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Do greens drive Hummers or hybrids? Environmental ideology as a determinant of consumer choice

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Abstract

This paper uses several California data sets to test for differences in consumption patterns between greens and browns. A person's "environmentalism" is rarely observed in consumer data sets. In California, a community's share of Green Party registered voters is a viable proxy for community environmentalism. Environmentalists are more likely to commute by public transit, purchase hybrid vehicles, and consume less gasoline than non-environmentalists.

Keywords: Environmentalism; Consumption; Ideology; Hybrid vehicles; Energy

1. Introduction

The environmental movement has been a surprisingly effective political pressure group. It consists of a large number of private citizens and non-profit clubs who have different environmental priorities but share a common goal of protecting public property.

In the public arena, environmentalists willingly sacrifice their scarce time and financial resources to lobby for environmental protection. Does such "devotion to the cause" carryover into the private realm of personal consumer choice?

This paper focuses on environmentalists' private consumer choices ranging from commuting modes, to annual gasoline consumption, to vehicle choice. I test whether environmentalists live a less resource intensive lifestyle than the average person. It is possible that in day-to-day life that there is no difference in consumption choices between the average "green" and the average "brown". A "rational" environmentalist might say to herself; "I am just one person. My actions only have a negligible overall impact on environmental quality". Such "free riding" environmentalists would be political greens but their day-to-day consumption patterns would be quite similar to the average person. An alternative possibility is that environmentalists live a "consistent" lifestyle both voting green and living green. Greens may gain utility from knowing that their ecological footprint is small. Within green communities there may be greater access to environmental friendly technologies (i.e. public transit, bike paths and organic farmers' markets). In green communities, social

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pressure may reinforce the urge to take green actions such as driving a Toyota Prius. Environmentalists may also recognize that their "moral authority" in the political realm is enhanced by gaining a reputation for living a low resource intensive lifestyle and hence "practicing what they preach". Al Gore recently faced close scrutiny over his own greenhouse gas production.[1] To quote one letter writer to USA Today, "Thanks for Peter Schweizer's commentary that exposed former vice president Al Gore's hypocrisy as he says much and does little to curb his personal impact on our environment. Unfortunately, the piece didn't make me feel much better; for I, too, am an environmental hypocrite." (Don McAdam)[2]

The empirical challenge in studying whether environmentalism is an important determinant of household choice is that we rarely observe information both on household consumption patterns and household environmentalism. To get around this problem, I posit that Californians who live in communities featuring a disproportionately high share of Green Party registered voters are environmentalists. I substantiate this claim using two political data sets discussed below. After establishing that a community's Green Party share is a viable measure of community environmentalism, I then turn to documenting consumption differences between green and brown communities. Greens are more likely to use public transit to commute to work, consume fewer gallons of gasoline and are more likely to purchase hybrid vehicles.

This study contributes to two different literatures. There is great interest in comparing national ecological footprints and documenting the growth of the world's ecological footprint [24,26]. Wackernagel et al. [24] stress that rising energy consumption is the key component driving the growth of the world's ecological footprint. Income and population growth are key drivers of rising greenhouse gas production [21]. But, nations with similar per-capita income differ with respect to the size of their ecological footprint. Cross-national differences in environmentalism may help to explain this variation. This paper provides one "micro-foundation" for explaining cross-country differences in environmental performance.

This paper also contributes to research on documenting consumer heterogeneity. Structural industrial organization research has used sophisticated econometric techniques to document that models that allow for consumer heterogeneity fit the observed data better than models that impose that preferences are identical among members of the same demographic group [23]. Such research does not explain *why* consumers with similar demographics make different choices. In this paper, I argue that ideological indicators, even if they are noisily measured, are useful for explaining differences in household behavior.

2. Why would environmentalists live a "green" lifestyle?

A self-interested environmentalist might reason that in day-to-day life that she is "small". Her own consumption patterns only have a negligible effect on the environment.[3] In this case, this environmentalist would vote pro-green but her consumption choices would be no different than the average person.

Alternatively, greens may engage in voluntary restraint for three reasons. First, they may be more likely to internalize the externalities associated with such actions as "excess" driving and its resultant smog and greenhouse gas emissions. Put simply, they may suffer a utility loss from polluting.[4] A second explanation for why Greens might exhibit different consumption patterns than Browns is the pursuit of social status. Economic identity models stress that people value adhering to group norms [1,20,22]. In a green community, the group norm is to live a sustainable lifestyle featuring recycling, political activism and minimalist consumerism. In such a setting, driving a Prius would increase one's status while driving a Hummer would have the opposite effect.[5]A third reason that greens may live a "sustainable" lifestyle is to enhance their

[1]See http://gristmill.grist.org/story/2006/8/17/133652/848.

[2]http://www.usatoday.com/news/opinion/2006-08-16-gore-letters_x.htm

[3]For a study of household consumption choices when households recognize that their decisions directly affect their local environmental quality see Pfaff et al. [18].

[4]Kotchen and Moore [12,13] distinguish two types of market behavior that environmentalists may engage in. They may demand less of a good that causes a negative externality ("voluntary restraint") or they may be willing to pay more for environmentally friendly products ("voluntary price premium"). In their empirical study of electric power consumption in Michigan, Kotchen and Moore [13] document evidence of environmentalists engaging in voluntary restraint by consuming less electricity than observationally identical people.

[5]Similar to religious communities, environmental communities are club goods. Studies of religious communities such as Iannaccone [8] and Berman [4] have argued that club member utility is higher if the size of the group is larger and if the average devotion to the cause is

credibility as a political interest group by avoiding charges of "hypocrisy". Environmentalist voluntary restraint may help greens as a political movement by enhancing their "moral authority". The environmental movement would have less credibility if its members did not "practice what they preach".

3. Identifying environmentalists

This paper's core empirical goal is to test whether environmentalists and non-environmentalists differ with respect to their day-to-day transportation and consumption patterns.[6] To identify environmentalists, I assume that the population Tiebout sorts into "like minded" communities. I posit that environmentalists live in communities with other environmentalists and browns tend to live with other browns.[7] Small initial differences in community attributes could contribute to such a separating equilibrium. Consider two communities that are identical except along one dimension. One community has a nice public park while the second community does not. The environmentalists would be more likely to live in the community with the park. Their clustering in such a location would increase the likelihood that green businesses such as organic restaurants would be more likely to locate near this community. Such "endogenous" green amenities would only further encourage environmentalists to move to this community. The empirical payoff from accepting this logic is that an unobservable, a person's environmentalism, can now be proxied with the local community's observable average environmentalism.

Throughout this paper, my primary measure of environmentalism is a neighborhood's Green Party's share of registered voters. California is the state with the highest count of Green Party registered voters and Green Party voters as a percent of total registered voters (http://www.gp.org/documents/vote_reg.html). The Berkeley IGS (see http://swdb.berkeley.edu/) provides data for each California census tract on its count of registered Green Party voters in the year 2000. Fig. 1 presents the spatial distribution of this variable across California. Note that communities such as Berkeley and Santa Cruz stand out as having a high Green Party share. I use a Geocorr mapping of tracts to other levels of geography available in the micro-data sets. This procedure allows me to merge to various data sets discussed below a measure of what share of local neighbors are registered Green Party members.[8]

The California Green Party provides the following description of itself.

> Because the Earth community is imperiled and the current political system has proved ineffective, Green politics has arisen worldwide through Green parties and kindred grassroots movements. The Green Party of California was formed in 1990–91 when more than 103,000 pragmatic visionaries changed their voter registration to "Green" and thereby qualified the new party for the state-level ballot in California. The Green Party of California stands on two legs: one in electoral work (initiatives, referenda and candidates), and one in community projects and grassroots social-change movements that are compatible with the

(*footnote continued*)
higher. Encouraging voluntary restraint is a type of barrier to entry encouraging those who are at the margin to not participate. Such barriers help to self-select only those environmentalists who are committed and this raises the average devotion to the group. Both Berman and Iannaccone highlight that some religions have time intensive "wasteful" requirements such as praying for many hours or shaving your head to meet a cult's norms. These norms are socially costly but help the group remain cohesive. In contrast, in the environmentalist case, the social norm of voluntary restraint is socially beneficial. For a fixed amount of driving, driving a hybrid reduces your total greenhouse gas emissions.

[6]Empiricists seeking to study such important but hard to quantify concepts as social capital, culture and religiosity as determinants of economic outcomes all face the same challenge. Social capital studies have assumed that more homogenous groups feature higher levels of social capital [6,2]. This assumption allows researchers to proxy for the unobservable (i.e. social capital) with observable fragmentation measures. The same issue arises in studies examining the role of culture and religiosity in determining economic outcomes (see [7]).

[7]I recognize that the heterogeneous population does not perfectly sort into homogenous communities. People differ with respect to their place of work, and distaste for commuting may encourage a household to live a specific community. In addition, community attributes are multi-dimensional. A "brown" community may have excellent public schools and this could attract an environmentalist family to live there. Below, I discuss the measurement error issues implicit in using a community's group average as an indicator of a household's environmental ideology.

[8]It is important to note that voting precincts and census tracts spatially overlap but they do not coincide. To translate the voting precinct data into census tract data, The Berkeley IGS takes the precinct data (there are over 1700 Precincts in Los Angeles county alone) and uses a statistical procedure based on ecological inference to create the tract data.

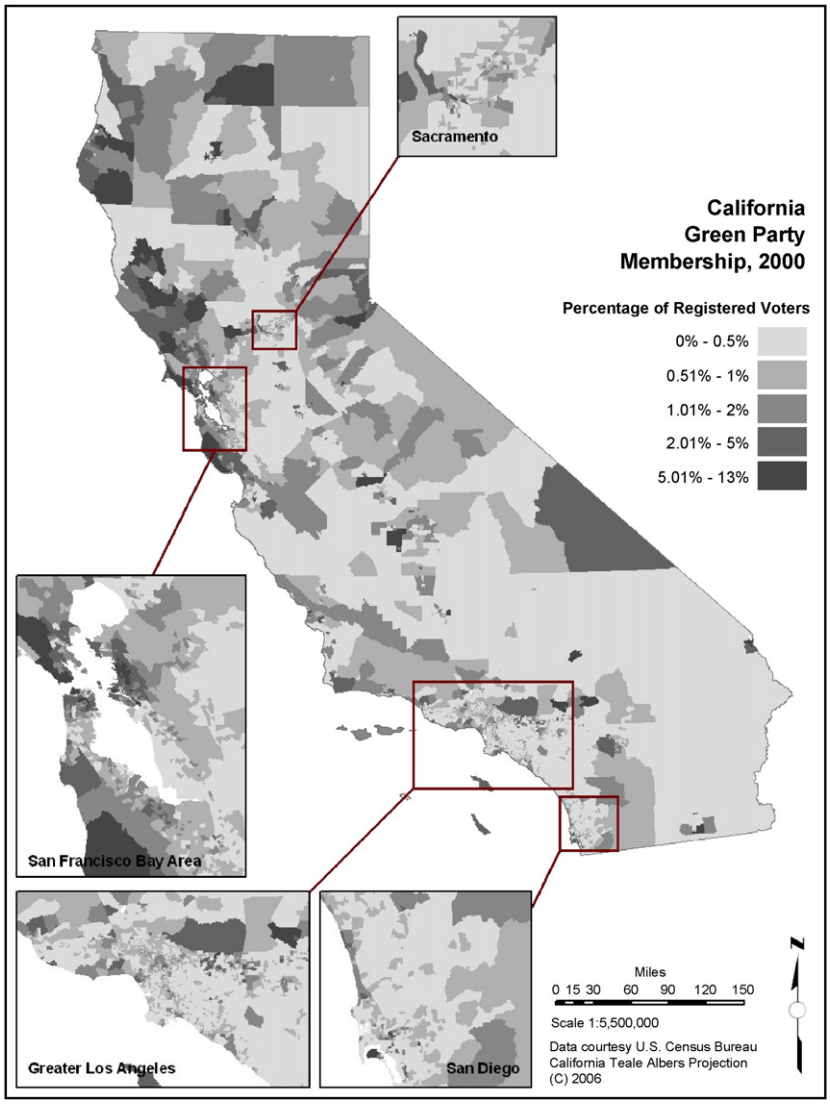

Fig. 1. California Green Party Registration.

Green vision. As Greens we understand humans are but one part of the ecosystem with a unique responsibility. That responsibility is to develop an understanding of environmental sustainability and to live and promote those practices which support it. Ecologically sound principles of living can guarantee protection for the Earth and all its people. Our commitment to ecological wisdom leads us to take natural systems as a model for human interaction. The interconnectedness of all things has helped us to realize that our practices of generating "waste" separate us from natural systems; in nature degraded matter is decomposed and returned to the web of life as nutrients. Our commitment to environmental justice has helped us to understand that in a closed system we all live downstream and downwind." (See http://cagreens.org/platform/ecology.htm.)

The California Green Party Manifesto states that its priorities are: (1) Grassroots Democracy, (2) Social Justice and Equal Opportunity, (3) Ecological Wisdom, (4) Non-Violence, (5) Decentralization, (6) Community Based Economics, (7) Feminism and Gender Equality, (8) Respect for Diversity, (9) Personal

and Global Responsibility, (10) Future Focus and Sustainability (http://www.gp.org/platform/2004/intro.html#998247).

In California, the Green Party has little political clout. Across 7002 California census tracts in the year 2000, the average tract's Green Party share is 0.009. The sample's median is 0.005. The 10th percentile of this distribution is 0.0017, and the 90th percentile is 0.019.[9] In California, members of this party lose the right to vote in another party's primary election. These facts suggest that Green Party membership offers little political clout thus its members must be expressing their own personal ideology.

A skeptic might argue that my approach only indirectly captures any one individual's environmental ideology. Such a skeptic might prefer a more direct survey approach such as the one conducted by Clark et al. [5] or Kotchen and Moore [13]. These authors conducted surveys to construct a New Ecological Paradigm scale. Each survey respondent was asked whether they somewhat agree, somewhat disagree or strongly disagree with the following statements:

1. the balance of nature is very delicate and easily upset;
2. plants and animals have as much right as humans to exist;
3. humans will eventually learn enough about how nature works to be able to control it;
4. the so-called "ecological crisis" facing humankind has been greatly exaggerated;
5. if things continue on their present course, we will soon experience a major ecological catastrophe;
6. humans were meant to rule over the rest of nature;
7. the earth is like a spaceship with very limited room and resources;
8. human ingenuity will insure that we do not make the earth unlivable;
9. we are approaching the limit of the number of people the earth can support;
10. the balance of nature is strong enough to cope with the impacts of modern industrial nations.

Clark et al. [5] document that an environmentalism index based on the answers to these questions predicts participation in a green electricity purchasing program in Michigan. Both my approach and theirs attempts to impute a person's environmentalism. A strength of their approach is that it yields a measure of environmentalism that varies by individual. The cost of this approach is that such a survey may elicit "cheap talk" and most of such surveys are small samples. In contrast, my approach allows me to use any geocoded California data set.

4. Are people who live in Green Party communities environmentalists? Political evidence

This section presents two pieces of political evidence to establish that the communities that I am labeling as "environmentalists" are indeed "green" based on objective criteria. This is a key step for placating a skeptic's concern that a community's Green Party share is a clever but irrelevant variable for a researcher interested in measuring environmentalism's consequences.

4.1. Political evidence based on direct legislation

In California, voters have the opportunity to participate in lawmaking through ballot initiatives [14]. Many of these initiatives are related to environmental issues. Voting patterns based on these binding votes provides a test of whether Green Party registration measures a local community's environmental preferences.

Here is a brief summary of three propositions I study.

Proposition 185 in 1994: This measure imposes a 4 percent sales tax on gasoline not diesel fuel beginning January 1, 1995. This new sales tax is in addition to the existing $.18 per gallon state tax on gasoline and diesel fuel and the average sales tax of approximately 8 percent imposed by the state and local governments on all goods, including gasoline. Revenues generated by the increased tax will be used to improve and operate passenger rail and mass transit bus services, and to make specific improvements to streets and

[9]Across California, the correlation between a census tract's log of average household income and its Green Party share is 0 and the correlation between a tract's Green Party share and the share of the residents who are college graduates is 0.19.

Table 1
California proposition voting

	Proposition 185 in 1994				Proposition 12 in 2000				Proposition 13 in 2000			
	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.
Share Green Party registered	6.2400	0.0978	4.8963	0.0960	2.7746	0.1118	2.3179	0.0979	2.3591	0.1076	1.9332	0.0951
log(average household income)			−0.0508	0.0036			−0.0514	0.0047			−0.0481	0.0045
Share Black			0.0885	0.0072			0.3387	0.0110			0.3229	0.0106
Share Hispanic			0.0613	0.0064			0.2317	0.0077			0.2142	0.0074
Share college graduates			0.3628	0.0106			0.3468	0.0128			0.3148	0.0123
log(population density)			0.0050	0.0006			0.0142	0.0008			0.0131	0.0008
Constant	0.1545	0.0012	0.5724	0.0391	0.6299	0.0018	0.9027	0.0517	0.6494	0.0017	0.9089	0.0495
Observations	6935		6867		6997		6979		6993		6975	
R^2	0.37		0.5060		0.081		0.3840		0.064		0.3620	

The unit of analysis is a census tract. The sample includes all census tracts in California. The dependent variable in each regression is the share of tract voters who voted in favor of each of these propositions. The regressions are weighted by the census tract's count of total registered voters.

highways. The measure also contains various provisions that generally place restrictions on the use of certain state and local revenues for transportation purposes. (www.calvoter.org/archive/94general/props/185.html)

Proposition 12 in March 7, 2000: The 2.1 billion dollar "Safe Neighborhood Parks, Clean Water, Clean Air and Coastal Protection Bond Act of 2000" (2000 Bond Act). Should the state borrow $2.1 billion through the sale of general obligation bonds for state and local projects that acquire, improve, and preserve recreational, cultural, and natural areas (such as parks, wildlife habitats, community centers and zoos)? This proposition authorizes the state to sell $2.1 billion of general obligation bonds to fund many designated programs. About $940 million of the bond money would be granted to local agencies for local recreational, cultural, and natural areas. The remaining $1.16 billion would be used by the state for recreational, cultural, and natural areas of statewide significance. Proposition 12 will help make our parks safer, keep our water free of pollution, improve air quality, and preserve our natural resources. http://ca.lwv.org/lwvc.files/mar00/pc/prop12.html.

Proposition 13 in March 2000: This proposition authorizes the state to sell $1.97 billion of general obligation bonds to spend on programs designated to provide: Safe Drinking Water ($70 million) Flood Protection ($292 million) Watershed Protection ($468 million) Clean Water and Water Recycling (355 million) Water Conservation ($155 million) Water Supply, Reliability and Infrastructure ($630 million) http://ca.lwv.org/lwvc.files/mar00/pc/prop13.html.

All three of these initiatives would spend large amounts of money to enhance environmental quality.

In Table 1, I examine the share of census tract residents who vote in favor of three different environmental initiatives voted on in 1994 and 2000.

The voting data source is http://swdb.berkeley.edu/. Table 1 reports six OLS regressions[10] of Eq. (1)

$$proposition\ \%\ voting\ yes = controls + b_1 * \%\ Green\ Party_i + U_i. \quad (1)$$

In this regression, the unit of analysis is a California census tract. The dependent variable is the share of votes in favor of the proposition. For each of the three initiatives, I first estimate Eq. (1) using only the tract Green Party share as the explanatory variable and then I re-estimate the regression controlling for tract demographics such as tract income, racial composition, percent college graduates, and population density.[11]

Consider the gasoline tax initiative (Proposition 185 in 1994). The univariate regression indicates that a one percentage point increase in the share of tract Green Party voters increases "yes" votes for this proposition by

[10]The regression is weighted by the tract's count of registered voters.

[11]In presenting these findings, I must acknowledge the ecological inference problem [10]. My goal here is to show using this census tract level data that there is evidence of a positive correlation between a community's share of Green Party registered voters and the share of its pro-environmental ballot votes. If there was no correlation between Green Party registration and environmental voting, then I would have little confidence that a community's Green Party registration share tells us anything about a resident's degree of environmentalism.

6.2 percentage points. This coefficient only declines to 4.9 percentage point when I add the demographic controls.[12] The results for the two propositions from the year 2000 tell the same story. Across all six regressions, the Green Party share is positive and statistically significant. Green Party communities vote the pro-environment position on binding legislation. It is important to note that the second set of regressions controls for tract population density so this Green Party coefficient does not simply represent an urban/suburban comparison. One other interesting finding is the positive correlation between education and pro-environment voting (see [9]). The estimated Green Party effect is large relative to other well known determinants of environmental support. All else equal a census tract with one percentage point higher Green Party share or a 13.5 percentage point higher share of the tract who are college graduates would have equal shares of its voters voting in favor of Proposition 185 in 1994.

4.2. Congressional representative voting patterns in green and brown California congressional districts

The US House of Representatives votes each year on numerous pieces of legislation that affect overall environmental quality. The annual League of Conservation Voters' (LCV) "Scorecard" determines which roll call votes are important pieces of environmental legislation and identifies what is the "pro-environment" vote on each specific issue (see www.lcv.org).

> This Scorecard represents the consensus of experts from 19 respected environmental and conservation organizations who selected the key votes on which Members of Congress should be graded. LCV scores votes on the most important issues of the year, including environmental health and safety protections, resource conservation, and spending for environmental programs. ... Except in rare circumstances, the Scorecard excludes consensus action on the environment and issues on which no recorded votes occurred. Dedicated environmentalists and national leaders volunteered their time to identify and research crucial votes.

Using the LCV scorecard data, I have constructed a Representative level panel data set covering the years 2001–2004 to examine whether liberal representatives vote the pro-environment position on Congressional Bills relative to conservatives. My data set includes votes on 52 different pieces of environmental legislation. If a Representative served from 2001 to 2004, then I would have 52 observations for this person. The overall share of pro-environment votes (as defined by the LCV) is 51.6%.

In this section, I test whether representatives from Green Party districts vote the pro-environment position. I use the GEOCORR database to create a geographical bridge file linking the year 2000 Green Party political registration data by census tract to California's congressional districts. This mapping allows me to construct for each of these Congressional District's a measure of its share of registered voters who are in the Green Party. For each of these Representative over the years 2001–2004, I know their voting records on environmental legislation. In Table 2, I investigate whether Representatives are more likely to vote the Green position on House legislation if their constituents are more "green". The unit of analysis is a Representative's vote on a piece of environmental legislation:

$$pro\text{-}environment\ vote = controls + b_1 * \%\ district\ Green\ Party_i + U_i. \quad (2)$$

In column (1) I do not control for any variables. A one percentage point increase in the share of constituents who are Green Party registered voters increases the share of pro-environment votes by 22 percentage points.[13] In the second column, I control for the Representative's own political ideology using the Poole–Rosenthal

[12]Environmentalists are unlikely to bear the incidence of a higher gasoline tax. Below, I will document that this group lives closer to public transit and consumes fewer gallons of gasoline. In this sense, this group faces a lower price for voting in favor of this tax. In this case, the Green Party variable's positive coefficient in Table 1's left columns may reflect both overall environmentalism and the demand effect that greens face a lower tax price then the average person. I thank an anonymous reviewer for this point.

[13]I acknowledge that it remains an open question in political science how constituent desires influence their politicians' choices [17]. Even in Berkeley, California the Green Party's share is only 6% of registered voters, thus a candidate seeking to satisfy the desires of the median voter could safely ignore this group if the Greens were a fringe pocket of the Congressional District. But, the results in Table 2 show this positive correlation between my environmental measure and Representative voting behavior.

Table 2
California Representative voting on environmental legislation

	Coef.	Std. err.	Coef.	Std. err.
District share Green Party registered	21.7723	3.6376	17.8700	5.0248
District share Green Party registered squared			−565.1421	157.9534
Representative ideology factor #1			−0.8248	0.0270
Representative ideology factor #2			−0.0358	0.0439
Constant	0.4391	0.0651	0.4526	0.0267
Year fixed effects	Yes		Yes	
Observations	2449		2449	
R^2	0.1094		0.7128	

The unit of analysis is a Representative's vote on a Congressional Bill pertaining to the environment as defined by the League of Conservation Voters Scorecards. The dependent variable is a dummy that equals one if a Representative voted the pro-environment position as defined by the League of Conservation Voters. The sample includes all California Representatives who served over the years 2001–2004. The Representative ideology measures are discussed in the text. A larger Representative ideology factor #1 is associated with a conservative ideology. District share Green Party registered has a mean of 0.0082 and a standard deviation of 0.0073. Representative ideology factor #1 has a mean of −0.0553 and a standard deviation of 0.4889. Representative ideology factor #2 has a mean of −0.1448 and a standard deviation of 0.3206.

overall political ideology measure.[14] Controlling for "own ideology", I find evidence of a concave relationship between Green Party share and Representative voting score.

Based on political evidence, Green Party communities reveal themselves to be environmentalists. For the remainder of this paper, I take this "fact" to be true and now turn to testing whether environmentalists consume fewer resources than non-environmentalists.

5. Measuring consumption differences between greens and browns

To begin to study consumption differentials, I first examine where greens locate and where environmentalist stores cluster within California cities. Green communities are not randomly assigned within cities. Environmentalists are more likely to live closer to the CBD and locate close to rail transit stations. Such communities offer the infrastructure to live a non-resource intensive lifestyle where people can avoid vehicle use and instead use public transit and walking to commute, and shop. If such communities attract a cluster of greens then this aggregate market potential can encourage shops that cater to this group to open there [25]. This "social multiplier" effect would further reinforce the propensity for environmentalists to live near such public infrastructure.

To study the spatial determinants of where greens cluster within a city, I present two regressions in Table 3. I estimate Eq. (3) to examine how a census tract's population density, proximity to the city center and proximity to rail transit stations affects a census tract's share of Green Party registered voters. The data source is Baum-Snow and Kahn [3]:

$$\%\ Green\ Party_j = c + \beta_1 * X_j + U_j. \tag{3}$$

In the left column of Table 3, the data sample includes California census tracts in San Jose, Sacramento, Los Angeles, San Francisco, San Diego and Anaheim. These six major cities had rail transit systems in the year 2000. The omitted category is Los Angeles. Relative to Los Angeles, San Francisco has more Greens. Within cities, Green Party registered voters live at higher population densities, closer to the city center and closer to rail transit stations. The Green Party sample average is 0.8 percentage points. All else equal, the share of Green Party registered voters increases by 0.6 percentage points if a tract is within one mile of a rail transit station.

[14]My measure of Representative ideology is based on data constructed by Keith Poole (see http://voteview.com/dwnomin.htm). Poole and Rosenthal [19] have used factor analysis to create a political ideology measure for each Representative in each Congress. It is important to note that this overall ideology score is based on votes on *all* bills not just environmental bills.

Table 3
Environmentalist clustering as a function of urban form and transportation access

	Coef.	Std. err.	Coef.	Std. err.
Orange county	−0.0008	0.0009		
Sacramento	−0.0005	0.0007		
San Diego	−0.0013	0.0006		
San Francisco	0.0098	0.0005		
San Jose	−0.0003	0.0006		
Log(population density)	0.0003	0.0002		
Log(distance to CBD)	−0.0014	0.0003		
Dummy variable indicating within one mile of rail transit station	0.0057	0.0005	0.0020	0.0004
Year 2000 dummy			0.0024	0.0001
Constant	0.0169	0.0039	0.0057	0.0001
Sample	2000		1990 and 2000 tract	
Fixed effects observations	3931		7932	
R^2	0.221		0.884	

The dependent variable is a census tract's share of registered Green Party voters. The unit of analysis is a census tract. The sample includes all California census tracts within 25 miles of the Central Business District of Orange county, Los Angeles county, Sacramento, San Diego county, San Francisco county and San Jose county. The omitted category is a census tract in Los Angeles county that is more than one mile from the closest rail transit station. In the left column the sample includes tract data from the year 2000 and in the right column the sample includes tract data from the years 1990 and 2000.

Between 1990 and 2000, several California cities built and expanded new rail transit lines [3]. These transit expansions offer the opportunity to test whether Green Party registered voters cluster near new rail transit stations. If Green Party members are environmentalists, then I would expect them to cluster there. In the right column of Table 3, I use 1990 and 2000 census tract data (with two observations for each California Census tract). I re-estimate Eq. (3) but instead of including metro area fixed effects, I now include census tract fixed effects. Rail transit expansions cause some census tracts that were more than one mile from a rail transit station in 1990 to "move closer" to rail transit stations by the year 2000. In this regression, the key explanatory variable is a dummy variable that equals one if a census tract was more than one mile from the closest rail transit station in 1990 but in the year 2000 is within one mile of the closest rail transit station. Note the statistically significant coefficient estimate for this dummy variable of 0.2 percentage points. Greens are moving to new rail transit station communities.

If greens cluster in Green Party communities, then stores that cater to greens (i.e. tofu restaurants and bike shops) should locate nearby. Waldfogel [25] has examined restaurant spatial clustering patterns with respect to community demographics. He reports that there is a larger count of Mexican restaurants in zip codes with a larger share of Hispanic residents. By a similar logic, if a zip code's Green Party share truly measures its environmentalism then I should observe more "green businesses" located in such zip codes. To investigate this, I use the 2006 National Green Pages. This directory lists 477 California businesses and their zip codes.

> The National Green Pages reports in its preface "Published annually by Co-op America, the National Green Pages directory connects you to socially and environmentally responsible businesses that provide green products and services. ... A green business operates in ways that solve rather than cause social and environmental problems. These businesses adopt principles, policies, and practices that improve the quality of life for their customers, employees, communities and the planet. It's important to note that in the National Green pages, green refers to social justice, economic justice and environmental sustainability. Business members must pass social and environmental screens.

In Table 4, I estimate zip code level negative binomial regressions. The dependent variable is the count of firms located in that zip code. Controlling for a zip code's average household income, population density, and scale of population, I find that the zip code's share of residents who are Green Party registered voters is positively correlated with the count of green businesses in that zip code.

Table 4
The count of environmentalist businesses as a function of zip code attributes

	Coef.	Std. err.	Coef.	Std. err.
Share Green Party registered	42.2258	4.2234		
Share voting pro-environment on binding initiatives			6.6471	0.8009
log(average household income)	0.3826	0.1869	0.2270	0.1473
Population (1000s)	0.0162	0.0048	0.0176	0.0049
% Hispanic	−0.0249	0.0056	−0.0351	0.0053
Log(population density)	0.3148	0.0415	0.0925	0.0440
Constant	−8.4798	2.0920	−8.7423	1.6850
ln alpha	1.0594	0.1379	1.1998	0.1389
alpha	2.8846	0.3978	3.3194	0.4610
Observations	1660		1660	

The unit of analysis is a zip code. This table reports two negative binomial regressions. The dependent variable is the count of "Green" businesses located in a zip code. The business listings are based on data from the 2006 National Green Pages published by Co-Op America. Share voting pro-environment on binding initiatives is the zip code's average of "yes" votes on propositions 12 and 13 in the year 2000. See text for a description of these propositions.

In the right column of Table 4, I estimate the same zip code level negative binomial regression but rather than using the zip code's Green Party share as the measure of environmentalism, I use the zip code's average share of pro-environment votes on Proposition 12 and 13 in the year 2000. These pro-environment initiatives were discussed in the previous section. As shown in Table 4, this alternative measure of community environmentalism has a statistically significant coefficient.

5.1. Vehicle use

I use the 2001 National Household Transportation Survey (NHTS) data to study California household driving patterns. A special geocoded data set provides each household's zip code. The geocorr mapping program is used to calculate each zip code's percent of Green Party registered voters. This data set provides standard household demographic data. In each regression I report below, the controls include census block population density, the log of household income, household size, household head age and ethnicity.

The unit of analysis is household j living in zip code z. The dependent variable will be an indicator of household transportation patterns. Eq. (4) presents the linear regression. In Table 5, I will use several different indicators of vehicle resource consumption including annual gasoline consumption and SUV ownership:

$$consumption_{jz} = controls_j + b_1 * \%\ green_z + b_2 * (population\ density_z) + U_{jz}. \quad (4)$$

I seek to test whether b_1, the coefficient on the zip code's share of the voters who are Green Party registered voters, is negative.[15] People in green communities may consume less both due to selection and treatment effects. The former effect would be observed if environmentalists Tiebout sort into green communities and then are observed economizing on consumption that causes pollution externalities. The latter effect could take place if new migrants to green communities felt social pressure to restrain their consumption or face social shaming.[16] Such communities might also have better access to physical infrastructure (i.e. bike paths and public transit stations) to permit resource conservation. Using data from Baum-Snow and Kahn [3], I proxy for public transit access for each zip code by creating a dummy variable that equals one if the zip code's centroid is within a mile a rail transit station.

I recognize that average community "Greeness" is a noisy measure of one's own environmental ideology. If people perfectly Tiebout sort into homogeneous communities, then it would be an excellent indicator of any

[15]In the regressions reported in Table 5 the standard errors are corrected for this within community clustering [15].

[16]If I had access to household level environmental ideology measures, I would have created the interaction variable equal to (Individual is Green)*(Community is Green). Such interactions would allow me to decompose how much of the environmentalism effect is due to voluntary restraint (regardless of the social setting) from community incentives and peer pressure to be green.

Table 5
California transportation consumption regressions

	Gallons		SUV		Not use public transit	
	beta	Std. err.	beta	Std. err.	beta	Std. err.
Share of zipcode Green Party registered	−5413.3090	1948.4640	−2.2467	0.6907	−4.8894	1.0218
Zip code is within one mile of a transit station	−43.6143	64.8648	−0.0232	0.0405	−0.1075	0.0460
log(block density)	−50.8635	19.1422	−0.0092	0.0071	−0.0514	0.0081
log(household income)	423.8648	41.7122	0.0838	0.0145	0.0546	0.0189
Household size	162.5089	23.6686	0.0030	0.0097	0.0288	0.0090
1(minority)	−47.0905	101.2371	−0.0049	0.0356	0.0003	0.0391
Age	−0.3110	3.1195	−0.0016	0.0011	0.0013	0.0015
1(age missing)	−113.3895	156.3803	−0.1289	0.0623	0.2394	0.0723
Constant	−3461.9900	447.5426	−0.5688	0.1782	0.4743	0.2216
Mean of dependent variable	1062.2640		0.1811		0.7706	
Observations	4678		3880		5442	
R^2	0.2195		0.0533		0.1128	

This table reports three OLS regressions. The data set is the 2001 NHTS. The unit of analysis is the household in the Gallons and SUV regressions. A person is the unit of analysis in the "not use public transit" regression. Gallons is annual gallons of gasoline consumed. SUV is a dummy variable that equals one if the household owns a SUV. Not use public transit is a dummy that equals one if the person has not used public transit in the last two months. The standard errors are clustered by residential zip code.

one community member's environmentalism. Classic measurement error formulas show that the use of an explanatory variable featuring measurement error will lead to an underestimate of the true effect of b_1.[17] Thus, OLS estimates of b_1 in Eq. (4) are *biased against* my finding an impact of ideology on consumption choice.

Table 5 reports three regression estimates of Eq. (4). In the left column, the dependent variable is annual self-reported household consumption of gasoline. The results indicate that richer people consume more gasoline and people who live at higher population density consume less gasoline. Controlling for these factors, I find that households who live in Green Party areas consume less gasoline. All else equal, a one percentage point increase in a zip code's Green Party share is associated with an annual decline of 54 gallons of gasoline consumption.[18] This finding highlights what I seek to estimate namely $E(Consumption_{jz}|\text{Community } z \text{ is Green}, X) - E(Consumption_{jz}|\text{Community } z \text{ is brown}, X)$. The average household in this sample consumes roughly 920 gallons of gasoline a year in California. This suggests that the "ideology" effect is large.[19] Parry and Small [16] argue that relative to the social optimum that US gasoline taxes are too low. In this case, consumer voluntary restraint offers social benefits because the typical consumer faces price signals that are socially too low.

[17]Is reverse causality a serious concern here? One might argue that people join the Green Party because they consume few resources and thus it is easy for them to comply with this Party's social norms. For this to be a serious concern one would need an explanation unrelated to environmentalism for explaining why such a group of "conservers" exists. This set of "conservers" would face low costs for joining the Green Party but what would be the benefits they gain if they are not environmentalists? Throughout this paper, I am positing the causal argument that one's "environmentalism" depends both on your internal desires and social interactions with your peer group. The subset of people who have "environmentalist" preferences are more likely to join the Green Party and are more likely to have a small ecological footprint.

[18]I was concerned that the year 2000 might represent a fluke year for the Green Party due to Ralph Nader's Presidential candidacy. Fortunately, the Berkeley data center provides information on party registration going back to the year 1992. For 6919 California tracts, the correlation between Green Party registration in 1992 and 2000 is .822. This high correlation increases my confidence that this political registration choice reflects fixed attributes about the local community. I have re-estimated the results reported in Table 5 using instrumental variables where I instrument for Green Party share in 2000 using the 1992 tract share and this yields quite similar results to the OLS results.

[19]Recently, there are new options for offsetting one's greenhouse gas production (see www.targetneutral.com, www.cooldriver.org, and www.b-e-f.org). Future research might examine who participates in these programs. When environmentalists can participate in such programs, do they engage in less voluntary restraint and drive more because they feel less guilty about the environmental consequences of their actions?

Table 6
California census tract level regressions of transportation mode choice

	Commute mode shares									
	Using public transit				Walking		Share with commute less than 25 min		Share do not own private vehicle	
	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.
Share of tract Green Party registered	1.8552	0.0675	1.3411	0.0614	1.2476	0.0567	0.2108	0.1244	0.4942	0.0662
Within one mile from rail transit Station			0.1006	0.0024					0.0754	0.0026
log(average household income)	−0.0292	0.0031	−0.0180	0.0028	−0.0886	0.0026	−0.1518	0.0057	−0.1267	0.0030
Share of tract Black	0.1142	0.0076	0.0855	0.0068	−0.0285	0.0064	−0.2619	0.0139	0.0647	0.0073
Share Hispanic	0.0801	0.0047	0.0746	0.0042	0.0456	0.0039	−0.0777	0.0087	0.0771	0.0045
Share college graduates	0.1025	0.0081	0.0806	0.0073	0.1746	0.0068	0.1558	0.0150	0.1320	0.0079
log(population density)	0.0147	0.0005	0.0109	0.0005	−0.0025	0.0004	−0.0127	0.0010	0.0091	0.0005
Constant	0.1771	0.0339	0.0896	0.0303	0.9753	0.0285	2.3426	0.0625	1.3340	0.0326
Mean dependent variable	0.0560		0.0560		0.0530		0.5720		0.0980	
Observations	7010		7010		7010		7010		7010	
R^2	0.3430		0.4760		0.2810		0.1590		0.5440	

This table reports five OLS regressions. The unit of analysis is a census tract. The data are from the year 2000. "Using public transit" is the share of census tract workers who commute using public transit. "Walking" is the share of the census tract that commutes to work by walking. "Share with commute less than 25 min" is the share of workers with a commute less than 25 min. "Share do not own private vehicle" is the share of the census tract households who do not own a private vehicle.

The middle column of Table 5 estimates a linear probability model where the dependent variable is a dummy that equals one if the household owns a SUV. All else equal, a one percentage point increase in Green Party share reduces the probability that a household owns such a vehicle by 2.2 percentage points. In the right column of Table 5, I estimate another linear probability model. In this case, the dependent variable equals one if a person says he has not used public transit in the last two months. All else equal, a one percentage point increase in Green Party share increases the probability that a respondent has used public transit in the last two months by 4.9 percentage points. This set of results highlights that controlling for household location, greens economize on private transportation consumption.[20]

To further investigate commuting patterns as a function of environmentalism, I return to tract level data from California in the year 2000. In Table 6 I report five OLS regressions based on

$$commute_z = control_z + b_1 * \%\ Green_z + b_2 * (population\ density_z) + U_z. \quad (5)$$

In the left columns, the dependent variable is the share of the tract workers who commute using public transit. Controlling for tract income, education, ethnicity and population density, a one percentage point increase in the Green Party share for the tract increases public transit use by 1.9 percentage points. This is a very large effect given that the mean public transit use is 5.6 percentage points. In the second column, I include a dummy that equals one if the tract is within one mile of a rail transit station. All else equal, public transit use is 10 percentage points higher in such communities. Even controlling for this variable, the Green Party variable continues to be positive and statistically significant. The coefficient does shrink in value but even controlling for population density and rail transit availability, a one percentage point increase in a tract's Green Party share increases public transit use by 1.3 percentage points. The results in the right columns of Table 6 indicate that all else equal, Greens are more likely to walk to work, to have short commutes and to not own a private vehicle.

[20]The coefficients on the dummy variable "zip code is within one mile of a rail transit station" reveal interesting facts. This variable's coefficient is statistically insignificant in the gasoline regression but its coefficient is statistically significant in the public transit regression.

5.2. Vehicle choice: hybrid demand

Using a unique census tract level data set from Los Angeles county in 2005, I study what attributes of census tracts are correlated with the tract's residents purchasing "Green Cars" (namely hybrids such as the Toyota Prius) versus "brown cars" such as the Hummer. The typical differentiated product study conducted at the national level does not introduce "cultural" variables to explain differences in vehicle demand [23]. Yet, the conventional wisdom is that values matter in determining vehicle choice.[21]

The R.L Polk company uses street addresses from vehicle registrations to calculate the count of vehicles by make, by calendar year and by census tract. For each census tract in Los Angeles county in 2005, I know the total count of registered hybrid vehicles for several different makes, the count of Hummers and the count of several of the "greenest" conventional makes.[22] To identify these "green" conventional makes, I used the Environmental Protection Agency's Green Vehicle list (see http://www.epa.gov/emissweb/download.htm). This list ranks vehicles with respect to their fuel economy and vehicle emissions.[23] An advantage of examining vehicle registrations is that this is not self-reported data.

A green would have at least two incentives to purchase a hybrid vehicle. For any given amount of miles driven per year, driving a more fuel efficient vehicle will reduce one's environmental footprint. In addition, the type of vehicle a person drives is seen by everyone in the community. While a Hummer might be a positive status symbol in Governor Arnold Schwarzenegger's community, it is likely to be negative status symbol in a green community such as Berkeley or Santa Monica. In an environmentalist community, a wasteful action such as driving a fuel inefficient vehicle may trigger some shame and ostracism. In this case, social peer pressure would reinforce individual green's desires to purchase a green vehicle.

By merging the Polk vehicle count data and the year 2000 census tract data on tract demographics, I estimate negative binomial count regressions reported in Eq. (6) to examine what tract attributes explain differences in registered vehicle counts:

$$\textit{vehicle count for make } L_z = f(\textit{control}_z + b_1 * \%\ \textit{green}_z). \tag{6}$$

Table 7 reports 13 negative binomial regressions. Each column of the table reports a separate regression. The only "brown" vehicle included in this table is the Hummer. In each regression, vehicle prices do not vary across census tracts. Controlling for a census tract's average income, population density and ethnicity what types of vehicles are environmentalists purchasing? Note that the Green Party coefficient is positive and statistically significant in each of the hybrid vehicle count regressions. In contrast, the Green Party coefficient is negative for the conventional vehicles that include; the Honda Accord, Honda Civic, Toyota Camry, and Nissan Sentry. This is surprising because the EPA Green Car page listed above ranks these as quite green vehicles. The final coefficient of note is in the Hummer regression. As expected, Green Party communities are less likely to purchase Hummers.

To quantify the size of these effects, at the bottom of Table 7 I use the regression coefficients and the tract's demographics to predict the count of each type of vehicle if the tract had a 0% Green Party share versus if it had a 4% Green Party share.

The Toyota Prius' predicted count vastly stands out. The average census tract's Prius predicted count increases from 2.2 to 46.2 as the Green Party share increases from 0% to 4%. For the other makes, the predicted increase in registration counts is tiny. For example, the Honda Civic Hybrid's predicted count

[21]It is comforting to be assured by David Brooks that "if you're Swedish and you have a chance to pull up in front of a fire hydrant, you still don't do it. Then again, I've sat on a bench in front of a luxury dessert and beverage shop at the tony southwest corner of Madison Avenue and 92nd street and watched as one supersized, gas-guzzling SUV after another pulled up with its sole, severely pampered, affluent occupant blithely unconcerned with our energy crisis or global warming. Perhaps not all of Western Culture is so enviably altruistic." Doug Brin 8/17/2006 New York Times letter to the editor.

[22]Los Angeles is a leading center of Prius interest. A Google Trends search for Toyota Prius on July 13th 2006 yielded Los Angeles as ranked #3. The top 10 were, San Francisco, Pleasanton, Los Angeles, San Diego, Irvine, Seattle, Portland, Denver, Austin, and Washington, DC.

[23]The vehicle makes I label as green match closely the independent ranking produced by the American Council for An Energy Efficient Economy. It ranked the following cars the greenest available in February 2005: Honda Civic GX, Honda Insight, Toyota Prius, Honda Civic Hybrid, Toyota Corolla, Toyota Echo, Nissan Sentra, Honda Civic HX, Pontiac Vibe, Mazda 3, Ford Escape Hybrid and Ford Focus. (see www.greenercars.com)

Table 7
The count of registered green vehicles in Los Angeles county communities in 2005

	Midsize				SUVs		Small cars						All other makes
	Toyota Prius Hybrid	Toyota Camry	Honda Accord Hybrid	Honda Accord	Hummer	Ford Escape Hybrid	Honda Civic Hybrid	Honda Civic	Honda Insight Hybrid	Nissan Sentra	Mazda 3	Ford Focus	
Share Green Party registered	76.0889	−31.8903	22.5410	−24.2092	−19.8748	40.7048	28.8258	−9.9591	36.5060	−18.6588	20.9106	4.6764	0.8056
	(4.4700)	(4.1820)	(7.5883)	(4.0567)	(6.0638)	(8.0631)	(5.8125)	(3.9518)	(19.6802)	(4.8036)	(8.6107)	(4.5958)	(4.4855)
log(average household income)	1.2027	0.0066	1.0393	0.2506	0.6672	0.7419	0.4650	0.0607	0.4994	−0.7587	0.4662	−0.2239	0.4290
	(0.0684)	(0.0705)	(0.1174)	(0.0648)	(0.0798)	(0.1435)	(0.0963)	(0.0656)	(0.3351)	(0.0738)	(0.1274)	(0.0719)	(0.0650)
Population (1000s)	0.1946	0.2437	0.1925	0.2451	0.2094	0.1793	0.1873	0.2583	0.1652	0.2618	0.2496	0.2552	0.2341
	(0.0128)	(0.0124)	(0.0222)	(0.0118)	(0.0141)	(0.0283)	(0.0175)	(0.0115)	(0.0616)	(0.0133)	(0.0238)	(0.0130)	(0.0128)
% Hispanic	−2.5967	−1.2985	−1.7518	−1.1467	−0.6140	−3.0327	−1.8082	−0.7556	−2.1052	0.2357	−1.2794	−0.4443	−0.3245
	(0.1205)	(0.0910)	(0.2290)	(0.0850)	(0.1237)	(0.3514)	(0.1707)	(0.0848)	(0.6015)	(0.0966)	(0.1756)	(0.0951)	(0.0925)
log(population density)	0.0653	0.0682	−0.0112	0.0946	−0.1162	−0.0116	0.0384	0.0150	0.1984	−0.0331	−0.0019	−0.0459	−0.0149
	(0.0229)	(0.0222)	(0.0381)	(0.0208)	(0.0246)	(0.0460)	(0.0328)	(0.0203)	(0.1366)	(0.0235)	(0.0435)	(0.0237)	(0.0225)
Constant	−13.3410	2.2867	−12.8256	−0.7989	−6.7757	−9.9650	−6.4200	1.4322	−10.6161	9.5491	−4.6898	3.9968	−0.2291
	(0.8750)	(0.8999)	(1.5185)	(0.8197)	(1.0096)	(1.8652)	(1.2477)	(0.8262)	(4.5187)	(0.9245)	(1.6111)	(0.9085)	(0.8251)
ln alpha	−0.9498	−0.3501	−1.1569	−0.4531	−1.0823	−2.3398	−1.5354	−0.4963	0.5547	−0.2860	0.8800	−0.3612	−0.2242
	(0.0734)	(0.0354)	(0.2614)	(0.0363)	(0.1147)	(1.2797)	(0.2687)	(0.0374)	(0.5338)	(0.0402)	(0.0474)	(0.0406)	(0.0331)
alpha	0.3868	0.7046	0.3145	0.6356	0.3388	0.0963	0.2154	0.6088	1.7414	0.7513	2.4109	0.6968	0.7992
	(0.0284)	(0.0249)	(0.0822)	(0.0231)	(0.0389)	(0.1233)	(0.0579)	(0.0227)	(0.9296)	(0.0302)	(0.1143)	(0.0283)	(0.0264)
Mean count across tracts	3.3541	30.3052	0.3909	28.2717	1.1865	0.1969	0.5860	21.4886	0.0482	9.7007	3.4708	8.7324	195.1056
SD of count across tracts	5.3366	28.0558	0.7864	25.2833	1.5946	0.5033	0.9326	18.6147	0.2399	9.7956	5.0373	8.4258	141.4941
Predicted count if share Green Party registered = 0	2.2	30.3	0.35	36.2	1.4	0.15	0.51	25.4	0.04	12.1	3.3	9.5	216.56
Predicted count if share Green Party registered = 0.04	46.2	11.3	0.87	13.8	0.63	0.78	1.61	17	0.16	5.7	7.7	11.4	223.7
Pseudo R^2	0.191	0.03	0.143	0.04	0.087	0.166	0.105	0.035	0.06	0.045	0.029	0.03	0.018

This table reports 13 negative binomial regression estimates using Los Angeles county census tract level observations in 2005. The dependent variable is the count of registered vehicles built between 1999 and 20005 in a specific make category in a census tract. There are 2041 observations in each regression. The unit of analysis is a census tract. Standard errors are reported in partentheses.

Table 8
Honda registrations of conventional and hybrid makes in 2005

	Accord		Civic	
	Coef.	Std. err.	Coef.	Std. err.
Share of tract Green Party registered	−25.3364	3.9583	−14.2503	3.8296
Share of tract Green Party registered∗hybrid vehicle dummy	43.7295	7.3981	43.9119	6.7483
Hybrid vehicle dummy	−4.4509	0.0613	−3.8436	0.0568
log(average household income)	0.5867	0.0599	0.3058	0.0660
Population in 1000s	0.2256	0.0107	0.2372	0.0100
Share Hispanic	−1.3512	0.0789	−1.0301	0.0780
log(population density)	0.0776	0.0249	0.0214	0.0229
Constant	−4.3766	0.7957	−1.3460	0.8598
ln alpha	−0.2104	0.0516	−0.2718	0.0516
alpha	0.8103	0.0418	0.7620	0.0393
Predicted vehicle count for conventional and green share = 0%	30.02		19.9	
Predicted vehicle count for hybrid and green share = 0%	0.3500		0.4300	
Predicted vehicle count for conventional and green share = 4%	10.8900		11.2500	
Predicted vehicle count for hybrid and green share = 4%	0.7300		1.4000	

This table reports two negative binomial regression estimates using Los Angeles County census tract level data in 2005. The omitted category is the count of vehicles in a census tract in the conventional vehicle category. The Conventional dummy equals zero if the vehicle is a Hybrid. The standard errors are clustered by census tract.

increases from 0.51 to 1.61 when the share of Green Party voters increases. The huge "Prius" effect relative to other almost equally green vehicles suggests that the social interactions effect may dominate the private utility effect from not polluting. Through marketing and celebrity endorsements, the Prius is widely recognized as the "Green Car". Anticipating that their "Greeness" will be acknowledged when they drive this vehicle down their block may encourage households to buy this vehicle.[24]

There are other hybrid vehicles that are not as well known as the Prius. These makes include the Honda Accord and the Honda Civic. Unlike the Prius, Honda produces both conventional vehicles of this make and hybrid vehicles. This within make variation in attributes is useful for testing whether Greens purchase both vehicle types. In Table 8, I estimate separate negative binomial regressions for Accords and Civics. I pool the hybrid and conventional data so the unit of analysis is the count of registered vehicles in a census tract in 2005. There are 2000 census tracts, and two types of vehicles (hybrid and conventional) so there are 4000 observations included in the Accord regression and 4000 observations in the Civic regression.

The popular media provides some clues about household motivations to purchase the hybrid Accord. In a New York Times 11/28/2004 article titled Greening without the preening by John M. Broder discusses the fact that the 2005 Honda Accord Hybrid charges a $3400 premium for the hybrid version relative to the conventional Accord.

> The tangible benefits are relatively small: the hybrid delivers modestly better performance, improved mileage and slightly more space than the conventional V-6 accord. ... "But Honda is betting that the intangible and invisible benefits of hybrid ownership will drive discriminating upper-middle income buyers to its showrooms to do their bit for the ozone layer. Honda says its hybrid buyers are a conservative bunch, not the sort to advertise their virtue like owners of the Toyota Prius, who may want everyone to think their cars can run on egg whites and organic chardonnay. Robert Bienenfeld senior manager for product planning at Honda; said that the $3,400 price premium over the regular accord was offset by the better performance, and fuel efficiency as well as by a federal tax break for hybrid vehicles, 'We are pushing hard to provide a benefit to society beyond what the individual gets, it's a tough calculus in a certain sense, it

[24]Future research might examine whether environmentalists purchase hybrid SUVs. Such a vehicle looks like a "Hummer" but its true fuel economy is much higher than conventional SUVs.

doesn't add up but in another sense it does. You feel good about owning it. How do you put a price on that?'

The results reported in Table 8 show that greens have different preferences for hybrid versus conventional versions of the same make. While the conventional Honda Accords and Civics are objectively "green" vehicles, members of green communities are less likely to purchase such vehicles than members of brown communities. As shown at the bottom of Table 8, greens are more likely to purchase the hybrid versions than brown communities. This result is generated by the positive coefficient on the interaction term "share of tract Green Party registered*hybrid vehicle dummy".

6. Conclusion

Standard consumption theory focuses on income and relative prices as key determinants of choice. Building on recent research studying the demand for green power (see [13]), this paper has examined how "environmentalism" influences the quantity and quality of household transportation decisions. Using a variety of data sources, I documented that Californian environmentalists make "greener" transportation choices than the average consumer. This finding does not simply reflect urban/suburban differences in locational choice. Controlling for community population density, greens are more likely to use public transit, consume less gasoline and purchase green vehicles such as the hybrids. Such actions offer social benefits because natural resources, such as gasoline, are often priced below their true social marginal cost [16].

Future research could delve more deeply into explaining why people who live in environmentalist communities live a more restrained lifestyle. How do private motivations for engaging in voluntary restraint interact with social ambitions of achieving status and respect in one's residential community? My findings with respect to Toyota Prius demand relative to other hybrids highlights the possibility that positive social interactions within one's community encourages environmentalists to make choices that highlight one's "greenness".

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