

Consumer Preference On Warranty Details Offered By Electric Vehicle Manufacturers In India

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ABSTRACT

To protect consumers, manufacturer must offer a warranty for their products to assure the quality and to increase customer satisfaction. Electric Vehicles (EVs) are recently introduced in India and it is slowly occupying the consumer mind-set. Government also extended more incentives for EVs such as tax exemption, subsidies, free parking, free toll plaza etc. Many manufacturing industries are imported spare parts and exempted from customs duty. EVs are eco-friendly, zero maintenance cost and safety. All the above facts are hidden in the EVs sales. So, the manufacturer and dealer offered many warranties and guarantees to the consumers of EVs. These are all the key factors for promoting sales of EVs. The manufacturer warrants each purchaser of a vehicles, subjects to the following limitations, terms and conditions that the purchased EVs, when new is free of defective materials and workmanship. Any part be mentioned by manufacturers and dealers to be covered by this warranty. It will be repaired or replaced which will be conclusive and binding. The purchaser will pay all labour charges connected with repair or replacement of all parts covered under this limited warranty. The limited warranty covers parts and shipping of those parts, and labour installation for all components without exception. The warranty for battery is being properly maintained and operated and charged with a proper specific charger and no other charger than that specifically provided by the manufacturer. Some manufacturers and dealers are extending incentives to purchaser like insurance cost and some extra fittings. This paper focuses on various warranty limitations offered to consumers by different manufactures in India.

Keywords: Consumer preference, Electric vehicles warranty-limitation, charger guarantee.

INTRODUCTION

In 1976, Magnuson–Moss clearly stated that retailer of consumer product has been warranted by act. The united nation convention assured some warranty rights for particular consumers and vendor participating international trade. Warranty assured made by a seller about quality

of products and good services. It can help to consumer to secure the confirmation of goods provide by the agreement of the seller. A warranty is provide by a party with the rights of monetary values, to recover the original goods from damages or replace alternatives to assure protection to buyer and contractible agreement of the product.

However, warranty policies are facing so many barriers in this business. If a firm would able to follow all variables of sound warranty policies. In the development point of view, later it will able to find out solution for the best obstacles. Basically warranty policies might be lack in certain items , but it is very important because the buyers can get insurance against defective products. In addition to risk oriented products are insured by manufacturer to pay warranty which include all products during the time of the sale (Che,1996; Mixon, 1999; Soberman, 2003). Now a days, consumer intention strategies are getting more important in the highly competitive market. So, the consumer needs and expectations are fulfilled to their satisfaction to develop effective business strategies.

Consumer behaviour is related to warranties and guarantees offered by the seller to the buyer intention and decision to purchase a particular products which includes repair, replacement or retrieval of products from the warranty period limits. Warranty of products are comes under good performance of a product. Warranty claims can be beneficial for few reasons such as damaged product, actual problem related to the warranty offered and it provides opportunities to improve quality as well as improvement of the marketing program. To improve consumer satisfaction by providing actual information about new concepts of the product quality, nature of service, awareness about the negative words of voice communications of a warranty limits offered. The expectation of consumer is to replace the manufacturer default materials such as motor, controller and battery.

In third party warranty system enables and systematically manage the risk oriented parts or components. Battery makes huge share in electric vehicles. Battery life is the main factor in EVs and increase the warranty period from six months to one year. For two and three wheelers, warranty limits extended to lithium-ion battery for the period of 2-3 years. EVs buyers can replace the risk associated battery and warranty can be covered up to five years for the over a life time vehicles. Although, buyers may be induced to look option of unique infrastructure service and extended warranty can help them to minimize the obstacles of buying an EVs with knowledge about damages of component which covered on the limits of warranty.

Contribution Consumer preference of EVs

Generally include the financial technical, Infrastructure policies and warranties attributes for vehicle alternatives. Presence an overview of the findings an the preference for various attributes of electric vehicle.

Warranty attributes

Warranty is found to affect EV adoption positively. The research found the impact of battery life to increase after respondents participated in a 3month trial period of EV but both effect non significant.

Title of warranty

The right to ownership without any lien offered by seller to buyer.

Express warranty

An information of fact that becomes part of the basis of the bargain

Implied warranty

The contractual rights arising for certain circumstances of the sale activated by operation of law.

Merchantability

Warranty offered by merchant seller, That the goods are practically fit for ordinary purpose for which they are manufactured. Fitness for particular purpose, If the seller knows the reason for particular purpose for which the buyer buys

Part replace under various warranties

- The warranty period

The new vehicle limited is divided into various warranty periods. Month/miles whichever ever comes first the service is carried out

- **Warranty coverage**

Basic warranty coverage

Train coverage of power

Power train limited items are covered as warranty include

Drive train section

System warranty

Owner of originality

Placed vehicle in commercial service

Coverage of adjustment

- **Few Expectations**

Period of charging in air conditioner level

Audio system

Conventional level in 12 volt battery

Capacity coverage of lithium-ion polymer battery

Clutch and brake lining

Paint

Warranty of seat belt

- **Liability level**

Required are replacement product if its getting failure the product will be replaced under

EVs battery life warranty

Battery warranties offer of electric vehicles to product manufacturer and consumers generally these warranties covered amount of time and number of miles is to be driver. The guarantee of battery doesn't down grade a original charge of capacity in term of warranty capacity. For Ex A manufacturer having offered a 5 years 60,000 mile which gives guarantee of 80% ones if you charge battery capacity below 80%. The ownership of period coverage of 5 years below covered (80% which ever comes first).As a consumer we can get free service for this usage of battery. In this modern scenario battery capacity upto 100 miles, warranty of battery which gives at least 80 miles upto full charge It will extent guarantee of this product upto 5years or 60,000 kmh.

This formation of battery warranties does not mentioned universal habitual one, and is not test your product but it can make sure protections of your product. Here few battery warranties for top electrical vehicles on this market.

REVIEW LITERATURE

According to **Jain, 1990 & Menezes and Quelch (1995)** warranty is a guaranty of a product which will be performed or engaged, and correcting problems of commitments of a product and its failure during the period of warranty. **Manezes and Quelch, 1990 suggested that** the written form of warranty details is given to buyers before purchasing a product. The document of warranty is given in easy forms to discourage the fine print and in terms of legalized warranties. Manufactures should specify the information about the warranty details which will be corrected the problems arise in future and consumers should know the details about the warranty specified service. **Mitra and Patantar, (1997)** said the implementation of the effect of partial impact on warranty cost to differ factor of consumer preference in practicing of the warranty rights. Warranty of the product, a claim for a manufacturer's default for poor qualities of product, is very adversely affect the manufacturer's entire production **Kiren et. al., 2000. Jean, (2009)** discussed that forces of marketing which is provided in adequate environmental innovation and consumers are pay very less conscious about environmental aspects. Diffusion of electric vehicles consequences relationship. Main obstacles for increasing higher level of process, range of driving limit charging time and EVs warranties period up to 5 years and above another barriers about lack of knowledge related warranties performance of electrical vehicles to the consumers (**Willander and stalstad,2013**).

RESEARCH METHODOLOGY

Research Methodology

The research design for this study is descriptive in nature and quantitative research methodologies are used. A structured questionnaire was used for quantitative research. A structured questionnaire was designed and was pre-tested before using as a final instrument for collecting the data, and analyzes these to make a critical evaluation of the performance.

Primary data:

The primary data were collected from the consumers of electric vehicles at Thanjavur, Thiruvarur, Tiruchirappalli and Kumbakonam in Tamilnadu, questionnaire prepared

exclusively for find preference of consumers about electric vehicles; this questionnaire contains direct questions in the Likert scale.

Secondary data:

Websites, magazines, articles were used widely as support to primary data as a secondary data source.

Sampling Design and Size:

Researchers targeted all the consumers of electric vehicles at Thanjavur, Thiruvarur, Tiruchirappalli and Kumbakonam in Tamilnadu, a detailed study comprising of all consumers is an arduous task for an individual researcher. Therefore, to keep the study within the reliable and manageable limits, **CONVENIENCE SAMPLING** was adopted. 150 questionnaires were distributed in the sample areas, in that 117 respondents was return back, and among that 110 questionnaires were found suitable for the study.

Pre Testing Procedures (Pilot Study)

Before the survey questionnaire was administered to the respondents, a pre-test of the questionnaire was conducted to test the validity of the questionnaire used for data collection 50 Questionnaires were distributed personally to the respondents, Some minor wording modifications to the questionnaire and certain changes were made which enabled the researches to plan the survey effectively and to accomplish the objectives of the study and made as a result of this process.

Reliability:

The internal consistency reliability method was used in this study to determine the reliability of the scale questions by determining the coefficient alpha. Cronbach's co-efficient alpha is a measure of the internal consistency of measurement.

Overall reliability of the study is .781.

Objectives of the Study:

- To analyze express and implied warranty and its relationship with electric vehicles.
- To assess the influence of express and implied warranty on electric vehicles.

Hypotheses of the Study

H₀₁: There is no significant relationship between express and implied warranty on electric vehicles.

H₀₂: There is no significant influences of express and implied warranty on electric vehicles.

Analysis and Interpretation

H₀: There is no significant relationship between express and implied warranty and electric vehicles.

Table: 1

		Electric Vehicles
Express warranty	Pearson Correlation	0.828
	Significance(2-tailed)	0.001*
Implied Warranty	Pearson Correlation	0.753
	Significance(2-tailed)	0.001*
	N	110

Source: Primary data; *significant at one percent level.

In order to test the relationship, the Pearson correlation was applied. From the result, it is observed that there is a positive correlation between the independent variable and electric vehicles. Express warranty has the r-value of ($r=0.828$) and implied warranty has the r-value of ($r=0.753$) from the p-value in the correlation matrix, it is observed that the level of independent variables relationship was significant at 0.01 level. Hence the hypothesis is rejected. So, it is concluded that there is a significant strong relationship between express and implied warranty and electric vehicles.

H₀: There is no significant influences of express and implied warranty on electric vehicles.

Table: 2
Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
.857	.734	.731	1.558	2357.95	.001*

a. Dependent Variable: Electric vehicles.

b. Predictors: (Constant), express and implied warranty.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.127	.254		-.498	.618
Express	.289	.045	.265	6.399	.001*
Implied	.611	.041	.704	16.997	.001*

Source: Primary data computed; *significant at one percent level.

Above the table indicates that the influences of express and implied warranty on electric vehicles. Here, express and implied warranty are considered as independent variables and electric vehicle is considered as dependent variables.

Further, multiple regression is employed, to test the above-stated hypothesis. In the regression model, the p-value is found to be significant at one percent level. Hence, the stated hypothesis is rejected. The measure of the strength of association in the regression analysis is given by the co-efficient of regression determination which is denoted by the adjusted R-square value. The adjusted R-square value is found to be 0.916 which implied that 91.6 percent of the variation on the level of dependent variable is explained by the independent variables.

From the regression equation, it is inferred that the express and implied warranty are positively influencing the electric vehicles.

RECOMMENDATION

A warranty is a provide by the company material. It encourages you the product and purchase the good condition and not containing the manufacture's fault. Warranty assurance to claim the manufacturing defects related to their terms and condition of the company

Under the demonstration, your purchaser rights are communicated as a progression of "ensures" a merchant consequently makes to you when you purchase any great or administration customarily bought for individual use.

After you purchase an electric vehicle, you may be advertised a benefit contract. In spite of the fact that frequently called "expanded warranty," benefit contracts are not warranty. Benefit contracts ,like warranty, give repair and/or support for a particular time. Warranties, in any case, are included within the cost of the item; benefit contracts costs extra and are sold independently.

CONCLUSION

Government may provide more incentives and subsidies to the purchaser, in order to increase the sales of electric vehicle. Moreover, the exemption of GST, VAT, Road TAX, licence, toll plaza and free parking are important to promote the growth of electric vehicles in the Indian market.

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