

**Sustainable Parking Policy Impact on Student Parking Experience and Equity Issue:  
Case Study of University of California, Berkeley**

Lingyu Mou

**ABSTRACT**

As urban universities parking is often a significant priority and concern. At the University of California, Berkeley (UC Berkeley) recently approved environmental policies encouraged students to use public transportation. Simultaneously, total parking spaces decreased from 6,952 in 2009 to 5,700 in 2014. And, with rising housing demand caused by increased enrollment rate, resulted possibility that more student commuters. This research aimed to describe how parking experiences may differ between students in different income groups. Classroom-based and intercept survey results indicate that among students who drive to campus, students with household income less than \$25,000 usually experience a longer commute time and spend more money on transportation than other students. Even among students who do not drive, students with household income less than \$25,000 lived farther away from campus and experienced longer commute times.

**KEYWORDS**

UC Berkeley, Parking, Transportation, Policy, Sustainable transportation policy, Equity

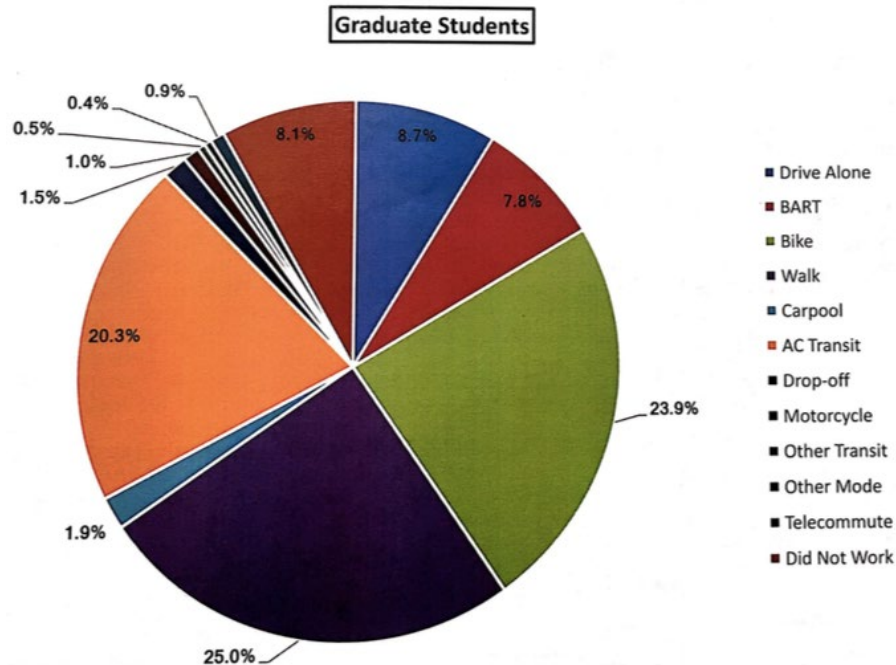
## INTRODUCTION

At universities campuses in dense urban settings, such as the University of California, Berkeley (Berkeley), Parking is an enormous concern (Huayun et al. 2007). As a solution, Berkeley adapted the Long Range Development Plan (LRDP) to guide the renewal of the university to meet its academic goals, preserve its historic architecture, and limit the parking space up to 9,000 to reduce the driving demand (Berkeley Sustainability & Energy, Land Use). Due to the LRDP and other sustainable policies, the university is more likely to reserve space for new buildings rather than parking space. This could result in an overall shortfall of parking areas, with an estimated deficit between 500 to 700 of total space depending on geographic boundaries of the analysis (Nelson\Nygaard Consulting Associates Inc. 2011).

There is also an environmental benefit in reducing the parking space and helping the university to build a sustainable campus. With less supply of parking space and more programs that encourage people to choose more sustainable forms of transportation, 45.1% employees and 92.4% students were selecting alternative transportation to campus (Campus mode share, 2012 UC Berkeley Campus Travel Survey). At the same time, 'drive alone' rate is decreasing gradually from 60% in 1990 to 42.5 % in 2015 of faculty and staff; among students, the drive-alone parking rates dropped from 10.7% to 5.8% from 1990 to 2015 (Berkeley Sustainability & Energy, Transportation). Because of the bus pass program, the number of students who choose transit as the alternative way to campus has been increasing from 18.8% in 1990 to 23.8% in 2015 (Berkeley Sustainability & Energy, Transportation).

While people have more alternative options, the parking space decreased from 2009 to 2014. In 2009, there were 6,952 parking spaces in and around campus, then dropped to approximately 5,700 parking spaces remained (Riggs 2014) However, there are still lots of students decide to drive to campus, especially graduate students. Approximately 8.7% of graduate students drive to school alone (Berkeley Parking & Transportation Department, Survey 2016) (Figure 1.1). Increasing amount of enrollment with the decrease in parking space shaped an unequal parking space distribution that results in an inconvenient situation for Berkeley student. Started in 2016, UC Berkeley expanded the enrollment rate and admitted more students, about 3% (800 more students) compared to 2015 enrollment data (UC Berkeley Fall Enrollment Data), which probably caused an increase in parking demand. According to the UC Berkeley Parking and

Transportation map, there are total five parking garages for students. Among these five parking garages, the parking garage located on the hill has low utilization because of it likely to be inconvenient for every person.



**Figure 1.1 2016 faculty and student commute mode survey by UC Berkeley Parking and Transportation Department (Berkeley Parking & Transportation Department, Survey 2016).**

With different policies passed, create a sustainable community and transportation that reduce the GHG emission attract public attention. Many research focuses on how to manage parking structure and transit could benefit both the environment and community, but few studies reveal the influence of decreasing parking space on different student groups. The goal of this study is to examine how UC Berkeley's sustainable parking policies affect student parking experience. By studying the campus parking policy, plan, transportation data, and parking demand data from the student survey, this research will help to define how is different income group students experienced, and what are some transportation and parking planning strategies that UC Berkeley could learn.

### **Context**

As one of the environmental friendly leaders, the State of California passed several policies that minimize risks associated with climate change. Assembly Bill (AB) 32 and Senate Bill (SB)

375 adapted in 2006 and 2008, respectively, aim to help California achieve its climate goals to reduce greenhouse gases (GHG) emissions through efficient transportation and land use planning (CARB, 2008). To implement the AB 32 and SB 375, City of Berkeley also published Climate Action Plan that encourages UC Berkeley to reduce its plan to build new parking space (City of Berkeley).

### ***Policies***

The State of California has introduced various policies over the last decade to address climate change (Vurlumis 2014). In 2006, California Air Resources Board (CARB) passed AB 32, The Global Warming Solutions Act, which aims to reduce greenhouse gases (GHG) emissions to 1990 levels by 2020 under “business as usual” scenario (CARB 2006). This bill asked all the economic sectors to reduce its GHG emissions, which included electricity, industry, waste, transportation and more. Among all the sectors, transportation occupied a significant seat because it released the most CO<sub>2</sub> every year (CARB 2015). To address transportation and community problem and to better support AB 32, California passed the Sustainable Communities and Climate Protection Act, also known as SB 375 in 2008. This new bill targets reduction in driving, therefore, minimizing the parking demand and supply. Also, it aims to help California achieve its climate goal through efficient land use planning (California Legislative Information 2008). State divided California into different areas and assigned eighteen metropolitan planning organizations (MPOs) to these regions. MPOs should be responsible for its regional GHG emissions and prepared a regional transportation plan, which includes parking strategies (CARB 2010). Metropolitan transportation commission (MTC) is the MPO addresses the transportation planning problems for the nine-county San Francisco Bay Area, which includes Berkeley, aims to help residents get to where they need to be by building and collaborating a network of the streets, transit systems and other transportation resources (Metropolitan Transportation Commission. (n.d.). By expanding the public transportation system such as BART and AC transit, total passengers are increasing gradually from 480 million in 2010 to 530 million in 2015, which decrease the driving and parking demand (MTC 2010).

Not only is the state aiming to address climate change, different cities and universities have also taken actions. In 2009, City of Berkeley adopted the Climate Action Plan that targets the year

2020 to reduce community-wide GHG emissions 33% below 2000 levels. Also, under the goal to manage parking more efficiently to minimize driving demand and to support alternatives to driving, City of Berkeley encourages UC Berkeley to reduce its plans to build new parking spaces and support and invest in alternatives to driving (City of Berkeley 2009). UC Berkeley also finalized the Long Range Development Plan (LRDP) in 2009 to preserve the historic buildings and address the climate change. LRDP sets a maximum of 9,000 campus parking spaces. However, it also anticipates reducing parking demand by using alternate travel modes, and collaborating with local transit providers to improve transportation services (Kamlarz et al. 2009). Furthermore, campus offered lots of programs to supplement this action and tried to meet a broader sustainability plan. Free bicycle fix station and student-founded BicyCal organization aim to integrate the bicycle into UCB students and employees' daily lives; University also associated with AC Transit to offer clipper card (bus pass) to students; Car sharing services are also one of the programs that potentially reduces driving and parking demand (University of California Berkeley n.d.).

### ***Parking patterns and problems***

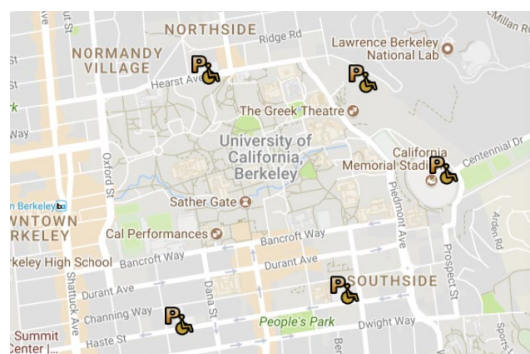
According to the data collected by UC Berkeley Parking and Transportation staff in 2009, there are about 80% occupied space during peak-period. Although there is some space left, many available areas are inconvenient because it required a physical burden of hiking up and down the steep campus setting and climbing up (Nelson\Nygarrd Consulting Associates Inc. 2011). In some locations, there is an acute shortage of parking. During the research done by Nelson\Nygarrd Consulting Associates in 2011, they found that all the garages around campus were 90% to 100% occupied except at the Uphill garage, which results in an overall shortage of parking space on campus (Nelson\Nygarrd Consulting Associates Inc. 2011). However, since 2015, there has been a significant increase in student enrollment. UC Berkeley admitted a total addition of over 1,500 students in two years. (University of California Berkeley n.d.). With the increasing number of enrollment, more people will likely to drive to campus because of additional problem of housing saturation, which forces some students to live far from the university. The average rent in Berkeley reached \$3,800 for a typical 2-bedroom, 1-bathroom house/apartment in 2017 (Riner 2017). The expensive rent has possibly to drive different student

groups, such as low-income students live far away from the campus and increase their chances of driving.

## METHODS

### Study site

With its role as an urban campus and transportation-related parking environment, UC Berkeley is suitable to be my study site. The site includes all UC Berkeley parking garages. There is total of 6500 parking space located on campus garages and lots. All parking space is running and managing by the UC Berkeley Parking and Transportation Department self. Now, there are six main parking garages: Ellsworth Structure; Foothill lot; Lower Hearst Structure; Stadium Rim Way Lot; Underhill Structure, and Witter Lot (Figure 1.1). All parking garages are open to students with the valid parking permit. There is also hourly pay parking system for almost all parking garages. My study population includes all Berkeley students, specific to Environmental Science, Policy and Management (ESPM) 50AC students, and students who drive to school. The reason for choosing this class because UC Berkeley requires all undergraduates take one American Culture (AC) course, and ESPM 50AC is one of them. By collecting samples from this class, I have greater chance to get responses from students belonged to other college and limit bias.



**Figure 1.1 Student Parking Garages.**

## Data collection

I conducted interviews and intercepted surveys (Appendix A) to analyze the parking experience between different student groups and their behavior in relationship to the campus parking system in two categories: students' actual behavior and behavior under hypothetical scenarios. I divided all participants into two groups: students who drive to school (drive group), and students who commute to school by other transportation methods (non-drive group).

I chose to conduct a survey and targeted on ESPM 50AC course with around 500 students. I used Qualtrics as the online platform to send the survey link to ESPM 50AC students. This survey was open for 12 days-- from March 11<sup>th</sup> to March 23<sup>rd</sup>, 2018--and included two parts: demographics and Drive/Non-drive groups' behavior under parking.

I also did the intercept survey and targeted on students who drive to campus. I used same Drive group questions as for ESMP 50AC class, and collected data from 1:00 p.m. to 2:00 p.m. every Tuesday and Friday. I continued this action for two weeks from March 5<sup>th</sup> to March 16<sup>th</sup>. I collected samples in front of Lower Hearst and Underhill parking garages.

The goal of both surveys (Appendix A) was to identify different student groups' attitude on sustainable parking policies and analyze its impact on students. All surveys had warm-up questions regarding the student's year, commuting distance from home to school, and cost of transportation. Then asked the Drive group followed by questions on the cost of parking, the spatial distribution of parking space, and their views on campus parking system. For Commute group, I tested their behaviors under hypothetical scenarios. I distributed paper surveys in student parking garages, as well as online questionnaires through email. The digital survey has additional questions for students who do not drive to school.

## Data analysis

I divided data analysis into three sections: 1) demographic information for all samples, 2) drive group's analysis focus on low-income group and other income groups, 3) analysis between low-income group and other income groups in non-drive group. For Drive group, I calculated the percentage of their driving reason, money and time spent on transportation. Also, I evaluated their stratification on campus parking. For non-drive group, I focused on the percentage of their

behavior under current and hypothetical scenario. To analyze both groups' experience, I used Excel and R to do basic statistic method. Under students' satisfaction section, I made tables for each group (drive group and non-drive group), and calculated the percentage of different answers. Then, I organized the answer of sustainable programs (BicyCal, car share, etc.) in campus, to proof the efficacy of the campus sustainable development programs.

## RESULT

### *Demographics and student background*

The sample collected consists of 446 undergraduate students. 392 responses from the in-class survey, and 54 responses from intercept survey. Among responded students, almost 1/3 of students comes from high-income household families with income above \$150,000. However, there were also 1/4 of respondents with household income less than \$25,000. Which is 1/4 of 2016 California median household income, \$67,739 (Department of Numbers).

According to the responses, only 13.9 % students lived on campus, and almost 1/3 of them lived in 0 – 1 mile range that around the campus; Also, 1/5 of students live 3 miles away from the campus (Table 1.1).

**Table 1.1 Living range away from campus.** Data was collected from all survey responses.

(Miles from campus)	<b>On campus</b>	<b>0 – 1</b>	<b>1 – 2</b>	<b>2 - 3</b>	<b>&gt; 3</b>
Percentage (%)	13.9	30.5	17.9	17.7	20.0

The percentage of transportation choices and their time spent on transportation match the percentage distribution of the living range of students. Majority people chose to take bus/walk to campus because more people live close to the school. There were also 20% of students live 3 miles away from campus. Thus, 13.9% of students go to school choose to drive to school (Figure 2.1). However, by comparing the low-income students' transportation choices, I found that 1/2 of students chose to take the bus to campus, and 1/3 of students chose to drive to school (Table 1.2).



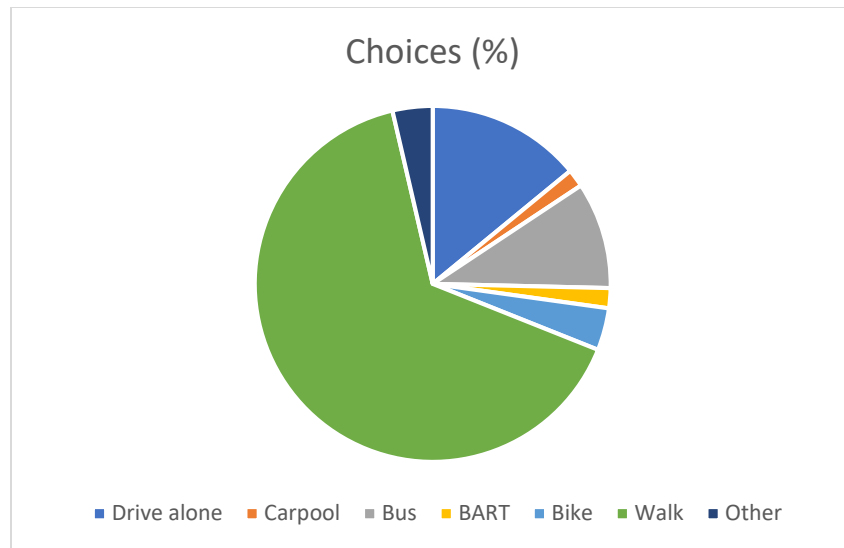


Figure 2.1 Overall transportation choices.

Table 1.2 Low-income students' transportation choices

	Drive alone	Carpool	Bus	BART	Bike	Walk	Other
Percentage (%)	36.5	3.8	50.0	1.9	3.8	3.8	0.0

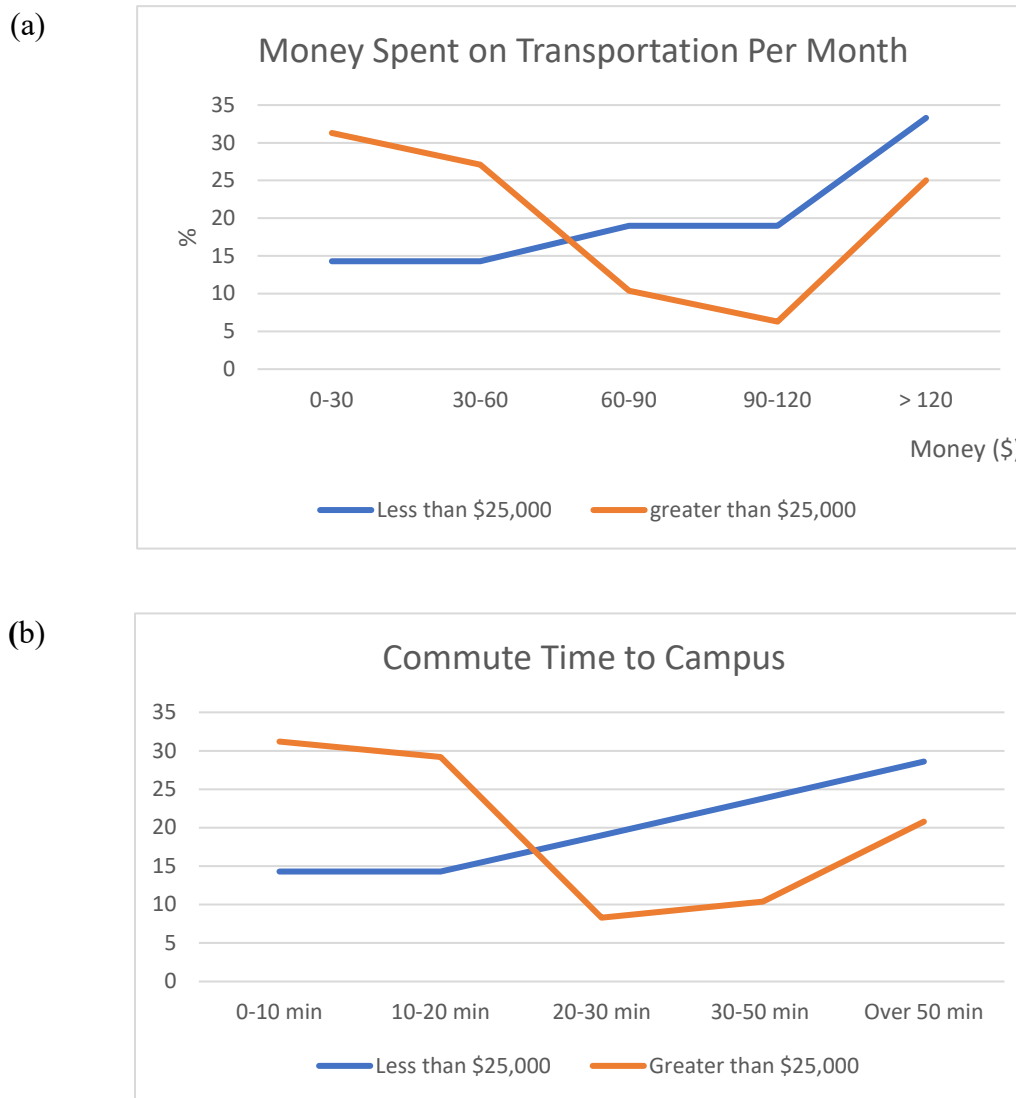
### Drive group analysis

By using the cross-table method, I found that among 69 driving students, 21 students have the household income less than \$25,000. Here I stated students with household income less than \$25,000 as low-income students. Majority students have household income over \$75,000. Most of them chose to drive to school because the rent near campus is too expensive (Table 1.3).

Table 1.3 Drive group household income and reason comparison

	Less than \$25,000	\$25,000 - \$49,999	\$50,000 - \$74,999	\$75,000 - \$99,999	\$100,000 - \$149,999	Over \$150,000
Drive Group %	30.4	0	10.1	18.8	21.7	18.8
Reasons	Live far away and it is the only housing able to find.	NA	Live off-campus.	Live too far. Love driving	Rent near campus too expensive. Live too far	Rent near campus too expensive. Faster.

By comparing the money spent on transportation between low-income students and students from other income groups, I found that majority students with income lower than \$25,000 spent more money on the transportation per month. Among these students, almost 20% them spent from \$90 to \$120 and over 25% of them spent over \$120 on transportation per month. Compared to other income groups, the percentage is almost twice that of them. In contrast, over half of the students from other income groups spent less than \$60 (Figure 2.2). The time spent on the transportation between the low-income group and other income groups has a similar trend. Majority low-income students spent more time on their way to campus.

**Figure 2.2**

All Drive group's member ( $n = 66$ ) indicated that there is some negatively affected by the recent reduction in parking spaces. 72.7% students said they are influenced by the parking space reduction, 15.2 % students said they probably being affected, and 12.1 % students not sure (Table 1.4). Among these 66 students, over half of the students are very unsatisfied with current parking space; three are somewhat unsatisfied (Table 1.5).

**Table 1.4 Negatively Effect**

	Drive group % (n=66)
Definitely yes	72.7 (48)
Probably yes	15.2 (10)
Might or Might not	12.1 (8)
Probably not	0.0 (0)
Definitely not	0.0 (0)

**Table 1.5 Satisfaction on current parking system**

	Drive group % (n = 66)
Very unsatisfied	56.1 (37)
Somewhat unsatisfied	21.2 (14)
Neither satisfied nor unsatisfied	21.2 (14)
Somewhat satisfied	0.0 (0)
Very satisfied	1.5 (1)

Majority Drive group member usually spent 5 to 10 minutes to find a parking spot. However, there are still 27% of students spent over 15 minutes to find a spot (Table 1.6).

**Table 1.6 Time to find a parking spot**

	0 – 5 minutes	5 – 10 minutes	10 – 15 minutes	Over 15 minutes
Drive group (n = 1.00)	0.27	0.33	0.13	0.27

The reason behind the stratification caused by the unreasonable parking structure. 26.7% of students believed the parking structure is very unreasonable, 40% of Drive group students thought it is somewhat unreasonable. The parking structure results that 41.4% students considered the most significant challenge regarding parking on campus is too few parking spaces; 23.0% thought the empty parking space is too far from the academic building. As a result, 80.00 % student strongly agree to increase the parking space, 13.33 % students somewhat agree, and 6.67 % left are neither agree nor disagree.

Parking demand is related closely to the parking price, when I increased the parking fee by \$50, there are 71.4% students with household income less than \$25,000 and 62.5% other income group students still chose to drive to school (Table 1.7). However, when I increased the amount by \$100, only 14.2% students with lower income chose to continue to drive to school, while twice more students from other income groups still choose to drive to school (Table 1.8).

**Table 1.7 Driving decision if fee increased by \$50.**

	Low income group (%)	Other income groups (%)
Yes	71.4	62.5
Maybe	19.1	25.0
No	9.5	12.5

**Table 1.8 Driving decision if fee increased by \$100.**

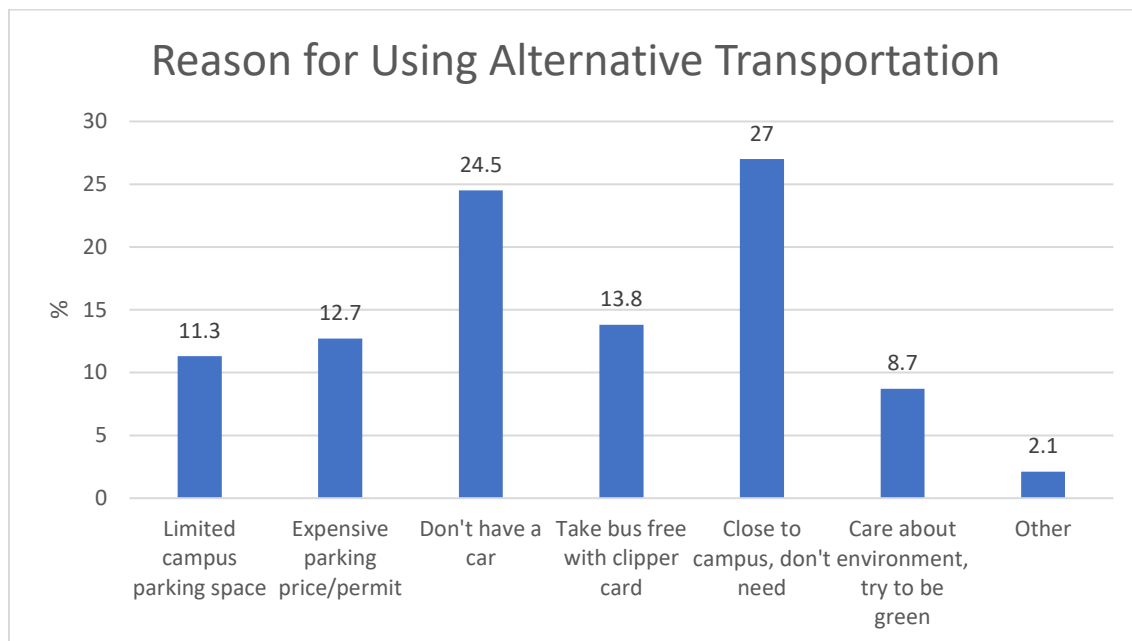
	Low income group (%)	Other income groups (%)
Yes	14.2	27.1
Maybe	23.8	12.5
No	62.0	60.4

### *Non-drive group analysis*

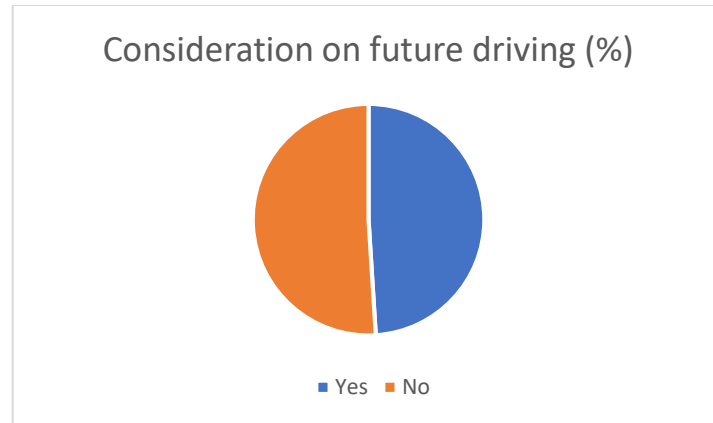
Similar to the money and time comparison between low-income students and other income group students in drive group, low-income students in the non-drive group also spent more money and time on transportation than other students.

When asking the reason why use alternative transportation, closer distance to campus and car ownership list as top two reasons (Figure 2.3). Also, there are 51 % students showed they would not consider driving to school in the future if they have a car (Figure 2.4). At the same time, most of commute group members thought buying a parking permit for \$377 per semester is too expensive and not worth if they still live near Berkeley. However, if they are unable to find housing near campus, they will consider to buy the car and permit for less time-consuming.

**Figure 2.3 Reason for using alternative transportation.**



**Figure 2.3**

**Figure 2.4**

## DISCUSSION

The campus now giving the increasing pressure on student choose to drive to school, especially for student groups like low-income students, and people live far away because of expensive rent near Berkeley. All the survey responses demonstrated a negative attitude on-campus parking system. 72.7% students who drive believed that reduction in on parking space has a negative effect on their parking experience, and 56.1% students were very unsatisfied with the current parking structure.

### Pressure from the cost of parking permit

More expensive parking permits not only affect lower-income students but also higher income students. Based on the survey responses, over 30% of students have the household income more than \$15,000. However, even under this higher proportion of higher income household, there are still majority students thought to buy a permit for \$377 per semester still expensive. Based on the report, around 65% of students in higher income household (from \$25,000 to over \$150,000), and almost all lower-income (less than \$25,000) students believe the parking permit is expensive for them.

**Pressure from expensive rent and increasing enrollment rate**

The increasing enrollment rate and expensive rent around Berkeley put the burden on the student drive to campus. About 70.9% of students who drive to campus live far away because of the expensive rent near the campus, and almost all low-income students reported this issue. The long-distance forces them drive to school to get more freedom on time-consuming.

**Longer commute, higher cost**

Based on the survey responses, there are almost 50% of low-income students from Drive group typically spent more money and time on transportation than students from other income groups. In the Non-drive group, low-income students usually spent 20 to 30 minutes than other students with household income over \$25,000.

**Future prospects**

Non-drive groups students are the potential driving students as well. From the survey, 49% Non-drive group students consider driving in the future. As low-income students, more potential driving students could result they spend more money and time on transportation because of the increasing competition.

The University of Berkeley case study shows that most people will be willing to use public transit. However, under different campus transportation demand management (TDM) system, housing situation, and enrollment rate, students who drive will spend more money and time on the transportation, especially for low-income students. We can understand the willingness of the university to solve the parking problem and reach the sustainable goal, however, we need to seek other solutions.

**Policy suggestions**

Based on the survey responses, the campus can initiate various actions to address parking problems. Although university provided some subsidies on student bus, there is still necessary that

university increase subsidies on BART. Now, the university only has \$10 per month subsidies on BART for employee (BART | Parking and Transportation). By reducing barriers, increase public transport pass subsidies and housing on/near campus will have a great impact on changing student potential commuting pattern (Shannon et al. 2006). Car sharing is another method that could potentially decrease the driving demand, which could relieve the burden of parking system tremendously because, for every-one car sharing, there is a reduction of 15.3 personal vehicles (Stako et al. 2013). By implanting these strategies, it will encourage more students to use public transportation. With additional subsidies, more students, especially low-income students would likely to take public transportation to relieve their financial burden, and parking system burden as well. For people have to use the car, car-sharing would help them save money, and provide free spaces for other people. All these comprehensive Transportation Demand Management (TDM) systems would help to reduce automobile use. For low-income students, purchasing parking permit fee under different price would also be a good suggestion.

### **Limitations and future directions**

My sample size was relatively small compared to similar research initiatives, which could produce bias and misleading result. Also, the most sample size was selected from ESPM 50AC class, and the majority of them belong to College of Natural Recourse (CNR); their college selection could cause them care more about the environment, therefore, use more public transit. The sample population was selected from UC Berkeley students, so I cannot apply my conclusion and suggestion to other universities.

The research provides lots of findings; sustainability can be viewed through TDM system, such as bicycle fix station. Also, it shows how different student groups face the parking shortage and increasing rent. For the low-income student, most of them would choose to live far away and spend more time on transportation and finding the parking spot. This suggests the need for more research.



## ACKNOWLEDGEMENTS

Thank for supporting from Kurt Spreyer, Patina Mendez, Kimberlee Stryker, Alison Ecker, and Leslie McGinnis. I'd like to thank Kurt Spreyer for his enthusiasm and connected me with Seamus Wilmot. Also, thank Alison Ecker for her supporting and thoughtful feedback. My mentor, Kimberlee Stryker, thanks for her suggestion on this research and cultivated my enthusiasm in sustainable policies and landscape.

## REFERENCES

- CARB[California Air Resources Board]. (n.d.). Assembly Bill 32 - California Global Warming Solutions Act. <https://www.arb.ca.gov/cc/ab32/ab32.htm>.
- CARB[California Air Resources Board]. (n.d.). Senate Bill 375 Regional Targets. <https://www.arb.ca.gov/cc/sb375/sb375.htm>.
- City of Berkeley. 2009. Climate Action Plan.
- California State Household Income | Department of Numbers. (n.d.). . <https://www.deptofnumbers.com/income/california/>.
- Huayan, S., L. I. N. Wenji, and H. Haijun. 2007. Empirical Study of Parking Problem on University Campus Empirical Study of Parking Problem on University Campus. *Journal of transportation systems engineering and information technology* 7:135–140.
- Kates, R. W., W. C. Clark, R. Corell, J. M. Hall, C. C. Jaeger, I. Lowe, J. J. McCarthy, H. J. Schellnhuber, B. Bolin, N. M. Dickson, S. Faucheux, G. C. Gallopin, A. Grübler, B. Huntley, J. Jäger, N. S. Jodha, R. E. Kasperson, A. Mabogunje, P. Matson, H. Mooney, B. Moore, T. O'Riordan, and U. Svedin. 2001. Sustainability Science. *Science* 292:641–642.
- Nelson\Nygaard Consulting Associates Inc. 2011. Parking and Transportation Demand Management Master Plan.
- Riggs, W. 2014. Dealing with parking issues on an urban campus: The case of UC Berkeley. *Case Studies on Transport Policy* 2:168–176.
- Riner, J. 2017. The average rent in Berkeley is \$3,800 — what does that get you? — Berkeleyside. <http://www.berkeleyside.com/2017/02/10/average-rent-berkeley-3800-get>.

- Shannon, T., B. Giles-Corti, T. Pikora, M. Bulsara, T. Shilton, and F. Bull. 2006. Active commuting in a university setting: Assessing commuting habits and potential for modal change. *Transport Policy* 13:240–253.
- Stasko, T. H., A. B. Buck, and H. Oliver Gao. 2013. Carsharing in a University setting: Impacts on vehicle ownership, parking demand, and mobility in Ithaca, NY. *Transport Policy* 30:262–268
- University of California Berkeley. 2017. Land Use | Sustainability & Energy. <https://sustainability.berkeley.edu/land-use>.
- University of California Berkeley. 2017. Maps | Parking and Transportation. <https://pt.berkeley.edu/maps>.
- University of California Berkeley. 2017. UC Berkeley Fall Enrollment Data | Office of Planning and Analysis. <https://opa.berkeley.edu/uc-berkeley-fall-enrollment-data>.
- University of California Berkeley. 2017. Transportation | Sustainability & Energy. <https://sustainability.berkeley.edu/transportation>.
- University of California Berkeley. 2017. UC Berkeley 2020 Long Range Development Plan Documents. <http://lrdp.berkeley.edu/>.
- BART | Parking and Transportation. (n.d.). . <https://pt.berkeley.edu/transportation-options/public-transportation-berkeley-and-beyond/bart>.

## APPENDIX A: Survey Questions

### Research Parking Survey

---

Start of Block: Default Question Block

Q3 This survey segment aims to study student parking experience and transportation choices under different parking policies and to improve the parking efficiency on the campus.

---

Q5 Where do you live?

- ☐ On campus (1)
  - ☐ 0-1 miles from campus (2)
  - ☐ 1 – 2 miles from campus (3)
  - ☐ 2 - 3 miles from campus (4)
  - ☐ 3+ miles from campus (5)
- 

Q7 What kind of transportation have you used to travel to school most often this semester?

- ☐ Drive car alone (1)
- ☐ Carpool (2)
- ☐ Bus (3)
- ☐ BART (4)
- ☐ Bike (5)
- ☐ Walk (6)
- ☐ Other, please specify (7) \_\_\_\_\_

---

Q9 Have you heard of any environmentally friendly programs such as BicyCal, free bicycle fix station, ZipCar, RideAmigo, etc. on campus?

- ☐ Heard of and have also used (1)
  - ☐ Heard of but have never used (2)
  - ☐ Have not heard of (3)
-

Q11 When are you on campus during a typical week? (choose all apply)

	Monday (1)	Tuesday (2)	Wednesday (3)	Thursday (4)	Friday (5)
8:00 AM - 9:00 AM (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9:00 AM - 10:00 AM (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10:00 AM - 11:00 AM (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11:00 AM - 12:00 PM (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12:00 PM - 1:00 PM (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1:00 PM - 2:00 PM (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3:00 PM - 4:00 PM (7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4:00 PM - 5:00 PM (8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5:00 PM - 6:00 PM (9)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After 6:00 pm (10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q13 Do you drive to school?

☐ Yes (1)☐ No (2)

Q15 Why do you choose to drive to school? (ex.: live too far because of rent near campus too expensive)

---

Q17 How much time do you spend on transportation traveling to school on a typical day that you travel to campus?

- ☐ 0 to 10 min (1)
- ☐ 10 to 20 min (2)
- ☐ 20 to 30 min (3)
- ☐ 30 to 50 min (4)
- ☐ Over 50 min (5)

Q19 How long does it usually take for you to find a parking spot?

- ☐ 0 to 5minutes (1)
- ☐ 5 to 10 minutes (2)
- ☐ 10 to 15 minutes (3)
- ☐ Over 15 minutes (4)

Q21 How much money have you spent on transportation traveling to and from school per month this semester?

- ☐ \$0 to \$30 (1)
- ☐ \$30 to \$60 (2)
- ☐ \$60 to \$90 (3)
- ☐ \$90 to \$120 (4)
- ☐ Over \$120 (5)

---

Q23 If you drive to school, do you have a parking permit? If so, what type of permit do you have?

- ☐ Yes, student parking permit (1)
  - ☐ Yes, carpool parking permit (2)
  - ☐ Other, please specify (3) \_\_\_\_\_
- 

Q25 If you park on campus, which campus garage have you usually chosen to park in this semester?

- ☐ Ellsworth Structure (1)
  - ☐ Foothill lot (2)
  - ☐ Lower Hearst Structure (3)
  - ☐ Stadium Rim Way Lot (4)
  - ☐ Underhill Structure (5)
  - ☐ Witter Lot (6)
  - ☐ Campus Hourly Pay Parking (7)
  - ☐ Other, please specify (8) \_\_\_\_\_
-

Q27 If you drive to school but park off-campus, where do you usually choose to park?

- ☐ Public off-street parking garages (near campus) (1)
  - ☐ Public off-street parking garages (away from campus) (2)
  - ☐ On-street parking (near campus) (3)
  - ☐ On-street parking (away from campus) (4)
  - ☐ Private off-street parking (near campus) (5)
  - ☐ Private off-street parking (away from campus) (6)
  - ☐ Other, please specify (7) \_\_\_\_\_
- 

Q29 How much do you usually spend on parking around campus per month?

- ☐ \$0 to \$30 (1)
  - ☐ \$30 to \$50 (2)
  - ☐ \$50 to \$100 (3)
- 

Q31 What is the greatest challenge regarding parking on campus?

- ☐ Too few parking space (1)
  - ☐ Empty parking space is too far from where I need to be on campus (2)
  - ☐ Other, please specify (3) \_\_\_\_\_
-



Q33 How satisfied are you with current student parking garage space?

	Very unsatisfied (1)	Somewhat unsatisfy (2)	Neither satisfied nor unsatisfied (3)	Somewhat satisfied (4)	Very satisfied (5)
. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Q35 Do you think the spatial distribution of campus parking space is reasonable?

	Very unreasonable (1)	Somewhat unreasonable (2)	Not sure (3)	Somewhat reasonable (4)	Very reasonable (5)
. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Q37 Do you think the campus should increase the number of parking spaces?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Q39 Do you think you are being negatively affected by the recent reduction in parking spaces?

- ☐ Definitely yes (1)
- ☐ Probably yes (2)
- ☐ Might or might not (3)
- ☐ Probably not (4)
- ☐ Definitely not (5)
-

Q41 If there is a further reduction in parking spaces OR increasing enrollment number of students, what kind of strategy will you use to adapt regarding transportation and parking on or around campus? (ex. arrive early to get a spot; use public transportation; move closer to campus, etc.)

---

Q43 If the parking fee increased by \$50 (original amount + \$50), would you continue to drive to school?

- ☐ Yes (1)
- ☐ Maybe (2)
- ☐ No (3)

Q45 If the parking fee increased by \$100 (original amount + \$100), would you still choose to drive to school?

- ☐ Yes (1)
- ☐ Maybe (2)
- ☐ No (3)

Q47 If you do not drive, why do you choose an alternative form of transportation? (choose all that apply)

☐

Limited campus parking space (1)

☐

Expensive parking price/permit (2)

☐

Don't have a car (3)

☐

Take bus free with clipper card (4)

☐

Close to campus, don't need (5)

☐

Care about environment, try to be green. (6)

☐

Other, please specify (7) \_\_\_\_\_

---

Q49 How much time do you spend on transportation traveling to school every day?

☐

0 to 10 min (1)

☐

10 to 20 min (2)

☐

20 to 30 min (3)

☐

30 to 50 min (4)

☐

Over 50 min (5)

Q51 How much money do you spend on transportation traveling to and from school per month?

- ☐ \$0 to \$30 (1)
- ☐ \$30 to \$60 (2)
- ☐ \$60 to \$90 (3)
- ☐ \$90 to \$120 (4)
- ☐ Over \$120 (5)
- 

Q53 Do you think you are affected by the reduction of parking space?

- ☐ Definitely yes (1)
- ☐ Probably yes (2)
- ☐ Might or might not (3)
- ☐ Probably not (4)
- ☐ Definitely not (5)
- 

Q55 Will you consider driving to school in the future if you have a car and if there are more parking spaces on campus?

- ☐ Yes (1)
- ☐ No (2)
- 

Q57 Please explain if and how the \$377 per semester parking permit fee affects your finances, particularly in terms of whether or not you use a car for transportation, where you live, etc.

---

End of Block: Default Question Block

---