



HOW MANY APP-BASED JOBS WOULD
BE LOST BY CONVERTING RIDESHARE
AND FOOD DELIVERY DRIVERS FROM
INDEPENDENT CONTRACTORS TO
EMPLOYEES IN THE COMMONWEALTH
OF MASSACHUSETTS?

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EXECUTIVE SUMMARY

Drivers¹ who use transportation network companies (TNC or “rideshare”) and delivery network companies (DNC) are currently treated as independent contractors in Massachusetts. In July 2020, the Commonwealth’s Attorney General sued certain TNCs, alleging that TNC drivers are wrongly classified as independent contractors and should instead be classified as employees. The following study estimates the impact of reclassifying TNC and DNC drivers as employees in the Commonwealth of Massachusetts based on different, reasonable work scheduling, cost increases, and elasticity scenarios.

The report finds that reclassifying drivers in this way would result in a loss of at least 49,270 app-based TNC and DNC jobs in Massachusetts, which is equivalent to losing 58% of these earning opportunities in the state². Additionally, it could result in a loss of up to 73,657 total app-based jobs in Massachusetts, which is equivalent to losing 87% of these earning opportunities.

¹ “Driver” is used to reference all rideshare and delivery workers. A small percentage of workers using delivery services use bicycles, scooters, or other non-automotive transportation methods to complete accepted deliveries and rides.

² Throughout this report, “app-based jobs” refers to the number of independent contractors who drive using each of the four platforms in this study (DoorDash, Instacart, Lyft, and Uber). “App-based jobs” does not refer to full-time equivalent positions. As discussed in greater depth below, app-based jobs do not equate to the number of individual drivers, since drivers can work with multiple apps. If, however, drivers on these platforms were to be reclassified from independent contractors to employees, they would likely only be able to drive with a single platform. As such, each app-based job in this hypothetical future state would likely refer to an individual driver.

STUDY OVERVIEW

- The analysis relies on data provided by four rideshare and delivery network companies (DoorDash, Instacart, Lyft, and Uber³). Drivers on these platforms provided nearly 3 million hours (2,869,019) of service to consumers in Massachusetts in January 2020. In total, these hours represent 85,133 different app-based jobs across the platforms. On average, each app-based job provided 8 hours and 26 minutes of service to consumers per week.
- Switching to a business model in which drivers are classified as employees, rather than independent contractors, will have many implications for drivers and rideshare and delivery network companies, many of which cannot be predicted. The following analysis is built on the assumption that it would be possible for these companies to change their business models in this manner, though it is important to note that the companies have not represented that this change is indeed possible.

This study, nevertheless, assumes that an employment model would be feasible and analyzes the effects on demand for drivers' work in three primary scenarios where drivers are reclassified from independent contractors to employees:

Scenario 1: There is no cost increase to consumers⁴ of rideshare or delivery network services associated with converting drivers from independent contractors to employees, and a formal work⁵ schedule is introduced.⁶

- This report finds that under this scenario, between 49,270 (58%) and 67,202 (79%) of app-based jobs could be lost in Massachusetts if the level of service provided by drivers to consumers stays the same but the work hours are divided among fewer workers (working longer hours).
- Scenario 1 demonstrates that even if the number of service hours provided by drivers to consumers remains constant, there could be a loss of app-based jobs if drivers are required to adhere to a formal work schedule.

³ Company data are provided by DoorDash, Instacart, Lyft, and Uber, for January 2020 and January 2021. Beacon Economics had independent access to this data and full discretion in analyzing the provided data. Beacon Economics worked with each company to establish uniform data definitions. None of the platform companies involved in this report had access to data from other platform companies at any time.

⁴ For the purposes of this report, "consumers" specifically means demand-side platform users (rideshare passengers and/or those ordering from delivery network companies).

⁵ "Formal work schedules" refers to drivers working set hours and times, which would be set by app-based companies and implemented via pre-scheduling of shifts that would be of pre-determined fixed lengths.

⁶ The companies have not represented that there is a scenario in which there would be no increased costs to consumers of ridesharing or delivery network services associated with converting drivers from independent contractors to employees. We include a no cost increase scenario in order to understand the impact of this change in TNC and DNC business model on drivers under even the most generous conditions.

Scenario 2: 50% of the cost increase associated with hiring drivers as employees is absorbed by the rideshare and delivery network companies while 50% is passed on to consumers, and a formal work schedule is introduced.

- This report finds that, depending on the extent of the cost increase and the responsiveness of demand to a price change, anywhere between 50,570 (60%) and 70,429 (83%) of app-based jobs could be lost in Massachusetts under a traditional employment arrangement.
- In the sub-scenario in which the fewest app-based jobs are lost, operating costs increase by 15% per driver-hour, of which 50% is passed on to the consumer. Consumers are assumed to be relatively inelastic (unresponsive) to price changes, and drivers must work 20 hours per week on average.
- In the sub-scenario in which the most app-based jobs are lost, operating costs increase by 30% per driver-hour, of which 50% is passed on to the consumer. The most responsive elasticity measure is applied (meaning consumers are more responsive to changes in price), and drivers must work 40 hours each week.

Scenario 3: The total cost increase associated with converting drivers to employees is passed on to consumers, and a formal work schedule is introduced.

- This report finds that when 100% of a cost increase is passed on to the consumer under a traditional employment arrangement, anywhere from 52,229 (61%) to 73,657 (87%) of app-based jobs could be lost in Massachusetts.
- In the sub-scenario in which the fewest app-based jobs are lost, operating costs increase by 15% per driver-hour (with the least responsive elasticity measure applied) and drivers must work 20 hours per week on average.
- In the sub-scenario in which the most app-based jobs are lost, operating costs increase by 30% per driver-hour (with the most responsive elasticity measure applied) and drivers must work 40 hours each week.
- The precise number of app-based jobs lost would depend on how rideshare and delivery network companies implement formal work arrangements, and how service provided by drivers to consumers is divided across part-time and full-time workers. At present, the direction these platforms would take is unknown.

INTRODUCTION: WORKER CLASSIFICATION, LABOR LAWS, AND MORE

Debates over worker classification and companies' use of informal or contingent work arrangements dates back decades. With the rise of the "app-based economy," these debates have intensified and focused primarily on the use of independent contractors and remuneration of (and benefits afforded to) drivers who use rideshare and delivery network companies.

Currently, drivers who use rideshare and delivery network companies' platforms are classified as independent contractors. Several legislative efforts and legal actions in the United States and elsewhere have sought to change the nature of the relationship between these companies and drivers who use their platforms.

In July 2020, Massachusetts became the second state to pursue legal action against TNC platforms over their classification of drivers. Attorney General Maura Healey filed a lawsuit alleging the platforms are violating the state's wage and labor laws by categorizing Massachusetts drivers as independent contractors rather than employees. This litigation remains pending.

In Massachusetts there are two significant measures under consideration that would protect drivers' status as independent contractors while also providing them with new benefits. The first, House Bill 1234, would introduce "portable benefits" accounts (covering costs related to benefits, including health insurance and paid sick leave, among others) and occupational accident insurance and discrimination protections for drivers, while preserving their status as independent contractors. The second is an initiative petition proposed for the November 2022 ballot that would similarly preserve independent-contractor status while extending a similar suite of benefits to drivers. In addition, this ballot measure would establish an earnings floor, ensuring drivers never earn less than 120% of the Massachusetts minimum wage, plus 26 cents per mile toward vehicle maintenance and gas while performing rides or deliveries. It would require companies to offer company-paid health care stipends to drivers who work at least 15 hours per week on average, cover the costs of occupational accident insurance for drivers injured on the job, and ensure drivers' rights to appeal account deactivation. Drivers would also earn company-paid sick time and be eligible for paid family and medical leave.

There are a number of key distinctions between workers classified as independent contractors and those classified as employees. First, independent contractors are free to set their own work schedule. With respect to rideshare and delivery network companies, drivers work when, where, and for how long they choose, and they are able to simultaneously earn on multiple platforms. If required to remove all independent contractors from their platforms and hire employees to conduct this work, it is unlikely that drivers would retain this level of independence and flexibility.

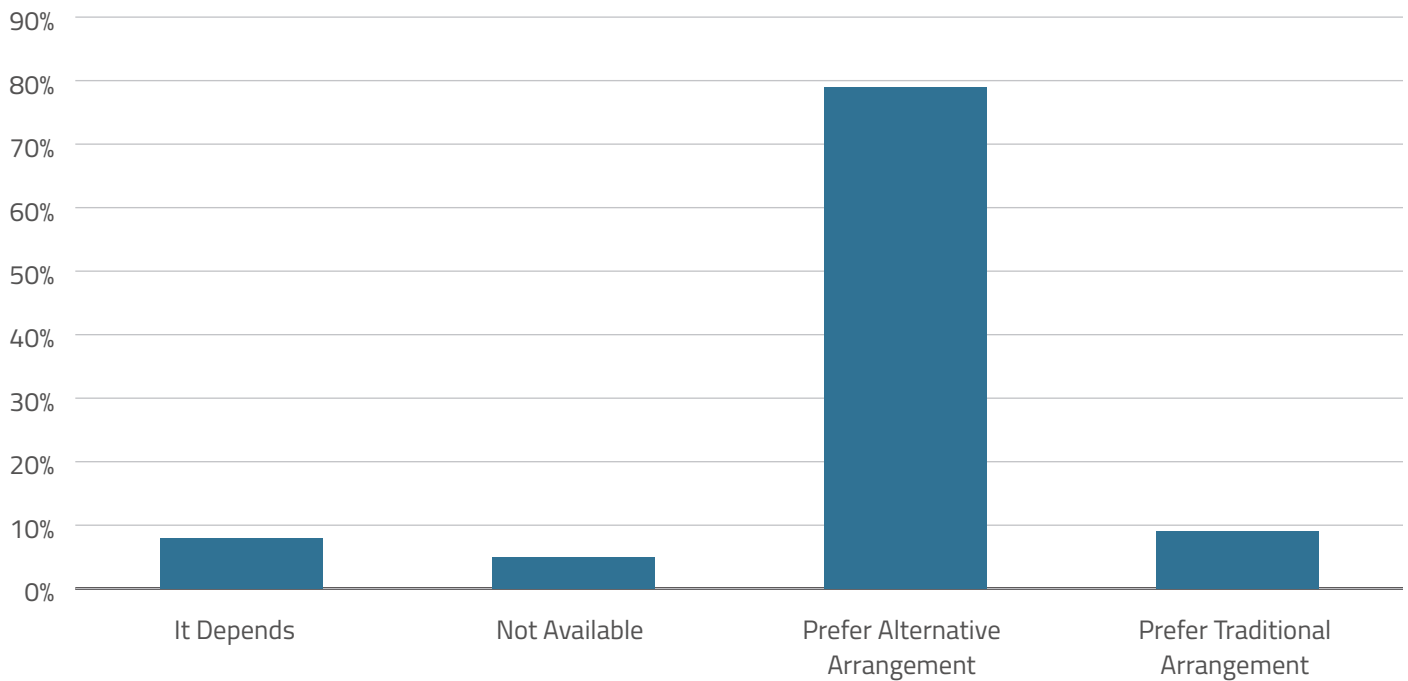
The best available evidence suggests that independent contractors prefer alternative work arrangements over traditional ones. According to the Bureau of Labor Statistics' 2017 Contingent Worker Supplement, 79.1% of independent contractors chose alternative work arrangements while only 8.8% of respondents expressed a preference for a traditional work arrangement. Similarly, a series of app-based driver polls estimate that 70 – 80% of U.S. drivers on TNC and DNC platforms would prefer to remain independent contractors⁷. A recent survey by the Pew Research Center found that 8 out of 10 gig platform workers say they have had positive experiences working with the platforms⁸.

⁷ <https://newjerseyglobe.com/state-government/poll-shows-overwhelming-support-in-n-j-for-app-based-drivers-remaining-as-independent-contractors/>

https://www.coloradopolitics.com/news/poll-finds-colorado-app-based-workers-want-flexibility-some-benefits/article_51156b7e-9334-11eb-acc6-93b0af1ca6b9.html

⁸ <https://www.pewresearch.org/internet/2021/12/08/the-state-of-gig-work-in-2021/>

Figure 1: Independent Contractor Preference for Worker Classification



Source: Contingent Worker Survey 2017, Bureau of Labor Statistics; Analysis By Beacon Economics

While the discourse surrounding app-based work in the rideshare and delivery network space is diverse, this study focuses on one aspect of the debate. The analysis considers some of the effects in Massachusetts of fundamentally changing transportation and delivery network companies' businesses by requiring them to remove all independent contractors from their platforms and hire drivers as employees. Specifically, the study considers how the demand for drivers in Massachusetts could change given different work scheduling, cost increases, and elasticity scenarios.

Notably, the study does not address how the supply of drivers would change, in either direction, if drivers became employees. For example, if, as explained below, rideshare and delivery platforms would have strong economic incentives to require shifts of employee drivers, then drivers who need flexibility might not be able to use rideshare and delivery platforms. Changes in driver supply could fundamentally affect demand. The effects on demand from a potential reduction in driver supply is not addressed in this study.

There are a number of implications for driver welfare and well-being that are also not considered and quantified here. For example, if drivers lose the ability to work when they are able, this could limit their ability to drive on platforms as a means to supplement other sources of income. Likewise, the study does not consider whether switching to employees could increase supply.

DATA AND ANALYSIS

Any change in driver classification would fundamentally alter the relationship between companies and drivers and the nature of rideshare and delivery network services. Such a change would have both legal and economic ramifications. To make sense of some of the potential labor market consequences of any change, it is necessary to outline the parameters and assumptions of this study. The following analysis considers changes in the demand for drivers subject to any cost increases associated with providing rideshare and delivery network services. The following simplified assumptions are made in this analysis:

- Rideshare and delivery network companies are required to change the fundamental nature of their business models and operations in Massachusetts, resulting in drivers being reclassified as employees.
- As a consequence of this reclassification, drivers would be required to work a fixed work schedule for a fixed number of hours in a week, and in a fixed location or market area.
- Costs associated with driver reclassification are greater than or equal to zero.
- Any cost increases due to a change in driver classification will be divided across rideshare and delivery network companies on the one hand, and consumers on the other hand.
- Consumer behavior is responsive to changes in price.
- The number of hours of service provided by drivers to consumers across platforms and the number of drivers providing these services to consumers in Massachusetts in January 2020 is the basis for all calculations in this analysis.⁹

The following analysis relies on data provided by four rideshare and delivery network companies: DoorDash, Instacart, Lyft, and Uber. Data include the total number of hours drivers were engaged in servicing requests for consumers, as well as the number of drivers who provided these services to consumers in Massachusetts in January 2020 (the month prior to the behavioral changes caused by the COVID-19 pandemic). Drivers with these four platforms provided nearly 3 million hours (2,869,019) of service to consumers in Massachusetts. These hours represent 85,133 different app-based jobs, with each app-based job associated with, on average, 8 hours and 26 minutes of service by drivers to consumers per week. App-based jobs do not equate to the number of individual drivers since drivers can work with multiple apps. Rather, the figure of 85,133 refers to the number of unique opportunities available to potential drivers across the platforms.

⁹ Since the analysis refers to the period prior to the COVID-19 pandemic, the profile of the average driver and customer could have changed in ways that cannot be accounted for in this analysis. Data are specific to Massachusetts, and the analysis does not necessarily describe outcomes that could occur in other states.



RESULTS

Scenario 1: There is no cost increase to consumers of rideshare or delivery network services associated with converting drivers from independent contractors to employees, and a formal work schedule is introduced.

For reasons explained below, it is unlikely that requiring rideshare or delivery network services to employ drivers would not impose any additional costs. However, even assuming away those costs, and assuming since there is no increase cost to consumers in this scenario, demand for services would stay the same, and the number of app-based jobs would still fall because companies would have strong incentives to adopt a different work scheduling arrangement for employees. At present, drivers are free to choose whether they want to work in a given week, how many hours they work in that week, when they want to work those hours, and where and on which platform(s) they work those hours. As companies seek to ensure in advance that they have sufficient drivers to service predicted consumer demand, drivers would likely be required to work a fixed schedule on particular days of the week for a fixed number of hours in a week, and in a particular location or market area.¹⁰ In a traditional work arrangement, companies seek a dedicated workforce on which they can rely on a daily and weekly basis. For these reasons, under an employment model, it is likely that drivers would no longer be free to choose their weekly hours.

¹⁰ This would reduce the ability of workers to supplement their income when and as needed, as the platforms are currently used by the majority of drivers.

Work schedules could take a variety of forms, including part-time and full-time. In the following analysis, three hypothetical sub-scenarios are examined. In reality, however, companies could rely on myriad combinations of part-time and full-time employees, offering a wide range of hours per week to drivers. Twenty hours is chosen to represent the average weekly hours that might be worked by a hybrid of full-time and part-time employees. In the second sub-scenario, 29.5 hours per week is selected because employers would be required to provide health insurance for any driver working more than 30 hours per week. As such, companies have an economic incentive to cap drivers' hours below the 30-hour threshold to save costs. In the third sub-scenario, 40 hours per week represents the conventional full-time work model.

- Sub-scenario 1(a): drivers work 20 hours per week on average.
- Sub-scenario 1(b): all drivers are required to work 29.5 hours each week.
- Sub-scenario 1(c): all drivers are required to work 40 hours each week.

In sub-scenario 1(a), the level of service provided in January 2020 would be divided across drivers who work 20 hours per week on average. Since 20 hours per week is more than double the number of hours drivers typically worked in January 2020, this work schedule scenario translates into a loss of nearly 6 in 10 (58%) app-based jobs that were available at that time.

Drivers required = $2,869,019 / 80 = 35,863$

Loss of app-based jobs = $85,133 - 35,863 = 49,270$

In this scenario, the 2,869,019 hours of service provided by drivers to consumers across the platforms in January 2020 would be divided across drivers working 20 hours per week on average. Since 20 hours per week amounts to 80 hours of driver service to consumers in a given month on average, 2,869,019 hours is divided by 80.

This analysis shows that 35,863 app-based jobs would be required if drivers worked for 20 hours per week (on average) to meet the level of demand seen in January 2020. This would represent a loss of around 49,270 (or 58%) app-based jobs in Massachusetts compared to the number of drivers who actually serviced those hours for consumers in January 2020.

Under sub-scenario 1(b), total hours of service provided by drivers to consumers in January 2020 would be divided among drivers who work 29.5 hours per week, or 118 hours per month. When 2,869,019 hours of monthly service by drivers to consumers is divided across 118 hours, 24,314 app-based jobs would be required to service the hours provided by drivers to consumers in January 2020, resulting in a loss of 60,819 app-based jobs in Massachusetts. This constitutes a 71% loss in app-based jobs.

Drivers required = $2,869,019 / 118 = 24,314$

Loss of app-based jobs = $85,133 - 24,314 = 60,819$

In sub-scenario 1(c), rideshare and delivery network companies would only employ full-time drivers. The 2,869,019 hours of monthly service provided by drivers to consumers in January 2020 would be divided by 160¹¹ to determine how many app-based jobs would exist under a full-time work arrangement. In this scenario, 17,931 full-time app-based jobs would be required to service these hours, resulting in a loss of 67,202 app-based jobs, or 79%, compared to January 2020. Again, the level of service provided by drivers to consumers would be the same, but these hours would be divided among fewer workers who work longer hours.

Drivers required = $2,869,019 / 160 = 17,931$

Loss of app-based jobs = $85,133 - 17,931 = 67,202$

In Sum, *Scenario 1* demonstrates that even if the number of hours of service provided by drivers to consumers on these platforms remains constant, there could be a loss of more than half of app-based jobs if drivers are required to work a formal work schedule.

Scenario 2: 50% percent of the cost increase associated with hiring drivers as employees is absorbed by the rideshare and delivery network companies while 50% is passed on to consumers, and a formal work schedule is introduced.

In all likelihood, requiring rideshare and delivery network companies to employ many thousands of drivers would impose a number of costs associated with employment. Those increased costs could take many forms. One significant category of costs would be the additional administrative overhead costs of employment, such as retaining additional staff to manage human resources, accounting, onboarding, recruiting, supervising, compliance, and other functions. Employers incur those costs for each employee regardless of how much the employee works, so rideshare and delivery network companies would have incentives to minimize the number of employee drivers by requiring a fraction of existing drivers to work extended, fixed shifts. Thus requiring rideshare and delivery network companies to employ many thousands of drivers would likely result in a shift model even setting aside the costs of providing employee benefits.

Further costs could emerge from inefficiencies stemming from the change to an employment model. For example, under a traditional employment arrangement, companies would likely decide when and where drivers work. This could create a “peak loading” problem whereby the number of staff required to service periods of high demand in a given day would result in “excess” staffing during quieter periods of the same day. This problem could be especially pronounced in regions, or parts of regions, where there is a lot of variation in demand.

¹¹ Consistent with each driver driving 40 hours per week in a four-week period.

According to an analysis from the Bureau of Labor Statistics (BLS) released in 2021,¹² after factoring in benefits (paid leave, health insurance, social insurance, social security, and unemployment insurance), converting independent contractors to employees would increase costs by an estimated 45% on average. This figure, however, may overstate the cost of switching driver classification status since it includes benefits such as paid leave, bonuses, and supplemental pay, which employers are not required to provide under the law. At the federal level, legally required benefits include health insurance (for full-time workers), social security, Medicare, unemployment insurance, and workers' compensation. According to the BLS's nationwide estimates cited above, the addition of such benefits would equate to a 23% cost increase from hiring drivers as employees. There are also Massachusetts-specific requirements for employers, which include paid family leave (costing as much as 0.75% of earnings) and earned sick pay. Massachusetts also explicitly requires employers to reimburse employees for all work-related travel expenses in a workday, including mileage. There are no known estimates of driver costs in Massachusetts, but a study of Seattle rideshare drivers' estimated driver costs equate to approximately 10% of driver earnings.¹³

The true cost to a company of hiring drivers as employees will depend on a variety of factors, including the type of benefits offered to drivers, whether a driver is employed on a part-time or full-time basis, and the extent to which the value of a driver's compensation remains constant but benefits are substituted for some part of current earnings. Without knowing the costs involved with each of these factors, it is necessary to create a range of potential cost estimates associated with changing driver status. These sub-scenarios represent an average cost increase since costs can vary by driver (part-time employees do not receive health insurance whereas full-time employees do).

Assuming that companies provide only the benefits required under the law, the high-end of the range (a 30% cost increase in sub-scenario 2(a) represents an estimate based on figures regarding the costs of employment from the BLS, as well as estimates for administrative costs such as human resource staff (as discussed above). An assumption is made that a certain amount of the cost of benefits is substituted for a driver's existing earnings. In other words, driver compensation would remain the same but would be a mixture of earnings and benefits. The degree to which benefits replace some part of a driver's earnings could vary, reflected in three sub-scenarios. The lower cost increase scenario, 15%, is quite conservative assuming a significant part of the cost increase associated with driver reclassification can be substituted for driver earnings. In the highest cost increase scenario, the majority of the cost increase is not substituted for driver earnings.

- Sub-scenario 2(a) assumes per-driver hour cost increases of 30%.
- Sub-scenario 2(b) assumes per-driver hour cost increases of 20%.
- Sub-scenario 2(c) assumes per-driver hour cost increases of 15%.

¹² <https://www.bls.gov/news.release/pdf/ecec.pdf>

¹³ https://ecommons.cornell.edu/bitstream/handle/1813/74305/Cornell_Seattle_Uber_Lyft_Project_Report_---Final_Version_-_JDD_accessibility_edits_-_7_14_2020.pdf?sequence=1&isAllowed=y

In **Scenario 2**, a platform does not absorb all costs associated with hiring drivers as employees¹⁴. Some part of this cost is passed on to consumers in the form of higher prices. One of the core assumptions on which this analysis rests is that consumers are responsive to changes in price. In other words, if the cost of service decreases, consumers will demand more rides and more deliveries; and if prices increase, they will demand fewer. In economics, a change in demand in response to a change in price is referred to as “elasticity.” An elasticity estimate is a figure that measures demand sensitivity to price changes. Elastic demand means consumers are responsive to price changes, whereas inelastic demand means consumers are not responsive to price changes.

In reality, there are a number of factors affecting consumer response to price changes on these platforms. In the case of rideshare, these factors include the length of a trip, the number of transportation alternatives in a given location, the time of day, and environmental factors such as the weather. A number of studies have sought to measure the elasticity of consumer demand to price changes on rideshare platforms. Unfortunately, there is little analysis measuring changes in demand in response to price changes for delivery network services. In the studies focused on rideshare, elasticity estimates range from -0.55 to -1.2, but estimates are specific to particular platforms, places, time of day that rides are taken, period of study, and the nature of a ride (Cohen et al., 2016¹⁵; Parrot and Reich, 2018¹⁶). An elasticity of -0.55 means a 1% price increase is associated with a 0.55% decrease in demand. Since there is not a universally applied or accepted measure of price elasticity on rideshare or delivery network platforms, this study relies on the lowest and highest estimates across these rideshare studies (-0.55 and -1.2) to provide upper and lower-bound estimates of consumer responses to price changes. Table 1 details how the number of app-based jobs available on platforms could change according to different permutations of cost increases, work schedules, and elasticity measures based on the level of service provided by drivers to consumers in January 2020. The reported loss of 50,750 app-based jobs was calculated in the following way with the following equations:

Cost increase = 15% x 0.5 = 7.5%

- The cost increase of 15% is multiplied by 50% (or 0.5) since only half of the cost increase is passed on to the consumer. This yields a cost increase of 7.5% for consumers under this scenario.

Change in demand for service = 7.5% x -0.55 = -4.125%

- The cost increase of 7.5% is multiplied by the elasticity measure of -0.55 to determine how demand would change in response to a 7.5% price increase. As prices increase by 7.5%, demand will decrease by 4.125%.

Change in demand for service hours = 2,869,019 x 0.04125 = 118,347

- In January 2020, 2,869,019 service hours were provided by drivers to consumers in Massachusetts across the platforms. A 4.125% reduction in service demand is equal to 4.125% (or 0.04125) multiplied by 2,869,019, meaning that 118,347 fewer hours of service would be demanded given a 7.5% increase in the price.

¹⁴ Note that it is possible that platforms cover the cost of benefits by reducing a driver's total compensation. In other words, the value of benefits and salaries are reduced to a level below a driver's current earnings on platforms. This would have implications for driver supply. If total compensation is lowered, fewer drivers might choose to drive on platforms. Note that this analysis does not consider driver supply.

¹⁵ https://www.nber.org/system/files/working_papers/w22627/w22627.pdf

¹⁶ <https://static1.squarespace.com/static/53ee4f0be4b015b9c3690d84/t/5b3a3aaa0e2e72ca74079142/1530542764109/Parrott-Reich+NYC+App+Drivers+TLC+Jul+2018jul1.pdf>

$$\text{Drivers required} = (2,869,019 - 118,347) / 80 = 34,383$$

- The number of drivers required to service the new level of demand is equal to the new level of service demanded, given a 5% cost increase (the January 2020 level of service provided by drivers to consumers less the drop in service demanded given the price increase) divided by 80 (based on a 20-hour per week work schedule for drivers on average).

$$\text{Loss of app-based jobs} = 85,133 - 34,383 = 50,750$$

- The difference between the number of drivers required to provide the January 2020 level of service provided by drivers to consumers and the number of drivers required to provide the new level of service given a 7.5% cost increase to consumers, which is serviced by drivers working 20 hours per week on average. This would yield a loss of 50,750 app-based jobs in Massachusetts, a 60% drop.

This calculation is repeated for other possible cost increases, work schedule, and elasticity measures to generate each estimate in Table 1.

Table 1: App-based jobs lost by work scheduling, cost increases, and elasticity measures when 50% of all costs are passed on to the consumer.

Cost Increase Scenarios		15%		20%		30%	
Length of Weekly Shifts	Elasticity Ranges	-0.55	-1.2	-0.55	-1.2	-0.55	-1.2
	20	-50,750	-52,498	-51,243	-53,574	-52,229	-55,726
	29.5	-61,822	-63,008	-62,157	-63,737	-62,825	-65,196
	40	-67,941	-68,815	-68,188	-69,353	-68,681	-70,429

When only 50% of the cost increase is passed on to the rider, between 50,750 (60%) and 70,429 (83%) of app-based jobs could be lost in Massachusetts under a formal work arrangement. In the scenario where the fewest app-based jobs are lost, costs increased by 15%, the least responsive elasticity measure is applied, and drivers work an average of 20 hours each week on average. In the scenario where the most app-based jobs are lost, costs increased by 30%, the most responsive elasticity measure is applied, and drivers are required to work 40 hours each week.

Scenario 3: The total cost increase associated with converting drivers to employees is passed on to consumers, and a formal work schedule is introduced.

The only difference between **Scenario 2** and **Scenario 3** is that 100% of all cost increases are passed on to the consumer. Elasticity ranges and cost scenarios are provided in Table 2.

Table 2: App-based jobs lost by work scheduling, cost increases, and elasticity measures when 100% of all costs are passed on to the consumer.

Cost Increase Scenarios		15%		20%		30%	
Length of Weekly Shifts	Elasticity Ranges	-0.55	-1.2	-0.55	-1.2	-0.55	-1.2
	20	-52,229	-55,726	-53,215	-57,877	-55,188	-62,181
	29.5	-62,825	-65,196	-63,494	-66,655	-64,831	-69,572
	40	-68,681	-70,429	-69,174	-71,505	-70,160	-73,657

When 100% of the cost increase is passed on to the consumer, between 52,229 (61%) and 73,657 (87%) of app-based jobs could be lost in Massachusetts under a formal work arrangement. In the scenario where the fewest app-based jobs are lost, costs increased by 15%, the least responsive elasticity measure is applied, and drivers are required to work 20 hours each week on average. In the scenario where the most app-based jobs are lost, costs increased by 30%, the most responsive elasticity measure is applied, and drivers are required to work 40 hours each week.



CONCLUSION

The aim of this study is to understand whether and how the number of app-based jobs available for rideshare and delivery network drivers in Massachusetts could change under a formal employment arrangement. As discussed above, under an employment model, drivers would likely be required to work set hours each week and there would be a cost associated with hiring drivers as employees. Furthermore, these costs would, in all probability, translate to higher costs for consumers. As such, fewer hours of service would be demanded by consumers and these hours would be divided among fewer drivers working longer hours.

While this analysis makes clear the substantial loss of app-based jobs that could occur if DNCs and TNCs are required to remove all independent contractors from their platforms and hire employees to perform these functions, it does not consider the heterogeneous effect of these changes across groups of workers. Yet studies have demonstrated that the preponderance of those who drive with TNCs and DNCs do so part-time, for supplemental income, and/or around other responsibilities such as caregiving or educational pursuits. Importantly, the move away from an independent contractor model for app-based driving is likely to disproportionately hurt workers who are unable to work set schedules, removing an important earnings opportunity for many.

How these changes are valued will depend on policy objectives. Such an outcome would clearly have a transformative impact since drivers would likely no longer be permitted to work when and where they are able, and there would be fewer opportunities to drive using these platforms. A required change in driver status will likely have profound effects on how drivers currently use services and the number of app-based jobs available to drivers.

