THE POWER AND VALUE OF "GREEN" IN PROMOTING SUSTAINABLE TRAVEL BEHAVIOURS

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ABSTRACT

In light of the recent trends of sustainable behaviour and "GREEN" technology, we set out to determine whether providing travellers with information regarding their environmental impact could be used to influence their transportation decisions. Our results from the transportation realm are consistent with broader findings from behavioural economics research in that we found that informing respondents of the environmental impact of their choices significantly shifts them toward more sustainable behaviours. Further, we were able to calculate the "Value of 'GREEN'" from both an experiment where subjects had to select which route they would take and an experiment which had subjects report which car they would likely buy upon graduation. We obtain results from two separate experiments and estimate our average subject is willing to pay 25 cents per pound of CO2 savings in a route choice scenario and 15 cents per pound when buying a car, with 99 percent of our subjects willing to pay something between zero and one dollar per pound of reduced emissions. We also present an experiment to test whether this value of "GREEN" is consistent across trip type and frequency and whether people respond differently depending on how environmental information is presented.

Keywords: Sustainable, Discrete Choice, GHG

INTRODUCTION

A major aspect of transportation planning is understanding behaviour: how to predict it and how to influence it over the long term. Transportation models typically emphasize policy variables such as travel time and cost. While clearly these variables are important, we hypothesize that other variables, such as greenhouse gas (GHG) emissions and others related to environmental costs may be just as influential. This work is motivated by several factors. First, there is evidence from the behavioural economics literature that providing personalized information regarding environmental impact can significantly reduce, for

example, residential electricity consumption. Second, such approaches in transport appear to have potential as studies find that environmental consciousness influences transport behaviour. Third, there are a growing number of transportation websites that are reporting environmental savings, California High Speed Rail, the Bay Area Rapid Transit, and Portland's Bike Commute Challenge, to name a few. Finally, cell phone applications provide the technological means to provide real-time, person-specific travel information regarding trip times, costs, and environmental impacts.

Our research questions are: (1) whether providing information on environmental consequences can significantly increase sustainable transport behaviour, (2) what is the value that people place on reducing environmental impacts relative to time and cost, and (3) how the form of presentation (daily versus yearly emissions) impacts responses. We set out to answer these questions by designing three stated preference experiments which deal with transportation decisions that range from one-time route choices with small payoffs to more major life decisions such as buying a car.

BACKGROUND

In a general sense our research is aimed at the intersection of three fields of research; decision-making theory using social norms, unique methods of information presentation, and the connection between environmental sentiments and transportation behaviour. The experiments we designed build on the following literature.

The field of Behavioural Economics, arguably beginning with Prospect Theory of Kahneman and Tversky (2008) in 1979 and continuing with findings every year since, has uncovered many instances of people systematically making decisions that are not concurrent with the behaviour predicted by utility maximizing models. An often repeated finding from Fehr and Schmidt (1999) is that people don't care exclusively about themselves. People are often willing to make personal sacrifices so that others (typically others who are not doing as well) can benefit. This idea that people might trade personal payoffs (short travel times, cheap gas) for societal payoffs (clean air, environmental justice) is the focus of this research.

Among the more commonly known findings of behavioural economics are those outlined in two recent popular press books, Predictably Irrational by Ariely (2008) and Nudge by Thaler and Sunstein (2008). Both books assert that the method and style of environmental impact information provision are crucial to any program which aims to persuade people to behave in more sustainable ways. Whether determining how people respond to relative measures of consumption or citing evidence in support of increasing visualization of information, the findings from these books have strong applications in the realm of transportation.

For example, Thaler and Sunstein describe Schultz et al. (2007) who conducted an experiment on 290 households in Southern California and discovered that social norms can be used to influence electricity demand. On their electricity bill customers were presented with information regarding how their consumption compared to the average of similar households in the neighbourhood. Providing this information did cause above average

consumers to reduce their consumption, but it also caused an increase in demand from the below average consumers; the opposite of the desired effect. In an effort to reduce this "boomerang effect," emoticons were included on the utility bills; smiley faces for people doing well, frowning faces for people not doing well. This maintained the reduction from the high users and provided enough positive feedback for the low consumers not to increase their demand. Similarly, Ariely (2008) found that people perform tasks better when they are asked to do it as a favour or for a cause as opposed to being paid for their effort.

Along the lines of unique ways to provide information, and also as described by Thaler and Sunstein, Thompson (2007) used a glowing orb to alert Southern California residents of their high electricity demand during peak times. By communicating with the electricity meter, the ambient orb was placed in an often used part of the house and would glow green during times of low consumption and red when high demand in the house coincided with high loading on the distribution network. This orb was found to reduce peak demand by 40% while timely text messages and e-mails produced no reduction.

While social influences have been incorporated into utility functions by Charness and Rabin (2002), smiley faces and glowing orbs provide an interesting starting point for further investigations into the influential aspects of decision making. The motivation for this paper was to find out the influence of the rising popularity of hybrids and environmental impact information on transportation decisions.

It is likely that unobservable attributes of people such as knowledge of environmental issues and attitudes regarding environmental protection are connected with transportation decisions. Ory and Mokhtarian (2009) investigated the connection between environmental sentiments, desire for mobility, preference for travel, and selfish motives in the context of all travel by personal vehicle. It was found that subjects who agree more with pro-environmental solutions are more likely to have lower relative desire for mobility and less preference for travel. In his doctoral dissertation Flamm (2006) investigated the correlations between environmental knowledge, environmental attitudes, and a variety of transportation decisions made by 1,506 Sacramento area residents such as number of vehicles per household, fuel efficiency, annual miles driven, and annual gallons of fuel consumed. His finding most relevant to the motivation of this paper is that "households of pro-environment respondents own fewer and more fuel efficient vehicles, drive them less, and consume less fuel."

With an end goal of reducing carbon dioxide emissions of urban transportation in the European Union, the Carbon Aware Travel Choice (CATCH) project is first building a strong foundation of what has already been discovered and what research needs to be done. Avineri et al. (2010) provide a comprehensive summary of findings and identify gaps in the research regarding how to encourage more sustainable transportation behaviour in their final report for CATCH. They cite gaps such as, "Which social nudges are most effective?" "How can the perception of climate change risks be reduced so an individual is not overwhelmed, but retain enough motivation to act?" and "Should CO_2 information be presented differently to women and men?"

As another an example of the rising interest in environmentally friendly transportation alternatives, Shokri et al (2009) developed a program to determine driving directions which takes fuel consumption into account instead of simply finding the route with the lowest travel time. This is becoming a significant concern for people, but the question remains of how much of one thing, time in this case, people are willing to give up in order to get more of another, fuel efficiency in this case.

As shown in Figure 1 many transportation websites are now displaying the amount of greenhouse gas emissions saved by utilizing certain alternatives. This is especially popular with mass transit services and organizations promoting energy sources other than fossil fuels. Shown below are screen captures from San Francisco's Bay Area Rapid Transit and the California High Speed Rail. The problem, however, is that most people have already made their decision by the time they see this information. One of our questions is whether providing the information earlier in the decision making process will influence behaviour toward more sustainable alternatives.

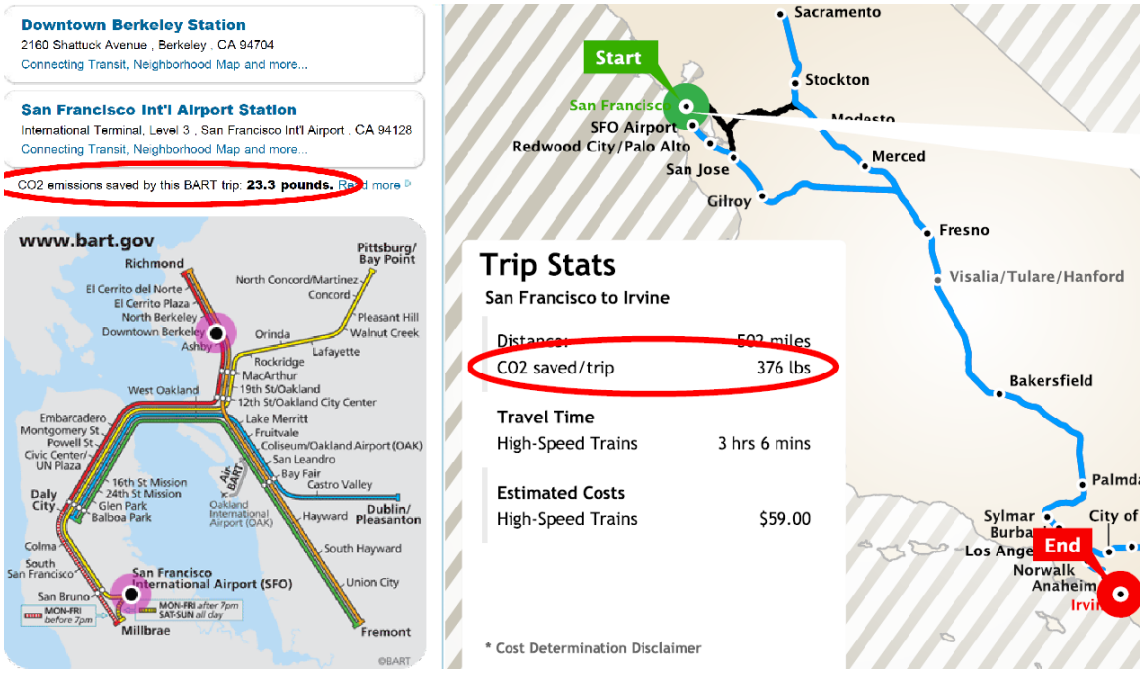

Figure 1 – Environmental impact appears on the websites of BART and the California HSR

As a connection between policy setting agencies and individual decision makers, Martin (2009) investigated the effects of tax credits for hybrid electric vehicles and found that incentives such as tax credits are significantly more effective at reducing emissions than disincentives such as the gas tax.

Further, we build on previous research by Gaker et al. (2010) with investigations into the distribution of the Value of "GREEN" to account for heterogeneity across subjects and into the variability of the Value of "GREEN" between trip types and methods of information presentation. We expand on the findings regarding the influence of normal behaviour in transportation by investigating the significance of displaying the emissions associated with

the commute of the average American while asking people about their preferred commute alternative.

EXPERIMENTS

We drew on the findings of the above literature regarding provision of environmental information and comparisons to greener peers and designed three stated preference experiments to determine if and how sustainable trends and environmental impact information are influential in transportation decisions. These experiments were run on undergraduates from the University of California at Berkeley in the Experimental Social Sciences Laboratory (XLAB) in the Haas Business School. With these experiments, we tried to address a set of questions regarding how travel behaviour is influenced by the power of "GREEN." Two route choice experiments and a auto preference experiment had subjects make tradeoffs between personal benefits, such as reduced monetary cost, and societal benefits, such as reduced emissions, in order to determine whether providing information on environmental consequences can significantly increase sustainable behaviour, what the value is that people place on reducing environmental impacts relative to time and cost, and what the most effective form is in which to present environmental impacts.

As is common with discrete choice experiments, the objective was to find out how our subjects value trading the attributes against each other. This method is often used to determine a passenger's value of time or to place a monetary value on the inconvenience associated with making a transfer when taking public transit. In this setting the specific goal was to determine if and how people respond to information regarding their environmental impacts when faced with a one-time common decision. The first experiment consisted of a route choice for a hypothetical recreational daytrip where each route is described by time, variation of time (as a measure of the reliability of the route), cost, safety, and greenhouse gas emissions. The subjects were asked which of three routes they would likely select. Each subject was asked to make this decision five separate times with a new choice set each time. Figure 2 shows an example of what was presented to the subjects.

Experiment 1

Suppose you and a few friends are planning to take a daytrip to a nearby recreation area. You are going to drive (You'll borrow a car if you don't have one). There are a few routes available to you. We'll describe to you three alternative routes at a time, and ask you to select the route you would take given these options. Please analyze the attributes of each route thoroughly before making a decision. We'll run this experiment 5 times, each time describing 3 different routes from which you are to choose. This is the first stage of Experiment 1.

Explanations of attributes

Time	One-way travel time from the origin to the destination.
Time Variation	Standard deviation of the travel time. 95% of the values are within two standard deviations of the mean.
Toll	Toll for this route (all the other costs are identical across the three alternatives).
Greenhouse Gas Emissions	Amount of greenhouse gases emitted for this route.
Safety	Chance of an accident. 3 denotes safer than normal, 2 denotes normal, and 1 denotes less safe than normal.

	Alternatives		
Attributes	Route 1	Route 2	Route 3
Time (minutes)	80	90	100
Variation of Time (minutes)	± 5	± 18	± 12
Toll (dollars)	$4.00	$0.00	$2.00
Greenhouse Gas Emissions (pounds)	5	3	2
Safety	1	3	2
Please Select One:	**O**	**O**	**O**

Figure 2 – Example screenshot from Route Choice Experiment 1

Building on the route choice experiment described above, experiment 2 was designed to uncover four distinct questions regarding environmental impact due to transportation decisions. A sample screenshot is shown in Figure 3. It appears similar to Figure 2 except that we introduced several wrinkles to get at nuances in the potential behavioural response to information about greenhouse gas emissions. First, do people value reducing their emissions differently for different trip purposes and trip frequency? This was tested by presenting some subjects with a one-time trip to a recreation area and some with a daily commute scenario. Second, do people react differently to the same situation when the costs and emissions are presented over longer timescales and with larger magnitudes? This was tested by presenting some of the subjects who were given the commute scenario with time, cost, and emission values on a per-day basis and others on a per-year basis. Third, are people more or less sensitive to environmental impact information when they are told that they are polluting more or less than the average American? To test this, some of the subjects who were presented with yearly figures were also told the emissions associate with the commute of the average American. Fourth, in order to determine how the subjects react when the costs are real, the compensation that was paid to the subjects was varied based on their decision. A subject who chose a more selfish alternative, for example, would receive more money for participating in the study while someone who was willing to make a personal sacrifice in order to benefit the environment would receive less, in which case we donated the difference to a local environmental cause.

Experiment 2

For all the following questions in Experiment 2, consider the following context.

Suppose you have graduated, you have a job which pays $45,000 per year, and you have a new place to live. You have three options for how to get to work. Keep in mind that this is a trip you will make 5 days per week. Given the following alternatives shown for a round-trip to work and home again, which route are you most likely to choose?

You will be asked the same question five times given the same scenario but with different numbers.

Explanations of attributes

Round Trip Time	Two-way travel time from the origin to the destination.
Time Variation	Standard deviation of the travel time. 95% of the values are within two standard deviations of the mean.
Toll	Toll for this route (all the other costs are identical across the three alternatives).
Greenhouse Gas Emissions	Amount of greenhouse gases emitted for this route.
Safety	Chance of an accident. 3 denotes safer than normal, 2 denotes normal, and 1 denotes less safe than normal.

	Alternatives		
Attributes	Route 1	Route 2	Route 3
Time (minutes/day)	80	90	100
Variation of Time (minutes)	± 5	± 18	± 12
Toll (dollars/day)	$4.00	$0.00	$2.00
Greenhouse Gas Emissions	5	3	2
Safety	1	3	2
Please Select One:	**O**	**O**	**O**

Figure 3 – Example screenshot from Route Choice Experiment 2

The objective of experiment 3 was to determine whether people value environmental impact when faced with decisions that have significantly greater payoffs, both for themselves and for the environment. In the third experiment subjects were presented with a hypothetical situation upon graduation, complete with $45,000 per year job and housing in either a mixed use development, which had better access to transit and shorter commute times, or suburban neighbourhood. Because of the strong social networks and peer pressure common in modern society, the experiment was setup as an information cascade similar to the setup of Choi et al. (2004) who studied the influence of peer behaviour in a gambling setting. For every session of the experiment, the subjects were split into six groups. The first group made their decisions without any information on the decisions of their peers, the second group had information on the first, the third had information on the first two, and so on. With this strategy we were able to identify the influence of the popularity of hybrids because different subjects were presented with different information regarding the behaviour of their peers. They were then presented with a conventional alternative and a hybrid vehicle alternative, each having attributes of purchase price, yearly operating cost, and yearly tons of greenhouse gas emissions and asked whether they would likely buy a conventional fuel vehicle, a hybrid vehicle, or go without a car. An example is shown in Figure 4.

Experiment 3

Suppose you are graduating this semester and you have been offered an exciting job that will pay $45,000 per year. Considering all your options, you will most likely take this job. You have also been offered a great deal to live in a nice house in a suburban neighborhood, which you will also accept. The neighborhood is a typical residential area on the outskirts of the city, the house is nice size with a yard although you have limited walking access to retail and grocery stores. Driving from home to your job (one way) will take about 30 minutes and taking public transport will take about 60 minutes (also door to door, one way).

Given this scenario, we ask that you consider your car purchase. If you own or have access to a car now, assume you will not take it with you. Two car options are described below. Please carefully evaluate the attributes and state whether you would buy one of these cars (and which one) or if you would not buy a car and rely on walking, biking, and public transportation.

You may be interested in the choices made by some of your peers in the lab right now, which are displayed below:

4 of your peers chose a conventionally fueled vehicle.
6 of your peers chose a hybrid vehicle.
2 of your peers chose not to buy a car.

	Alternatives	
Attributes	**Conventional Vehicle**	**Hybrid Vehicle**
Purchase Price ($)	16,000	22,000
Annual Cost ($/year)	5,000	4,300
Greenhouse Gas Emissions (tons/year)	3.2	3

Please Select One:

O Conventional Vehicle
O Hybrid Vehicle
O No Vehicle

Figure 4 – Example screenshot from Auto Choice Experiment

RESULTS

The XLAB, the facility where the experiments were conducted, consists of 36 networked computers and a pool of 2500 students for the purpose of conducting research. Experiments 1 and 3 were conducted on 312 subjects in the summer and fall of 2009, and experiment 2 is currently being conducted and results will be presented at WCTR (2010, Lisbon).

The first step of our data analysis was to estimate two mixed logit models; one for the 1560 responses to the route choice experiment (312 subjects times 5 responses per subject) and one for the 312 responses to the auto choice experiment, as shown in Table I. As is indicated in the "Units" column, several of the parameters were rescaled in order to have all parameters of the same order of magnitude which helps the optimization process of the estimation software converge consistently.

One of the things we wanted to test was whether people value reducing their emissions consistently across experiments. In order to do this, we need to have GHG in comparable units for each experiment. Therefore we had to make the assumptions that people plan to

own a new car for 5.5 years (Belden, 2003) and that two people on a recreational daytrip share the monetary cost so that total costs could be used to calculate a Value of "GREEN." We also wished to test whether there existed some heterogeneity among the subjects, so the value of "GREEN" parameter, defined as the ratio of the parameters for total emissions and total cost, was randomly distributed and specified as a log-normal distribution, similar to how Ben-Akiva et al (1993) specified a choice model with randomly distributed values of time. The two parameters (VOGα and VOGγ) reported for the Value of "GREEN" are the two parameters of a log-normal distribution. The Value of "GREEN" parameter was specified as this ratio so that it could be specified as having a log-normal distribution with units of dollars per pound.

Six choice responses were observed for each respondent n, which we denote as follows;

$a_n = auto\ choice\ of\ individual\ n$
$i_{1n} = route\ choice\ of\ individual\ n, experiment\ 1, round\ 1$
$i_{2n} = route\ choice\ of\ individual\ n, experiment\ 1, round\ 2$
$i_{3n} = route\ choice\ of\ individual\ n, experiment\ 1, round\ 3$
$i_{4n} = route\ choice\ of\ individual\ n, experiment\ 1, round\ 4$
$i_{5n} = route\ choice\ of\ individual\ n, experiment\ 1, round\ 5$

When the VOG parameters are allowed to vary between experiments, the likelihood for an individual (with the model for auto choice on the first line and the route choice on the second) is then;

$$P(a_n) = \int_{VOG} P(a_n | X_{an}; \beta, VOG) * f(VOG) dVOG$$

$$P(i_{1n}, i_{2n}, i_{3n}, i_{4n}, i_{5n}) = \int_{VOG} \prod_{t=1}^{5} P(i_{tn} | X_{tn}; \beta, VOG) * f(VOG) dVOG$$

Where X_{an} and X_{tn} are the vector of explanatory variables for each person for the auto choice experiment and route choice experiment, β is the vector of alternative specific constants and parameter estimates for all but the VOG parameter, VOG is the Value of "GREEN" in dollars per pound saved, and $f(VOG)$ is the probability density function of the VOG, which is specified as a log-normal distribution. Estimates were obtained by maximizing the log-likelihood of the entire sample. Results of the estimation of the separate models are shown on the left side of Table I. The distribution of VOG for the auto choice is shown to be insignificant (VOGγ = 0.29, t-stat = 0.3), which is likely a result of having only observed one choice per respondent. A brief overview of the parameter estimates shows that the signs are as would be expected; additional time or cost produces less utility while higher safety or higher popularity produces more utility. It should also be noted that, by taking a ratio of the parameter estimates for time and cost, our subjects value their travel time at $3.28 per hour, which seems to be within reason for students on a daytrip. Interestingly, the popularity of an alternative in the auto choice experiment had a significant positive influence on the probability of a subject choosing that alternative, indicating the value of achieving a critical mass of sustainable behaviour which will help encourage more people to be environmentally conscious.

Table I – Summary of Logit model estimates

			Included in Utility Fcn						Value of "GREEN" Unconstrained Across the Experiments				Value of Green Constrained Across Both Experiments	
			Auto Choice			Route Choice			Auto Choice		Route Choice			
	Parameter Names	Units*	Hybrid	Conventional	No Car	Route 1	Route 2	Route 3	Estimate	t-test	Estimate	t-test	Estimate	t-test
Auto Choice	ASC Hybrid		X						0.99	2.2			1.23	2.2
	ASC No Car				X				-1.01	-3.5			-0.70	-2.6
	β Suburb				X				-1.77	-6.1			-1.76	-6.0
	β Purchase P	$1,000	X	X					-0.26	-4.6			-0.25	-4.3
	β Operating C	$1,000	X	X					-0.23	-2.3			-0.12	-1.3
	β Peer		X	X	X				1.42	2.6			1.40	2.5
	Value of Green, α		**X**	**X**		**X**	**X**	**X**	**-1.97**	**-2.9**	**-1.64**	**-9.3**	**-1.61**	**-8.3**
	Value of Green, γ		**X**	**X**		**X**	**X**	**X**	**0.29**	**0.3**	**0.79**	**-4.9**	**0.70**	**-2.9**
Route Choice	β Time	10 min				X	X	X			-0.58	-17.2	-0.58	-16.8
	β Var Time	10 min				X	X	X			-0.19	-3.2	-0.19	-3.2
	β Toll					X	X	X			-1.06	-15.0	-1.06	-15.1
	β Free					X	X	X			0.42	3.8	0.41	3.7
	β Safe					X	X	X			0.74	16.9	0.73	16.5
	Number of Observations									1872			1872	
	Adjusted rho-square									0.266			0.265	
	Final log-likelihood									-1495.50			-1497.97	

* Parameters were rescaled in order to make the estimates of similar magnitude

Where we define the parameter multipliers as:

$ASC_{Hybrid} = alternative\ specific\ constant\ for\ the\ choice\ of\ hybrid$
$ASC_{NoCar} = alternative\ specific\ constant\ for\ the\ choice\ of\ no\ car$
$\beta_{Suburb} = parameter\ multiplier\ for\ dummy\ for\ suburban\ housing\ scenario$
$\beta_{PurchaseP} = parameter\ multiplier\ for\ purchase\ price$
$\beta_{OperatingC} = parameter\ multiplier\ for\ operating\ cost$
$\beta_{Peer} = parameter\ multiplier\ for\ popularity\ of\ alternative$
$\beta_{Time} = parameter\ multiplier\ for\ time$
$\beta_{VarTime} = parameter\ multiplier\ for\ variation\ of\ time$
$\beta_{Toll} = parameter\ multiplier\ for\ route\ cost$
$\beta_{Free} = parameter\ multiplier\ for\ dummy\ if\ route\ had\ zero\ toll$
$\beta_{Safe} = parameter\ multiplier\ for\ relative\ safety$

Because the emissions were presented to the subjects in units of pounds per trip in the route choice experiment and tons per year in the auto choice experiment, we wished to test whether our subjects consistently valued reducing their greenhouse gas emissions. In order to test this, we performed a joint estimation by constraining both of the VOG parameters to be equal across both experiments. Shown in the equation below is the likelihood for an individual for the model with a constrained Value of "GREEN" parameter, and the parameter estimates are shown in the right portion of Table I.

$$P(a_n, i_{1n}, i_{2n}, i_{3n}, i_{4n}, i_{5n}) = \int_{VOG}^{n} P(a_n|X_{an};\beta,VOG) * \prod_{t=1}^{5} P(i_{tn}|X_{tn};\beta,VOG) * f(VOG)dVOG$$

A likelihood ratio test was performed by comparing the test statistic of 4.94, calculated as shown below, to a chi-square distribution with 2 degrees of freedom in order to determine the validity of using the same value of "GREEN" for both experiments.

$$D = -2 * \big((log\ likelihood\ for\ unconstrained\ model) - (log\ likelihood\ for\ constrained\ model)\big)$$

Using this likelihood ratio test, we did find evidence to reject the null hypothesis that people value reducing their emissions consistently in different situations (p-value of 0.04). Consequently two log-normal distributions are shown in Figure 5, one for the route choice scenario and one for the auto choice scenario. The two Value of "GREEN" parameters for the route choice experiment indicate an average value of "GREEN" of $0.26 per pound of emissions and a standard deviation of $0.23 per pound, while the distribution for the auto choice has a mean of $0.15 per pound and a standard deviation of $0.04 per pound, both showing that over 99 percent of our subjects value a one pound reduction in their CO_2 emissions somewhere between $0.00 and $1.00.

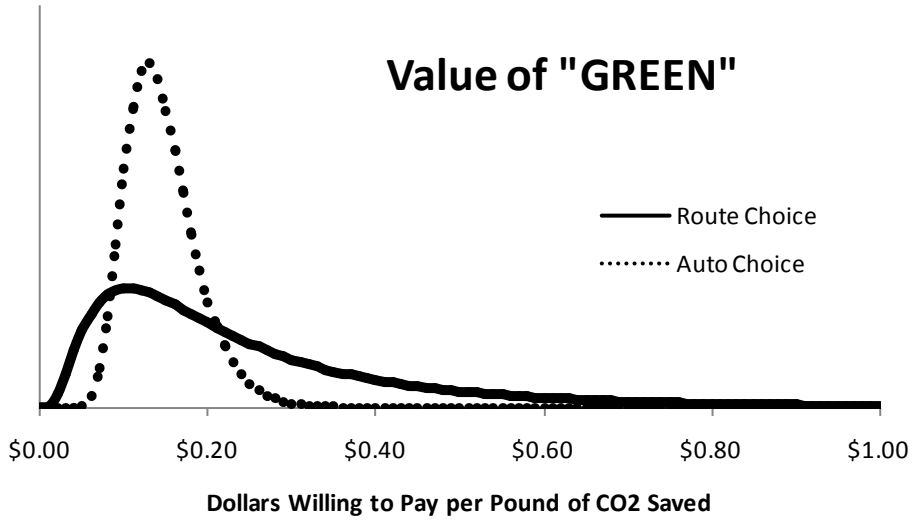

Figure 5 – Distribution of Value of "GREEN" is consistent across experiments

CONCLUSION

In order to investigate how people respond to information regarding their impact on the environment, we designed three stated preference experiments in which subjects had to make decisions regarding route selection or car ownership preference. The set of alternatives they faced made them make trade-offs between attributes such as cost and GHG emissions. It was found that, assuming a log-normal distribution, 99 percent of our subjects value reducing their carbon footprint at a rate of between $0 and $1 per pound of emissions, with a mean of $0.26 per pound for a trip to a recreation area and $0.15 per

pound when purchasing a car. It was also found that people's decisions are swayed by popular trends such as the percent of their peers who drive hybrid vehicles.

In our future work we will process the responses to experiment 2 in order to determine if different trip purposes lead to different environmental sentiments, to find the best form in which to present GHG information to travellers, and to determine whether linking decisions to compensation (making the costs real) diminishes the value of "GREEN."

The intent of this research is not to definitively say that people value reducing their emissions at 26 or 15 cents per pound or to quantify exactly how influential the popularity of "GREEN" trends are, but rather to investigate if there is potential to nudge transportation behaviour toward more sustainable options using this type of information. We also seek to determine if travellers care similarly for the environment across different trip purposes, when the information is presented differently, and when they are shown how much better or worse they pollute compared to their peers. Another finding is that different people respond differently to environmental information, indicating significant heterogeneity in our sample. It is certainly not the case, however, that our sample, UC Berkeley undergraduates, is representative of the population, nor is it true that one-time hypothetical choices are identical to actual daily decisions, but the findings that people place real value on reducing their environmental impact and that people are swayed by social norms hold true in the transportation context.

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