Preliminary findings: Single occupancy vehicles and parking permits

Trang Tran

Problem Statement

In Fall 2014, OSU implemented a new on-campus zonal parking permit system. The new generally more expensive system definitely changed parking habits, with implications for neighborhoods around campus, and for some travel choices by students and faculty. During winter term, the OSU Capital Planning and Development Transportation survey investigated OSU employee and student transportation choices. This study reports the impacts of work/study status, gender, living distance and age on the decision of OSU employees and students in purchasing a parking permit. Findings and recommendations are included at the end of the report.

Background

In October 2014, OSU implemented a new zonal parking system to address such parking issues as parking space, parking time, vehicle congestion in the campus core and campus-related parking impacts in the surrounding neighborhoods. The OSU Parking Utilization Study 2014-2015 has revealed some positive effects of the new parking permit system: the new permit system appears to have achieved its prime goal of moving parking from the north to south side of campus. Nonetheless, community relations problems still persist around overflow parking in nearby neighborhoods.

Many studies have evaluated the relationship between a commuter’s different demographic attributes with parking choice and transportation mode choice. Some found the positive interactions between parking supply and transportation mode, others that parking prices and walking distance are elastic with parking choice. A study in Portugal examined the role of travelling characteristics of University of Coimbra campus commuters in their level of willingness to pay for a reserved parking on campus. The study found that individuals who are female, individuals who live more than 6 km (3.7 miles) from the campus and individuals who have higher income are more willing to pay higher (more than one pound per day) for a parking permit.

For this brief, we examined the effects of demographic attributes on single-occupancy vehicle (SOV) and parking choices. We also investigated parking choices of OSU employees vs. students in different age ranges. Survey respondents consist of approximately 36.7% of all OSU employees and 12.42% of all students. Despite the relatively low response rates, many common themes emerged.
Analysis

Living location
The survey divided Corvallis into 14 geographic zones, shown in Figure 1. In this study, we analyzed the differences among zones in the number of people who choose to primarily drive alone to campus and people who purchased a parking permit. Figure 2 represents the number of SOV and permit purchases by zone. The most notable finding is that regardless of living distance, the percentage of SOV drivers who do not own a parking permit is substantial.

Figure 1: Corvallis Zone Map

For the purpose of data analysis, we divided 14 geographical zones into 3 circular regions. We labeled zone 1-4 as “minzone”, zone 5-8 as “medzone” and 9-14 as “maxzone”, representing the gradual increase in their distance from the OSU Corvallis campus.

Figure 2: Number of SOVs and Permit Purchases by Zone
Work-study Status
In the original data, there are more categories in terms of one's work/study status. Employees are identified as faculty (unclassified), staff (classified), temporary, student worker/assistant, and affiliated employee. Students are grouped into freshman, sophomore, junior, senior, masters, professional degree student, PhD student, non-degree seeking student. Again, we minimize the number of categories by considering only three groups of employees: staff, faculty and others (employees who are not staff and/or faculty; and three groups of students: undergraduate, graduate and others (students who are not undergraduate and/or graduate).

The results show a striking gap between the number of permits purchased by students and employees. Of undergraduate respondents who drive to campus, 41% have a permit; among graduate respondents 37% driving to campus have a permit. Meanwhile, 80% of faculty respondents and 80% of staff respondents who drive to campus have a parking permit. Figure 3 shows the percentage of permit purchased by different types of students and employees who primarily choose to drive alone to campus.

Additionally, the number of undergraduate and/or graduate student who park off campus slightly outweighs those who purchase permits. By contrast, the number of faculty and staff who buy parking permits significantly surpasses those who park off campus. Figure 4 reveals specific information about the gap between the number of permits purchased and the choice to park off-campus by work/study status.

With undergraduate students as the reference group, and after adjusting for other variables like living distance, gender and age, a significant association is observed between work/study status and the likelihood of purchasing a
parking permit. This relationship is significant across various categories of work/permit status, except for the “other employee” category.

Thus, compared to undergraduate students:

↓ Being a graduate student decreases the probability of purchasing a parking permit.

↑ Being a professional degree student or a non-degree seeking student increases the probability of purchasing a parking permit.

↑ Being a faculty member increases the probability of purchasing a parking permit.

↑ Being a staff member increases the probability of purchasing a parking permit.

Other factors increasing the likelihood of purchasing a parking permit:

↑ Living in medzone (zone 5,6,7,8) or maxzone (zone 10,11,12,13,14) compared to living in minzone (zone 1,2,3,4) increases the probability of purchasing a parking permit.

↑ Being a female increases the probability of purchasing a parking permit.

↑ Being older than 23 years compared to 16-23 years old increases the probability of purchasing a parking permit.

Policy Recommendations

1. Continue to encourage alternatives to SOVs: provide improved bicycle access, safe pedestrian facilities and shuttle bus service and carpooling.

2. Coordinate activities of the OSU Planning Department, Student Experience and Activity Center and other student initiatives to explicitly direct transportation behaviors by: campaigns, education program, pilot programs and other experimentation, apps, etc. Particularly, focus on promoting non-SOV transportation to OSU employees since this group has a higher probability of choosing SOV.

3. Provide opportunities for neighborhood home owners to purchase full-time parking permits in their residential areas while also providing a number of commuter permits (with higher fee) that allow general public, employees and students to park in the neighborhood for a limited time.

Further Reading


