sustainability

MDPI

Article

Factors Affecting Disabled Consumer Preferences for an Electric Vehicle for Rural Mobility: An Italian Experimental Study

Nadia Palmieri [1,*], Roberto Tomasone [1], Carla Cedrola [1], Daniele Puri [2] and Mauro Pagano [1]

[1] CREA—Research Centre for Engineering and Agro-Food Processing, Via della Pascolare, 16, 00015 Monterotondo, Italy
[2] National Institute for Insurance against Accidents at Work (INAIL), Via Fontana Candida 1, 00078 Monte Porzio Catone, Italy
* Correspondence: nadia.palmieri@crea.gov.it; Tel.: +39-069-067-5219

Abstract: Although it is often assumed that physically disabled individuals have different behaviors towards environment, there has been very little empirical evidence supporting this statement. For this reason, this study aimed to explain the different behaviors and preferences of potential users by analyzing their attitudes towards an electric vehicle specifically designed for rural mobility. In other words, this study analyzed both the willingness of disabled people to drive an electric vehicle and their willingness to pay (WTP) for such a vehicle. A total of 209 data were collected from a sample of physically disabled consumers in Italy using a structured questionnaire. Therefore, a stated preferences Italian dataset was used, and an exploratory factor analysis, a probit model, and an ordered logit regression model were applied. The results suggested that to encourage the use of electric cars for rural mobility, it should be necessary to manage environmental concerns, vehicle-related attributes, attitudes towards eco-friendly cars, people's emotional experience, and their purchase intention. In addition, to improve customer intention, development plans and service features must be synergistically organized to mutually support each other.

Keywords: Italian consumer preferences; electric vehicle; rural mobility; disability; willingness to pay (WTP)

Citation: Palmieri, N.; Tomasone, R.; Cedrola, C.; Puri, D.; Pagano, M. Factors Affecting Disabled Consumer Preferences for an Electric Vehicle for Rural Mobility: An Italian Experimental Study. *Sustainability* **2023**, *15*, 5570. https://doi.org/10.3390/su15065570

Academic Editor: Diego Monferrer

Received: 9 February 2023
Revised: 20 March 2023
Accepted: 20 March 2023
Published: 22 March 2023

1. Introduction

In 2021, more than one billion people globally (about 15% of the world's population) are estimated to have a disability and most of them live in developing countries [1]. In Italy, instead, the disabled-individual group consists of about 3 million persons (i.e., 5.2% of the whole Italian population). At the global level, this number is expected to increase due to a range of factors, including aging, injuries, climate change, and natural disasters [1]. Further, disabled people encounter barriers that hinder their participation in society on an equal basis with others. Lower economic and labor market participation rates for a segment of the population impose a higher welfare burden on governments, highlighting the costs of disability exclusion, estimated to range from 3% to 7% of gross domestic product (GDP) at a global level [1]. Recently, considerable progress has been made in terms of the socioeconomic inclusion (or re-inclusion) of people with disabilities in mainstream society [2]. In fact, the Sustainable Development Goals (SDGs) of the Agenda 2030 contains 17 Goals with 169 targets, including specific indicators related to disability. In particular, the primary goal of the SDGs of the 2030 Agenda is to ensure that *"no one is left behind"* (World Bank Group, 2022 p.17 [1]) in development processes [1]. However, the existing literature has limited knowledge about individuals with disabilities as an important and growing consumer group [3,4]. In addition, the current literature on social problems points out that the exclusion of people can lead to apathy towards central social issues since excluded individuals may feel disengaged with respect to the same issues [3]. This situation may also concern pro-environmental behaviors by people with disabilities [3]. In fact, the

confined lifestyle of people with disabilities may involve behaviors characterized by a greater environmental impact in terms of carbon footprint and the use of environmentally unfriendly products [3,5]. According to Abbot and Porter [6], disabled people can be considered as "greedy consumers" of natural resources, but it is also a fact that people with disabilities have fewer choices in their daily lives with regard to environmentally friendly products/services [1,3]. One of these products/services could be transport. In fact, according to Aldred and Woodcock [7], transport is critically discussed in both the environmental and disability movements. On one hand, the environmental movements criticized energy-intensive, fossil-fuel-powered transport due to the consequent environmental impacts [8,9]. On the other hand, an important part of disabled people's lives is related to their mobility and movement around both rural and urban environments [10], and disability associations underlined the profound failures of public transport to accommodate disabled people [7]. In fact, people with disabilities affecting their ability to travel make considerably fewer trips than those without [11]. This can mean less access to education, employment, health services, social events, and leisure: all essential for social inclusion [7,11]. In other words, disabled individuals are excluded or discriminated against in regard to the market, as the primary interest has been non-disabled consumers [4,12]. In addition, disabled people are amongst the most vulnerable groups in relation to poverty [6], and, as mentioned above, the exclusion of people with disabilities also concerns the labor market [1,7,11].

In addition, in Italy, in order to reduce the social exclusion of disabled people by the labor market, the Italian Minister of Labor and the Minister for Disabilities [13] wrote new guidelines [14] for the integration of disabled people in the workplace. These guidelines constitute an important tool for employment centers that provide services for the insertion of people with disabilities into the labor market [13]. Specifically, the initiatives, recommendations, and methods presented in the guidelines have the following goals:

- to promote the presence and use of adequate services, tools, and resources throughout the country, in accordance with the principles of equal opportunity, for the benefit of citizens with disabilities and businesses interested in regulation on targeted employment;
- to support the standardization of implementation processes across the country through relevant services to reduce the territorial gaps that negatively affect large areas of the country;
- to direct the actions of the system towards the continuous improvement of performance efficacy, encouraged by the monitoring activities and by sharing of good practices among different local contexts.

In this context, in order to reduce the social exclusion of disabled people in society, a project called Mobi.Ru.D. (Rural mobility for disabled people), which is funded by INAIL (National Institute for Workplace Accident Insurance) and coordinated by CREA (Council for Agricultural Research and Economics), is aimed at developing an electric vehicle prototype for the rural mobility of people with disability in their lower limbs.

Although consumer preferences (non-disabled people) for electric vehicles are a topic of interest in the current literature and in many countries such as the United Kingdom, Canada, and Europe [15] (and especially in Germany and Portugal), to the best of our knowledge, no studies have been conducted on sustainable rural mobility systems for people with disabilities to reduce their social exclusion. In particular, this topic remains largely unexplored in Italy. Thus, the present study aims to fill this gap by analyzing ways to promote a sustainable rural mobility system for people with disabilities (worker or not) in Italy. In particular, we intend to contribute to the literature by explaining the different behaviors and preferences of the potential users by analyzing their preferences towards an electric vehicle prototype for their rural mobility. In other words, the present study analyzes both the willingness of disabled people to drive an electric vehicle specifically designed for the needs of individuals with physical disabilities and their willingness to pay (WTP) for such a vehicle. This study represents a novelty due to the characteristics of

the electric vehicle and also, its use for rural mobility purposes. In fact, the electric vehicle analyzed is unique in Europe (both in technical terms and for rural mobility).

This paper is organized as follows: Section 2 provides a brief background on both of the main factors influencing consumers' purchase preferences for electric drive vehicles; Section 3 provides a description of the materials and methods applied; the findings are presented and discussed in Sections 4 and 5; while conclusions are shown in Section 6.

2. Background

Taking into account the lack of relevant literature on the specific topic under study (i.e., four-wheel-drive electric vehicle to facilitate the mobility of people with a physical disability), some background can be provided by studies and research conducted on related topics. Therefore, the background section in this paper intends to analyze the main factors influencing consumers' driving and purchase preferences for electric vehicles (EVs) and the technical features that consumers consider the most when they make their choice for EVs.

Considering the specific type of vehicle developed under the Mobi.Ru.D. project, which is equipped with only electric drive, we limited the scope of our research by taking into account the existing literature related to battery electric vehicles (BEVs).

Generally, the current literature is divided between factors that drive people's willingness to drive an electric vehicle [16–20] and the factors that influence the consumer's willingness to pay for an electric vehicle [19,21–26]. In particular, studies conducted on consumer preferences for purchasing electric vehicles consider specific aspects (i.e., technical, environmental, and economic) [16–19,21–23,27–29].

2.1. Willingness to Drive an Electric Vehicle by Disabled People

The technical parameters of electric vehicles play an important role in consumer preferences [27]. In fact, Liao et al. [27] state that driving range (i.e., autonomy) is an important element in the willingness to drive electric vehicles. According to some authors [16–20], range appears to have a positive effect on electric vehicle purchase choices. Moreover, charging time is also an important and significant feature for potential buyers [16]. In terms of vehicle performance (power, acceleration, maximum speed), however, there is evidence that consumers prefer driving vehicles with higher performance [24–26]. Additionally, brand factor influences consumer preferences [18]. Helveston et al. [18] found that people prefer driving vehicles of brands from certain countries, while Chorus et al. [28] and Hoen and Koetse [29] found that having a wide choice of many EV models in the marketplace encourages people to choose to drive and purchase an EV.

2.2. Willingness to Pay for an Electric Vehicle by Disabled People

The environmental aspect of electric vehicles is an important role in consumer preferences for purchasing electric vehicles [27]. In fact, electric vehicles' adoption is considered to be motivated both by environmental concerns and by a personal norm in environmentally friendly behaviors that were found to be positively related to a preference for EV [27]. Although Wang et al. [30] have stressed that environmental considerations are essential in purchasing electric vehicles, economic factors may be more crucial for potential EV customers [31].

According to some authors [32,33], the purchase price and various types of costs are important factors in consumer preferences. In particular, among the various indicators, purchase price is the most chosen as a reference attribute [32]. In fact, purchase price has been found to have a highly significant influence in many studies on electric vehicle evaluation [32]. Moreover, several studies [19,21–26] have found a correlation with the income level of consumers, stating that high income levels leads to a lower attention to prices. Other researchers [19,24,33] consider the costs as a choice criterion. In fact, energy cost is the reference parameter used in most studies [33]. In some studies, maintenance costs are also included [19]; sometimes, these are also connected to energy costs and

other operating costs [24]. These aspects influence consumers' willingness to purchase an electric vehicle [34].

Finally, the socioeconomic and demographic characteristics of consumers could influence people's preferences to purchase electric vehicles (EVs) [19,28,35,36]. However, for the most important socioeconomic and demographic variables, including gender, age, educational level, and household composition, it is still unclear whether these variables cause positive or negative effects towards certain choices, considering that there are findings that support all of the claims [19,27,28,35,36].

2.3. Conceptual Model

In consideration of the abovementioned, and according to the current literature [3,4,15,16,18,19,27–30,37–41], technical, environmental, and economic aspects of electric vehicles affect consumers' preferences for electric vehicles. In particular, factors such as people's attitudes towards environmental problems, attitudes towards eco-friendly cars (i.e., environmental aspects), attitudes towards vehicle characteristics (i.e., technical aspects), people's driving habits (i.e., technical aspects), consumers' perception (i.e., technical and economic aspects), and their socio-demographic characteristics, affect consumers' preferences for electric vehicles.

In consideration of the abovementioned, the study applied a research framework with consumers' preference schemes as the behavioral response to willingness of disabled people to drive an electric vehicle specifically designed for the needs of individuals with physical disabilities and their willingness to pay (WTP) for such a vehicle (Figure 1). The baseline assumption is that consumer attitudes towards both environmental issues and eco-friendly cars, as well as vehicle features that individuals pay attention to when purchasing a car; people's driving habits; consumers' perceptions of electric vehicles; and socio-demographic characteristics of the sample have an impact on consumers' behavior. In particular, the framework of the study is based on a the current literature [3,4,15,27,28,30,37–41], as outlined in the previous paragraphs, in which the abovementioned factors are hypothesized to drive attitude formation and a subsequent behavioral response (i.e., the willingness of disabled people to drive an electric vehicle and their willingness to pay (WTP) for such a vehicle).

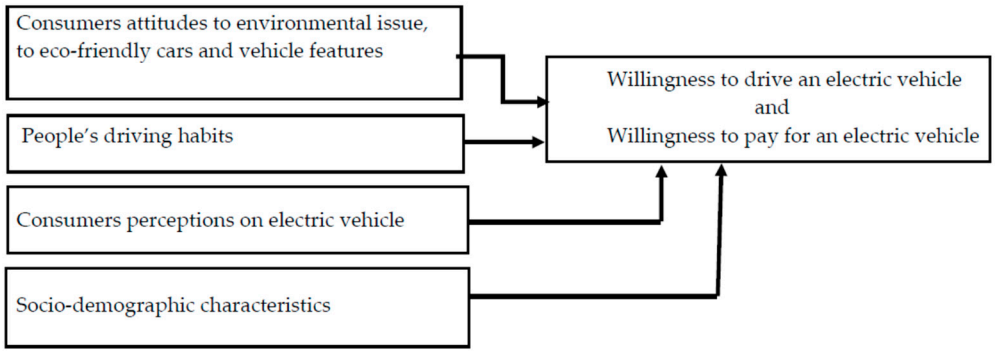

Figure 1. Conceptual framework.

3. Materials and Methods

3.1. Sample

A market survey is a useful tool to explore market development and marketing opportunities [42]. In this study, a survey was carried out to detect both the willingness of disabled people to drive an electric vehicle designed for individuals with a physical disability and their willingness to pay (WTP) for it. Data were collected from a sample of 209 people with physical disabilities through an online survey conducted in the winter of 2022 (Table 1). As with many other studies concerning consumer behavior (see, for example, [43–46]), the survey was carried out through social media, email, and word of mouth. In addition, snowball sampling was used to recruit more participants by using emails from the authors' interpersonal relationships in order to reach a large number of

respondents [46]. This choice is motivated both by the extensive use of online surveys in the current literature (see, for example, [46–48]), as noted above, but also by the undoubted cost advantage offered [46]. Given the recruitment method used, the sample cannot be considered representative of the entire Italian population. An important point to underline is that the survey was conducted with the involvement of adults with physical disabilities, aged 18 years and above, who are also vehicle drivers. In addition, following the suggestions of a number of researchers (see, for example, [3], a pre-test of the first version of the questionnaire was administered to 50 individuals with physical disabilities to avoid possible errors or structural weaknesses in the inquiry. This procedure was useful to identify some items that were not very clear. Therefore, several adjustments were made and, subsequently, a new version of the questionnaire was set up.

Table 1. Socio-demographic information about respondents.

Variable	Description	%
Gender	Male	65.22
	Female	34.78
Age	18–34	18.00
	35–49	33.83
	over 50	48.17
Education	Low level (i.e., primary and/or secondary school)	21.74
	High level (i.e., degree, Ph.D. and/or masters)	78.26
Place of residence	Village (less than 5000 inhabitants)	4.35
	Little town (5000–30,000 inhabitants)	30.43
	City (more than 30,000 inhabitants)	65.22
Monthly household income (euro)	<1800	13.04
	1801–2500	34.78
	2501–3200	21.75
	3201–3900	8.70
	3901–4600	21.73

Source: Our elaboration on survey data.

Considering the descriptive statistics of the sample, shown in Table 1, we obtained a sample of 209 people with physical disabilities, of whom 65.22% were men and 34.78% were women. Nearly 48% of the sample was over 50 years old, and the vast majority of respondents (78.26%) had a higher level of education, lived in cities with more than 30,000 inhabitants (65.22%), and made an income between 1801–2500 euros per month.

Considering the questionnaire, it was a multiple-page, self-administered instrument [3,27,28,30,37–40,48] that was divided into four main parts. Most of the questionnaire items were rated on a scale of 1 to 10. Specifically, the four sections covered were: (1) consumer attitudes towards both environmental issues and eco-friendly cars, as well as vehicle features that individuals pay attention to when purchasing a car; (2) people's driving habits; (3) consumers' perceptions of electric vehicles; and (4) socio-demographic information of respondents. It is important to highlight that each section of the questionnaire was corresponded to each block of the conceptual model used (Figure 1).

Moreover, the study did not require ethics committee approval for the survey. The research followed the Italian National law (D.lgs. 196/2003 and D.lgs. 101/2018) and followed modifications by the EU Regulation. Before answering the questions, participants were briefly informed by the research staff about the research project underlying the survey. In addition, participants were informed of their free decision to participate in the research,

assuring them that there was no explicit or implicit coercion. Moreover, it is important to note that the disabled people involved in the study had physical disabilities, not cognitive disabilities. Finally, all the information provided for the study was treated confidentially and the identity of the respondents remained anonymous. All participants gave their informed consent before answering the questionnaire.

The first part of the questionnaire aimed to gain insight into people's attitudes towards environmental problems and respondents' attitudes towards vehicle characteristics. For this purpose, seven questions were asked concerning environmental issues, asking respondents to indicate how much they agreed/disagreed with certain statements [3,40]. In addition, the selection of questions on respondents' attitudes towards vehicle attributes was drawn from the COWI's study [49], the research of Daziano and Chiew [38], the Coelho's study [39], and the research of Jung et al. [40]. The specific questions asked for these issues are provided in the Supplementary Materials attached (Tables S1–S3, respectively).

The second section of the questionnaire aimed to investigate the driving habits of respondents, as well as their driving frequency, their main driving purposes [37,40], the engine type in their cars, and the number of cars owned [40]. The specific questions are reported in Table S4 of the Supplementary Materials.

In the third part of the survey, people's behaviors towards electric vehicles was specifically investigated [43,44]. We also asked respondents to state how familiar they were with electric cars and asked them if they had ever driven an electric vehicle in the past. In addition, we asked them about their willingness to drive an electric vehicle and their willingness to purchase an electric vehicle made by CREA researchers. Following some authors [3], consumer motivations (functional and hedonic) to drive an electric vehicle for rural mobility and their purchase intentions were investigated. The specific questions for attitude categories are reported in the Supplementary Materials (Tables S5–S7).

We also investigated people's willingness to buy the electric vehicle made by CREA researchers, asking them to give feedback on their willingness to pay for an electric vehicle purposely designed for people with disabilities. In particular, their willingness to pay (WTP) was studied by providing a range of ordered prices compared with those of a similar electric car [50] in the automotive market, but used solely for urban mobility. The willingness to pay (WTP) for the proposed prototype was divided into four different categories: low level (less than 20,000 euro), moderate level (between 20,000 and 25,000 euro), high level (between 25,000 and 30,000 euro), and very high level (more than 30,000 euro). Importantly, if respondents were unwilling to purchase an electric vehicle, their WTP was taken as 0.

In the last section of the questionnaire, data were collected regarding the socio-demographic characteristics of the respondents, such as age, gender, education level, marital status, area of residence, occupation, and monthly household income (see Table S8 provided in the Supplementary Materials) [3,40,51].

3.2. Statistic Techniques

To identify factors affecting the potential use of an electric vehicle for rural mobility in Italy, we used three different econometric methodologies: (i) factor analysis with orthogonal rotation (varimax) to reduce the data to a smaller group of variables; (ii) a probit regression model to analyze the willingness of disabled people to drive an electric vehicle for rural mobility; and (iii) an ordered logit model to investigate their willingness to pay for it.

In particular, exploratory factor analysis is widely applied in the current literature (see e.g., [52]) to reduce the data to a smaller set of summary variables. In other words, factors explain much of the information contained in the original questionnaire variables. Moreover, to evaluate this methodology's validity (i.e., adequacy of sampling and correlations), we applied the Kaiser–Meyer–Olkin (KMO) measure and Barlett's test [40,44]. In addition, we used the eigenvalue criterion to identify the correct number of factors to be used in regression models.

We also investigated the propensity of people with disabilities to drive an electric vehicle for rural mobility through estimations using a probit model. The dependent variable

was a dummy variable set equal to 1 in the case of the respondent being willing to use the electric vehicle made for physically disabled people; if not, it was set equal to 0.

The general probit model may be written as follows:

$$P(Y = 1 \mid X) = p(X) \quad (1)$$

In particular, Y is the willingness to drive the vehicle (i.e., $Y = 1$ represents the individual who is willing to drive an electric vehicle) and X is the set of covariates. As independent variables, we considered the factors identified by factor analysis, along with other socio-demographic information from the sample. In addition, the relationship between an independent variable and the dependent probability variables was calculated using the marginal effects. The latter on the dummy variables provides information on how the explanatory variables shift the probability of the frequency of willingness to drive an electric vehicle for rural mobility. In particular, marginal effects were calculated for each variable, keeping all other variables constant at their sample mean values.

In the third part of the analysis, instead, we applied an ordered logit model in which the dependent variable is "willingness to pay for an electric vehicle properly designed for people with disabilities (WTP)". This is a categorical ordered variable: from a minimum value (less than 20,000 euro) to a maximum value (more than 30,000 euro). As independent variables, again, we considered the factors identified by factor analysis and other demographic variables of the respondents.

The general ordered logit model may be written as follows [1]:

$$y_i^* = x_i'\beta + u_i \quad (2)$$

In particular, y_i^* is the respondents' willingness to pay for an electric vehicle; x' were the identified factors by the factor analysis and socio-demographic information of respondents; while u_i was an error term.

Each respondent i had the probability of choosing option j, given by the following formula:

$$p_{ij} = p(y_i = j) = p(\alpha_{j-1} < y_i^* < \alpha_j) = F(\alpha_j - x_i'\beta) - F(\alpha_{j-1} - x_i'\beta) \quad (3)$$

where:

α were the cut-off points within the different price categories (i.e., the thresholds to be crossed to fall into one category rather than another). Specifically, our dependent variables (WTP variables) were divided into four different categories (low, moderate, high, and very high level, respectively) and we identified three different cut-off points among the four categories.

All statistical elaborations were carried out using R, Version 2022.12.0 [53].

4. Analysis and Results

4.1. Preliminary Analysis

Considering the descriptive statistics of the sample in Table 2, it is important to point out that the results show a positive attitude of the respondents towards environmental issues; as a matter of fact, the questions belonging to this issue exhibited an average value of 8.36. In addition, we have detected the characteristics of the vehicles that people pay more attention to when purchasing a car (Table 2), and the findings have shown that people mainly pay attention to aspects concerning the car's reliability (with an average of 8.52), safety (8.47), brand (8.35), market price (8.01), and driving pleasure (8.00). Table 2, on the other hand, shows a positive attitude of respondents towards environmentally friendly cars. In fact, in this case, the average value of the three questions is 7.28.

Table 2. Respondents' answers to questionnaire.

Items Group	Mean	Standard Deviation
Disabled people's sensitivity to the environment. (Cronbach Alpha = 0.93) How much do you approve of the following expressions?		
Environmental pollution is an issue that I consider to be of major importance	8.57	1.39
I would like to minimize the ecological repercussions of my vehicle	8.30	1.38
I carry out waste sorting on a regular basis	8.13	1.87
I consider buying home appliances according to their energy class	8.43	1.35
Elements of the vehicle that people with disabilities consider important (Cronbach Alpha = 0.91) How important are the following elements in choosing a car?		
Comfort	7.78	2.00
Safety	8.47	1.50
Pleasure to drive	8.00	1.03
Total mileage	6.65	2.44
Design	7.43	2.46
Operation range	7.00	2.61
Eco-friendliness	6.65	2.64
Price	8.01	1.03
Brand name	8.35	1.35
Acceleration	7.00	2.71
Resale value (as used car)	7.04	2.64
Reliability	8.52	1.43
Spaciousness	7.87	1.26
Fueling/Charging time	7.30	2.51
Gas/ Charging station accessibility	7.04	2.72
Electric vehicle (EV) penetration	7.26	2.70
Consideration of environmentally friendly cars by people with disabilities (Cronbach Alpha = 0.98) How much do you accept the following opinions?		
I consider that the purchase of a sustainable car is … (1. very bad to 10. very good)	7.87	1.72
I consider that the purchase of a sustainable car is … (1. very foolish to 10. very wise)	6.91	2.10
I consider that the purchase of a sustainable car is … (1. very dissatisfying to 10. very satisfying)	7.04	2.90
Functional needs (Cronbach Alpha = 0.97) How much do you accept the following opinions?		
Environmentally sustainable cars cannot be adapted to my physical problems	4.04	3.38
Environmentally sustainable cars are unhandy for refilling/recharging operations	5.43	3.40
Hedonistic needs (Cronbach Alpha = 0.98) How much do you accept the following opinions?		
Environmentally sustainable cars are interesting technological innovations	7.61	2.57
Environmentally sustainable cars confer high driving pleasure	6.48	2.92
Consumer's propensity to purchase (Cronbach Alpha = 0.90) How much do you agree with the following statements?		
In the event of purchasing a new car, I am not opposed to buying an eco-car	6.17	2.92
In the event of purchasing a new car, I am planning to buy an eco-car	4.74	3.05
In the event of purchasing a new car, I am going to buy an eco-car	5.78	3.18

Source: Our elaboration on survey data (whose questions were adapted by Jung et al. [40] and Semeijn et al. [3]).

Moreover, our sample is positively motivated towards eco-friendly cars (Table 2). In fact, according to our respondents, eco-friendly vehicles are generally considered to be a very exciting technology (with a mean of 7.61) and are also very enjoyable to drive (with a mean of 6.48). The willingness to pay (WTP) by people with physical disabilities for the proposed prototype was also investigated. The results showed that about 56% of the sample was willing to pay a low level price (less than 20,000 euro), followed by a moderate level (between 20,000 and 25,000 euro) for approximately 22% of respondents and a high level (between 25,000 and 30,000 euro) for almost 17% of individuals. In addition, we

analyzed consumers' purchase intentions (Table 2) and the results showed that people are willing to buy an electric vehicle but have not made plans to purchase one.

In order to reduce data to a smaller set of summary variables, an exploratory factor analysis with orthogonal rotation (varimax) was applied. In particular, KMO test was of 0.99; while Barlett's test was significant (with χ^2 was equal to 9349; df = 146; and p_value < 0.0001), confirming that the sample and correlation matrix were fitted for the analysis. Next, to find the appropriate number of factors to consider in the regression models, the Kaiser criterion of one was used. As a result of the factor analysis (Table S9 in the Supplementary Materials), we obtained six factors that together explained 70% of the original variance. Moreover, to evaluate the internal consistency of each item group, a Cronbach's α value was used. Table S9 in the Supplementary Materials shows the factors included in the analysis with their Cronbach's α values. We labeled the factors by considering the specific variables that converge into each item group. Specifically, the first factor is labeled "*Environment*", with a Cronbach's α of 0.93, and is related to questions regarding the attitudes towards environmental issues. The second factor ("*Vehicle attributes*") shows a Cronbach's α of 0.91, after having removed one item with a factor loading less than 0.60 (variable called "*Electric vehicle penetration rate*"), and it is linked to attributes to which people pay attention to when buying a car. The third factor is labelled "*Friendly car*" with a Cronbach's α of 0.98 and is linked to respondents' attitudes towards purchasing an environmentally friendly vehicle. Additionally, functional and hedonic motivations of respondents were reduced in two different factors called "*Functional motivation*" (with a Cronbach's α of 0.97) and "*Hedonic motivation*" (with a Cronbach's α of 0.98), respectively. The last and sixth factor labelled *"Purchase intention"* (with a Cronbach's α of 0.90) represented respondents' purchase intentions to buy an environmentally friendly vehicle.

The six factors can be summarized as follows:

i. Attitudes towards environmental issues (*Environment*): respect for the environment;
ii. Attitudes towards vehicle attributes (*Vehicle attributes*): importance for technical, environmental, and economic aspects of cars;
iii. Attitudes towards environmentally friendly cars (*Friendly car*): positive attitude
iv. The perceived utility from using the new functions of products (*Functional motivation*): consumers apply new technology to improve their status;
v. Customers' anticipated emotional experience (*Hedonic motivation*): new technology positively stimulates consumers' senses;
vi. Customers' intention to buy (*Purchase intention*).

It is important to underline that the *Environment, Vehicle attributes, and Friendly car* factors belong to the first block of our conceptual model (Figure 1); while the *Functional motivation*, *Hedonic motivation, and Purchase intention* factors belong to the block named Consumers' perceptions of electric vehicles in Figure 1.

Moreover, it is important to highlight that the factor analysis allowed us to obtain a simple structure with each item loading on one, and only one, factor. Next, summated scales were derived from the factors and used in both regression models (i.e., the probit regression model and the ordered logit model).

4.2. The Econometric Model: The Willingness to Drive

In order to analyze the impact of the identified factors on respondents' willingness to drive an electric vehicle for rural mobility, a probit regression model was applied. Descriptive statistics of the variables used are shown in Tables 1 and 2. The sample included all potential users and the results are shown in Table 3.

Table 3. The probit regression model and marginal effects (N = 209).

Variables	β	Standard Error	z-Value	Marginal Effects
Intercept	3.55	0.53	4.01	0.63
Gender (male)	2.43 ***	0.32	5.04	3.54
Age	3.01 **	0.45	2.45	3.05
Education	1.77	0.56	1.09	0.07
Place of residence	2.33	0.44	0.09	0.56
Monthly household income	3.45	0.04	0.02	0.09
Driving frequency	5.06 *	0.77	2.04	2.07
Main purpose of driving	3.58 ***	0.07	0.05	3.13
Engine type of owned cars	4.98	0.12	0.79	1.35
Number of owned vehicle	4.78	3.49	2.33	2.56
Environment	4.55 ***	2.88	1.79	3.87
Vehicle attributes	6.80 **	3.89	4.99	1.08
Friendly car	5.67 ***	2.45	3.99	1.89
Functional motivation	−5.09	4.89	5.01	-3.01
Hedonic motivation	4.76 *	2.67	4.66	2.03
Purchase intention	4.00 *	3.66	2.33	1.43
AIC: 301.21	Mc Fadden Pseudo-R^2: 0.69			

Note: The dependent variable is the propensity to drive, ** $p < 0.01$; *** $p < 0.001$; * $p < 0.05$.

Among the selected six factors, only five showed a significant impact on people's willingness to drive an electric vehicle for rural mobility. In particular, the factor "*Vehicle attributes*" has a positive effect on the dependent variable; its coefficient is significant at 1%, meaning that vehicle attributes matter to the decision to drive it. It is important to remember that the vehicle attributes that people pay the most attention to when buying a car are features such as reliability, safety, brand name, price, and the driving experience of the car. In addition, people's awareness of environmental issues could also be an important factor to consider when choosing a car. Indeed, in our case, the "*Environment*" factor showed a positive effect on the dependent variable (i.e., willingness to drive an electric vehicle), meaning that environmental concerns affect people's decisions to drive an electric vehicle. Consequently, a positive attitude towards eco-friendly cars ("Friendly car" factor) together with people's hedonic motivation, which also indicates purchase intention, could improve the use of electric vehicles for rural mobility. These aspects should be strengthened by marketing campaigns. In addition, we observed that men are more likely to drive an electric vehicle for rural mobility than women. We also found that the probability of driving an electric car increases for both older people (over 50 years old) and people showing a high frequency of driving. These positive coefficients could be explained by the fact that older potential users might also be people with disabilities due to aging. In our opinion, these results are very interesting. In fact, elderly people with high driving frequencies are 4.00 and 3.00 times, respectively, more willing to drive an electric vehicle for rural mobility than other users. In addition, the "main purpose for driving" is another variable that plays an important role in the willingness of people with disabilities to drive an electric vehicle. In fact, those who also drive for leisure are 3.00 times more willing to use an electric vehicle for rural mobility than other individuals. This suggests that the more a person drives, the more willing that person is to use an electric car.

4.3. The Econometric Model: The Willingness to Pay

By estimating an ordered logit model to investigate respondents' willingness to pay for an electric vehicle for rural mobility, it is important to note that the explanatory variables in the model identify the factors that drive consumers' WTP for an electric vehicle (Table 4). Moreover, as mentioned above, the vast majority of respondents (56% of the sample) were willing to pay a low level price (i.e., less than 20,000 euro).

Table 4. Ordered logit regression model (N = 209).

	Coef.	Std. Err
Gender (male)	0.981 ***	0.053
Age	0.886 **	0.004
Education	1.417	0.003
Place of residence	−1.212	0.013
Monthly household income	1.266 **	0.071
Driving frequency	1.613 **	0.057
Main purpose of driving	0.176	0.0680
Engine type of owned cars	0.025	0.074
Number of owned vehicle	0.017	0.023
Environment	2.354 **	0.089
Vehicle attributes	1.325 ***	0.461
Friendly car	0.237 ***	0.050
Functional motivation	-1.349 *	0.088
Hedonic motivation	0.127 **	0.036
Purchase intention	0.072 *	0.024
Threshold 1	0.1355	0.575
Threshold 2	3.1130	0.256
LR chi2 = 99.05	Prob > chi2 = 0.0000	
PseudoR^2 = 0.58		

Note: The dependent variable is the propensity to pay for an electric vehicle,. ** $p < 0.01$; *** $p < 0.001$; * $p < 0.05$.

In the ordered logit model, the positive coefficients show that, as the explanatory variable increases, the probability of falling into the category with the highest WTP for a rural mobility electric vehicle also increases. In fact, in Table 4, all the signs for the estimated coefficients are consistent with the expected signs. The WTP increased as the (significant) explanatory variables increased, except for the reported functional motivation factor, which showed a negative relation with the dependent variable (WTP). This means that the willingness to pay for an electric vehicle designed for individuals with a physical disability increases with the increasing importance attributed to the environment, to vehicle attributes, to the attention towards eco-friendly cars, to customers' emotional experience (i.e., hedonic motivation), and to their purchase intention; while the WTP decreases with the decreasing importance of the attribute of functional motivation. Moreover, we also found that the WTP increases for older people (over 50 years old) with a high household income and people with a high frequency of driving.

5. Discussion

In order to encourage the use of electric vehicles, we first need to understand people's perceptions and considerations regarding electric vehicles [41]. In fact, understanding consumer preferences to encourage the purchase of electric vehicles is an important aspect of the successful market penetration of electric vehicles [40]. Therefore, it is necessary to understand which factors have a significant influence on consumers' decisions for purchasing electric vehicles in order to develop technologies and policies that are better suited to consumers [40]. However, there is a dearth of research capturing the widespread gamut of factors related to electric vehicles' adoption [54,55], especially for disabled people. For these reasons, our results were discussed considering the literature about able-bodied people's preferences for electric vehicles.

The importance of our paper is drawn from the results that demonstrate the importance of supporting aspects that link sustainable mobility with the social inclusion of disabled workers. We identified many elements (i.e., environmental concerns, vehicle-related attributes, attitudes towards eco-friendly cars, the usefulness perceived by people, their emotional experience, and their purchase intention) that could play an important role in determining the use of electric vehicles by potential users (N = 209). These results are in line with the current literature [3,40]. In fact, environmental considerations, along with

the technical and economic aspects of cars, were found to be a potentially powerful factor in attracting new users [40,45]. Of course, a positive attitude towards environmentally friendly cars should also be an important factor [27].

The first reason that makes people willing to pay for an electric car is their awareness of environmental issues. In fact, according to some researchers [40], people's environmental concerns have a significant impact on their decision to buy a car. A similar consideration was also made by Zhang et al. [41] who found that people pay more attention to both the environmental benefits of electric vehicles and the potential pollution of internal combustion engine vehicles when they purchase an electric car. In other words, the willingness to pay for an electric vehicle is influenced by these two elements [41]. According to Zhang et al. [41], when people want to buy an electric vehicle, the lower environmental impacts of electric vehicles will encourage people's willingness to pay. Some authors [45], instead, compared an electric car with lower energy consumption with another electric car. Their results showed that the first option (i.e., the electric car with lower energy consumption) was preferred over the second one [45]. In addition, as is also the case here, driving frequency has a significant relationship with the willingness to pay, indicating that a greater frequency of vehicle use could improve the willingness to pay for an electric vehicle [41].

Furthermore, according to our results, vehicle attributes play an important role in respondents' willingness to pay for electric cars. Caulfield et al. [56] showed that the attributes of the vehicle to which people pay attention are reliability, car safety, fuel cost, and purchase price; while people pay less attention to the performance of electric vehicles, such as speed performance and load capacity [41]. In our case, however, respondents pay attention to aspects such as reliability, safety, brand name, market price, and driving pleasure of the vehicle. Other studies have found similar findings [41,57]. In fact, according to some researchers [57], market price and the cost of daily use are the most important factors for buying an electric car; while, according to the study by Zhang et al. [41], aspects such as battery range, charging convenience, and safety of electric vehicles are positively correlated with people's willingness to buy [41]. However, people have a general concern in regard to current battery technology and sustainable charging systems [58,59].

Moreover, people's attitudes towards an electric car may be driven by both functional and hedonic motivations [3,60]. In other words, people with disabilities could be encouraged to purchase an electric vehicle by implementing actions that pay attention to people's perceptions of both hedonic and functional motivations. Indeed, in our case, the willingness of people with disabilities to pay for an electric car increases as the factor related to functional motivation decreases, while it increases with the increasing importance attributed to customer's emotional experience (i.e., hedonic motivation). In summary, the results of our study indicate that people's attitudes towards electric vehicles may be influenced by both functional and hedonic motivation, as is the case in other studies [3].

Finally, socio-demographic characteristics of people could be an important driving factor in consumers' preferences [27], even if it is still unclear whether these variables cause positive or negative effects towards the certain choices of consumers [19,27,28,35,36]. In our case, among the socio-demographic and general information regarding the respondents, only age, sex, income, and driving frequency are statistically significant. The positive signs for age, sex, income, and driving frequency suggest that the probability of having a higher willingness to pay for an electric vehicle designed for people with physical disabilities increases among older men who have a high monthly income and higher frequency of vehicle use.

6. Conclusions

Most rural areas in Italy are heavily burdened by the existence of architectural barriers, including the lack of adequate roads. On the other hand, the number of people who need to move with the aid of artificial means, due to an illness or accident, is increasing. To overcome these limitations, there is a need for more devices and equipment that are specifically designed and appropriately implemented for people with disabilities. The

prototype developed through the Mobi.Ru.D. project is an example of a viable solution to remove the mobility limitations encountered by disabled workers in a rural context. In this framework, the analysis shows very interesting results with respect to the understanding of different behaviors and preferences of potential users by analyzing their preferences towards an electric vehicle prototype for their rural mobility.

From the analysis, we can infer that to encourage the use of electric cars for rural mobility, it is necessary to manage environmental concerns, vehicle-related attributes, attitudes towards eco-friendly cars, the usefulness perceived by people, and their emotional experience. In addition, to improve customer intention, development plans and service features must be synergistically organized to mutually support each other. The findings indicated implications referring to three aspects of sustainability (environmental, economic, and social). In fact, the use of electric vehicles for rural mobility could avoid pollution caused by internal combustion engine vehicles; it could support the equal participation in society of people with disabilities; and it should improve the connection between people with disabilities and the rural world for employment purposes.

We believe that the findings represent a novelty because of the characteristics of the electric vehicle and its relevant use for rural mobility purposes. This is due to the novelty of this research, which focused on an electric vehicle designed for people with physical disabilities and for rural mobility, which has never before been carried out in a real case. As mentioned above, the analyzed electric vehicle is unique in Europe (for rural mobility). It is important to point out that devices for disabled people need to be increasingly advanced to improve quality of life and integration into the workplace. The use of these devices should lead to improved mobility, similar to that of people who do not suffer from mobility impairments. However, there are still important improvements to be made in this field.

This study shows several limitations that are common in this type of research. Firstly, the issue of the lack of representativeness of the Italian sample of respondents, as occurs in other online surveys used in the current literature. Secondly, although a pre-test of the first version of the questionnaire was conducted to avoid errors or structural weaknesses in the survey, this study may show the disadvantage of having individuals who may have lacked attention or misunderstood the concepts expressed in the questionnaire. In addition, self-declared behavior suggests that some individuals may have provided information that does not fully reflect their actual behavior or logic.

Although our results should provide useful insights for marketing managers who target customers with disabilities, we believe that further research is needed. First, it might be useful to conduct our survey on a representative sample of the Italian population. Second, it would be useful to compare two different electric vehicles (with different technical characteristics) to understand what kind of alternative vehicles Italian disabled people would prefer. In conclusion, further studies should provide a more detailed understanding of the preferences and likes of disabled people with respect to the eco-friendly electric vehicle as a whole.

In conclusion, the results of the project constitute a valuable tool for the inclusion and re-employment of those who have suffered disabling injuries that make it difficult for them to carry out work activities in rural areas, with particular reference to farms in Italian territory.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su15065570/s1, Table S1. Disabled people's sensitivity to the environment. Table S2. Elements of the vehicle that people with disabilities consider important. Table S3. Consideration of environmentally friendly cars by people with disabilities. Table S4. Respondent behavior questions. Table S5. functional and hedonistic needs of the consumer. Table S6. Propensity of the surveyed sample to drive, buy, and pay for an electric vehicle. Table S7. Consumer's propensity to purchase. Table S8. Socio-demographic information about respondents. Table S9. The factor analysis with varimax rotation.

Author Contributions: Conceptualization, N.P., M.P., R.T., C.C. and D.P.; formal analysis, N.P.; investigation, N.P.; data curation and methodology, N.P.; writing—original draft preparation, N.P.; writing—review and editing, N.P.; supervision, N.P.; funding acquisition, M.P. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by INAIL—Istituto nazionale per l'assicurazione contro gli infortuni sul lavoro—Dipartimento Innovazioni Tecnologiche e Sicurezza degli Impianti, Prodotti e Insediamenti Antropici, grant number BRIC 2019—ID 05/2019 "MO.BI.RU.D.: "Realizzazione, sviluppo e messa a punto di un dispositivo mobile a trazione elettrica per agevolare la mobilità di persone disabili con ridotte capacità motorie negli ambienti rurali conferendo contestualmente la possibilità di compiere lavori agricoli"—Obiettivo Funzione CREA-IT: (ob.fu 1.99.99.19.00) "Mobi.Ru.D." and The APC was funded by INAIL—Istituto nazionale per l'assicurazione contro gli infortuni sul lavoro—Dipartimento Innovazioni Tecnologiche e Sicurezza degli Impianti, Prodotti e Insediamenti Antropici.

Institutional Review Board Statement: Before starting the data collection, participants were informed about the objective of the research and the consequent statistical analysis. Participation in the study was fully voluntary and anonymous and subjects could withdraw from the survey at any time and for any reason. Respondents were required to sign a policy privacy and consent form for collecting and processing personal data in advance, according to the Italian law (D.lgs. 196/2003), and according to the Italian Data Protection Law (D.lgs. 101/2018) in line with European Commission General Data Protection Regulation (679/2016). The investigation was carried out following the rules of the 1975 Declaration of Helsinki (https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki/, accessed on 20 March 2023), revised in 2013. Ethical review and approval were waived for this study because it did not involve any invasive procedure (e.g., fecal samples, voided urine, etc.) or laboratory assessment.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data will be made available on request.

Acknowledgments: This research has been carried out in the context of the activities envisaged by the Mobi.Ru.D. project "Creation, development and fine-tuning of an electric-powered mobile device to facilitate the mobility of disabled people with reduced mobility in rural environments while simultaneously giving the possibility of carrying out agricultural work" in collaboration with the funding body INAIL—Istituto nazionale per l'assicurazione contro gli infortuni sul lavoro—Dipartimento Innovazioni Tecnologiche e Sicurezza degli Impianti, Prodotti e Insediamenti Antropici.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. World Bank Group. Disability Inclusion and Accountability Framework. 2022. Available online: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/437451528442789278/disability-inclusion-and-accountability-framework (accessed on 8 February 2023).
2. ISTAT. Audizione dell'Istat presso il Comitato Tecnico Scientifico dell'Osservatorio Nazionale sulla condizione delle persone con disabilità. 2021. Available online: https://www.osservatoriodisabilita.gov.it/it/notizie/audizione-dell-istat-presso-il-comitato-tecnico-scientifico-dell-osservatorio/ (accessed on 8 February 2023).
3. Semeijn, J.; Gelderman, C.J.; Schijns, J.M.C.; van Tiel, R. Disability and pro environmental behavior—An investigation of the determinants of purchasing environmentally friendly cars by disabled consumers. *Transp. Res. Part D Transp. Environ.* **2019**, *67*, 197–207. [CrossRef]
4. Chang, H.J.; Yurchisin, J.; Hodges, N.; Watchravesringkan, K.; Ackerman, T. An investigation of self-concept, clothing selection motivation, and life satisfaction among disabled consumers. *Fam. Consum. Sci. Res. J.* **2013**, *42*, 162–176. [CrossRef]
5. Lovelock, B. Disability and going green: A comparison of the environmental values and behaviours of persons with and without disability. *Disabil. Soc.* **2010**, *25*, 467–484. [CrossRef]
6. Abbott, D.; Porter, S. Environmental hazard and disabled people: From vulnerable to expert to interconnected. *Disabil. Soc.* **2013**, *28*, 839–852. [CrossRef]
7. Aldred, R.; Woodcock, J. Transport: Challenging disabling environments. *Local Environ.* **2008**, *13*, 485–496. [CrossRef]
8. Monbiot, G. *Heat: How We Can Stop the Planet Burning*; Penguin: London, UK, 2007; ISBN 0141026626.
9. Woodcock, J.; Banister, D.; Edwards, P.; Prentice, A.M.; Roberts, I. Energy and transport. *Lancet* **2007**, *370*, 1078–1088. [CrossRef]
10. Imrie, R.; Thomas, H. The interrelationships between environment and disability. *Local Environ.* **2008**, *13*, 477–483. [CrossRef]

11. DPTAC. Attitudes of Disabled People to Public Transport Research Study Conducted for Disabled Persons Transport Advisory Committee. *Jpn. Railw. Transp. Rev.* **2002**, 56–57. Available online: https://trimis.ec.europa.eu/sites/default/files/project/documents/20060811_110503_45123_UG395_Final_Report.pdf (accessed on 8 February 2023).
12. Lamb, J.M. Disability and the social importance of appearance. *Cloth. Text. Res. J.* **2001**, *19*, 134–143. [CrossRef]
13. Ministero del Lavoro e delle Politiche Sociali Ministero del Lavoro e delle Politiche Sociali. Available online: https://www.lavoro.gov.it/Pagine/default.aspx (accessed on 6 March 2023).
14. Dai Ministeri del Lavoro e delle Linee guida in materia di collocamento mirato delle persone con disabilità. Available online: https://www.ticonsiglio.com/lavoro-disabili-linee-guida/ (accessed on 6 March 2023).
15. Secinaro, S.; Calandra, D.; Lanzalonga, F.; Ferraris, A. Electric vehicles' consumer behaviours: Mapping the field and providing a research agenda. *J. Bus. Res.* **2022**, *150*, 399–416. [CrossRef]
16. Bockarjova, M.; Rietveld, P.; Knockaert, J.; Steg, L. *Dynamic Consumer Heterogeneity in Electric Vehicle Adoption*; National Academy: Washington, DC, USA, 2014.
17. Dimitropoulos, A.; Rietveld, P.; Van Ommeren, J.N. Consumer valuation of changes in driving range: A meta-analysis. *Transp. Res. Part A Policy Pract.* **2013**, *55*, 27–45. [CrossRef]
18. Helveston, J.P.; Liu, Y.; Feit, E.M.; Fuchs, E.; Klampfl, E.; Michalek, J.J. Will subsidies drive electric vehicle adoption? Measuring consumer preferences in the US and China. *Transp. Res. Part A Policy Pract.* **2015**, *73*, 96–112. [CrossRef]
19. Hess, S.; Fowler, M.; Adler, T.; Bahreinian, A. A joint model for vehicle type and fuel type choice: Evidence from a cross-nested logit study. *Transportation* **2012**, *39*, 593–625. [CrossRef]
20. Jensen, A.F.; Cherchi, E.; Mabit, S.L. On the stability of preferences and attitudes before and after experiencing an electric vehicle. *Transp. Res. Part D Transp. Environ.* **2013**, *25*, 24–32. [CrossRef]
21. Achtnicht, M.; Bühler, G.; Hermeling, C. The impact of fuel availability on demand for alternative-fuel vehicles. *Transp. Res. Part D Transp. Environ.* **2012**, *17*, 262–269. [CrossRef]
22. Hackbarth, A.; Madlener, R. Consumer preferences for alternative fuel vehicles: A discrete choice analysis. *Transp. Res. Part D Transp. Environ.* **2013**, *25*, 5–17. [CrossRef]
23. Molin, E.; van Stralen, W.; van Wee, B. *Car Drivers' Preferences for Electric Cars*; National Academy: Washington, DC, USA, 2012.
24. Mabit, S.L.; Fosgerau, M. Demand for alternative-fuel vehicles when registration taxes are high. *Transp. Res. Part D Transp. Environ.* **2011**, *16*, 225–231. [CrossRef]
25. Potoglou, D.; Kanaroglou, P.S. Household demand and willingness to pay for clean vehicles. *Transp. Res. Part D Transp. Environ.* **2007**, *12*, 264–274. [CrossRef]
26. Valeri, E.; Danielis, R. Simulating the market penetration of cars with alternative fuelpowertrain technologies in Italy. *Transp. Policy* **2015**, *37*, 44–56. [CrossRef]
27. Liao, F.; Molin, E.; van Wee, B. Consumer preferences for electric vehicles: A literature review. *Transp. Rev.* **2017**, *37*, 252–275. [CrossRef]
28. Chorus, C.G.; Koetse, M.J.; Hoen, A. Consumer preferences for alternative fuel vehicles: Comparing a utility maximization and a regret minimization model. *Energy Policy* **2013**, *61*, 901–908. [CrossRef]
29. Hoen, A.; Koetse, M.J. A choice experiment on alternative fuel vehicle preferences of private car owners in the Netherlands. *Transp. Res. Part A Policy Pract.* **2014**, *61*, 199–215. [CrossRef]
30. Wang, S.; Fan, J.; Zhao, D.; Yang, S.; Fu, Y. Predicting consumers' intention to adopt hybrid electric vehicles: Using an extended version of the theory of planned behavior model. *Transportation* **2016**, *43*, 123–143. [CrossRef]
31. Mukherjee, S.C.; Ryan, L. Factors influencing early battery electric vehicle adoption in Ireland. *Renew. Sustain. Energy Rev.* **2020**, *118*, 109504. [CrossRef]
32. Ziegler, A. Individual characteristics and stated preferences for alternative energy sources and propulsion technologies in vehicles: A discrete choice analysis for Germany. *Transp. Res. Part A Policy Pract.* **2012**, *46*, 1372–1385. [CrossRef]
33. Musti, S.; Kockelman, K.M. Evolution of the household vehicle fleet: Anticipating fleet composition, PHEV adoption and GHG emissions in Austin, Texas. *Transp. Res. Part A Policy Pract.* **2011**, *45*, 707–720. [CrossRef]
34. Mock, P.; Yang, Z. Driving Electrification: A global comparision of fiscal incentive policy for EV. *ICCT White Pap.* **2014**, *3*, 7–10.
35. Horne, M.; Jaccard, M.; Tiedemann, K. Improving behavioral realism in hybrid energy-economy models using discrete choice studies of personal transportation decisions. *Energy Econ.* **2005**, *27*, 59–77. [CrossRef]
36. Rasouli, S.; Timmermans, H. Influence of social networks on latent choice of electric cars: A mixed logit specification using experimental design data. *Netw. Spat. Econ.* **2016**, *16*, 99–130. [CrossRef]
37. Burnett, J.J.; Baker, H.B. Assessing the Travel-Related Behaviors of the Mobility-Disabled Consumer. *J. Travel Res.* **2001**, *40*, 4–11. [CrossRef]
38. Daziano, R.A.; Chiew, E. Electric vehicles rising from the dead: Data needs for forecasting consumer response toward sustainable energy sources in personal transportation. *Energy Policy* **2012**, *51*, 876–894. [CrossRef]
39. Coelho, P.S. Creating customer loyalty through service customization. *Eur. J. Mark.* **2012**, *46*, 331–356. [CrossRef]
40. Jung, J.; Yeo, S.; Lee, Y.; Moon, S.; Lee, D.J. Factors affecting consumers' preferences for electric vehicle: A Korean case. *Res. Transp. Bus. Manag.* **2021**, *41*, 100666. [CrossRef]
41. Zhang, Z.; Sheng, N.; Zhao, D.; Cai, K.; Yang, G.; Song, Q. Are Residents More Willing to Buy and Pay for Electric Vehicles Under the "Carbon Neutrality"? *SSRN Electron. J.* **2022**, *9*, 510–521.

42. Bell, E.; Bryman, A.; Harley, B. *Business Research Methods*; Oxford University Press: Oxford, UK, 2018; ISBN 0198869444.
43. Mazo, M.; Rodriguez, F.J.; Lázaro, J.L.; Ureña, J.; Garcia, J.C.; Santiso, E.; Revenga, P.; Garcia, J.J. Wheelchair for physically disabled people with voice, ultrasonic and infrared sensor control. *Auton. Robot.* **1995**, *2*, 203–224. [CrossRef]
44. Feng, Q.; Hui, P.C. What are the factors that influence the adaptive market? An empirical study with wheelchair users in Hong Kong. *J. Fash. Mark. Manag. Int. J.* **2022**, 1–25, *ahead of print*. [CrossRef]
45. Armenio, S.; Bergantino, A.S.; Intini, M.; Morone, A. Cheaper or eco-friendly cars: What do consumers prefer? An experimental study on individual and social preferences. *Ecol. Econ.* **2022**, *193*, 107323. [CrossRef]
46. Palmieri, N.; Suardi, A.; Pari, L. Italian consumers' willingness to pay for eucalyptus firewood. *Sustainability* **2020**, *12*, 2629. [CrossRef]
47. Palmieri, N.; Suardi, A.; Alfano, V.; Pari, L. Circular economy model: Insights from a case study in south Italy. *Sustainability* **2020**, *12*, 3466. [CrossRef]
48. Wright, K.B. Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *J. Comput. Commun.* **2005**, *10*, JCMC1034. [CrossRef]
49. COWI. *Stated Preference Survey of New Car Purchases Det Strategiske Forskningsråd Stated Preference Survey of New Car Purchases Report*; COWI: Lyngby, Denmark, 2010.
50. Auto Elettrica per Disabili Kangaroo. Available online: http://www.disabilistore.com/firenze/SCOOTER-ELETTRICI/Scooter-Elettrici-Cabinati-/AUTO-ELETTRICA-PER-DISABILI-KANGAROO.html (accessed on 8 February 2023).
51. ISTAT. 2022 Istat. Available online: https://www.istat.it/ (accessed on 8 February 2023).
52. Library, P.Y.; Hom, H.; Kong, H. Apparel for Wheelchair-Bound User in Hong Kong: Empirical Study of Business Model. Ph.D. Thesis, The Hong Kong Polytechnic University, Hong Kong, China.
53. Team, R.C. *Development Core Team. R: A Language and Environment for Statistical Computing*; R Foundation for Statistical Computing: Vienna, Austria, 2022.
54. Brand, C.; Cluzel, C.; Anable, J. Modeling the uptake of plug-in vehicles in a heterogeneous car market using a consumer segmentation approach. *Transp. Res. Part A Policy Pract.* **2017**, *97*, 121–136. [CrossRef]
55. Axsen, J.; Bailey, J.; Castro, M.A. Preference and lifestyle heterogeneity among potential plug-in electric vehicle buyers. *Energy Econ.* **2015**, *50*, 190–201. [CrossRef]
56. Caulfield, B.; Farrell, S.; McMahon, B. Examining individuals preferences for hybrid electric and alternatively fuelled vehicles. *Transp. Policy* **2010**, *17*, 381–387. [CrossRef]
57. Achtnicht, M. German car buyers' willingness to pay to reduce CO_2 emissions. *Clim. Chang.* **2012**, *113*, 679–697. [CrossRef]
58. Goebel, C. On the business value of ICT-controlled plug-in electric vehicle charging in California. *Energy Policy* **2013**, *53*, 1–10. [CrossRef]
59. Robinson, J.; Brase, G.; Griswold, W.; Jackson, C.; Erickson, L. Business models for solar powered charging stations to develop infrastructure for electric vehicles. *Sustainability* **2014**, *6*, 7358–7387. [CrossRef]
60. Noppers, E.H.; Keizer, K.; Bolderdijk, J.W.; Steg, L. The adoption of sustainable innovations: Driven by symbolic and environmental motives. *Glob. Environ. Chang.* **2014**, *25*, 52–62. [CrossRef]