2012

Are Subcompact Cars Driving Consumers Towards Sustainable Transport

Enda McGovern
Sacred Heart University, mcgoverne@sacredheart.edu

Follow this and additional works at: https://digitalcommons.sacredheart.edu/wcob_fac

Part of the Environmental Studies Commons, Marketing Commons, Other Social and Behavioral Sciences Commons, and the Transportation Commons

Recommended Citation

This Peer-Reviewed Article is brought to you for free and open access by the Jack Welch College of Business at DigitalCommons@SHU. It has been accepted for inclusion in WCOB Faculty Publications by an authorized administrator of DigitalCommons@SHU. For more information, please contact ferribyp@sacredheart.edu, lysobeyb@sacredheart.edu.
ARE SUBCOMPACT CARS DRIVING CONSUMERS TOWARDS SUSTAINABLE TRANSPORT?

Enda McGovern, Sacred Heart University mcgovern@ Sacredheart.edu

ABSTRACT

Access to private transport is a critical component of the modern industrialized world but it is also recognized as a major source of carbon dioxide emissions, one of the global warming gases contributing to climate change. This paper looks at increased use of subcompact cars as a key component in developing a sustainable transport policy. These cars benefit the environment by emitting reduced levels of carbon emissions due to their smaller engines. This empirical research explores the opinions of Smart car owners in a focus group study. Smart car owners are primarily focused on reducing their costs due to difficult economic times and do not mention environmental conservation issues as a primary motivating factor in their ownership decisions.

INTRODUCTION

Evidence gathered by environmental scientists has confirmed the detrimental effect carbon emission pollution is having on the planet including a warming climate, increased occurrences of regional droughts, excessive storm activity leading to an increase in localized or regional flooding, and the expansion of deserts at the expense of agricultural land. Fortunately private transport and, specifically, of subcompact cars in the US minimizes emissions, such as carbon dioxide, through small, efficient engines. Given the growing popularity of these vehicles, this research explores the motivations behind ownership, to determine the extent to which purchasing these cars is driven by environmental sensibility versus economic "centsability."

SCOPE OF THE CARBON EMISSIONS PROBLEM

The America’s Climate Choices Report (National Academy of Sciences 2011), while re-affirming the global scientific consensus about the causes and effects of climate change, is mandated by Congress to offer direction to the wider public in dealing with climate change. As the report states, the question is no longer if the climate is changing, but rather what are the options for dealing with this change. Understanding what actions to take that limit future emissions is a key element of the principle of sustainability. The capacity or willingness of consumers to adapt their lifestyle so as to take into account predicted environmental hazards has yet to be seriously confronted. This research wishes to explore the depth of consideration that participants give to such issues in adopting subcompact vehicles as their primary choice of private transport. As Durning (1992) concludes it is the survival of the planet that is at stake: ‘If the life-supporting ecosystems of the planet are to survive for future generations, the consumer society will have to dramatically curtail its use of resources’ (Durning 1992, p. 25).

The work of the Intergovernmental Panel on Climate Change (IPCC) has clearly provided evidence that human activities are a major contributor to global warming, and the consequent patterns of climate change now under way (Metz 2007). The US has agreed in principle to work with more than 180 other nations under the United Nations Framework Convention on Climate Change to bring about the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic [human-caused] interference with the climate system.” As part of this work the IPCC have proposed that a global increase in temperatures should be limited to a maximum rise of 2°C. In order for this to be achieved global energy emissions have been projected to be not greater than 32Gt* of CO2 by 2020.

However it is estimated that CO2 emissions rose by 5% from 29.4Gt in 2009 to 30.6Gt in 2010 (IEA 2010). The continued worldwide rate of growth in CO2 emissions levels, despite documented scientific warnings of the consequences, seems to be uncontrollable. This growth trend been increasing since the Industrial revolution - an estimated 337 billion tons of CO2 have been released into the atmosphere since 1751, specifically from the consumption of energy generated from fossil fuel and the production of cement.

In 2009 it is estimated that the US emitted 6.6Gt carbon dioxide equivalent (CO2e). Approx. 5.4Gt of CO2 (83%) was emitted from energy consumption (the burning of fossil fuels). Based on 2009 data for the US, transport is one of the biggest contributors of carbon emissions, accounting for 34.1% of the total, some 1.85Gt of CO2 emissions (US IEA 2011).

Many indicators suggest that climate problems will increase in coming decades (Zissener 2011). Scientists have estimated that more than 75% of recent economic losses have been caused by natural hazards such as wind storms, excessive flooding, regional droughts and other climate related hazards. Many of these natural hazards appear to be increasing at a greater rate than geophysical disasters such as earthquakes or tsunamis. This was emphasized by the United
Nations Framework Convention on Climate Change in the reports and they urged governments to become more proactive in planning for such events specific to their region of the world.

Consequent to rising exposure and vulnerability to weather-related extreme events, comprehensive and holistic risk and vulnerability reduction strategies should be a core part of adaptation to extreme weather events.

THEORETICAL BACKGROUND

– Birkmann, 2011

As societies progress towards late modernity new social groupings based on the distribution of environmental risks are gaining prominence. Over the past decades Huber and Beck, have been shaping their own perspectives regarding the theory of risk. Ecological Modernization (EM) originated in the 1980’s through the work of Joseph Huber (1985), the German sociologist. He expressed the view that environmental concerns can be easily accommodated within existing lifestyles, whether this is through adapting production processes or by slightly altering consumer lifestyles. The prime goal of EM is to harness the power of human ingenuity for the purposes of economic advancement together with environmental improvement. In essence it breaks with the idea that environmental needs are in conflict with economic demands. In this context Huber might assert that the latest developments in transport technology would eventually provide the answers to the current problems.

Cohen (1997) suggests that there are four key elements within an organization that need to be in place if EM is to be successful. The first introduces ecological criteria into the production and consumption process. The second element requires the implementation of anticipatory planning practice as modeled on the precautionary principle. The third element requires organizations to internalize the importance of ecological responsibility. Finally, there is the necessity for government to devise regulations that promote innovation in the field of environmental technology. Weale (1994) summarizes EM as a very positive approach when looking at environmental problems and goes so far as to state, “Instead of seeing environmental protection as a burden on the economy, the ecological modernist sees it as a potential source for future growth” (p. 123).

In contrast, Ulrich Beck, in his book Risk Society: Towards a New Modernity (1992), argues that environmental problems can only be addressed through fundamental social and economic change. This transition from a modern to a late modern society is also a transition from an industrial society to a risk society in which hazards are continuously being produced on a regular basis. Industrial society and risk society are, for Beck, distinct social formations: “The axial principle of the industrial society is the distortion of goods, while that of the risk society is the distribution of ‘bads’ or ‘dangers” (p. 3).

The underlying proposition of Beck’s theory (1992) is that because of the strength in the economic success of industrialized societies, the degree of exposure to risk is becoming more prevalent across all sections of society regardless of class, ‘poverty is hierarchic, smog is democratic’ (p. 36). Beck also builds a strong case that these risks differ from risks of the early part of the twentieth century because they can induce systematic and irreversible harm while they remain undetectable to the senses. However he admits that the consequences of these risks are slowing becoming more visible to the general public: “The latency phase of risk threats is coming to an end. The invisible hazards are becoming more visible ... instead they strike home more clearly our eyes, ears and noses” (p. 55).

The concept of sustainable transport could be positioned as a compromise: harnessing the power of human ingenuity while facing the imminent threat of climate change. Car manufacturing companies worldwide are trying to invent the zero pollution vehicle that can facilitate consumers existing travel behaviors with some degree of adaption. But what do we mean by sustainable transport? Richardson (1999) defines it as follows:

A sustainable transport system is one in which fuel consumption, vehicle emissions, safety, congestion, and social and economic access are of such levels that they can be sustained into the indefinite future without causing greater or irreparable harm to future generation of people throughout the world.

SUBCOMPACT AUTOMOBILES

The environmentally friendly subcompact class of entry-level vehicles has become more popular amongst consumers given the difficult current economic climate. These consumers are looking for an affordable vehicle, primarily for daily commuting, that lowers their level of financial commitment in terms of purchase price and running costs (achieve higher MPG) but also helps attain savings with lower insurance premiums.
It is estimated that U.S. sales of new cars and trucks for 2011 will reach 12.7 million. This is a marked improvement from 11.5 million sales in 2010 and 10.4 million sales in 2009, which was the lowest figure since 1982 (WSJ 2012). And these figures support that car manufacturers are beginning to exploit the market demand for fuel-efficient vehicles based on two primary reasons. First, the economic argument makes sense as the average cost of a gallon of gasoline was $3.71 in Aug 2011 and it is forecast to continue to rise (EIA, 2011). Second, both federal and state governments are seeking to reduce the levels of pollution from sources of transportation and are bringing in much tighter CAFE (Corporate Average Fuel Economy) standards, rising from 27.3 mpg in 2011 to 34.1 mpg in 2016 (NHTSA, 2012). As a result evidence of increased consumer demand for smaller, more fuel-efficient, vehicles is gaining pace. The purchase of small cars during the first half of 2011 gained 9.1% as a segment compared to figures for 2010 (Buss, 2011).

Nonetheless there is not one standard criterion in use worldwide that classifies different sizes of vehicles. As a result similar vehicles may have different classifications applied dependent on each specific region. In the US the EPA breaks down the size class of cars based on interior passenger and cargo volume, as illustrated in Table 1.

**TABLE 1. VEHICLE SIZE CLASSES (EP A, 2011)**

The subcompact car is classified to be between 85 cu ft and 99 cu ft of interior volume. In comparison, a large sedan is classified to have over 120 cu ft of interior volume. However Minivans and Sport Utility Vehicles are classified differently by their overall weight rating, as illustrated in Table 2.

**TABLE 2. MINIVAN AND SUV VEHICLE SIZE CLASSES (EPA, 2011)**

*Gross Vehicle Weight Rating (GVWR) is calculated as truck weight plus carrying capacity.

While the Smart car is 85% recyclable when its lifecycle is completed on the road (Smartusa 2011), it is acknowledged that subcompact cars do not meet the totality of this definition. Nonetheless they could be considered as one of the most sustainable forms of transport currently available to consumers worldwide. And yet subcompact cars are very close to meeting this definition but, more importantly, they are a long way ahead of other forms of transport commonly used today, i.e. passenger cars and light trucks.

Therefore, it could be surmised, that subcompact cars are a necessary step forward in changing transport behavior. Facilitating consumers over time to adapt their lifestyle to use sustainable forms of transport, whenever operational models become available, is an important link in moving consumers beyond the conventional combustion engine.

**RESEARCH METHODOLOGY AND SITE**

This program of research set out to examine the framework of decision-making when selecting a subcompact, specifically a Smart car. A focus group study was chosen as the research instrument. Attempting to access Smart car owners to participate in the research proved to be very difficult and took an extended period of time. Smart Corporation was formally approached with the request to provide a mailing list of Smart car owners but declined citing customer confidentiality. This was understandable given the sensitivity of customer data and their desire to protect issues of confidentiality.

The world of social media was approached by targeting two specific sites: Smart USA Insider (http://www.smartusainsider.com) and Smart Car of America (www.smartcarofamerica.com/forums/). Both forums were created for owners of smart cars. Smart car owners living in, or near, Fairfield County, CT, were identified as part of an advertised Smart Chapter Meeting scheduled to be held on Saturday May 14th @ 1.00pm in as meeting room in Fairfield Smart Center. The owners attending were approached and agreed to participate in a focus group discussion. The narrative from this discussion was recorded on audiotape with the written permission of each of the participants. Focus group participants included 8 men and 4 women aged between 19 and 75 years of age owning a total of 10 Smart cars.

**DATA ANALYSIS**

What are the everyday issues that confront people when purchasing vehicles and making decisions about how to use them daily? How do these relate to perceptions of climate change, cost savings, and safety concerns, among others? These were a few of the questions discussed as the focus group data was scrutinized to place these issues within the cognitive framework of the individual and that of the community.

The following themes were identified in content analysis:
Achieving Greater MPG. The importance of achieving a high mpg rating was a constant and positive discussion theme. Participants expressed extreme satisfaction in getting high mpg from their Smart cars. As one participant put it: “I find myself driving the Smart car more than my Audi that only gets 20mpg. I am always going for the Smart car rather then the Audi unless I have to take 4 people with me!”

Ease of Parking. Smart cars fit very small parking, much to the satisfaction of their owners. As one respondent praised: "Even on the street when people don’t park correctly they

574
don’t parallel park – And you can just squeeze into that little space there.”

Avoiding Electric Subcompacts. There was an evident lack of support for electric vehicles among the participants - none expressed an interest in buying one. Some complaints focused on the relatively high price of such vehicles, starting at around $35k, being simply too expensive of an investment: "At the price, its not (worthwhile). You cannot feel good about yourself spending $43k / $45K on an electric that gets 60 miles per charge. If I was to spend an exuberant amount of money I would buy a Tesla that gets 270 miles per charge. That’s only twice the price and getting 4 times the range. And you are getting a sports car. All the horsepower, torque you get also!!"

Another target was relative performance, given the limitations in power and driving range. Pejoratives included "It’s beyond slow"; "it takes almost, what seems like a minute" to accelerate to 60 mph; "if you ever wish to accelerate to pass somebody, then forget about it. You just can’t"; using accessories like the heater slows the car and "can cut the range in half" and its range limitations mean it is "only a City car."

Embracing Diesel Subcompacts. Smart have introduced a diesel model in Europe (85mpg) but this is not available in the US market, and participants could not wait to check them out due to a reputation for superior fuel mileage. As one participant noted: “Did anyone mention diesel? I would buy a new one if they came up with the diesel. Without question!! I have a heavy foot and do not get in the 40’s and 50 mpg like many people. I barely get in the 40’s on the freeway.... I know people in Canada were talking about getting in the 60 and 70mpg range." A number of the participants expressed a desire to purchase this model immediately if it was made available in the US.

A Liberating Lifestyle. One of the points that came across very strongly from each participant was how much driving this subcompact car suited their lifestyle. They did acknowledge that they had to adapt from their years of previous driving behavior to engage the use of the Smart car. However they claimed to be happier as a result of this decision. Many participants expressed a degree of pride in making this statement and in also being able to tell other people about the car and of the joy it had brought them. Comments made included: “It made us happy.” “When I first got it I felt like a kid again.” “It put the ‘fun’ back in driving.” “.... it was rejuvenating, it was everything and more than what I ever expected out of a vehicle. I would expect something like this if I bought a H3 or something like that but you know what, I got the same satisfaction out of that and more.” and “It’s unique. It kind of has it’s exclusivity.”

Another point to mention was that the participants, as part of the lifestyle choice, believed they had broken free from the big oil companies. They no longer felt that they had little control over their expenses in running a car. The subcompact market offered them choices that gave them greater flexibility in controlling costs. As one participant put it: “With the gas prices as high as they are today, even if you can afford them, does it make anyone just feel good that you are beating the system? I feel so good about driving the car because I am just so sick of the oil companies. Even if it does not do any good in America, I feel good because of that”.

RESULTS

This focus group discussion raised many interesting points about how the use of subcompact cars was evolving and how the consideration of purchasing these cars was becoming more acceptable in the US. A number of points can be drawn from this data: The primary reasons

575

for purchasing a subcompact car were based on the low sales price and the subsequent low running costs resulting from higher mpg ratings. Indirectly, the encouragement to increase mpg ratings also reduces levels of tail-pipe emissions. A key point from the research could be that policy makers need to develop marketing or public information campaigns that endorse the action of American drivers seeking to increase their mpg while, at the same time, indirectly, reducing their CO2 emissions. Finally the adapted lifestyle that comes with driving the Smart car was a feature of pride for these participants as they do see themselves as being somewhat ‘different’. Gaining a level of financial independence from the oil companies seemed to be a driving force for many in this regard. The costs were low compared to driving experiences from previous years and they were happy to adapt and embrace the subcompact car lifestyle. They also felt ‘richer’, aside from monetary gain, for having made the decision to own a Smart car.
CONCLUSIONS

The question of how long will subcompact sales continue to grow in the US is still open for discussion. The high unemployment rates, the extended downturn in the economy along with the increased costs of fuel, have created the perfect storm for continued growth in this market sector. The research suggests that consumers are slowly moving forward in accepting smaller vehicles as a norm, driven primarily by the cost savings. As car manufacturers strive to produce more advanced, smaller vehicles, the purchase of subcompact cars today may enable consumers better adapt tomorrow in embracing these futuristic models as sustainable forms of transport.

One thing is clear however - the decision to purchase a Smart subcompact rides on a combination of microeconomic and lifestyle factors, not on a rational decision to suboptimize due to environmental intelligence, ecological awareness or any other personal commitment to conservation or sustainability. Clifford and Martin (2011) conclude: "But America’s eco-consciousness, it turns out, is fickle. As recession gripped the country, the consumer’s love affair with green products, from recycled toilet paper to organic foods to hybrid cars, faded like a bad infatuation." In order for sustainability to be more than a fad, "going green" must offer more than saving the planet, now and in the future. It must offer good deals.

Undertaking further research that attempts to link potential cost savings with carbon reduction behavior is very important in achieving a sustainable forms of transportation. This research has provided evidence that consumers are willing to consider changes in lifestyle choices only when such changes can bring about cost savings. As a result this research could be interpreted as a positive step towards engaging sustainable transport policies. However there is more research required to better understand how consumers purchasing decision will evolve as new forms of transport are invented. This will be especially important when the costs benefits become exhausted and emissions and climate change issues come to the fore. What value will consumers place on adapting their travel behavior in response to increased occurrences of weather disruption?

Acknowledgements. The author would like to acknowledge Alinda Yu as a research assistant in developing this paper. Brett Harrison, President of the Fairfield Smart Chapter, also contributed his time and energy to facilitate the focus group discussion.

REFERENCES


Huber, J. (1985). Die Regenbogengesellschaft: Okologie and Sozialpolitik. Frankfurt am Main:
Fisher.
http://professional.wsj.com/article/TPAPRS000020120103e81300056.html?mod=wsjpr
NHTSA (2012). NHTSA and EPA establish new national program to improve fuel economy and reduce greenhouse gas emissions for passenger cars and light trucks. Retrieved from
http://dels.nas.edu/Report/America-Climate-Choices-2011/12781
Smartusa (2012). The 2012 Smart for two brochure. Retrieved from
http://www.eia.gov/energy_in_brief/images/charts/energy_related_carbon_dioxide_emissions_sector-large.jpg