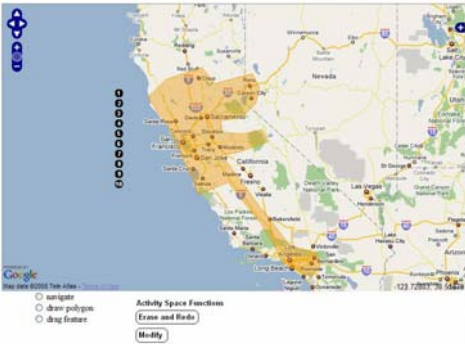


Abstract

In an online survey, respondents were allowed to choose their ideal network of ten stations for a hypothetical vehicle that used a fuel incompatible with gasoline or diesel. This vehicle had no benefits or drawbacks compared to a conventional vehicle except that there were not as many stations as there are with gasoline. Respondents were asked to value the purchase price of the vehicle based on how many of their 10 self-chosen stations they could use.

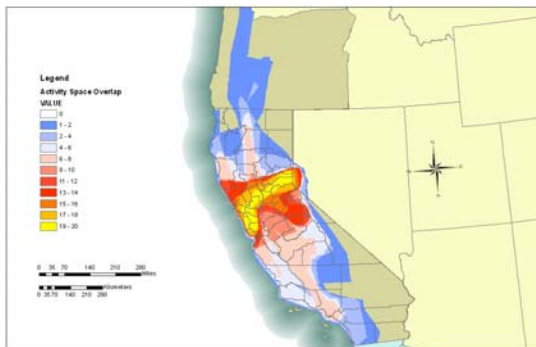
A marked difference in value was seen between one-vehicle households and multi-vehicle households. Multi-vehicle households valued the hypothetical vehicle higher than one-vehicle households. The fact that multi-vehicle households could choose to drive vehicles other than their hypothetical vehicle may account for this increase in value.



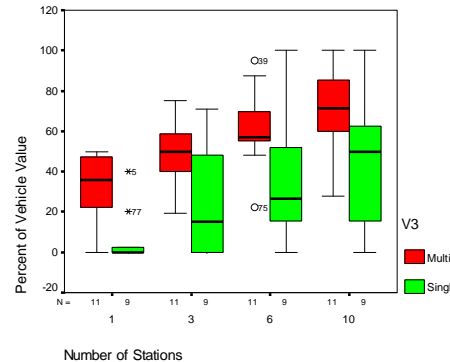
Map Questionnaire Instructions: Draw your activity space consisting of roads and areas you are familiar with. Place station 1 near your residence. Place stations 2-10 in rank order to enable travel to the most important places in your activity space

Convenience sample of 20 University Employees

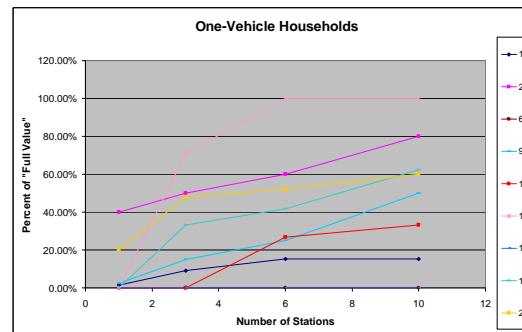
- 12 live in Davis, 8 outside Davis
- 8 women, 12 men
- 9 one vehicle households
- 11 multi-vehicle households



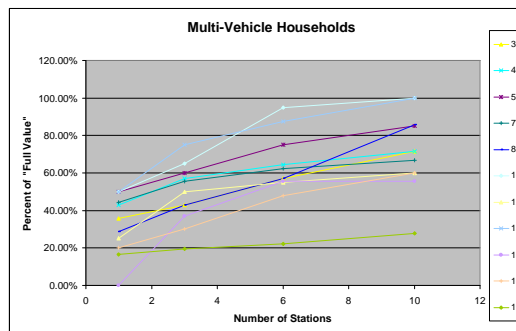
Activity Space Overlap Respondents were asked to draw a line around the areas that they are familiar with in their vehicle. The yellow region is the region where the activity spaces overlap the most.



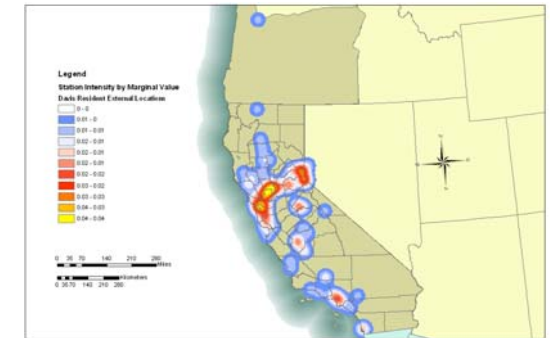
Boxplot Comparing the Percent of "Full Value vs. Number of Stations For Multi and One-vehicle Households. The difference in valuation between the two groups can be seen in the figure above. The black line represents the median value.



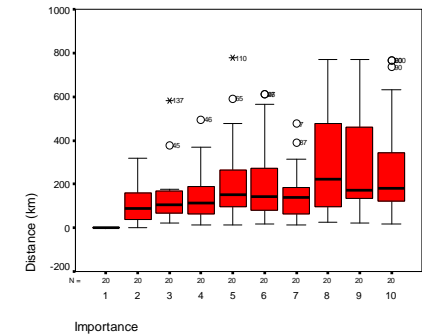
Percent of "Full Value vs. Number of Stations For One-vehicle Households With one station, the range of valuation varies from 0%-40%. With 10 station locations, the initial value of the vehicle rises, but not as high as in multi-vehicle households. Two respondents saw no value in the vehicle regardless of the number of stations.



Percent of "Full Value vs. Number of Stations For Multi-vehicle Households With one station, the range of valuation varies from 0%-50%. With 10 station locations, the initial value of the vehicle rises.



Where do Respondents Want Stations Other Than Davis? The intensity of the regions is defined by the sum of the marginal values for each customer. If a station added 8% to the purchase price of a vehicle, then it was given a value proportional to 8%.



How Far Away are Respondents Favorite Stations? In general the station that is chosen after the initial station near one's home is closer than less important stations.

Initial Indications

- Multi-vehicle households find much greater value in a vehicle with a limited infrastructure.
- One station in one's hometown results in a vehicle retaining 20%-50% of its value for multi vehicle households. Mostly zero for one vehicle households.
- 10 station networks providing mobility throughout one's activity space results in a vehicle retaining 55%-100% of its value for multi vehicle households. 0% to 100% for one vehicle households.
- Infrequently visited weekend spots have a noticeable effect on initial attractiveness of a vehicle

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