Assessing Ride Sharing Use at Boston College

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I. Abstract

Riding sharing apps have been in existence now for over ten years. Although they have proven to be convenient and cheaper than a typical taxi, there have been serious concerns surrounding their environmental impact on the planet. As greenhouse gas emissions continue to rise each year, transportation is at the forefront of the conversation as to how to become more eco-friendly and environmentally conscious. This report provides a detailed study and analysis of the habits and perceptions of Boston College students when it comes to ride sharing apps and their environmental awareness surrounding transportation. By gathering over one hundred responses to a survey, the aim of this data collection was to gather information on two distinct questions, “What is the reason for students’ desire to transport via vehicle sharing apps over public transportation?” and “How are carbon emissions on campus impacted through the use of vehicle sharing apps?” The research found that there is a need for a “green” pick up locations on campus so that Uber and Lyft drivers do not have to idle for too long with

II. Introduction

This study's aim was to build an understanding surrounding the high increase in ride sharing app use on Boston College's campus. Since Uber and Lyfts' creation in the past decade, there have been questions surrounding their impact on the environment. The problem that catalyzed the creation of this project was assessing the motives behind Boston College students' transportation habits. Boston College has shuttle busses that travel around main campus, Newton

transportation, there are no statistics kept by governments on mobility services (Santos 4). Santos breaks different car sharing services into separate models. Model 3 is the typical Lyft or Uber model while Model 4 is the carpooling model such as Lyft Line or Uber Pool. She states that a 100% replacement of all bus and car trips by these new modes would result in CO2 emissions being reduced by 62% (Santos 5). This is a substantial reduction but it would only happen if everyone was using these carpooling modes, which is not always the case.

One article that was found to be especially influential was researched and reported by the Metropolitan Area Planning Council. The report was titled, “Fare Choices: A Survey of Ride-Hailing Passengers in Metro Boston”, and highlights the mindset in the shifting transportation industry. They found from their surveys that 42% of passengers would have used public transportation if a ride-hailing app was not available. Their survey also found that about 12% of users would have walked or ridden a bike if the service was not available to them (Gehrke et al, 2018, pg. 14). This amounts to 59% of passengers who would normally find a more sustainable way to travel; however, due to convenience and ease they are helping add additional cars to the road by promoting these app businesses. This adds to Murtaza Heider’s research who concluded that public transportation such as a bus will continue to operate whether there is one person or a full bus. Thus, if more people opt for a ride-hailing app as their mode of transportation there will still be the same amount of busses operating--creating an uneven distribution and heightening the level of emissions being emitted (Haider 14).

Interesting trends emerged from the survey that Metropolitan Area Planning Council in Boston created. Their survey found that 82% of the total surveyors were born after the year 1983. (Gehrke et al, pg. 6). This helps back up the claim in this paper that college students are one of the largest cohorts flocking to Uber and Lyft. Thus, looking at Boston College students’ habits will help illuminate trends that have emerged among millenials.

One of the aims of this research was to assess the environmental consciousness of Boston College students and if their transportation tendencies have changed due to the higher awareness of fossil fuel emissions. Joireman and his researchers published an article titled, “Who Cares about the Environmental Impact of Cars?: Those with an Eye toward the Future”. Their research found that individuals will act eco-friendly based on the extent that those actions impinge on their own personal values that they uphold such as relationships, jobs, and their home (Joireman et al. pg. 7). For example, a person may be concerned that the emissions released from a vehicle

will cause higher rates of pollution and thus their scenery will not be as attractive as before. This

III. Methods

Before beginning the research for this study, approval needed to be gained from the Institutional Review Board (IRB), since the research required human subjects to be involved. While this approval was in process, the head of Boston College parking and transportation was contacted in order to gain more insight into transportation habits and statistics on campus. His insight, as well as the advice of Professor Juliet Schor, a professor that researches consumption

IV. Results

This section provides insight into the data that was collected from the 101 Boston College students that completed our survey. Figure 1 shows that when students were asked the question, “How has your use of ride share changed since coming to Boston College?” there were 69% of people that felt their use of Uber or Lyft increased “a lot more”. Another 24% of respondents felt that there use of these apps had increased a “moderate amount more”. Another 8% felt that their use was “about the same”. 0% of the participants felt that their ride sharing habits had decreased in any capacity since coming to Boston College.

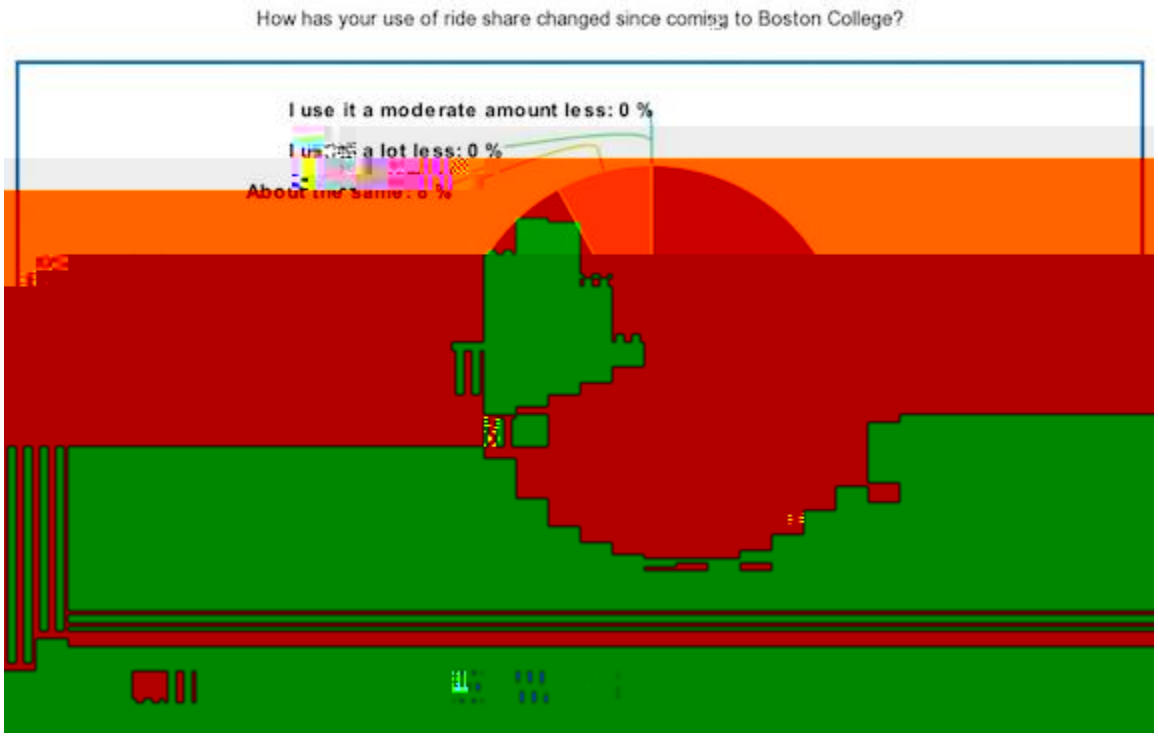

Figure 1: How ride sharing has shifted for the 101 survey participants since arriving at Boston College

Table 1 highlights a comparison between two questions, “How many times did you use one of these ride sharing apps in the past week?” and “Do you have a car on campus (Yes/No)?”. This table shows that those with a car on campus use Uber or Lyft a lot less than those without a car. Out of the people that used ride sharing apps 1-2 times in the past week, 36 people (83.72%) did not have a car compared to the 7 people (16.28%) who do have a car on campus.

Figure 2 shows the results to the question, “Have you ever used Uber or Lyft to get from one part of campus to another?”. 61.76% of respondents answered that they do use an app service in order

Figure 7 shows the responses to the question, “How often do you take into consideration a company’s environmental impact when using or purchasing their product?”. Almost a third of participants (32.35%) said that they “never” take into account a company’s environmental

Table 2 shows the effect that weather has on the decision to use Uber or Lyft. 79.41% of participants stated that weather does affect their decision to use these apps. Only 20.59% of people said that it does not impact their decision

Figure 9 shows a comparison between average income of the participants' family and the option

that have family incomes of less than $50,000 that would choose to pay extra for an electric vehicle.

Figure 10 shows the likelihood of participants to use Uber or Lyft over public transportation. 34 participants said that they were “extremely likely” to use a vehicle sharing app over public transportation. 44 respondents said that they were “somewhat likely” to use a Uber or Lyft over public transportation. 23 participants said that they were either “neither likely nor unlikely” or “somewhat unlikely” to choose vehicle sharing apps over public transportation. Only 1

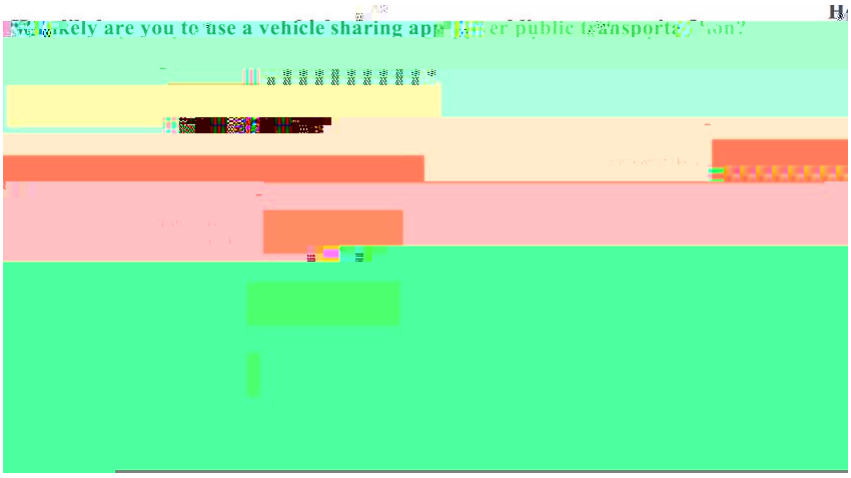

Figure 10: How likely are you to use a vehicle sharing app over public transportation?

V. Discussion

Factors That Lead to More Ride Sharing

Based off of our research we found that there has been a dramatic rise in using app services such as Lyft and Uber over other transportation methods that are friendlier for the environment. One reason for this is due to convenience. As is depicted in Figure 10, 78 participants are either extremely likely or somewhat likely to choose a ride sharing app over using public transportation. When asked why they would choose ridesharing over public transportation, survey participants most commonly responded with “convenience” and

surveyed students said their average shared ride was 10-20 minutes and 18.63% of respondents stated that their average Uber or Lyft ride is 5-10 minutes (Figure 3). The majority of students likely take Uber or Lyft 10-20 minute distances because it would take a decent amount of time to

risks such as aggravating asthma and allergies as well as heightening chances of getting respiratory and cardiovascular diseases (NC DEQ). Ride sharing increases the number of

they would definitely not pay for that option (Figure 9). In the family income bracket from $50,000-$99,999, almost 37% of respondents said they would definitely not pay for this option (Figure 9). The results from the highest income bracket are the most significant given that we had 66 respondents in this bracket compared to only 5 respondents in the lowest bracket. These results show that students may be aware of certain environmental issues but may not have the means to act on them.

The survey results also show, however, that students are making certain decisions without necessarily knowing how they impact the environment. The fact that 48 of our participants believe ride sharing is “probably” good for the environment and 12 participants think it “definitely” is represents the idea that there is imperfect information when consuming goods or services in the economy (Figure 8). These responses prove that the survey respondents are not aware of the potential harms of the ride sharing model. If there was more information easily accessible to students, they could make more informed decisions and know how these decisions affect their health and the environment. For example, more students may take a LyftLine or an UberPool over a regular Lyft or Uber if they knew the environmental benefits. As mentioned in the introduction, Georgina Santos highlights the emissions reductions that would be achieved if all bus and car trips were replaced by the carpool model of LyftLine and UberPool. Our survey found that students’ responses were pretty evenly distributed when asked how likely they were to choose one of these services instead of a regular Lyft or Uber (Figure 5). Only 18 respondents said they were extremely unlikely to select LyftLine or UberPool. It would be interesting to see how these decisions might be changed by the exposure to research like Santos’.

Limitations and Concluding Thoughts

This research process did pose some limitations, however, these limitations opened doors for different kinds of research. One of the main limitations was surveying the BC student population and not a larger population. For the purposes of our research it was necessary to conduct a survey involving BC students but this sample size is likely to have some bias attached to it. For example, almost 65% of our participants reported having an approximate family income of over $100,000. This means they have more access to different forms of transportation solely due to socioeconomic status. Additionally, every survey respondent is actively pursuing higher education which also contributes to biased results. The second biggest limitation was limited

access to quantitative data. We reached out to both Lyft and Uber in an attempt to obtain data on the number of pickups and drop offs on or around campus. They unfortunately could not provide this data limiting the amount of quantitative data we could work with. That being said, this limitation shifted our focus to more sociological factors. We decided to create a survey with several questions aimed at understanding how and why students make certain decisions in terms of transportation habits and the environment. The results we received revealed less about the amount of emissions and more about the behaviors of students on campus. There are limitations with every research project so we learned to acknowledge them and then work with them.

Some of the results we received were predicted while some surprised us. We learned how much our surveyed population values time and convenience and is willing to spend the extra money to have these two things. The results also proved our predictions that the ride share market is growing and students are taking advantage of apps like Uber and Lyft. The convenience and reliability of this form of transportation has made Uber and Lyft extremely successful and attractive to many. A review of the literature in conjunction with our results proved that the ride sharing model may be harmful for the environment as well as human health. The results also showed that many people believe that ride sharing is good for the environment meaning this knowledge is not easily accessible to them. We were able to better understand the decision making process of our survey participants through the responses we received. We were surprised by responses that revealed many students do not prioritize the environment when making decisions. However, with this information we have learned how BC students can be more informed consumers and make better decisions not only for themselves but for the environment as well.

VI. Recommendations

Designated “

After learning about the harms of vehicle idling and how much of it results from the use of ride sharing apps, we believe a designated pick up location would benefit the student body of Boston College. To limit the number of idling vehicles in various locations nearby dorms, BC could create a designated pick up spot for ridesharing vehicles that is not directly next to a dorm and is surrounded by trees. The trees would be there to absorb excess CO_2 and hopefully offset

some emissions. Placing the location away from dorms could limit potential adverse health effects experienced by students as a result of idling vehicles. Additionally, there could be places for students to sit so they might be more inclined to wait for their car outside instead of waiting inside and having their Uber or Lyft driver idle while looking for them. Uber is currently experimenting with "suggested pick up" locations on the app to make the rider experience more seamless (Constine). Because this feature already exists, it would be relatively simple to implement this "green" pick up location on campus.

Increased Frequency and Awareness of Shuttle Services

Many surveyed students listed their primary reason for using ridesharing apps as groceries and errands. BC currently has shuttle services to Star Market and the shops at Chestnut Hill but they only run one and two days a week respectively. Additionally, they only run every hour so if a student only needed a few groceries this student would have to wait a long period of time before the shuttle came back to pick them up. If BC were to increase the frequency of these shuttles, more students may take advantage of these services decreasing the number of individual vehicles on campus. As mentioned above, these shuttles run on schedule even if a small number of students are using them. If students are choosing ride sharing vehicles over the BC shuttles, it is only going to increase the amount of emissions. Another recommendation in regards to the shuttle service is more advertising. Most students are unaware that BC offers these services free of cost. If the shuttles increased their frequency and advertised more often, more students may choose to take advantage of the already operating shuttles rather than taking a separate vehicle.

Required Canvas Module

Considering almost a third of surveyed students said they never consider a company's environmental impact when using or purchasing a service or product, we believe a basic educational module on canvas to increase environmental awareness of BC students would be beneficial. This module could also include the environmental impacts of big companies. This would make students more informed consumers and allow them to make more informed decisions in regards to the environment and their purchasing habits.

Follow-Up Survey

After analyzing the results of our survey we believe implementing the canvas module and creating a follow-up survey could be beneficial. Our research revealed that a significant portion of students do not take environmental factors into consideration when consuming in today's economy. The survey also revealed that students have asymmetric information. It would be beneficial to offer an informative module to our survey participants and then have them take a follow-up survey to see how their decision making might change. This would not only be informative to the researchers but it could also create real change by providing students with more information to make better decisions when purchasing products or services.

VII. References