REVIEW OF MARKET SURVEYS ON CONSUMER BEHAVIOR OF PURCHASING AND USING ELECTRIC VEHICLE IN CHINA

Xunmin Ou, Tsinghua Univ., Beijing, China, E-mail: ouxm@mail.tsinghua.edu.cn
Qian Zhang, Tsinghua Univ., Beijing, China, E-mail: zhang-qian11@mails.tsinghua.edu.cn
Danhua Ouyang, Tsinghua Univ., Beijing, China, E-mail: oydh17@mails.tsinghua.edu.cn

Overview

The vehicle stock in China continues growing along with rapid economic development and people's living standards improvement. Due to the pressure of energy conserving and the higher requirements on air quality, China chooses new energy vehicles (NEV) as a national strategy to meet these challenges. Private car area is an important field to popularize NEV, which has attracted many researchers to conduct valuable surveys on it in order to accelerate the market devlopment.

This study summarizes market surveys which focused on consumer behavior on purchasing and using NEV. Through sorting out the results and conducting comparative analysis, we identify the behavioral characteristics of consumers of NEV and the key factors that affecting consumers' decision-making, which are significant for enterprises and government to grasp the needs of NEV consumers. On the basis of reviewing existing surveys, this article proposes that furture NEV surveys can be combined with quantitative analysis of consumer choice behavior. and future survey designing direction focusing on this purpose has been put forward.

Methods

Eight NEV consumer survey reports (see References) were sorted out and summurized from repondents, vehicle models, areas, sample size, methods, main contents and other aspects. Through comparative analysis of these survey results, some common conclusions have been drawn. Based on this, the direction of further survey and research has also been put forward.

Results

These reports, released in 2016-2017, are targeted at both NEV users and potential customers. Vehicle models include battery electric vehicles and plug-in hybrid elevtric vehicles. Most respondents come from NEV promotion and demonstration cities which means most of the interviewees live in first tier cities. The total sample size varied widely from 200 to 16,000. the surveys were conducted through internet, telephone, wechat and other online questionnaires, as well as offline interviews. The main contents of the surveys include individual characteristics of consumers, family characteristics, travel patterns, purchasing behavior, driving behavior, charging behavior, maintenance and after-sales, consumer concerns, consumer satisfaction and policy influences.

NEV consumers, which are mainly males, show a younger and highly educated character. The majority of the respondents' families are three-person households, with a medium to high level income. Most consumers in Shanghai and Beijing purchase NEV as their first car and in other regions NEV is the second car of the family. The main use of NEV is commuting, with an average daily travel distance less than 60 kilometers and even less than 35 kilometers during working days. The daily travel distance of gasoline vehicles is longer than NEV's. If NEV is the second vehicle of the family, the travel distance of gasoline vehicle is obviously reduced. In addition, in the first-tier cities, policy incentives including license-plate lottery and traffic restrictions are the main reasons motivating consumers to choose NEV. Consumers in second and third tier cities pay more attention on economic factors. The most concerned topics are all-electric-range, charging convenience and battery performance degradation. The proportion of NEV users who owend home charging facilities varies across cities. The main charging locations are home, working place and public charging station. NEVs are usually charged on off work hours at night and the charging frequency for most users is 3-5 times per week.

Conclusions

Existing surveys on NEV consumers has made considerable progress in qualitative analysis of consumer characteristics and identifying key influencing factors of consumers' purchasing behaviors. Common conclusions on consumer characteristics, driving characteristics, purchasing behaviors, consumer concerns and charging behaviors have been drawn. Furture work can be conducted from the following aspects.

First, the statistical analysis results of future surveys can be applied to quantitative analysis related to consumer choice behavior. It can provide valuable assistance to the analysis of consumer decision-making behavior and NEV market forecasting. In order to predict the development of NEV market, the survey should be focused more on potential consumers of NEV. Apart from tier 1 cities, researching in tier-2 and tier-3 cities should also be strengthened. Although tier 1 cities will still be the major markets for NEV in the short term, the markets in tier-2 and tier-3 cities will gradually emerge in the medium and long term.

In addition, the design of the survey can be combined with the demand of consumer choice behavior quantitative analysis. Investigation on consumer's characteristics should emphasis more on income level. Purchasing behaviors inquiries need to pay attention on the influencial factors of purchasing behaviors and their importance degree for consumers. When comes to the choice behavior, researching on consumer behaviors of conventional vehicles (such as travel distance, fuel economy, operating costs, maintenance costs, etc.), or travel behaviors of car-free consumers (such as travel modes, travel costs, etc.) should be included in order to make comparsion with NEVs. Surveys should also have investigations on consumer demand, such as the expectation of NEV driving range, performance, cost and charging.

Third, due to the significant role of policies in promoting the NEV market at this stage, the survey of consumers' responses to policies should also be added which including the impacts of existing incentive policies on purchasing decisions and expectations of policy instruments. The choice of policy instruments can be integrated with the policy characteristics of the investigated area.

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