employment opportunities must be considered. Therefore, medallion lease fees must be set at a level low enough to induce workers to become taxicab drivers rather than another profession which they could choose. Table 4 demonstrates hourly and mean annual wage for Taxi Drivers and Chauffeurs across the top metropolitan areas.

Table 4: Hourly and Annual Wages for Taxi Drivers and Chauffeurs (May 2014)

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
New York-White Plains-Wayne, NY-NJ Metropolitan Division	11,300	2.10	1.59	$16.26	$33,820
Las Vegas-Paradise, NV	11,210	12.88	9.76	$14.04	$29,210
Los Angeles-Long Beach-Glendale, CA Metropolitan Division	5,520	1.36	1.03	$13.89	$28,900
Chicago-Joliet-Naperville, IL Metropolitan Division	4,860	1.29	0.98	$11.74	$24,410
Boston-Cambridge-Quincy, MA NECTA Division	4,130	2.30	1.74	$13.58	$28,240
Philadelphia, PA Metropolitan Division	3,090	1.66	1.26	$12.46	$25,910
Houston-Sugar Land-Baytown, TX	3,050	1.07	0.81	$13.30	$27,660
Seattle-Bellevue-Everett, WA Metropolitan Division	2,940	1.97	1.49	$14.35	$29,840
Baltimore-Towson, MD	2,900	2.24	1.70	$12.36	$25,710
Phoenix-Mesa-Glendale, AZ	2,850	1.56	1.18	$11.47	$23,860

(Bureau of Labor Statistics)

Taxicab drivers enter the workforce with knowledge of wages and lease fees because the job suits their background and preferences. The supply of taxicab drivers means drivers earn their opportunity cost, while the scarce resource – the taxicab medallion – gain the rents. Thus, taxicab drivers, despite potential changes to the system, will earn around their opportunity cost.

As previously mentioned, the legalization of leasing in 1979 greatly shifted the relationship between taxi drivers and medallion owners.[14] Leasing placed drivers outside the scope of employees and made them independent contractors; as such, medallion owners and drivers faced no obligation to comply with American labor laws that include wages, benefits, and the maximum eight-hour workday. Most importantly, the law placed financial risk largely on the driver, aside from the insurance mandate covered by the medallion owner. For instance,

[14] Prior to 1979, drivers were paid on a commission basis, meaning both medallion owners' and taxicab drivers' incomes were tied to collected fares.

regulations require driver liability insurance that covers up to $100,000 per individual or $300,000 per incident in New York City and Los Angeles (Feeney 2015, 10).[15]

Very few drivers actually own a single medallion. In San Diego, almost 90% of licensed drivers are lease drivers; likewise, drivers who lease their taxis "are the large majority of drivers in the Chicago taxi industry" (Esbenshade 1, Nelson/Nygaard 2-4). Similarly, New York City has seen a decline in owner drivers, as of 2005 "29% of taxicabs are owner-driven, an all time low and down from 37% in 1992" (Schaller Consulting 2). While data are not available for every city, across the nation the majority of medallion owners do not ever operate a taxicab. As a lessee, the taxi driver faces expenses for the lease payment, gas payments, and miscellaneous costs such as car washes, cell phone service, tickets, and credit card fees; as a whole, these expenses account for about 70% of the drivers total revenues. That is, "taxi drivers take home only 30 cents of each dollar collected, including tips" (Esbenshade 3). Lease payments alone cost San Diego taxi drivers $400 a week for 12 hours a day (Figure 4). The San Diego State University study demonstrates the stress lease payments place on drivers:

> Virtually all (99%) of taxi leases are for either 12 or 24 hours a day, and 86% are for 7-day weeks, which encourages drivers to drive long hours to cover the high lease costs and other expenses, and still earn even a meager income. As a result, the lease drivers work a median of 71 hours a week. Almost 80% drive 6 days a week or more, with the majority (53%) driving 7 days a week. On days they work, 82% report working at least 10-hour shifts, with the majority (54%) working 12 hours or more. (Esbenshade 6)

The median net earnings for San Diego taxicab drivers amounted to $4.45 an hour in 2013, reflecting why long hours are necessary (Esbenshade 3). In 2014, New York City

[15]Notable regulations: Washington, D.C. $25,000 per individual and $50,000 per incident; Philadelphia $35,000 in liability insurance; Chicago combined single limit of $350,000 per incident (Feeney 2015 10)

taxicab drivers earn a mean annual wage of $15.22 an hour (Bureau of Labor Statistics 4).

The high stress environment lease payments place on taxi drivers helps demonstrate how medallion owners shift risk away from themselves and onto drivers and consumers. Driver's assume risk for demand; while each week will have differing levels of rider demand, lease payments remain constant. For instance, if a driver happens to fall ill during a weeklong lease, he still owes the full lease payment. This is partially why medallion rent payments gained the status of guaranteed income; the large supply of potential drivers relative to the controlled medallion supply represents the other major factor. Additionally, a taxi driver's long hours and the inability to call in sick compromises consumers' and citizens' safety, because tired and inattentive drivers stand as a risk to the general population.

Taxi drivers also face additional rent payments via credit card transactions. For instance, "when passengers pay with credit cards, the dispatch companies usually deduct 5% to 10% of the fare, far above the 1% to 2% transaction fee charged by the card companies" (Esbenshade 3). Such a fee represents another example of taxi companies extracting additional income from their drivers.

The guarantee of consistent lease payments created a safe and valuable space for investors. Typically, medallion owners are large investors who own numerous medallions; for instance, in San Diego 68% of medallion owners own multiple taxicab medallions. In a competitive marketplace – which lacks barriers to entry and exit – "the value of the right to serve the market would be zero" (Ennis 3).

VI. The Outcome of the Medallion System

The medallion system and regulatory environment created a rent system within the taxi marketplace. While numerous taxicab companies exist, the system in place limits supply to a point that often fails to meet customer demand[16] and discourages progress and development within the industry. "Since all the revenue in the restricted taxicab market...remain concentrated in a limited number of hands, medallion owners fiercely resist a possible threat that may challenge their advantage" (Barlett 1). Because the government classified taxis as a public utility, in an attempt to provide an essential public service at an affordable rate, the taxi marketplace has been severely restricted. The governmental ideals succeeded in providing guaranteed service throughout cities, but they also limited innovation and competition. The taxi cartel[17] limited the development of alternative and improved services, encouraged uniformity in the marketplace, and increased wait times due to under supply. "By restricting supply and creating high barriers to entry, there is an unmet demand for taxi service, [evidenced by] longer wait time for taxis, more non-responses to phone requests, less clean vehicles, poorer quality of service and higher fares" (Barlett 6). Thus the taxi marketplace's cartel-like system financially supports taxi medallion owners, while taxi drivers face high expenses and riders lose time, money, and an improved overall experience.

The closed entry system maintains the goal of protecting both drivers and consumers. Historically, an oversupply of taxis has led to deterioration in service quality, as will be demonstrated through the example of Seattle. As it relates to both drivers and consumers, "proliferation of cabs creates a dysfunctional taxi system that spreads fare revenues too thinly across the industry to support quality drivers, vehicles, and dispatch systems and creates

[16] Quantifiable data on unmet taxi demand will be exhibited at a later point.
[17] Cartels are defined as competing firms that exclude entry of competing firms into the market.

incentives for drivers to shun less profitable trips" (Schaller 501). The goal of protecting driver earnings remains admirable, however previous examples demonstrate how the current system shifts driver earnings to medallion owners. The example of Washington D.C. demonstrates that more drivers per capita do not necessarily diminish driver earnings.

The strictly regulated taxi marketplace served a distinct purpose, including protecting the American consumer from information inefficiencies surrounding fares, licensing, and vehicle standards. As past incidences of taxi deregulation will demonstrate, regulation's form can dramatically shift the market structure. The innovation and development within the industry today will cause rapid changes, growth, and development; with that in mind it is important to understand deregulation's successes and failures. A shift away from the cartel system can greatly benefit both drivers and consumers, but governments must maintain certain regulatory measures to protect both parties.

VII. Examples of Deregulated Environments: Failure and Success

Historical incidences of deregulation contain both successes and failures with regard to pricing controls and entry requirements. Two major cities - Seattle, Washington and the District of Columbia - represent deregulations divergent potential. By examining both situations, one better understands an open taxi marketplace.

A. Seattle

Prior to 1979, Seattle's taxicab marketplace allowed for 1 taxicab medallion for every 2,500 residents, and a fixed system of uniform taxi rates (Zerbe 43). As population increased, new taxi medallions were issued, and valued at about $12,000 (Zerbe 45). Oversight issues within the city council - the governing body that had to approve or deny any rate change - created a regulatory body that desired deregulation. For a number of years, rising gasoline prices

and other rising costs led to frequent requests by taxi firms for to raise rates, at which point the firms would present their economic and financial rationale to the city council. The hassle of such meetings, as well as a council member's commitment to decontrol[18], helped create a deregulatory environment.

In 1979, Seattle began taxi deregulation by "allowing open entry and permitting individual taxi firms to change fares as often as every three months by simply filing new rates" (Zerbe 43). With the intention of increasing taxi supply, creating jobs within the industry, lowering fares, and decreasing the administrative costs associated with regulation, the city believed deregulation provided strong benefits and an overall net gain. Fare deregulation allowed for different firms to have different rates, and led to an especially dramatic decline in rates within the radio dispatch sector relative to the cabstand market (Zerbe 45). Informed consumers and locals are more likely to utilize dispatch services, while vulnerable tourists use cab stands, as will be shown.

By August of 1981, "the number of city-licensed cabs rose by around 21 percent… and the number of taxi companies rose nearly 50 percent" (Zerbe 44). Deregulation clearly followed economic predictions, and increased employment within the industry. Similarly during a period of "rapid general inflation," 1979-1982, "deregulation helped keep fares down and fares fell in real terms" (Zerbe 44). Quantitatively, "the Seattle Consumer Price Index rose by 90 percent between 1970 and 1979 while taxicab rates only rose 38 percent during the same period" (Leisy 5). The final major implication relates to medallion licenses, which fell from a high of $12,000 during the period to a value of about zero - as should be expected in a deregulated

[18] Councilman Randy Revelle had a "personal commitment to decontrol" and was backed by economists from the city's Department of Licensing and Consumer Affairs (Zerbe 44).

environment. The decline in medallion value illustrates that within the medallion system, regulations place taxicab fares above the competitive level.

However, Seattle's historic deregulation was hardly a complete success. The cabstand market - about 40 percent of the Seattle marketplace at the time - witnessed significant problems. At Seattle's King Street railroad station, there was a drastic taxi driver oversupply. Long cab lines, with both major cab fleet drivers and independent drivers, occurred and caused instances of "physical intimidation, of drivers who lied about the availability of bus service, who were slovenly, vulgar, and rude" (Zerbe 46). At the Sea-Tac airport where taxi drivers approached customers one at a time after being called up from a standby lot, taxis "were able to set their fares as high as they wished so long as they could find enough customers to pay," demonstrating how a lack of regulation led to price discrepancies, premium fares, and unprofessional business practices (Zerbe 46). As might be assumed, the high airport prices led to an increase in the supply of taxis, a decrease in the number of fares collected per driver, and therefore failed to promote a drivers' well-being. Less frequent fare opportunities also led to a service refusal for short fares driver's considered not profitable enough.

Service quality deterioration stands out as a major downfall of Seattle's deregulated taxicab marketplace. The severe driver influx led to instances of dirty cabs, inexperienced and unknowledgeable drivers, and an overall decrease in ride quality. Seattle's experience demonstrates the many positives of deregulation, especially lower overall fares and a larger supply of drivers; however, information issues allowed taxicab drivers to inflict additional costs upon consumers. The lack of medallion leases created a general lack of oversight detrimental to quality within the marketplace. Uninformed consumers faced a marketplace where drivers controlled the price without strict posting requirements, which led to an increase in the average

fare from the airport. Consumers might "pay $25 for a ride from the airport to downtown Seattle and only $16 for the return trip" (Zerbe 46). The passenger complaints regarding price gouging and short trip refusal helped lead to a 1984 ordinance "which partially reregulated the taxicab industry. The taxicab ordinance was revised to establish a rate ceiling 10% above the average of rates filed on January 1 of each year" (Leisy 8). In 1990, Seattle again fixed the number of taxicab licenses with a medallion system.

One study claims that Seattle's deregulation failed because the taxicab industry "fails to reflect the perfect competition model described in microeconomic textbooks" (Dempsey 102). The most glaring omission from a competitive market is that "passengers have perfect knowledge of rates so that they won't pay more than the lowest rate," whereas in Seattle passengers could not easily compare driver rates (Leisy 7). However, the benefits seen in Seattle demonstrate the potential advantages a more competitive taxi marketplace might pose for both drivers and consumers; a consumer's ability to more quickly compare prices, relay information, and judge drivers would create a more successful competitive marketplace.

B. Washington D.C.

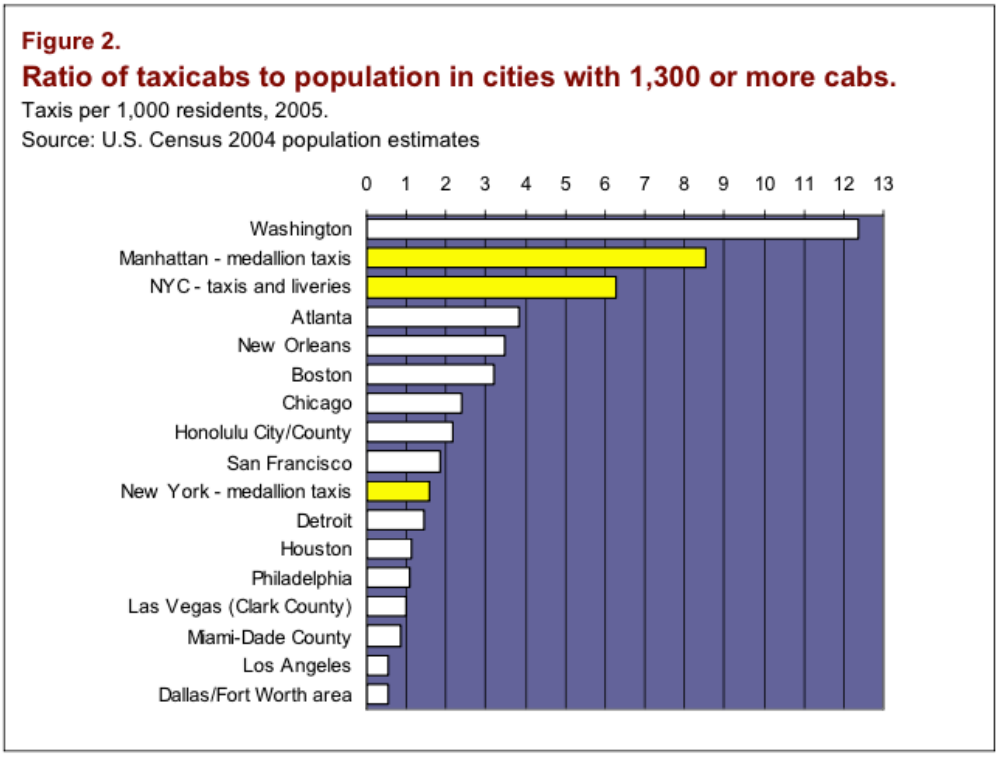
The nation's capital implemented one of the most deregulated taxi marketplaces in the country. With a system of open entry and no previous instances of regulated supply, the supply of taxis is more appropriate for the consumer base, the local population and tourists who use taxis. "Washington D.C. is the one city in North America with open entry in a dense downtown cab stand and street hail market. As a result of open entry, cabs are readily available in downtown Washington and in the Capitol area" (Schaller 498). The free entry system has led to a higher ratio of taxicabs per capita, while fares remain lower than those in other large cities (Pautler 84). Prior to a 2012 rate hike as mandated by the D.C. Taxicab Commission, the city had

the "cheapest rates among 40 major U.S. cities" (Lindeman). Moreover, "even with free entry conditions, Washington, D.C., suffers from an undersupply of taxicabs during rush hours, largely because the fare structure fails to reflect the increased costs of operation during [rush hour]. While the number of taxicabs operating is at a maximum during the middle of the day, passengers search in vain for a cab at 5:00 pm"[19] (Pautler 88-89).

Two charts adequately illustrate open entry's effects on Washington, D.C.'s taxicab marketplace. Table 5 shows that Washington, D.C. has the highest ratio of taxicabs per 1,000 residents. While the higher number of taxicabs per capita would presumably lead to a decreased number of trips for each driver, it also leads to decreased waiting times for consumers. In Washington, D.C., taxi rides per capita were "over four times as high as in San Francisco, a comparable size city where entry is restricted and fares are higher" (Pautler 89).

[19] Washington, D.C. previously used a zone system, "where fares do not vary with time of day" (Pautler 88). It was not until 2012 that D.C. abandoned the zone system in favor of the more common metered system, although there remains no rush hour surcharge (District of Columbia Taxicab Commission).

Table 5: Population to Taxicab Ratio for Select Cities (2005)

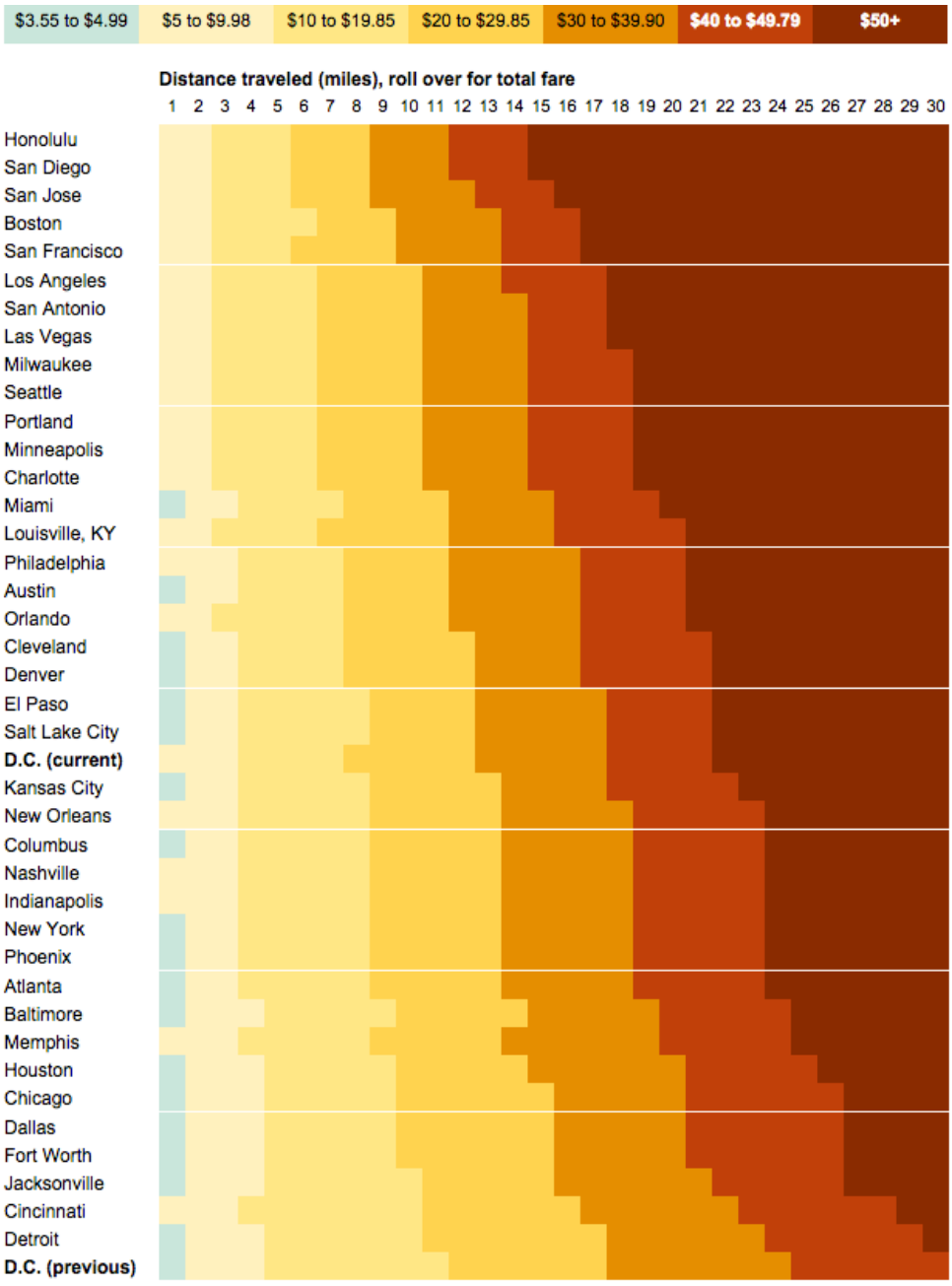


(Schaller Consulting 4)

Washington, D.C. demonstrates that a lack of entry restrictions leads to a higher ratio of taxis per resident. For instance, in 2005 the District of Columbia had over 12 taxicabs per 1,000 residents while regulated entry led "auto oriented cities such as Los Angeles, Dallas, and Houston, [to] have fewer than 1.2 taxis per 1,000 population" (Schaller Consulting 4) The District of Columbia proportionally possesses the largest ratio of taxicabs to population, and the increased supply decreases taxicab fares. "The price of a taxicab ride in the District ranks among the lowest for major U.S. cities," and formerly was the absolute lowest among 40 major United

States city until a 2012 rate increase (Whoriskey, Lindeman). Table 6 displays the previous low rates for Washington, D.C. relative to other American cities.[20]

Table 6: Total Taxi Fare for one Passenger in Major U.S. Cities (2012)



(Lindeman)

[20] It is also logical to assume that the lowest fares in the nation must be increased for inflationary purposes. The table demonstrates the fare increase associated with Washington, D.C.'s 2012 shift to the metered system from the zone pricing system.

Washington, D.C.'s comparison to San Francisco demonstrates that the increased supply, lower fares, and decreased waiting times generated four times as many rides in Washington, D.C., a city with similar characteristics. The increase in rides exhibits increased efficiency, raises driver earnings, and represents an overall increase in benefits for both drivers and consumers. It is probable that an increase in taxicab supply shifts consumers' consumption habits. As taxicabs become more readily available, individuals become more likely to search them out rather than immediately seeking alternative means of transportation.

Despite the highest concentration of cabs and among the lowest fares, cab drivers in the District of Columbia earn the highest mean hourly wage in the nation (see Table 6). Lower lease payments serve as the primary means for the wage difference, as drivers face weekly D.C. taxi leases of $180 (Lindeman). The lack of entry restrictions would serve as the main cause of lower lease payments, due to the increase in supply relative to demand. Therefore, the system of open entry decreases medallion values because it decreases the value of lease payments.

The experience in the District of Columbia illustrates potential improvements for both drivers and consumers in an open entry market. Lower regulated fares, increased rides, and lower lease payments improve the marketplace for both drivers and consumers. It must be pointed out that Washington, D.C. benefits from the dominance of the cruising cab

Table 7: Top Annual Mean Wage of Taxi Drivers and Chauffeurs (May 2014)

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
District of Columbia	380	0.56	0.43	$15.99	$33,250
New York	14,290	1.62	1.23	$15.22	$31,660
Connecticut	3,810	2.32	1.76	$14.51	$30,170
Alaska	410	1.27	0.96	$14.43	$30,010
Nevada	11,660	9.80	7.43	$13.96	$29,030

(Bureau of Labor Statistics)

sector. Because the major airports that service the city are located in Maryland and Virginia, the District of Columbia does not face the cabstand scenario that plagued Seattle's attempt at deregulation.[21]

VIII. Creative Destruction and Ridesourcing

A. Creative Destruction

In *Capitalism, Socialism and Democracy*, Joseph Schumpeter theorizes that capitalism is "by nature a form or method of economic change and not only never is but never can be stationary" (Schumpeter 82). Capitalist modes of production must constantly be evolving and improving in order to remain competitive and appeal to changing consumer desires. In the capitalist world, consumer desires determine the marketplace's winners and losers. Furthermore, "the fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that the capitalist enterprise creates" (Schumpeter 83). Capitalism requires innovation as a means to progress and continual consumer demand. As consumers, the populace illustrates its desires with dollars, and capitalist desires follow the consumer demand. Thus, Creative Destruction is the pinnacle of market capitalism. Organizational development "incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one" (Schumpeter 83).

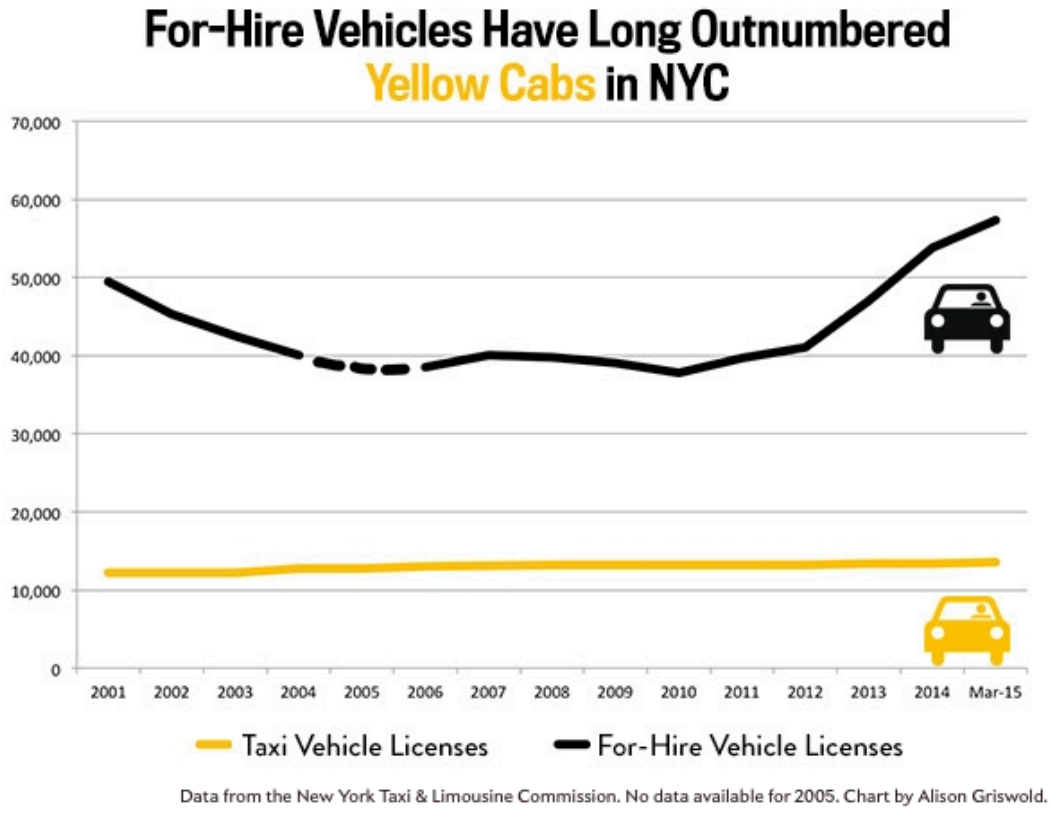
For the past century, taxi marketplaces became closed to new entrants, lacked innovation, yet for the most part enjoyed success. At the same time, For-Hire Vehicles – such as liveries and

[21] Cabs from D.C. are able to service trips to the airports, however taxi drivers cannot legally pick individuals up there.

black cars – greatly increased in number due to the lack of regulations surrounding them. In New York City, the major regulations for liveries and black cars state that "trips must be prearranged, street hailing is not permitted, a wide variety of vehicle types are permitted,[22] and the system is of open entry" (Bloomberg 2). Table 8 displays that in a system of open entry for For-Hire Vehicles, four times as many cars to entered the marketplace prior relative to taxicab medallions. The proliferation of FHVs represents the first step of creative destruction, but it was not until ridesourcing applications created an immediate and more affordable system that the taxicab marketplace became threatened. Ridesourcing's overall appeal to the consumer will further its development throughout the United States and abroad. As will be demonstrated, the ability to infiltrate old markets and expand into new territories will generate ridesourcing's success as a continued alternative to taxicabs in the majority of American cities.

[22] Vehicles require inspection once every two years.

Table 8: New York City's For-Hire Vehicles



(Griswold)

B. Ridesourcing

Ridesourcing represents a new and unique means of linking drivers and riders in the 21st century information age. "Companies such as Lyft, Sidecar, and Uber, have emerged offering smartphone applications to link riders with community drivers" (Rayle 2). As previously stated, these platforms source rides from a driver pool and thus will be referred to as ridesourcing applications. Unlike ridesharing, ridesourcing drivers are not carpooling, where riders and drivers share a single destination (Rayle 2). Potential riders request rides from private drivers via a smartphone application, at which point drivers can accept or deny potential fares.[23] Because

[23] Upon receiving a request for a ride, Uber drivers have 13 seconds to accept or decline.

applications allow consumers to prearrange rides at a moment's notice, ridesourcing began operating within the FHV space.

Smartphone applications allow for an improved information flow between drivers and consumers. Using modern smartphone technology to connect riders and drivers in real time, ridesourcing applications eliminate the need to rely on spotty dispatch service or hail a cab on the street. During the 20th Century, information problems represented one of regulation's largest hurdles. In an unregulated environment, a lack of information placed taxi consumers at a disadvantage relative to taxi drivers; therefore, the marketplace required regulation. Smartphone development has greatly improved the taxi marketplace's efficiency. Consumers can call cabs to any location and coordinate the efficient route through the use of a maps application. Smartphone development greatly improved consumers' ability to reduce the information inefficiencies that represented a previous disadvantage.

Finally, ridesourcing applications continued the information advancement. The ability to request transportation with a single click rather than a phone call improves the consumer experience, decreases consumer wait times, and allows consumers to easily monitor the location of their approaching driver. The increased information greatly decreases one of the taxi marketplace's greatest inefficiencies, consumer waiting time. Following ridesourcing application's rapid consumer adoption, major taxicab companies throughout the country developed their own smartphone applications; however, customer reviews validate ridesourcing application's superiority. As of April 2015, Uber stood as the 23rd most downloaded application within Apple's App Store, with an average rating of 4.1 stars out of 5 from 15,870 reviews. On the other hand, no taxicab application appears in the top 150. Scale is a major reason for this. While Uber and Lyft now operate in most major American cities, taxi

companies remain restricted to individual locales, and require a different application in each city. The scope of Uber's application allows for more downloads and development resources compared to the localized taxicab applications.

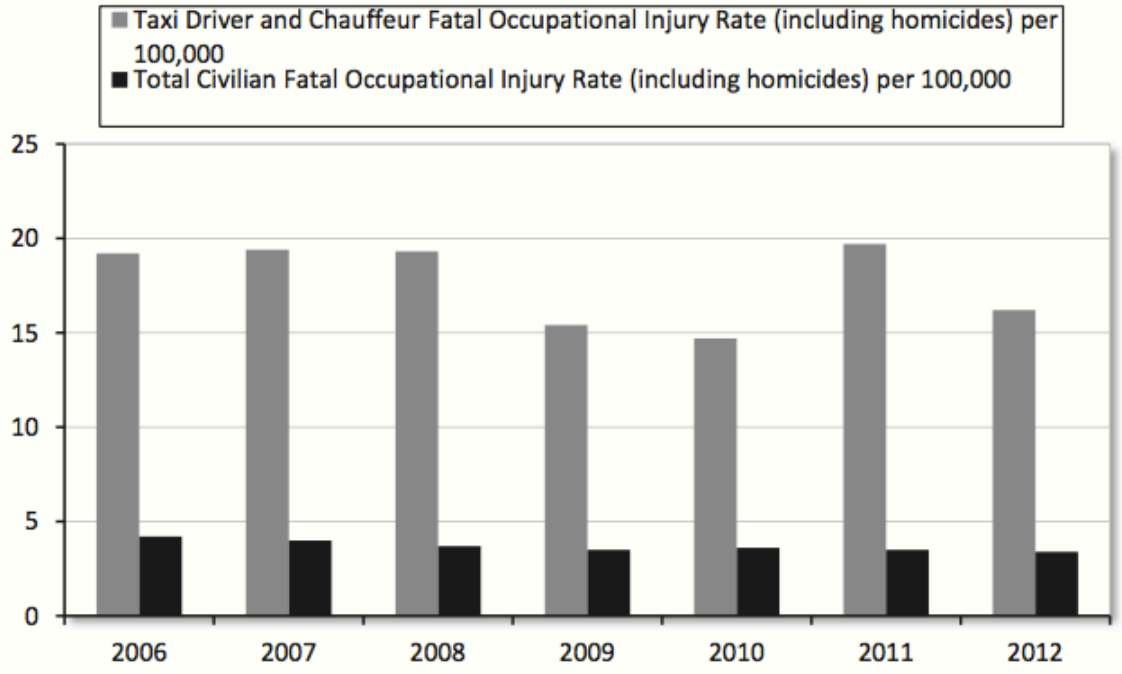
Ridesourcing applications create an improved driver and consumer experience. The requirement that drivers and riders rate each other after each fare presents another opportunity to improve ride quality. The peer to peer rating system is an important factor for future rides, as drivers with a low overall rating can be removed from the ridesourcing platform and riders can be denied future service. For drivers, the rating system further encourages good behavior during each ride, as future rides become dependent on the current consumer experience. Thus, the rating system promotes driver friendliness, quality driving, and a clean vehicle, among others. Likewise, the consumer rating system should improve customer attitudes and discourage unlawful behavior during rides. If either party's rating falls below a certain level, they are automatically flagged and the ridesourcing firm can remove them from the platform.[24] Within the sharing economy, the rating system represents the key to future benefits, especially for drivers. As consumers can easily switch among ridesourcing platforms, customer satisfaction becomes a necessary aspect of the competitive experience.

As mentioned, both drivers and consumers receive the name of the other on both their smartphone and via an email receipt. In the event of a disturbance or criminal offense, such information would certainly prove useful. Additionally, electronic only payment services removes a previously dangerous aspect of a taxicab driver's position, where drivers were targeted because of the large amounts of cash they held on duty. Table 9 displays that from 2006-2012, taxicab drivers were about 5 times more likely to suffer a

[24] If an Uber driver's rating falls below a 4 out of 5 stars, he can be automatically removed from the platform, or be further vetted by the local office.

fatal injury than civilians in other occupations. The lack of cash transactions and lack of anonymity discourage violent crimes from both parties.

Table 9: Taxi Driver and Chauffeur Fatal Occupational Injury Rate vs. Total Fatal Occupational Injury Rate



(Feeney 2015, 3)

Ridesourcing applications' efficiency and the improved customer experience further develop the taxi marketplace. Improved and safer experiences will induce a greater number of future rides and promote the well-being of both drivers and riders. Ridesourcing's economic rationale aims to completely disrupt the traditional taxi marketplace and replace it with a more competitive and innovative experience. Moreover, ridesourcing applications will greatly factor into the shifting automotive industry, as KPMG predicts a shift in consumer preferences away from two car households because "mobility-on-demand companies like Uber and Zipcar now provide compelling alternatives to ownership, especially in urban areas" (Silberg 3). When

compared to the traditional taxi marketplace, ridesharing greatly differs in the most basic market principles - supply, demand, competition, and price.

C. History and Innovation

Ridesourcing's application platform allows for numerous forms of innovation increased product diversification in a new and unique manner. Uber began in March 2009 with its UberBLACK platform, a premium service that linked professional livery drivers with high-end sedans to riders.[25] The service remains within Uber's current platform, and allows consumers with more professional tastes demonstrate their preference through self-selection. While UberBLACK remains more expensive than taxis, it is a premium service. In July 2012, Uber launched its UberX platform, a service that directly competes with local taxi services. UberX is a low cost platform that connects everyday, more basic cars and drivers to local passengers. UberX drivers do not typically hold commercial vehicle licenses, which serves as a major point of contention for the taxicab industry. The various platforms within Uber provide consumers with quality and fares more in line with their preferences, and allows for continued innovation within the ridesourcing sector. Moreover, both UberBLACK and UberX contain options for larger, 6 passenger vehicles, in the form of UberSUV and UberXL respectively. The ability for consumers to choose different sizes, prices, and types of vehicles displays innovation within the taxicab marketplace that appeals to consumer's varying preferences.

In March 2015, Uber launched UberPOOL in San Francisco, a service that connects local riders with similar routes to each other. Thus, UberPOOL serves as a carpooling application, and represents an opportunity to further decrease an individual's fare. For Uber, UberPOOL

[25] Thus, UberBLACK drivers and vehicles are similar or the same as New York City's previously FHVs. Uber's model allows for rides to be arranged at a moments notice, and arrive minutes later. While previous black cars utilized set rates based on time or destination, UberBLACK prices fares using the traditional meter system.

helps with "the idea of providing transportation so inexpensive and reliable, people can sell their cars" (blog.uber.com). Through continued innovation, Uber continues to decrease the price that consumers pay for fares. Additionally, innovation expands the marketplace, and provides rides the taxicab marketplace is unable or unwilling to offer.

Uber's platform also allowed for continued innovation into new and different endeavors. Past promotional services including ice cream trucks, flu shots[26], and clothing donation pick-ups have demonstrated the firm's innovative potential. Providing consumers with products they desire, delivered right to their doorsteps displays innovation beyond the typical ridesourcing fare. Additional partnerships with Spotify music service, Captial One credit cards, and Starwood Hotels display Uber's ability to improve the riding experience, gain additional clients, and develop further innovation.

IX. The Ridesourcing Marketplace

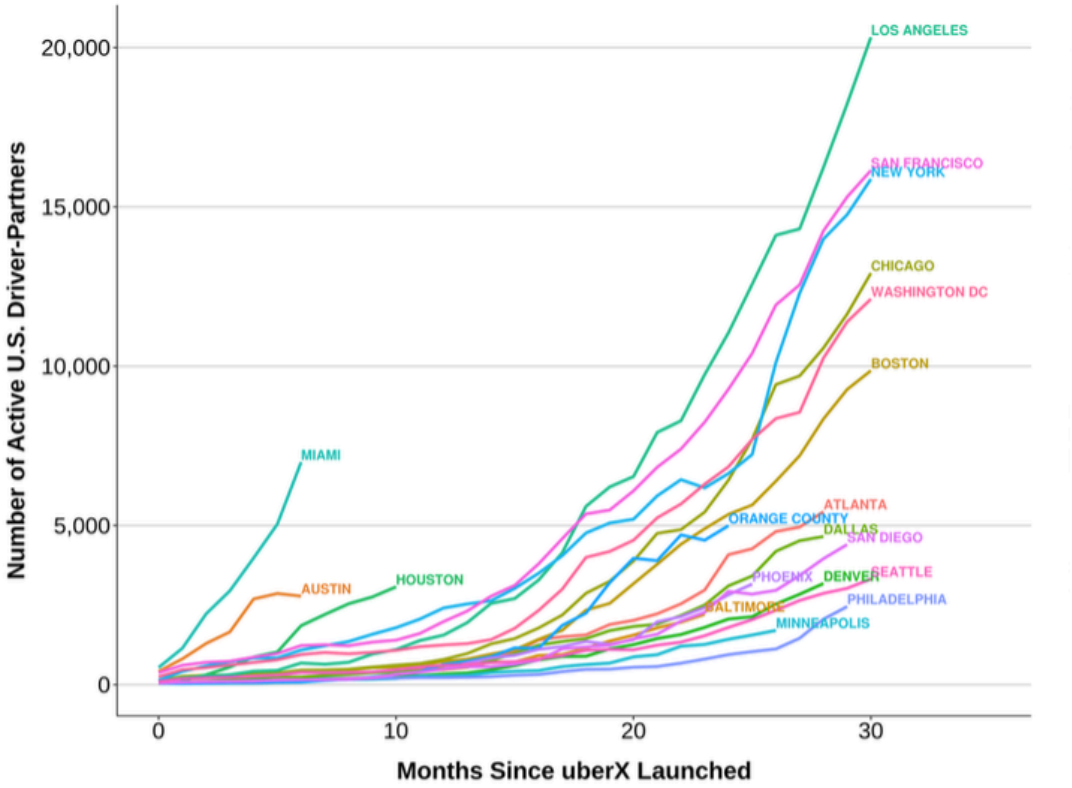
A. Supply

Ridesourcing applications place minimal restrictions on entry into their platform, therefore there is no artificial cap on supply. A driver is able to join the platform with a qualified background check and a usable vehicle, and 160,000 Uber drivers across the country have done so (Hall & Krueger 1). Table 10 exhibits driver supply by location, and demonstrates the growth in the supply of drivers over time. As of March 2015, New York City data demonstrate that Uber vehicles outnumber traditional yellow cabs, 14,088 to 13,587 (Griswold).

[26] The UberHEALTH promotion distributed free flu prevention packs and optional flu shots from a registered nurse for up to 10 people upon request (blog.uber.com)

Other cities including Boston, Chicago, San Francisco, and Miami quickly gained more Uber drivers than available medallions.[27]

Table 10: Active U.S. Uber Drivers Over Time, by City (January 2015)



Note: Figure reports the number of U.S. UberBLACK and uberX driver-partners making at least one trip in the specified month, indexed to the number of months since Uber began in the city or June 2012, whichever came later.

(Hall & Krueger 15)

Despite harsh criticism from ridesourcing critics following high profile incidents between drivers and riders, ridesourcing applications impose strict background check policies in line with those found within the taxicab industry. Given the attention placed on ridesourcing applications, driver misbehavior has garnered extra attention from news sources, and especially from taxicab

[27] Number of medallions in each respective city: 1,825; 6,800; 1,413; and 2,040 (Barlett 3).

groups in favor of the current regulations. However, ridesourcing firms have stricter background check policies than those seen in any major taxi market. Uber's screening

> requires that an applicant driver have none of the following on his or her record over the past seven years: hit and runs, fatal accidents, reckless driving, violent crimes, sexual offenses, gun-related violations, resisting or evading arrest, driving without insurance, or DUI or other drug-related violations or severe infractions. (Feeney 2015, 5)

Uber also utilizes Hirease, an outside firm, to conduct background checks through public records, sex offender registries, the Multi-State Criminal Database, and federal and county checks. In comparison, Chicago taxicab drivers cannot be guilty of a forcible felony[28] within the last five years, or been on parole for a similar offense within the same period (Feeney 2015, 6). Chicago's requirements appear stricter than most other cities, but Uber's and Lyft's screenings prove more comprehensive. That is to say, "Uber's and Lyft's background check requirements are stricter than the screening requirements for many American taxi drivers," as it is the taxi industry's national norm to be a five year window for felonies (Feeney 2015, 6).

Uber and Lyft do not always require vehicle inspections. Prior to hiring a driver, Uber reviews photos of the vehicle before approving them; additionally, all vehicles must be 2004 models or newer (Feeney 2015, 8). Lyft requires a formal car inspection prior to driver approval, and does not allow vehicles older than model year 2000 (Feeney 2015, 8). As it stands, 17 U.S. states require periodic safety inspections for all private vehicles. The constant rating system from consumer feedback represents another manner in which ridesourcing vehicles are regulated. Poor ratings and consumer comments about substandard vehicles encourage drivers to maintain safe and clean vehicles.

[28] A forcible felony is any felony which involves the use or threat of physical force or violence against any individual (Feeney 2015, 13).

The uncapped supply is partially responsible for ridesourcing's superior customer service, as "ridesourcing's short wait times and consistency across time and location represent an important difference between ridesourcing and taxis from the user's perspective" (Rayle 11). Rayle displays that the two major reasons consumers choose ridesourcing over standard taxicabs are ease of payment – 25 percent of individuals – and short wait times – 17 percent of individuals. Table 11 demonstrates the consumer preferences revealed within Rayle's study. The fact that only 3 percent of would be taxi consumers consider cheaper cost to be the reason they chose ridesourcing is surprising. However, in the long run, cost will most likely become a greater factor in consumer decisions.

Table 11: Consumers' Reasons for Choosing Ridesourcing in San Francisco (2014)

	How would you have made this trip, if Lyft/Uber/Sidecar were not available?							
Reasons for choosing ridesourcing	Bus	Rail	Taxi	Walk	Bike	Drive	Get a ride	Other
Ease of payment	10%	14%	25%	8%	0%	14%	0%	13%
Short wait time	12%	16%	17%	14%	0%	11%	0%	16%
Fastest way to get there	24%	22%	9%	16%	25%	6%	0%	8%
Easy to call car	11%	8%	11%	16%	8%	8%	13%	8%
Didn't want to drive after drinking	8%	8%	10%	4%	8%	19%	0%	19%
Don't need to park	9%	10%	7%	10%	8%	25%	13%	8%
Reliable	8%	6%	7%	6%	0%	11%	13%	9%
Comfort/safety	8%	6%	5%	4%	8%	3%	0%	8%
Cost (cheaper than alternatives)	5%	6%	3%	8%	17%	0%	0%	8%
No public transit option	2%	0%	2%	8%	0%	0%	38%	2%
Could not get taxi	1%	0%	0%	2%	8%	3%	25%	0%
Other reason	2%	4%	3%	2%	17%	0%	0%	3%
Total	100%	100%	100%	100%	100 %	100%	100%	100%
N	*139*	*50*	*236*	*49*	*12*	*36*	*8*	*64*

(Rayle 14)

Moreover, unregulated supply and the use of private vehicles allows for drivers who previously would not become taxicab drivers to provide rides. By allowing drivers to freely enter and exit the marketplace, drivers gain more freedom. As a means to additional income, many drivers will operate strictly during high demand periods - to and from work, weekends, bar closings, and around major events. The larger supply of drivers increases matching efficiency.

B. Demand

Ridesourcing applications allow demand to be tracked and understood in a unique manner. The ability to track consumer's locations via smartphone technology can help improve service and create shorter wait times and improved service. For example a San Francisco study found that only 35 percent of residents claimed they waited less than ten minutes after calling a taxi to their home; conversely, 90 percent of ridesourcing respondents said yes to the same question (Rayle 11). Table 12 below demonstrates the complete studies findings.

Some "findings indicate ridesourcing serves a previously unmet demand for convenient, point-to-point urban travel" (Rayle 1). Ridesourcing's convenience and reliability promotes increased demand from the consumer market. Its ease generated additional trips to be taken, thus raising overall demand above that seen within the previous taxicab market. Within Rayle's San Francisco study, 92 percent of ridesharing users stated they would have still made the trip, with only 39 percent stating they would use a taxi. Thus, ridesourcing induced 8 percent of the trips, while also shifting consumers who would not normally take taxis into the marketplace.

Table 12: How would you have made the trip if ridesourcing were not available? (2014)

	All respondents	Do you have a car at home?	
		Yes	No
Taxi	39%	41%	35%
Bus	24%	17%	33%
Rail (BART, streetcar, Caltrain)	9%	7%	10%
Walk	8%	9%	6%
Bike	2%	2%	3%
Drive my own car	6%	10%	0%
Get a ride with friend/family	1%	1%	2%
Other*	11%	12%	10%
Total	100%	100%	100%
N	*302*	*175*	*124*

** "Other" includes several responses indicating the respondent would have used another ridesourcing service, even though they were instructed not to.*

(Rayle 13)

In January 2015, Uber CEO Travis Kalanick stated that the San Francisco taxicab revenues were about $140 million per year. Moreover, in 2014 Uber's San Francisco revenues reached nearly $500 million per year (Blodget). San Francisco represents Uber's first and most developed marketplace in the world, and therefore should be considered a lead market indicator. Ridesourcing will likely enjoy success in cities with similar demographics to San Francisco, such as "a strongly restricted taxi supply, scarce parking, an incomplete public transit system…and a large population of high paid young professionals" (Rayle 17). Similar cities include Boston, Seattle, and Washington, D.C.; however, these other factors might stimulate growth in different markets. Ridesourcing's ability to provide service to previously unmet demand is a key component within the marketplace. San Francisco demonstrates that consumers are more willing to utilize ridesourcing's services than they were those of taxicabs. The San Francisco experience shows that ridesourcing is expanding the marketplace, rather than

simply taking taxicab market share. As adoption increases throughout some of ridesourcing's less developed markets, consumer demand will continue to increase.

Similarly, New York City data demonstrate ridesourcing's ability to expand the marketplace into areas not adequately served by taxicabs. "Internal Uber data shows that 26.3 percent of the company's pick-ups are made in boroughs outside Manhattan, as compared to 6.3 percent of pick-ups for yellow cabs" (Griswold). Thus, ridesourcing possesses the unique ability to better serve previously unmet consumer demand. The increased information available via ridesourcing dynamically links drivers and consumers in an efficient manner, reducing search costs that both parties previously experienced. The experiences in both San Francisco and New York City demonstrate that ridesourcing is not only disrupting the taxicab marketplace, it is expanding it. By meeting previously unmet consumer demand, ridesourcing applications appeal to consumer preferences.

C. Competition

The existence of three major ridesourcing applications promotes a high level of competition among the firms. Uber, Lyft, and Sidecar compete for both riders and drivers as they continue to mature and develop. Uber stands as the market leader, with a valuation of $40 billion[29], a business model aimed at providing professional service, and largest vehicle and market sizes (Mac). Lyft represents a formidable competitor that is focused on friendly service and has been valued at $2.5 billion[30] (Kharpal). Both firms utilize similar pricing models that will be discussed at length. Sidecar differs from Uber and Lyft in that it allows individuals to choose rides based on vehicle, price, and estimated time of arrival, as drivers themselves price

[29] Uber's most recent round of venture funding came in December 2014, when it raised $1.8 billion at a $40 billion valuation (Mac).
[30] Lyft's most recent round of venture funding came in March 2015, when it raised $300 million at a $2.5 billion valuation (Kharpal).

rides. As it relates to riders, innovation, consumer experience, and pricing will determine the success and failures of each company. For consumers, competition further promotes superior service and ride quality.

Competition also greatly benefits drivers, as firms compete for drivers in each city. Compensation, benefits, insurance coverage, and consumer preference will greatly influence a driver's decision when choosing between ridesourcing firms. For example, both Uber and Lyft currently attempt to draw drivers to their application with $1,000 bonuses following a single completed ride (LyftvsUber.com). The competition between the two firms for drivers will continue to create net gains for drivers moving forward. Drivers can work for both Uber and Lyft at the same time in order to increase their chances at fares, decrease their waiting time between fares, and increase earning in a more efficient manner. Currently, Sidecar operates in only five cities, and faces a difficult task of gaining market share from the two ridesourcing leaders.

D. Price

The competition between Uber, Lyft, and Sidecar will place prices at competitive levels. Table 13 exhibits that UberX, the cheapest service, costs less than traditional taxis in almost all major cities.[31] Many consumers will make their decisions based on price, thus the fact that ridesourcing's standard fares are cheaper than those of traditional taxicabs gives them a competitive advantage.

[31] The table does not reflect that Uber decreased the price of UberX by 20% in New York City in order to become cheaper than taxicabs (blog.uber.com)

Table 13: Cost of an UberX and Taxicab Rides in Select Cities (October 2014)

	Uber	Taxi +20% Tip	Taxi / Uber
New York	17.75	18.60	**1.0**
Philadelphia	15.25	17.04	**1.1**
Portland	15.05	18.00	**1.2**
Cleveland	13.00	16.74	**1.3**
Dallas	10.30	13.50	**1.3**
Miami	13.25	17.40	**1.3**
Indianapolis	11.65	15.60	**1.3**
Phoenix	11.00	15.00	**1.4**
Minneapolis	12.15	17.10	**1.4**
Baltimore	10.75	15.66	**1.5**
Columbus	10.20	15.42	**1.5**
Denver	10.35	16.50	**1.6**
Detroit	12.30	19.80	**1.6**
Seattle	11.70	19.20	**1.6**
San Francisco	12.30	20.70	**1.7**
Chicago	9.50	16.80	**1.8**
Boston	11.10	19.92	**1.8**
Atlanta	10.00	18.00	**1.8**
Houston	9.00	16.50	**1.8**
San Diego	11.35	21.36	**1.9**
Los Angeles	9.40	19.62	**2.1**

(Silverstein)

Unlike taxis, there is no physical meter as the smartphone application generates the fare. The existence of multiple firms creates a competitive pricing market unlike the regulated taxi marketplace. Uber and Lyft set fares themselves within each city, and consistently have the same price as the competitor in each location (Lyft vs Uber). The lack of pricing regulation, along with the unregulated supply, creates an environment with fares below that of taxicabs during normal periods within UberX and Lyft.[32] During periods of high consumer demand and low driver supply, peak load pricing - called "prime time" by Lyft and "surge pricing" by Uber - goes into effect, as discussed below.

[32] The more premium service, UberBLACK, is more expensive.

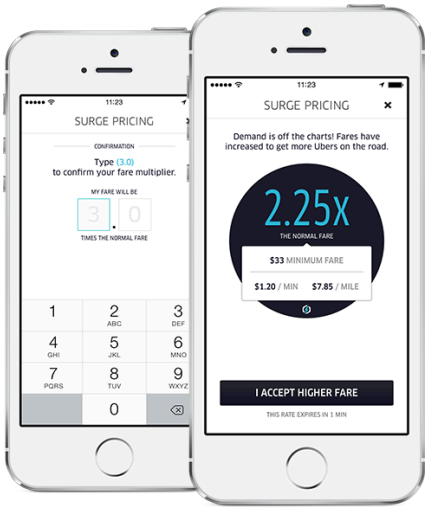
Seattle's attempt at deregulation demonstrated the difficulty of drivers setting their own rates; nonetheless, Sidecar is aiming to promote such a model, and fare oversight completely. The model greatly differs from that of Uber and Lyft, but provides an additional option for consumers. Moreover, the ability to predict trip fares through the ridesourcing firm's website further increases consumer knowledge regarding a trip - as GPS systems easily estimate the time and distance of a potential trip. A customer's ability to know the price allows for her to fairly judge the ride's utility and make decisions accordingly.

E. Surge Pricing

As mentioned, ridesourcing firms raise prices when demand outpaces supply. Surge pricing increases the fare by a given multiple. Lyft's prime time pricing algorithm will increase fares from 25 to 200 percent according to shifts in supply and demand. Likewise, Uber's surge pricing can increase fares anywhere from a 1.2 times multiple to 7 times. Both firms' pricing algorithms automatically go into effect when potential consumers outpace potential drivers. Off-duty drivers receive real time updates regarding surge pricing as means to incentivize them onto the road or into certain neighborhoods. That is, "given that [ridesourcing] drivers are setting their own schedules and respond predictably to financial incentives," peak load pricing serves as a logical means of induce drivers onto the road (Feeney 2014, 3). Similarly, ridesourcing consumers demonstrate their pricing preferences when deciding whether or not to accept a higher fare. Following an individual's request for a ride, he is notified that surge pricing is in effect and asked whether he would like to accept the higher fare, or be notified when surge pricing ends. Table 14 provides useful information for consumers hoping to make informed decisions between Uber surge price and taxicab fares. Moreover, Uber

requires the consumer to type in the multiplier as a second means of confirming the price (Table 14).

Table 14: Uber's Surge Pricing Accept Page



(blog.uber.com)

The real time responses ridesourcing applications provide means pricing resets every two minutes in response to riders and drivers entering and exiting the marketplace; however, when an individual accepts the higher rate both rider and driver are committed.

F. Summary

Information represents the key factor that improves overall efficiency and quality within the ridesourcing marketplace. The ability to immediately connect drivers and riders, while transmitting real time location services to each party creates an improved experience on both ends. Ridesourcing's rise greatly benefits consumers through lower prices, more transparent and shorter wait times, and improved customer service; likewise, driver's benefit from increased demand, increased freedom, and a decrease in extracted surplus.

Growth is a large part of ridesourcing's story. As demand increases throughout the country, driver supply will continue to increase as well. An Uber leak from November 2013

revealed the firm completed around 850,000 rides per week, or 121,000 a day. In December 2014, Uber's Head of Global Safety Phillip Cardenas posted that Uber was completing about 1 million trips each day (blog.uber.com). One year's growth of eight times displays the rapid adoption and expansion of the firm, and hints at its strong potential for continued development.

X. Drivers and Ridesourcing

Earlier it was demonstrated that taxi medallion's gain their value from projected lease payments from drivers; furthermore, lease payments extract the surplus income that is above a taxicab driver's opportunity cost. Rather than creating uniform lease costs to produce profits as in the medallion system, the ridesourcing system connects firm profits to driver profits. Ridesourcing firms charge 20 percent of each fare as compensation for the matching service the application provides. Thus, ridesourcing's pricing policy more closely resembles the system in place prior to the advent of leasing in 1979. This system compensates drivers based on their willingness to take fares.

However, it costs ridesourcing firms very little to add a driver to its platform. The creation of the application and its maintenance represent the major costs incurred by the ridesourcing firms. The addition of new drivers to the platform is the cost of background checks and insurance coverage.

Taxi drivers and ridesourcing drivers have similarities and differences, the most important of which deal with compensation. The main similarity is that both are independent contractors. According to the IRS, independent contractors "are generally considered self-employed" (IRS). As mentioned, the classification significantly decreases costs to the employer because laws do not require employers to contribute to social security, workers' compensation, and unemployment insurance for independent contractors. Since medallion leasing's inception

in 1979, the law has considered taxi drivers as independent contractors. Two new, independent lawsuits from employees against Uber and Lyft aim to reclassify drivers as employees rather than independent contractors. A favorable judgment would further disrupt the marketplaces organizational structure and pricing. The IRS states that for employees, employers "must withhold income taxes, withhold and pay Social Security and Medicare taxes, and pay unemployment tax on wages paid to full-time employees" (IRS). In such a case, ridesourcing firms must also cover expenses such as vehicle maintenance, gasoline, and other miscellaneous operating expenses.[33] A ruling in the driver's favor would dramatically shift driver compensation, greatly increase ridesourcing firm's costs, and also potentially impact taxi drivers' status. The likely outcome of such a scenario would be increasing the 20 percent charge, again decreasing driver wages to their opportunity cost.

The possibility remains that ridesourcing drivers stand somewhere in between employees and independent contractors, and could be treated as a new breed of workers. Because legal distinctions between employees and contractors are fine, it is difficult to classify ridesourcing drivers and the level of control the business exerts on them. "Uber drivers can choose which hours they work and how much they work, both hallmarks of an independent contracting job" (Lowrey). On the other hand, like employees, drivers are monitored on a real time basis, and can be terminated by local managers (Lowrey).

Ridesourcing firms consider themselves intermediaries helping facilitate transactions between riders and drivers, and receive 20 percent of each total fare. Thus, drivers gross 80

[33] In a 2014 court decision, FedEx Ground's independent contractors were deemed employees and awarded damages to cover vehicle, logo, route, and uniform purchases. A major difference between the FedEx and ridesourcing contractors is it was necessary for FedEx Ground employees to work full time or risk being fired. Additionally, while FedEx driver were required to purchase specific van types, Uber drivers can select vehicles of their choosing (Rooney).

percent of each fare. Much like taxi drivers, ridesourcing drivers must cover general operating expenses including gasoline and cleaning fees. The distinct difference occurs with lease payments and vehicle ownership. While taxi drivers lease the medallion and the vehicle for a given period of time, ridesourcing drivers normally utilize their personal vehicles when providing service. Such a distinction provides strong benefits for ridesourcing drivers, reduces the potential for multiple car payments, and improves vehicle quality. If taxi drivers own a vehicle as well as lease a taxi, they in essence face two car payments. By driving his own car, a ridesourcing driver gains the ability to use the vehicle for recreational purposes throughout the day, week, and year. Unlike taxi drivers, ridesourcing drivers may easily transition out of service if necessary. Private vehicle ownership should increase ridesourcing driver's overall welfare. Additionally, owners typically treat possessions with a higher level of respect and car; therefore, one might expect higher quality and cleaner vehicles in the ridesourcing marketplace.

Ridesourcing driver insurance serves as a major point of national media attention. Because UberX and Lyft drivers simply utilize their own vehicle insurance, they themselves are not covered to utilize their vehicles commercially. Therefore, ridesourcing firms cover drivers "from the time a driver accepts a request for a car until that passenger is dropped off" for up to $1 million of primary coverage for death, injury, and damages when the ridesourcing driver is at fault or the other party is not adequately covered (Feeney 2015 9). In comparison, New York City requires driver liability insurance covering $100,000 per individual or $300,000 per incident. Recent regulations from Colorado and California match ridesourcing firm's current insurance policies, and demonstrate positive and necessary regulations of the ridesourcing industry.

Uber's labor market report as completed by Jonathan Hall and Alan Krueger demonstrates the superior well being of what Uber considers its "Driver-Partners." Data suggest Uber drivers greatly differ from traditional taxi drivers. Table 15 shows while 51% of Uber drivers work between 1 and 15 hours a week, 81% of taxi drivers worked more than 35 hours (Hall & Krueger 20). Moreover, Table 16 demonstrates that Uber drivers earn significantly more per hour than taxi drivers across numerous cities when taxi drivers and chauffuers.

Table 15: Distribution of Uber Drivers and Taxi Drivers by Hours Worked (October 2014)

	Uber driver-partners	Taxi Drivers and Chauffeurs (ACS)
1-15 hours/week	51%	4%
16-34	30%	15%
35-49	12%	46%
50+ hours/week	7%	35%

(Hall & Krueger 20)

Table 16: Uber Drivers' Earnings Compared to Taxi Drivers and Chauffeurs' Wages (October 2014)

	Earnings Per Hour or Hourly Wages	
	Uber Driver-Partners (Earnings Per Hour)	OES Taxi Drivers and Chauffeurs (Hourly Wages)
BOS	$19.06	$12.31
CHI	$16.20	$11.87
DC	$17.79	$13.10
LA	$16.98	$11.73
NY	$30.35	$15.17
SF	$23.52	$13.72
BSG Survey Uber Market	$19.04	$12.90

Source: For Uber Driver-Partners: Uber. Data aggregated at the driver-month level. UberX and UberBLACK driver-partner that drove at least one hour a week during the month of October 2014. For OES Taxi Drivers and Chauffeurs: OES from May 2013. OES average for all areas is weighted by total drivers by city. This was the most recently available data.

(Hall & Krueger 23)

Uber drivers' higher average hourly earnings and lower driving times reveal an overall increase in an individual's utility relative to that of a taxicab driver. The flexibility to choose one's own schedule and the increased incentive to drive through higher earnings, promotes a driver's leisure and economic well-being. Furthermore, it is important to realize that ridesourcing drivers are not simply converted taxicab drivers. Rather, they appear to be individuals with different opportunity costs. For instance, "62 percent of Uber driver-partners are either working full-time or part-time on another job," representing a distinct difference in the opportunity costs of ridesourcing drivers and taxicab drivers (Hall & Krueger 17). Moreover, 37 percent of Uber drivers posses a college degree, compared to only 15 percent of taxi drivers (Hall & Krueger 8). Therefore, while it is fair to say that Uber provides increased utility for its drivers relative to taxicab drivers, it is wrong to assume that taxicab drivers shifted to become

ridesourcing drivers. At the moment, it appears that Uber drivers and taxicab driver are not analogous individuals; rather, the typical Uber driver possesses a higher opportunity cost than the typical taxicab driver.

XI. Ridesourcing Regulations and Responses

Ridesourcing firms began operations within a legal gray area. Because ridesourcing firms currently operate outside taxicab regulations, and instead serve as independent vehicles for hire, new regulations are required. Colorado and California became the first states to create regulations designed specifically for ridesourcing firms. By the end of 2014, seventeen American cities and four states successfully passed legislation aimed at legalizing and regulating ridesourcing firms in a manner favorable to the firm's current business model (MacMillan). Unlike taxicab regulation, ridesourcing regulation has largely been moved to the state level. Because ridesourcing firms cover more geographic area than previous taxi fleets, state-wide legislation is a logical solution.

Regulator's attitudes towards ridesourcing firms have shifted greatly during the past year. Strong taxi lobbies and high levels of uncertainty surrounding the business led to numerous cities outlawing ridesourcing firms. Despite these difficulties, ridesourcing firms persevered, and now display a desire to become legally operating firms in cities and states across the country. Ridesourcing's lobbying and consumer preferences represent key reasons for the shift within the regulatory environment.

A. Ridesourcing's bans and expansion

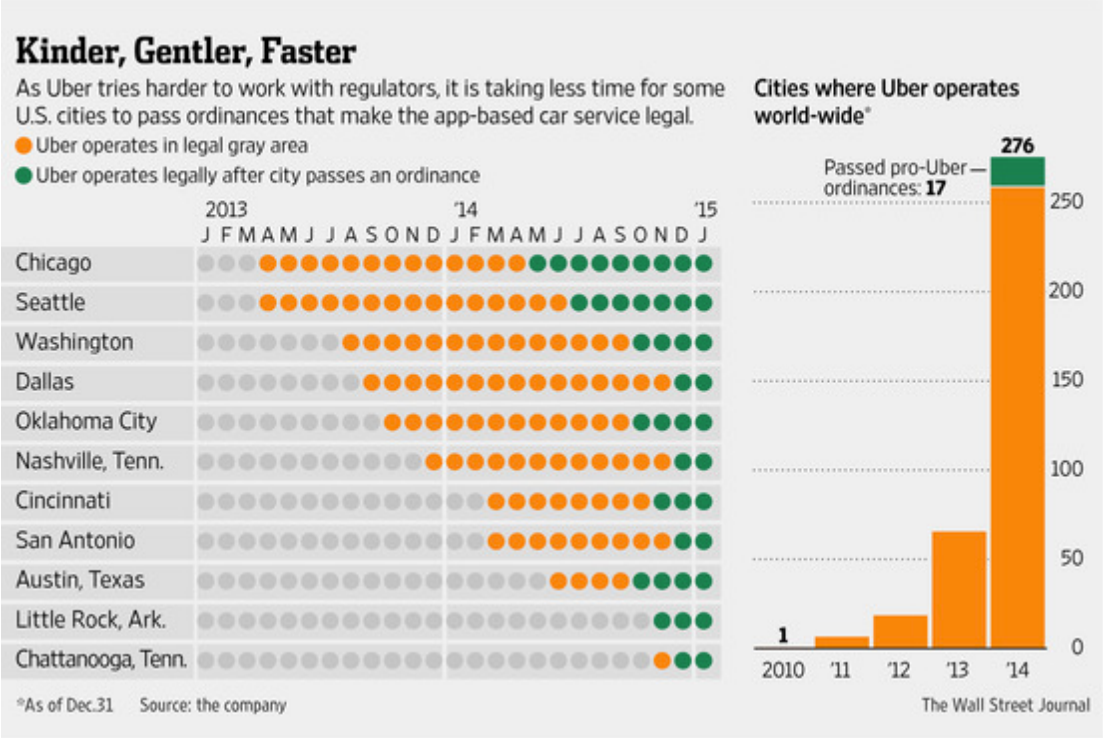
Ridesourcing's new approach to transportation poses a regulatory issue for many cities across the United States.[34] Numerous cities have chosen to ban ridesourcing as they attempt to create regulations for the new firms. Las Vegas, NV; Portland, OR; and Fayetteville, AR have created regulations rather than allow ridesourcing firms to operate within a legal gray area. Ridesourcing's largest ban came from the state of Nevada; in December 2014, "the Nevada Transportation Authority requested and received an injunction against Uber Technologies Inc. for operating as a taxi service" (Street). Also in December 2014, Portland sued Uber, "calling it illegal and asking the Multnomah Country Circuit Court to declare that the service is subject to city taxi laws" (Huet). Fayetteville police officers began ticketing Uber drivers in November 2014, stating the company lacked the proper permits to operate in the city (Lanning). Anti-ridesourcing regulators often state that safety, insurance and licensing rules are necessary for operation within their cities. Furthermore, strong taxi regulations and lobbyists within cities aided in enacting the bans.

Uber first began its launches into new cities by willingly operating within the legal gray area, and lobbying for local legislation as a secondary course of action. In many cities, the ridesourcing firm succeeded, as consumers demonstrated their preference for ridesourcing as a viable alternative to taxicabs. Portland's regulators "did not appreciate the company's shoot-first approach," when they decided to sue the firm (Huet). Despite complaints, Uber operated in Portland by New Years Eve 2014 "with a commitment from officials to create a regulatory framework for Uber within the next three months" (blog.uber.com). In recent launches, Uber

[34] Many European markets have actively opposed ridesourcing services. Most notably, Berlin, Germany banned Uber in court due to passenger safety considerations. Similarly, French police raided Uber's Paris office as part of an investigation into licensing and insurance requirements.

lobbied for legal status prior to launching in new cities, as was the case in Little Rock. By creating a legal operation prior to launching, Uber avoids the headaches of operating without legal status. Table 17 depicts the change in strategy, as legalization moves more in line with launch date. The table also demonstrates the rapid expansion process Uber has undergone. Moreover, by creating a legal framework in Arkansas's state capital, Uber initiated March 2015 legislation to legalize the service throughout the state (Grossman). The chart below demonstrates Uber's rapid expansion, as well as the decreasing time between the launch and legal operation periods.

Table 17: Pace of Regulation and Uber Launches (December 2014)



(Macmillan & Fleisher)

As of April 2015, Las Vegas stands out as the largest American city in which Uber does not operate. Furthermore, Uber now operates in 156 North American cities, many of which are smaller than Las Vegas. Las Vegas' strict taxi laws along with the taxi regulatory body being state governed make it difficult for ridesourcing firms to operate without the risk of fines and formal charges. Push back from taxicab employees and owners is not limited to Las Vegas, as cab drivers and owners across the country sue local cities and ridesourcing firms in an attempt to halt ridesourcing operations.

B. Colorado

California and Colorado took the initiative in formulating state laws to regulate ridesourcing companies. Colorado's law, Senate Bill 14-125, was created with the following response in mind[35]

> Concerning the regulation of transportation network companies, and in connection therewith, requiring transportation network companies to carry liability insurance, conduct background checks on transportation network company drivers, inspect transportation network company vehicles, and obtain a permit from the public utilities commission. (Jahn)

Colorado's bill, signed on June 5, 2014, clearly defines and outlines the various phases seen within a ridesourcing fare[36], and outlines the liability and insurance coverage assumed within each. Colorado's law expressly states its intent of limited regulation. The main aspects of regulation include but are not limited to: insurance coverage reaching the level of one million dollars in the event of an incident at any point during an arranged ride, a requirement for insurance coverage at all points of driving, a requirement that drivers and riders must be matched

[35] As previously mentioned, regulatory bodies across the country refer to our previously defined "ridesourcing" firms as "transportation network companies" or "TNCs."
[36] Points/stages of driving refers to the stages of an Uber driver's business: becoming an available driver, driving to a fare, and driving the consumer.

within the application platform,[37] a requirement for vehicle inspections at least one time per year, and requirements surrounding background checks for applicant drivers (Jahn). As mentioned, ridesourcing firms did not previously require mandatory inspections on all vehicles; this represents the single key regulation enacted within Colorado's law that did not match previous policy. In addition to vehicle inspections, the Colorado statute requires the ridesourcing firms gain operation approval and a permit from the Public Utilities Commission.

C. Policy Recommendations

Nationally, ridesourcing continues to gain legal status at a rapid pace within local and state regulatory environments. Cities and states continue to develop legislation aimed at allowing ridesourcing's operation in a manner deemed safe for the general population. With that in mind, legislation should follow Colorado's example for ridesourcing regulations. Legislation should require driver background checks, insurance coverage for all aspects of a ride, and yearly vehicle inspections. Additionally, states should require drivers to register for commercial[38] licenses, as a means to increasing state revenues, further screening drivers, and developing a database of known ridesourcing drivers. Massachusetts's April 2015 proposed bill would command ridesourcing services obtain a license from the state Department of Public Utilities, where "the law would require companies…to provide the state with a list of its drivers and their addresses" (O'Connor). The bill also requires vehicles use an external marker to better identify themselves to the public. Following the lead of states such as Colorado, California, and Massachusetts, the key issues policy makers should concern themselves with are driver, passenger, and civilian safety, rather than market regulation. Although ridesourcing firms

[37] Drivers cannot accept street hail rides.
[38] Commercial licenses would allow states to maintain a database of ridesourcing drivers, and also create a licensing fee that that could be used for state roads or to pay vehicle inspectors.

developed their own policies, it is important that local legislative bodies develop a legal marketplace within which ridesourcing can operate.

The key aspects of the basic economic model, price and supply, should remain unregulated. As individuals familiarize themselves with the model, consumers will become more educated when making consumption choices. Therefore, it should not be necessary for legislative action to regulate ridesourcing pricing or supply.

XII. Ridesourcing's Outcome

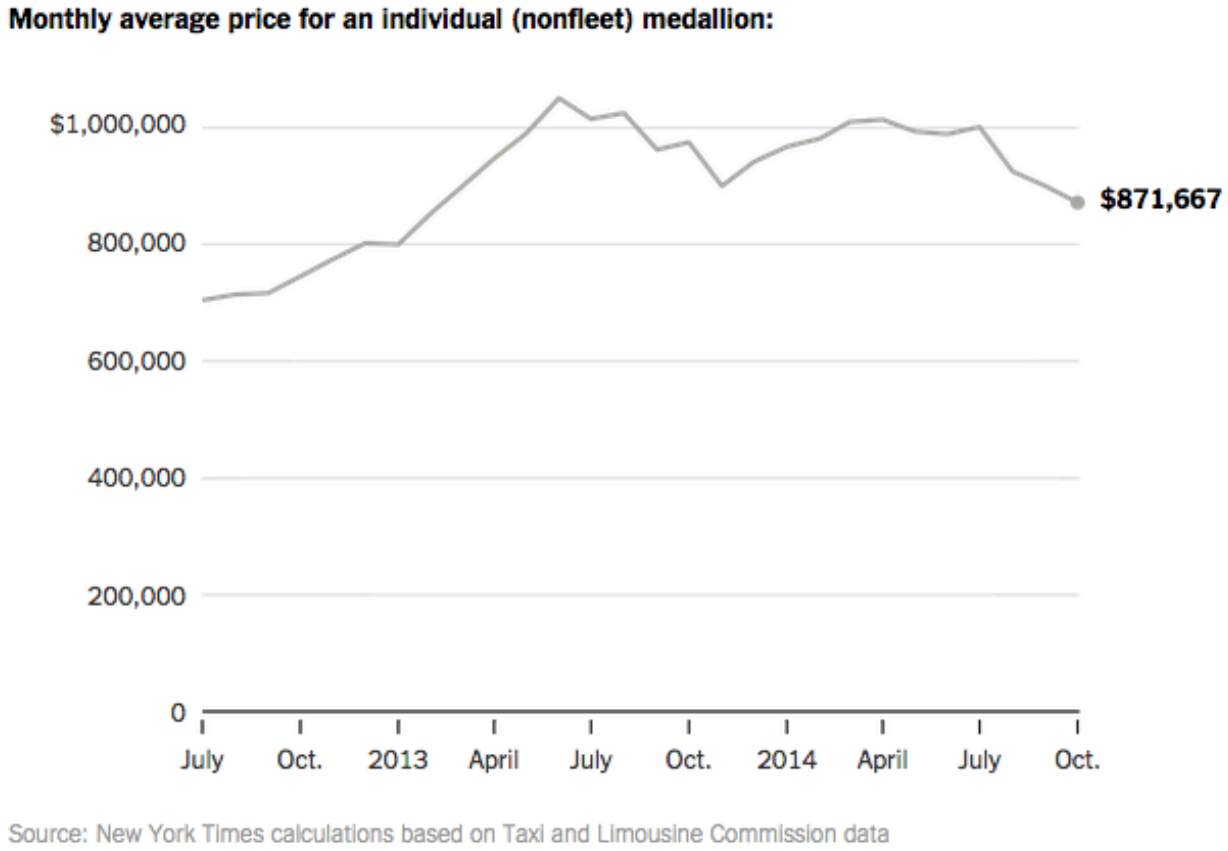
Ridesourcing represents an innovative and disruptive business model within the taxicab marketplace. The development of taxicab applications that attempt to replicate the ridesourcing business model demonstrates its attraction. Ridesourcing will see its greatest disruption in cities that lack the high density necessary for constant street hails. New York stands out as the metropolitan area where street hails will remain a frequent form of transportation. That is not to say ridesourcing applications will not disrupt New York City, only that taxicabs will remain a part of everyday life for the foreseeable future. In every other city across the country, ridesourcing applications pose a significant threat to the current taxicab business model because of density[39]. New York City's, specifically Manhattan's, high density makes it efficient for both riders and drivers to utilize street hails because of potential low waiting times; in every other city, ridesourcing provides significant improvements by decreasing waiting times and increasing

[39] Manhattan has the highest population in the country by far, with Los Angeles in second. "New York's population-weighted density is much higher than L.A.'s in close proximity to city hall, roughly 80,000 people per square mile compared to between 20,000 or 30,000 for L.A." (Florida). Additionally, this fact fails to account for the high number of commuters to Manhattan. Close proximity to city hall indicates the population one square mile from the city hall, frequently the city center. Therefore, this measure compares the densest area of each city and is a logical measure for estimating the area's foot traffic, where street hailing cabs would be most common.

consumer knowledge. The potential for lower consumer fares, higher quality rides, and higher driver earnings will further shift consumption away from the taxicab marketplace and towards ridesourcing applications. Moreover, the ability to quickly and accurately call a ridesourcing driver to one's location will induce rides not previously taken with taxicabs or public transportation. The San Francisco test case demonstrated the platform's ability to increase overall demand.

With regard to taxi medallions, it is logical to assume that they will greatly depreciate to zero across the country. Those in New York City will retain some value as the city maintains a certain number of street-hail taxicabs due to Manhattan's high density. As demonstrated, the value of medallions comes from the ability to attract drivers and lease payments. As ridesourcing applications and taxicabs compete for drivers, there will be fewer people willing to pay high lease fees. Additionally, drivers will move in tandem with consumers; as more consumers adopt ridesourcing as their preferred transportation, the opportunity cost of not driving for a ridesourcing firm becomes too high. In the fall of 2014, New York City saw the value of taxicab medallions at auction fall 17% from $1,320,00 in 2013 to $872,000 (Table 18).

Table 18: Rise and Fall of New York City Taxicab Medallions (Fall 2014)



(Barro 2014)

The decrease in medallion prices displays a belief that future lease payments will decrease. In April 2015, a New York Taxi mogul, Evgeny Freidman, became locked in litigation as Citibank attempted to seize 87 of his taxi medallions (Barro 2015). Freidman apparently cannot find drivers willing to pay the legal maximum lease fees, and therefore is failing to pay off his loans. As Freidman requests a bailout from New York City, one must consider whether or not medallion owners deserve compensation for the decline in their assets. Capitalism and investing rationale argue against Mr. Freidman's call for a bail out. First, medallions were financed with a certain amount of investment risk – a knowledge that their value could rise or fall. Secondly, the process of creative destruction that is capitalism is meant to induce innovation

and development. Financing former technologies goes against capitalist thought, and sets a dangerous precedent for the future. Innovation in the 21st century continues to accelerate, and markets such as energy will also be disrupted. America's capitalistic society is built to promote innovation, not stifle it. As markets are created, others are destroyed. Ridesourcing's rise to prominence was rapid. It is up to consumers to make logical, reasonable, and informed decisions through their actions as a means to demonstrating their informed preferences and influencing regulators; it is up to legislators to respond to preferences, help create a safer and more cooperative marketplace within which innovation can operate. The taxi marketplace's continued expansion through ridesourcing is only the most recent instance of creative destruction, and certainly will not be the last.

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