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Determining Factors of Consumers' Choice of Sport Utility Vehicles in an Isolated Energy System: How Can We Contribute to the Decarbonization of the Economy?

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Abstract: This paper analyses the profile of individuals who decide to purchase a Sport Utility Vehicle (SUV) in a medium-sized isolated island system such as Tenerife Island. To achieve this objective, we used a survey conducted in 2017 to identify the characteristics of the individuals most likely to choose an SUV or another type of vehicle or be undecided. Subsequently, a discrete choice model was estimated to assess the probability that an individual chooses one of the three options as a function of their socio-economic characteristics, mobility routines, vehicle attributes and psychosocial traits. The results show the need to adopt energy policy measures related to vehicle choice, as they put the fulfilment of the decarbonization objectives for the energy transition in the Canary Islands at risk. Firstly, the authorities should carry out campaigns to achieve a more environmentally conscious behaviour by highlighting the higher consumption and emission levels of this type of vehicle. Secondly, subsidies for more efficient new vehicles and taxation should promote the purchase of low-emission vehicles to compensate for the greater willingness to pay of SUV buyers. In particular, purchase taxation should be linked to emission levels rather than only considering power, engine characteristics or labelling.

Keywords: Sport Utility Vehicles; psychosocial traits; island regions; profiles consumers; car markets; discrete choice models

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1. Introduction

Growing concern about climate change has led to the need for an energy transition process to replace the use of fossil fuels with clean, renewable energy. In order to meet the targets of the 2015 Paris Agreement (COP21) and Glasgow 2021 (COP26), global greenhouse gas emissions have to be reduced by almost half by 2030 and be close to zero by 2050 [1,2]

In 2019, the European Parliament declared a "climate emergency" in the face of the threat posed by climate change. The European Union (EU) has thus set carbon neutrality as a priority objective for member states by 2050 [3]. In 2018, the European Commission established a Governance Regulation requiring all Member States to draw up a national plan setting decarbonization targets. In the case of Spain, the Integrated National Energy and Climate Plan (PNIEC) was drawn up for the period 2021–2030, with electricity generation and land transport being the sectors to lead the greatest reductions in greenhouse gas emissions [4].

The Canary Islands (Spain) are the largest economy among European outermost regions, with a GDP per capita of 17,448 euros [5,6]. They are located about 1500 km from

the European continent and close to northwest Africa. They have more than 2.2 million inhabitants and, in the years prior to COVID-19, received around 15 million tourists per year. Their energy system, however, is highly dependent on fossil fuel imports (up to 97% of energy demand) and the electricity system is isolated from mainland regions [7]. The Canary Islands are, therefore, one of the Spanish territories where energy transition actions could have the greatest impact, as the characteristics of its energy model entail high costs for companies and citizens [8,9].

Land transport is the sector with the greatest weight in the Canary Islands, accounting for 33.7% of total energy demand and 45.8% of greenhouse gas emissions. The Canary Islands Energy Transition Plan (PTECan) aims to transform the car fleet to electric and improve transport efficiency by 2040 [10]. However, reductions in vehicle fleet consumption and emissions depend not only on the electrification of the vehicle fleet but also on two other conditions: (i) the origin of the electricity (ii) the energy efficiency of the vehicles.

Sport Utility Vehicles (SUVs) accounted for more than 46% of global car sales in 2021, setting a new record in volume and market share [11]. However, this type of car consumes and pollutes more than an equivalent traditional model, so the evolution of SUV sales may conflict with decarbonization targets in the transport sector [12]. The Canary Islands as an isolated island system present a special ecological fragility, yet the market share of SUVs is growing above that of the European market. Therefore, identifying the SUV buyer profile would not only facilitate car companies' commercial strategies, but would also help in the design of energy governance applied to decision-making in energy policy.

The aim of this paper is to analyse the profile of individuals who decide to purchase an SUV in the Canary Island market. To achieve this objective, we use a survey conducted on the island of Tenerife in 2017 encompassing 440 individuals, where we identify the characteristics of people most likely to choose one of the following alternatives: (i) choose an SUV (ii) choose another type of model (iii) be undecided in the model to acquire. Based on the responses, a discrete choice model is specified to assess the probability that an individual chooses one of these three options according to the characteristics that define him/her (socio-economic, mobility routines or psychosocial traits, among others).

The contribution of this paper to this field of research is based on several factors. Firstly, there are few studies that have analysed the profile of SUV buyers, so it contributes to filling this gap in the literature. Secondly, although the analysis is carried out for an island context with special characteristics, it may be generalisable to other areas. Finally, the results of this study can serve to highlight the importance of energy policy in the transport sector not only considering the type of propulsion (favouring electric and hybrid vehicles) but also the evolution of vehicle sales by segment.

This paper is organized as follows: Section 2 presents the characteristics and evolution of the SUV market. Section 3 describes the survey and the methodology to be employed in the discrete choice modelling framework. Section 4 shows both the descriptive results of the survey and the model estimations. Section 5 provides a more in-depth treatment of some of the results to delimit more precisely the profiles of individuals when considering the purchase of an SUV. Finally, Section 6 discusses the implications of the work for energy policy measures and presents the main conclusions.

2. Background of Sport Utility Vehicles

2.1. Characterization of SUVs

According to Pralle [13] and Rollins [14], SUVs are multipurpose, versatile yet utilitarian vehicles with a sporty appearance, generally aimed at a user seeking a sense of freedom and a particular relationship with nature from the point of view of marketing, despite having negative impacts on the ecosystem. The vehicle architecture is based on raising the vehicle's centre of gravity and height, so they offer similar performance to four-wheel drive vehicles. However, SUVs are more focused on the on-road environment than off-road. A higher driving position means greater driving visibility, a feeling of dominance and more comfortable vehicle access for vehicle occupants.

However, these special characteristics of the SUV segment imply two disadvantages: (i) technical and road safety (ii) and environmental impacts. Regarding the former, SUVs have higher mass, which translates into greater difficulties in reducing braking distances and higher vehicle inertia [15]. Larger displacement and higher power engines are therefore required to ensure similar performance to other vehicle segments [16]. In terms of road safety, the increased ground clearance (ride height) results in an increased risk of rollover compared to smaller vehicles [17,18]. In addition, SUV drivers have a false perception of increased safety and are therefore more prone to accidents and non-compliance with road rules [19,20]. Although SUV occupants have less severe accidents [20], they tend to have worse consequences for third parties [21].

From an environmental point of view, SUVs lead to higher fuel or electricity consumption as well as emission levels [22,23]. Electric SUVs require higher battery storage capacities, which implies a higher impact on the carbon footprint and higher fast-charging requirements [16,24,25]. Despite these environmental disadvantages, SUVs with ECO or ZERO labels are benefiting from purchase tax exemptions (in the Canary Islands) and direct purchase subsidies in many EU countries such as Spain [26].

2.2. SUV Market Trends

The global SUV fleet has grown rapidly from 50 million vehicles in 2010 to around 320 million in 2021. As a result, SUVs are among the main drivers of the growth in energy-related carbon dioxide (CO_2) emissions. In 2021 alone, the global SUV fleet increased by more than 35 million, which will lead to an increase in annual emissions of 120 million tonnes of CO_2 [11]. Global SUV sales, despite the crisis caused by the COVID-19 pandemic, have grown by more than 10% between 2020 and 2021 [27].

In Spain, a total of 859,477 vehicles were registered in 2021, 1% more than in 2020, but 32% less than in 2019, the last year with a normalized market and no crisis (Table 1) [28]. This general fall in car sales has not prevented the weight of SUVs in the Spanish market from continuing to grow. Thus, the sum of registrations of small, medium, large and premium SUVs (total SUVS in Table 1) reached 473,512 units in 2021, representing 55.1% of the market share. Moreover, according to data published by the FACONAUTO on the 20 best-selling cars in 2021, half of them are SUVs [29].

Table 1. Vehicle registrations in Spain by segment and combustible type.

	Number of Sales			Variation		Market Share		
	2017	**2020**	**2021**	**2017–2021**	**2020–2021**	**2017**	**2020**	**2021**
Total	1,234,931	851,210	859,477	−30%	1%	100%	100%	100%
Gasoline	575,478	423,577	381,931	−65%	−10%	47%	50%	44%
Diesel	596,472	235,888	177,164	−84%	−25%	48%	28%	21%
Others [1]	62,981	191,745	300,382	183%	57%	5%	23%	35%
Total SUVs	438,986	436,996	473,512	8%	8%	36%	51%	55%
Gasoline	N.A.	202,631	199,221	-	−2%	-	24%	23%
Diesel	N.A.	129,471	95,842	-	−26%	-	15%	11%
Others	N.A.	104,894	178,449	-	70%	-	12%	21%

[1] Others includes: Battery Electric Vehicle (BEV), Range Extended Electric Vehicles (REEV), Plug-in Hybrid Electric Vehicle (PHEV) and Hybrid Electric Vehicle (HEV), Fuel Cell Electric Vehicle (FCEV), and Internal Combustion Engine Vehicles (ICEV) fueled by Compressed Natural Gas (CNG), Liquified Natural Gas (GNL) and Liquified Petroleum Gas (LPG).

In the Canary Islands, the market share of SUVs (Table 2) has increased from 30.4% of total registrations in 2015 to 48.7% in 2020 (despite the drop in global sales due to the COVID-19) (see Figure 1) [30]. In addition, the average maximum permissible weight for vehicles sold that year exceeded 1800 kg. This increase in SUV penetration has been similar on the island of Tenerife, rising from 27.5% in 2015 to 45.1% in 2020 (Figure 1). This fact exacerbates mobility problems as these cars occupy more land [31]. This situation is

unsustainable on an island with 45% of its territory protected, which makes this study more interesting.

Table 2. The Canary Islands SUVs market figures for private buyers.

	2015	2016	2017	2018	2019	2020
Total sales	32,678	35,151	38,981	37,906	38,135	24,167
SUV [1] sales	9948	12,691	15,377	16,474	17,646	11,767
SUV [1] share	30.4%	36.1%	39.4%	43.5%	46.3%	48.7%
Maximum Vehicle Weight (fleet's mean)	1750	1765	1778	1789	1795	1812
Number of models and engine variants	349	303	240	274	238	248

[1] SUVs, Crossover and Off-road segments.

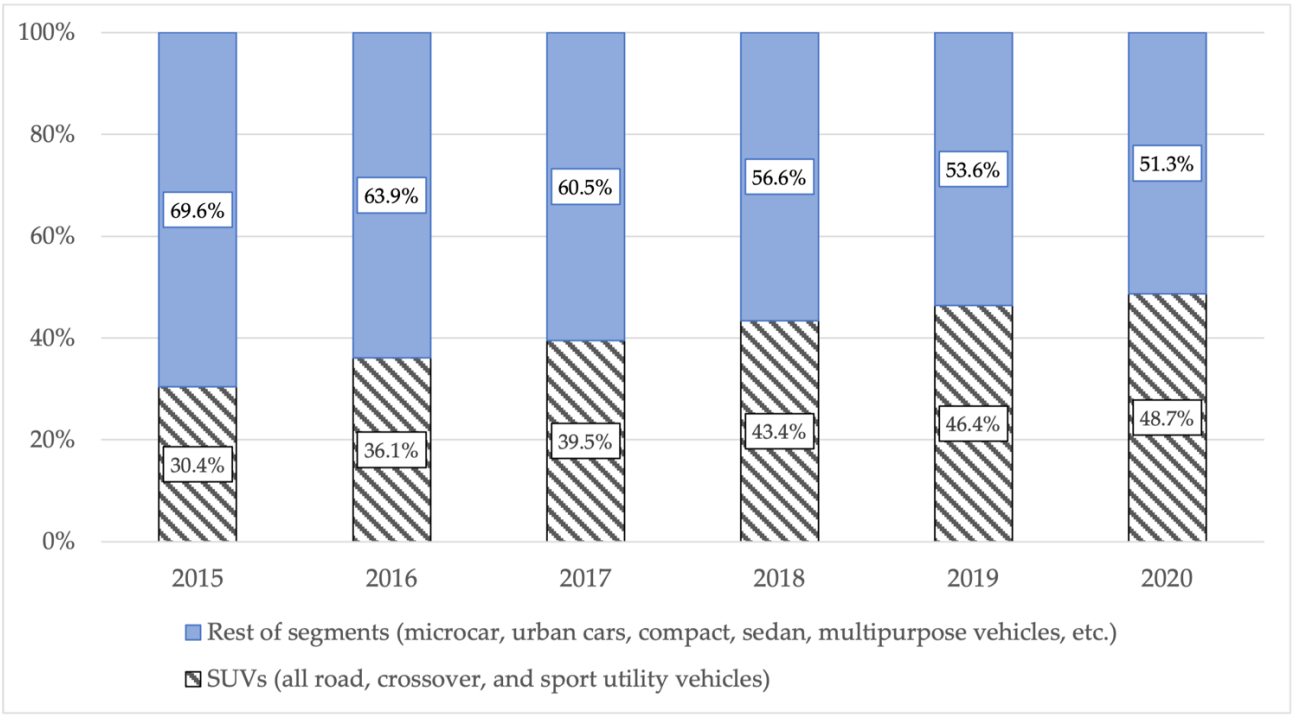

Figure 1. Market share by segments in the Canary Islands.

2.3. A Review of Consumer Preferences on SUVs

Despite increasingly stringent European emissions regulations, manufacturers are expanding their SUV portfolio, which indicates that promotion and sales campaigns will be focused on this segment [23,28]. However, the literature has only timidly explored the most characteristic aspects and motivations for consumers to choose SUVs.

Since the beginning of the 21st century, the SUV phenomenon has been addressed in the US by numerous authors analysing the growth of sales and the parallel phenomenon of the critical anti-SUV movement [13,14,32–34]. In general, the environmental movement has decried the fact that the image of SUVs is associated with nature-loving consumers, when in fact, given their characteristics, they have a detrimental impact.

Recently, some studies have explored the SUV phenomenon and the profile of SUV buyers using a variety of methods. Higgins et al. [35] conclude that one of the main reasons for choosing an SUV is the perception of safety and the need for a comfortable and spacious utility vehicle. Kim et al. [36] apply a cross-functional analysis using Big Data techniques on reviews in digital automotive magazines in South Korea. The results reveal that the most prominent attributes of the SUV segment are noise, fuel consumption (negatively) and

boot space (positively). Mohammadi et al. [37] analyse the driving profile of individuals using structural equation modelling. The results reveal that drivers who take more risks when driving are more likely to choose a vehicle in this segment.

Another factor that determines and conditions individual behaviour patterns is "social norms". These can be defined as social standards of acceptability among individuals from different social groups [38]. Farrow et al. [39] review the empirical literature on the effect of social norms on pro-environmental behaviours. Like Vögele et al. [40], they conclude that "social norms" play an important role in the vehicle purchase decision. These authors conclude that the impact of social norms on the decision in the SUV segment in Germany can be as high as 42%. In particular, the purchase of an SUV is associated with a middle-aged, technologically minded upper class profile. The purchase of this type of vehicle may also be associated with the projection of prestige and high social status.

There are many works that analyze the profile of individuals who decide to purchase a vehicle. Mainly, using the contingent valuation and/or the discrete choice experiment methodology [41–46]. These studies use numerous explanatory variables, highlighting: (i) socio-economic characteristics of the buyer (age, gender, income, region, etc.); (ii) psycho-sociological characteristics (pro-environmental, protechnological, etc.); and (iii) mobility routines (km driven, range required, etc.). However, to our knowledge, none of them have dealt in depth with the analysis of the profile of SUV buyers. Thus, this empirical application contributes to filling this gap in the literature. Moreover, the results of this study can serve to highlight the importance to energy policy not only considering the type of propulsion (favouring electric and hybrid vehicles) but also the evolution of vehicle sales by segment. This deeper characterization of buyers allows the development of energy policies for the promotion of more efficient vehicle segments to help meet decarbonization targets.

3. Methods

This section first presents the survey used in this empirical exercise to analyse the profile of individuals when deciding to purchase an SUV. A description is made of the variables that explain the characteristics of the different consumption profiles, highlighting the traditional economic determinants of consumer behaviour, but emphasising some psychosocial factors. The latter include aspects of the personality, needs and desires of individuals, as well as the possible influence of their social environment. Secondly, the methodology used is briefly described, justifying its appropriateness on the basis of the available data and the objectives pursued in this work.

3.1. Survey

We use data from the 2017 survey conducted on the island of Tenerife in Rodríguez-Brito et al. [46]. In this survey, individuals were asked about the vehicle segment they wanted to purchase (urban, subcompact, compact, medium, long, SUV, crossover, off-road, multipurpose, undecided). To achieve the objective of the study, it was decided to group individuals into the following three categories:

- Individuals choosing an SUV, crossover, or off-road vehicle. Hereafter referred to as the SUV segment.
- Individuals choosing another type of vehicle
- Undecided individuals

The survey was conducted between March and August 2017 in Tenerife (the most populated and largest island in the Canary Islands) through face-to-face interviews by previously trained professional interviewers. In total, 440 island-wide surveys were used with a statistical confidence level of 95% and a sampling error of 4.648%.

The population represents individuals who hold a driving licence, own a car and are willing to purchase a vehicle before 2021, segmented by gender and area of residence. The detailed description of the survey can be found in Rodríguez-Brito et al. [46]. For the purposes of this paper, information was taken from those questions relevant to the objectives

of this study from the different blocks of the survey: (I) respondents' socioeconomic data, (II) mobility routines, (III) vehicle purchase characteristics and attributes, and (IV) individuals' psychosocial traits (see Table 3).

Table 3. Questionnaire variables.

Model	Question Survey	Variables	Description
		Block 1: Socioeconomic variables	
V1	Q36	Gender	= 0 if male = 1 if female
V2	Q35	Age	= 1 if <30 years old = 2 if between 30 and 39 years old = 3 if between 40 and 49 years old = 4 if >50 years old
V3	Q4	WtP (×1000 EUR)	Willingness to pay for a new vehicle (thousands of EUR)
V4	Q37	University studies	= 0 if do not have university studies = 1 if have university studies
V5	Q40	Income (annual)	= 1 if EUR 8000 or less ("Low") = 2 if between EUR 8001 and EUR 16,000 ("Middle-low") = 3 if between EUR 16,001EUR and EUR 22,000 ("Middle-high") = 4 if EUR 22,001 or more ("High")
		Block 2: Mobility variables	
V6	Q1	Area of residence	= 0 if Periphery = 1 if Metropolitan area
V7	Q2	km/day traveled	= 0 if km/day weekend < km/day weekday = 1 if km/day weekend > km/day weekday
		Block III: Vehicle Attributes	
V8	Q28	Brand loyalty and confidence	= 0 if value lower than attribute i mean ("Low rating") = 1 if value greater than attribute i mean ("High rating")
V9	Q30a	Design and Aesthetics	
V10	Q30c	Versatile, adaptable to daily use	
V11	Q30d	Connectivity and tech. equipment	
V12	Q30e	Excellent Price-performance ratio	
V13	Q30f	Reliability and low maintenance	
		Block IV: Psychological variables	
C1	Q10-Q11-Q12	Readiness for new technologies	Lower to higher predisposition to adopt new technologies (Std. Dev.)
C2	Q25-Q26-Q27	Environmental awareness	Lower to higher environmental awareness (Std. Dev.)
C3	Q13-Q14-Q15	Subjective well-being	Lower to higher sense of personal well-being (Std. Dev.)
C4	Q17 y Q19	Negative emotions	Lower to higher feeling of guilt after the acquisition of a vehicle (Std. Dev.)
C5	Q22-Q23	Goals and achievements	Lower to higher priority to acquire the desired vehicle (Std. Dev.)
C6	Q16-Q18	Impulsivity	Least to greatest need to urgently replace the current vehicle (Std. Dev.)

Block I: "*socio-economic variables*" collects information on gender, age, educational level, income, and willingness to pay for a new vehicle (V1, V2, V3, V4 and V5). Block II: "*mobility routines*" gathers information on whether the individual lives in the metropolitan area or in the periphery (V6) and the kilometres travelled by the individual per day and during the weekend (V7). Block III: "*vehicle attributes*" has information on the individual's rating of the following items: brand loyalty and trust; vehicle design and aesthetics; versatility and ease of adaptation for use; connectivity and technological equipment; value for money; and reliability and low maintenance (V8, V9, V10, V11, V12 and V13). In Block IV, "*psychosocial traits of individuals*", initially composed of 18 survey variables (Q10 to Q27), five basic dimensions are collected to approximate the main psychosocial traits of individuals:

- *Preference for Information and Communication Technologies (ICTs).* The technological profile of individuals is considered in the questionnaire through three items Q10, Q11 and Q12, which address ICT use and acquisition according to the Media and Technology Use and Attitudes Scale (MTUAS) by Rosen et al. [47], measured using a 7-point Likert-type scale, and whose overall score ranges from 3 to 21 points.
- *Mood.* Three items (Q13, Q14, and Q15) were taken, measuring an individual's satisfaction with three facets of his or her life: general life, family and social life, and work and economic situation. A reduced version of the *LISAT-8 (Fulg-Meyer's Life Satisfaction of LifeSe*) scale was adopted. The overall score ranges from 3 to 21 points.
- *Degree of impulsivity*. The *scale of Valence* et al. [48] was adapted using three items (Q16, Q17, and Q18) with 7 Likert-type response modalities, which aim to approximate the reactive or impulsive dimension.
- *Personality traits*. The individual's tendency and willingness to take risks is determined. The Risk Orientation Questionnaire (ROQ) by Rohrmann [49] was adapted from three items Q19, Q 20 and Q21 with 7 Likert-type response modes.
- *Degree of time perception*. To measure Future Time Perspective (FTP), the Time Perspective Inventory of Zimbardo and Boyd [50] was adapted. The subscale used consists of three items: Q22, Q23 and Q24 with 7 Likert-type response modalities, which approximate individuals' attitude towards time (subject's feelings about time in general or the future in particular) and their time preference.

Finally, three questions on environmental awareness were included: knowledge about the effects of greenhouse gas emissions from energy consumption (Q25); willingness to purchase energy-efficient devices (Q26); and commitment to the rational use of energy (Q27) [51].

A Principal Component Analysis was performed, as explained in the results section, to reduce the information contained in the psychosocial questions into a smaller number of components (C1, C2, C3, C4, C5 and C6). These figures have been standardized.

3.2. Methodology

A multinomial logit model has been estimated to assess the joint effect of different characteristics on the probability that an individual chooses one type of vehicle or another. This model is part of the so-called discrete choice models [52,53]. They have been widely used in the land transport literature to model the choice of vehicle depending on the type of propulsion technology (combustion, diesel, hybrid, electric, etc.) or the decision on the mode of transport (public, shared, bicycles, private car, etc.) [43,54–57]. The results of these studies have contributed to the design of energy policies aimed at raising consumer awareness of transport mode or the adoption of more sustainable technologies. However, to our knowledge they have not been used to characterize the profile of an individual's decision to purchase an SUV compared to other types of vehicles, as explored in Section 2.

These models are appropriate when the variable of interest is discrete in nature, as they adequately capture an individual's decision process among a finite set of alternatives. In the case of the present study, the decision of the type of vehicle an individual wishes to purchase has been categorized into three alternatives: SUV, other type of vehicle or undecided. A theoretical justification for these models is based on the Random Utility Theory approach, in which it is assumed that the individual is rational and makes his/her decisions by maximising utility [58]. Thus, the probability that an individual chooses the alternative can be defined as the probability that this alternative has the highest utility among the set of possible alternatives [58]. Utility can be expressed:

$$U_{ij} = V_{ij} + \varepsilon_{ij}, \quad (1)$$

where V_{ij} is the systematic part, a set of explanatory variables (characteristics of the individual and attributes of the alternative), and ε_{ij} is the random part that includes the unobservable or measurable factors. Individual i will choose alternative j, if and only if:

$$U_{ij} > U_{ik} \; \forall \, j \neq k, \tag{2}$$

Then, the probability that individual *i* chooses alternative *j*, can be expressed as:

$$P(Y_i = j) = P(U_{ij} > U_{ik}) = P(\varepsilon_{ik} - \varepsilon_{ij} < V_{ij} - V_{ik}) \; \forall \, j \neq k, \tag{3}$$

The number of alternatives from which the individual must choose, the ordered or unordered nature of the dependent variable, as well as the distribution assumed for the vector of disturbance terms will determine the model finally specified [59]. In this paper, since more than two unordered alternatives are considered, a multinomial specification is chosen. Furthermore, assuming independent type I (Gumbel) extreme value distributions, a multinomial logit model is obtained where the probabilities of each alternative can be expressed:

$$P(Y_i = j) = (\exp\hat{}(x_i' \cdot \beta_j)/(1 + \Sigma^J_{k=1} \exp\hat{}(x_i' \cdot \beta_k)) \; j = 1, \ldots, J \tag{4}$$

$$P(Y_i = 0) = 1/(1 + \Sigma^J_{k=1} \exp\hat{}(x_i' \cdot \beta_k)) \; j = 0 \tag{5}$$

where x_i is the vector of explanatory variables and β is the set of parameters to be estimated.

The estimated parameters cannot be interpreted directly as to the effect that the explanatory variables have on the probability of choosing an option. For this reason, the calculation of marginal effects is a key issue in the analysis. Marginal effects quantify the impact of each of the explanatory variables of a continuous nature on an individual's probability of choice. If the variable is dichotomous, it is more appropriate to obtain the discrete change that represents the difference between the probability that an individual chooses each alternative when he/she displays a certain characteristic and when he/she does not. Moreover, it is interesting to calculate certain probabilities predicted by the model at different values of the vector of characteristics. In this way, it is possible to quantify the probability of an individual with the highest or lowest propensity to choose an SUV, or the probabilities of choosing each alternative over a range of values of a given variable.

4. Results

4.1. Descriptive Analysis of the Sample

As discussed in Section 3.1, individuals who report buying an SUV have been grouped under the category "SUV"; those who plan to buy a vehicle other than an SUV have been grouped under the category "Other"; and finally, those who report not having decided yet have been grouped under the category "Undecided". Twenty-five percent of the individuals in the sample plan to buy an SUV, 63% plan to buy another type of vehicle and 12% are undecided.

Table 4 shows the main characteristics of the sample considering four of the five blocks of variables analysed in this study (socio-economic, willingness to pay, mobility routines, vehicle characteristics and attributes) depending on the individual's decision to purchase a new vehicle for the sample as a whole. The 18 variables that approximate the psychosocial traits require the application of a Principal Component Analysis (PCA) to reduce the information contained in them, as will be seen in 4.2. The first column of the table shows the variables analysed grouped by blocks. The second, third and fourth columns show (a) the number of cases and (b) the percentage of cases in each alternative. Finally, the fifth column shows the same data for the sample as a whole. We highlight the following aspects:

- *Gender*: While for those who choose an SUV or other vehicle the percentage of men and women is similar, in the undecided group the percentage of men is double that of women.

- *Age*: Young people do not show a high preference for SUVs. Only 14.7% of them say so, while at other ages it ranges from 22.5% to 31.5%. Furthermore, among those who want an SUV, young people account for only 10%, while 30–39 year olds account for 31% and 40–49 year olds for 41%. By contrast, young people are the age group with the highest preference for other types of vehicles (72%). Preference for these vehicles among those aged 30 and over ranges from 60.2% to 64.1%.
- *Level of income*: Four categories are considered: low, medium-low, medium-high, and high. It was taken into account that the average income per consumption unit (with imputed rent) in the Canary Islands was EUR 15,563 in 2017 [5]. Of the high-income individuals, who represent 22.5% of the sample, only 19.2% of them want an SUV. In the rest of the income brackets, individuals who want an SUV range from 25.7% to 27.9%. It is also noteworthy that 16.2% of high-income individuals are undecided, while this percentage for the rest of the income brackets ranges between 6.7% and 12%. As for the total number of individuals who want an SUV, 40% of them have a lower-middle income, followed by upper-middle income individuals at 26.4%.
- *Area of residence*: 71.8% of individuals living in the metropolitan area prefer another type of vehicle, while 22.3% would opt to buy an SUV. As for those living in the suburbs, 57.1% prefer another type of vehicle while 27% prefer an SUV. On the other hand, 61.8% of the individuals who want an SUV reside in the suburbs. Finally, 78.4% of the undecided reside in the suburbs.
- *km/day travelled on average by the individual*: A dichotomous variable has been constructed that takes the value 1 if the individual drives more km/day on weekends than on working days. A 63.6% of individuals who want an SUV drive fewer km at the weekend. Moreover, 34.5% of individuals who opt for an SUV make short trips of fewer than 20 km/day at the weekend and only 21.8% drive more than 60 km/day. These values seem logical given the characteristics of the territory analysed.
- *Vehicle attributes*: We considered whether individuals gave a low or high rating to each attribute depending on whether their rating was below or above the sample mean. The attributes "Excellent price-performance ratio" and "Reliability & low maintenance" have the highest average rating. In general, the attribute with the lowest average rating is "Connectivity & tech. equipment"; however, 52.7% of those choosing an SUV rate this attribute highly. Excellent price-performance ratio" and "Reliability & low maintenance" are rated highly by 62.8% and 60.8% of those who are undecided. On the other hand, 61% of individuals who want an SUV give a high rating to the attribute "Brand loyalty & confidence".
- *Willingness to pay*: Both individuals who are still undecided and those who want an SUV are willing to pay on average of just over EUR 20,000. However, individuals who want to buy another type of vehicle are only willing to pay EUR 15,683.

Table 4. Descriptive statistics.

Variables (1)	New Vehicle Decision (Frec. (%))						Sample (5)	
	SUV (2)		Other (3)		Undecided (4)			
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Sample	110	(25.00)	279	(63.41)	51	(11.59)	440	(100)
BLOCK I: Socioeconomic variables								
Gender								
Male	55	(50.00)	136	(48.75)	34	(66.67)	225	(51.14)
Female	55	(50.00)	143	(51.25)	17	(33.33)	215	(48.86)
Age								
<30	11	(10.00)	54	(19.35)	10	(19.61)	75	(17.05)
30–39	34	(30.91)	80	(28.67)	19	(37.25)	133	(30.23)
40–49	45	(40.91)	88	(31.54)	10	(19.61)	143	(32.50)
>50	20	(18.18)	57	(20.43)	12	(23.53)	89	(20.23)

Table 4. *Cont.*

Variables (1)	New Vehicle Decision (Frec. (%))						Sample (5)	
	SUV (2)		Other (3)		Undecided (4)			
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
University studies								
No	57	(51.82)	159	(56.99)	30	(58.82)	246	(55.91)
Yes	53	(48.18)	120	(43.01)	21	(41.18)	194	(44.09)
Income								
Low (<EUR 8000)	18	(16.36)	44	(15.77)	8	(15.69)	70	(15.91)
Middle–Low (EUR 8001–EUR 16,000)	44	(40.00)	103	(36.92)	20	(39.22)	167	(37.95)
Middle–High ((EUR 16,001–EUR 22,000)	29	(26.36)	68	(24.37)	7	(13.73)	104	(23.64)
High (EUR 22,0001 or more)	19	(17.27)	64	(22.94)	16	(31.37)	99	(22.50)
Willingness to Pay (thousands EUR)								
Mean		20,323		15,683		20,833		17,440
Std. Dev		8.678		6.076		10.667		7.773
Min		5		2		3		2
Max		60		50		50		60
BLOCK II: Mobility variables								
Area of Residence								
Periferia	68	(61.82)	144	(51.61)	40	(78.43)	252	(57.27)
Área Metrop.	42	(38.18)	135	(48.39)	11	(21.57)	188	(42.73)
km/day traveled								
km weekend < km weekday	70	(63.64)	146	(52.33)	27	(52.94)	243	(55.23)
km weekend > km weekday	40	(36.36)	133	(47.67)	24	(47.06)	197	(44.77)
BLOCK III: Vehicle attributes								
Brand loyalty and confidence								
Low rating	43	(39.09)	126	(45.16)	23	(45.10)	192	(43.64)
High rating	67	(60.91)	153	(54.84)	28	(54.90)	248	(56.36)
Design and Aesthetics								
Low rating	57	(51.82)	143	(51.25)	25	(49.02)	225	(51.14)
High rating	53	(48.18)	136	(48.75)	26	(50.98)	215	(48.86)
Versatile, adaptable to daily use								
Low rating	58	(52.73)	131	(46.95)	27	(52.94)	216	(49.09)
High rating	52	(47.27)	148	(53.05)	24	(47.06)	224	(50.91)
Connectivity and tech. equipment								
Low rating	52	(47.27)	146	(52.33)	23	(45.10)	221	(50.23)
High rating	58	(52.73)	133	(47.67)	28	(54.90)	219	(49.77)
Excellent Price-performance ratio								
Low rating	51	(46.36)	122	(43.73)	19	(37.25)	192	(43.64)
High rating	59	(53.64)	157	(56.27)	32	(62.75)	248	(56.36)
Reliability and low maintenance								
Low rating	52	(47.27)	133	(47.67)	20	(39.22)	205	(46.59)
High rating	58	(52.73)	146	(52.33)	31	(60.78)	235	(53.41)

The descriptive analysis carried out provides a first approximation of the main characteristics of individuals who opt for an SUV: over 30 years of age, with a low average income, who drives more km/day during the week than at weekends, who lives in the suburbs, with a greater willingness to pay for a new vehicle, and who values the following attributes: (i) Brand loyalty and confidence, (ii) reliability and low maintenance, (iii) connectivity and technology equipment and (iv) excellent price-performance ratio. Section 4.3 presents the results of the estimated model that quantifies, in probabilistic terms, the joint effect of the analysed traits on an individual's decision.

4.2. Application of Principal Component Analysis to Psychosocial Variables

A PCA with varimax rotation was performed to reduce the information contained in the psychosocial questions. From the 18 psychosocial questions, a series of tests were carried

out to measure the correlation and adequacy of the sample. First, Bartlett's sphericity test (p = 0.000) and the determinant of the correlation matrix (determinant = 0.058) showed there is a correlation between variables. Second, a Kaiser–Meyer–Olkin test (KMO = 0.698) confirmed sample adequacy was acceptable. In addition, through Guttman's lambda, the internal consistency and reliability of the items are confirmed. The PCA reduced the 18 initial psychosocial questions to seven components that capture 74.3% of the information contained in the items.

Table A1 (Appendix A) shows the correlations of the questions (Q10–Q27, represented in rows) with respect to the component to which they belong (C1 to C7, in columns), after eliminating weights below 0.370. The seven psychosocial components found are:

- C1. *Readiness for new technologies*: Possession of an increased number of ICT devices (Q10), active use of social media (Q11), and regular acquisition of the latest technologies (Q12).
- C2. *Environmental awareness*: Being aware of greenhouse gas emissions (Q25), commitment to buying energy efficient products (Q26) and using energy rationally (Q27).
- C3. *Subjective well-being*: Well-being through satisfaction with work and money (Q13), satisfying family and social relationships (Q14) and the achievement of goals set by individuals (Q15).
- C4. *Negative emotions (guilt)*: Activation of emotional conflicts that produce a feeling of guilt after the acquisition of a vehicle (Q17) and imagining unfavourable situations from them (from their actions and decisions) (Q19).
- C5. *Goals and Achievement (Motivation and Achievement)*: Individuals who plan actions that allow them to experience future pleasure, showing a positive attitude towards it (Q22) and have as an individual priority to acquire the desired vehicle (Q23).
- C6. *Impulsivity*: The need to urgently replace the vehicle when financing is available (Q16), and when making the decision to purchase the vehicle does not evaluate and shop around for features of different models (Q18).
- C7. *Risk aversion*: An individual cognitively evaluates the consequences of her/his decisions (Q21).

Finally, and for modelling purposes, it was decided to incorporate the first six components as explanatory variables, since C7 is only made up of one variable.

4.3. Estimates of the Multinomial Logit Model

Estimates are shown in Table 5 and should be interpreted as the differences between the parameters of each alternative compared to the benchmark, in this case, the "Other" alternative. The table shows the reference categories for each of the dichotomous variables considered in the model. Regarding the goodness of fit of the model, the likelihood ratio test indicates that the parameters are significant as a whole. Moreover, the test of Generalized Hosmer–Lemeshow goodness found that the model adequately fits the data. McFadden's pseudo R square yields a common value in this type of model [60]. Finally, the percentage of correct predictions is high (68.18%).

Table 5. Multinomial logistic regression.

	SUV		**Undecided**	
	Coef.	**SE**	**Coef.**	**SE**
Block I: Socioeconomic variables				
Gender				
Male (base)				
Female	0.134	(0.263)	−0.623 *	(0.368)
Age				
<30 (base)				
30–39	1.177 ***	(0.441)	0.412	(0.521)
40–49	1.374 ***	(0.459)	−0.884	(0.619)

Table 5. *Cont.*

	SUV		Undecided	
	Coef.	**SE**	**Coef.**	**SE**
>50	1.442 ***	(0.539)	−0.015	(0.643)
Willingness to Pay (thousands EUR)	0.103 ***	(0.019)	0.105 ***	(0.022)
University studies				
No (base)				
Yes	0.302	(0.265)	−0.079	(0.361)
Income				
Low	1.084 **	(0.494)	−0.421	(0.644)
Middle-Low	0.763 *	(0.427)	−0.636	(0.525)
Middle-High	0.667 *	(0.399)	−0.970*	(0.554)
High (base)				
Block II: Mobility variables				
Area of residence				
Periphery (base)				
Metropolitan area	−0.254	(0.262)	−1.642 ***	(0.415)
km/day traveled				
km weekend < km weekday (base)				
km weekend > km weekday	−0.573 **	(0.258)	−0.081	(0.346)
Block III: Vehicle attributes				
Brand loyalty and confidence				
Low rating				
High rating	0.267	(0.261)	−0.298	(0.363)
Design and Aesthetics				
Low rating				
High rating	−0.054	(0.289)	0.425	(0.391)
Versatile, adaptable to daily use				
Low rating				
High rating	−0.332	(0.273)	0.002	(0.380)
Connectivity and tech. equipment				
Low rating				
High rating	0.151	(0.290)	0.632	(0.404)
Excellent Price-performance ratio				
Low rating				
High rating	−0.016	(0.283)	0.738 *	(0.399)
Reliability and low maintenance				
Low rating				
High rating	−0.058	(0.275)	0.705 *	(0.387)
Block IV: Psychological components				
Readiness for new technologies	0.175 *	(0.092)	0.071	(0.132)
Environmental awareness	−0.204 **	(0.096)	−0.192 *	(0.117)
Subjective well-being	−0.124	(0.109)	−0.033	(0.150)
Negative emotions	−0.117	(0.114)	−0.033	(0.152)
Goals and achievements	0.056	(0.119)	−0.362 **	(0.157)
Impulsivity	−0.131	(0.120)	−0.154	(0.159)
Constant	−4.382 ***	(0.877)	−3.399 ***	(1.032)
N	440			
ll	−329.529			
LR-chi2	119.935			
Generalized Hosmer–Lemeshow–chi2	21.374			
r2_p (McFadden)	0.154			
Correct predictions (%)	68.182			

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Specifically, when choosing an SUV over another type of vehicle, the following are significant: (a) socio-economic aspects: age, willingness to pay for a new vehicle and income; (b) mobility: km/day travelled; and (c) psychological: predisposition to new

technologies and the individual's environmental awareness. On the other hand, in the undecided alternative, the following are significant: gender, willingness to pay for a new vehicle, income, area of residence, some vehicle attributes such as value for money and reliability and low maintenance, as well as environmental awareness and the attainment of goals and achievements, among the psychosocial variables.

5. Discussion

This section first assesses the effect of the socio-economic variables (Block I), mobility routines (Block II) and vehicle attributes (Block III) on the individual's decision. For this purpose, marginal effects, i.e., discrete changes in the significant variables of the model, are calculated. This information allows us to identify which traits define the profile of individuals most likely to purchase each type of vehicle. Second, the probabilities predicted by the model are calculated at different values of the range of some variables of interest, such as the individual's willingness to pay or psychosocial traits. For the psychosocial variables, instead of obtaining the marginal effect, given that they are factor scores, we calculate the probabilities of an individual's choice over their range of values. Finally, from these results, the profiles most likely to choose each of the alternatives (SUV, other vehicle types, and undecided) are identified.

5.1. Marginal Effects

Table 6 shows the marginal effects of the significant variables. These have been calculated for each individual in the sample and then averaged. For dichotomous explanatory variables, the discrete change is provided, i.e., how the probability of choosing each alternative changes when the individual has a characteristic in question and when he or she does not. The most salient results by blocks of variables are:

Table 6. Average marginal effects.

Variable	dy/dx		
	SUV	**Other**	**Undecided**
Gender			
Male (base)	-	-	-
Female	0.0400711	0.0173698	−0.0574409 *
Age			
<30 (base)	-	-	-
30–39	0.135312 ***	−0.1477472 **	0.0124352
40–49	0.208041 ***	−0.1098599 *	−0.0981812 *
>50	0.1975152 ***	−0.1563981 *	−0.0411171
Income			
Low	0.1809233 **	−0.1012914	−0.0796319
Middle-low	0.1293903 **	−0.0424525	−0.0869379
Middle-high	0.1214104 **	−0.0130262	−0.1083843 **
High (base)	-	-	-
Willingness to Pay (thousands EUR)	0.0137359 ***	−0.0199239 ***	0.006188 ***
Area of residence			
Periphery (base)	-	-	-
Metropolitan area	0.0003986	0.1227241 ***	−0.1231227 ***
km/day traveled			
km weekend < km weekday (base)	-	-	-
km weekend > km weekday	−0.0908761 **	0.0812268 *	0.0096494
Excellent Price-performance ratio			
Low rating (base)	-	-	-
High rating	−0.0239402	−0.039126	0.0630662 **
Reliability and low maintenance			
Low rating (base)	-	-	-
High rating	−0.0296759	−0.0321771	0.0618531 **

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Socio-economic variables:

- Women are less likely to be undecided than men (the value −0.057 of the discrete change in this alternative indicates that this probability is 5.7% lower for women). Moreover, the probability of choosing an SUV or other vehicle type is higher than for men.
- Individuals over 30 are more likely to choose an SUV than younger individuals (between 13.5% and 20% higher). Conversely, the probability of choosing another type of vehicle decreases for these individuals compared to those under 30 (between 10.9% and 15.6%). In short, individuals over 40 are clearer about a specific choice and are not as undecided as those in their 30s.
- The probability of choosing an SUV is higher if the individual has a low or medium income compared to those with a high income (18.1% and more than 12%, respectively). Conversely, the likelihood of choosing another type of vehicle or being undecided decreases if the individual has a low or medium income compared to those with a high income. It should be noted that during the period between 2017 and 2020, seven of the top ten vehicles sold in the Canary Islands were from the SUV segment [30]. Regarding sales in this segment, the top 3 best-selling brands are Hyundai (14.1%), Volkswagen (13.1%) and Nissan (11.0%). These brands do not belong to the Premium SUV segment that accounts for barely 10.6% of the market (Audi, 2.8%; BMW, 2.1%; Mercedes, 1.6%; Volvo, 1.1%, etc.). Therefore, this fact is consistent with the higher propensity to purchase an SUV among lower middle-income individuals.
- In the willingness to pay for a new vehicle, we observe the positive effect on the probability of choosing the alternatives SUV and undecided, as opposed to the negative sign effect for another type of vehicle. Specifically, an increase of 10,000 euros in willingness to pay increases the probability of choosing an SUV by 13.7% and decreases the probability of choosing another vehicle by 19.92%, respectively.

Mobility variables:

- Area of residence has little effect on SUV choice. However, residing in the metropolitan area versus the suburbs has a positive effect on the probability of choosing another type of vehicle (12.3% more likely).
- The number of km/day driven is a relevant variable in the decision. If the individual drives more km/day on the weekend than during the week, he/she is 9.1% less likely to choose an SUV and 8.1% more likely to choose another type of vehicle.

Vehicle attributes:

- Vehicle attributes are not significant when choosing an SUV or other vehicle type, however, they are significant for undecided individuals. Specifically, those who rate the vehicle's value for money, reliability and low maintenance are more than 6% more likely to be undecided than those who rate these attributes lower.

5.2. Probabilities Predicted by the Model

The predicted mean probabilities represent the mean of the probabilities of choosing a vehicle type for respondents defined by some characteristic. They have been calculated for different values of the most relevant psychosocial variables that were significant in the model. It is of interest to evaluate these probabilities in different relevant scenarios on the basis of the PCA factor scores for these variables.

The more predisposed the individual is to the use of new technologies, the higher the probability of wanting an SUV (ranging from 17.9% to 33.8%) and the lower the probability of wanting another type of vehicle (70.9% to 54.4%). Therefore, *individuals' willingness to use new technologies* (C1) has a positive effect on the choice of an SUV (Figure 2). In line with Vögele et al. [40], a higher valuation of technological aspects may be associated with the individual's social position and prestige, which seems to confirm the relevance of social norms in the decision to purchase this type of vehicle.

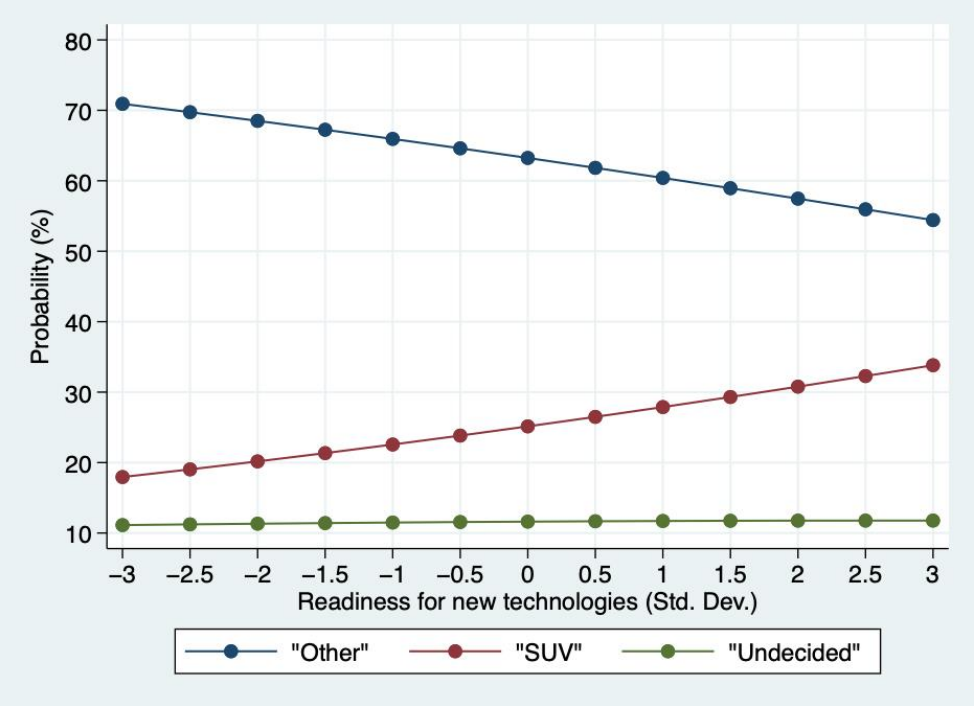

Figure 2. Predictive margins. Readiness for new technologies.

As the individual becomes more *environmentally conscious* (C2), the likelihood of wanting an SUV decreases (from 34.1% to 17.4%), with a greater likelihood of choosing another type of vehicle (51.2% to 74.3%) (Figure 3). Based on the results, it seems advisable to implement measures that promote pro-environmental behaviour in order to increase preferences for cleaner vehicles.

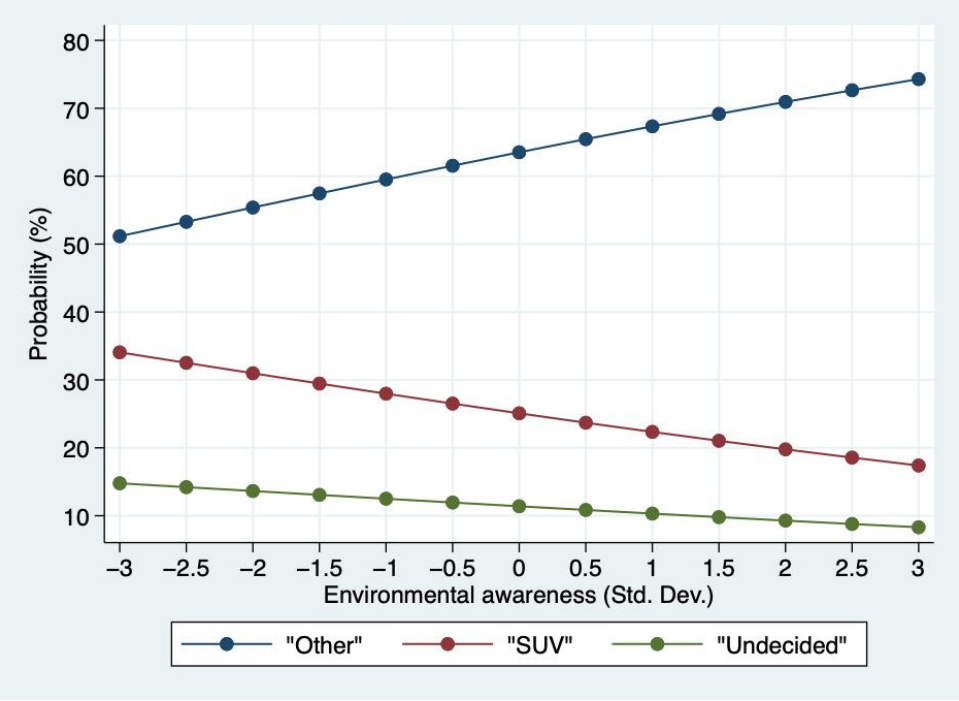

Figure 3. Predictive margins. Environmental awareness.

Those individuals who pursue their achievements and goals to a greater extent (C5) are less likely to be indecisive (24.4% to 4.3%) and are more likely to choose an SUV

(18.7% to 30.3%) or another type of vehicle (56.9% to 65.3%) (Figure 4). This result shows that individuals who opt for an SUV are less hesitant and more persistent in achieving their goals.

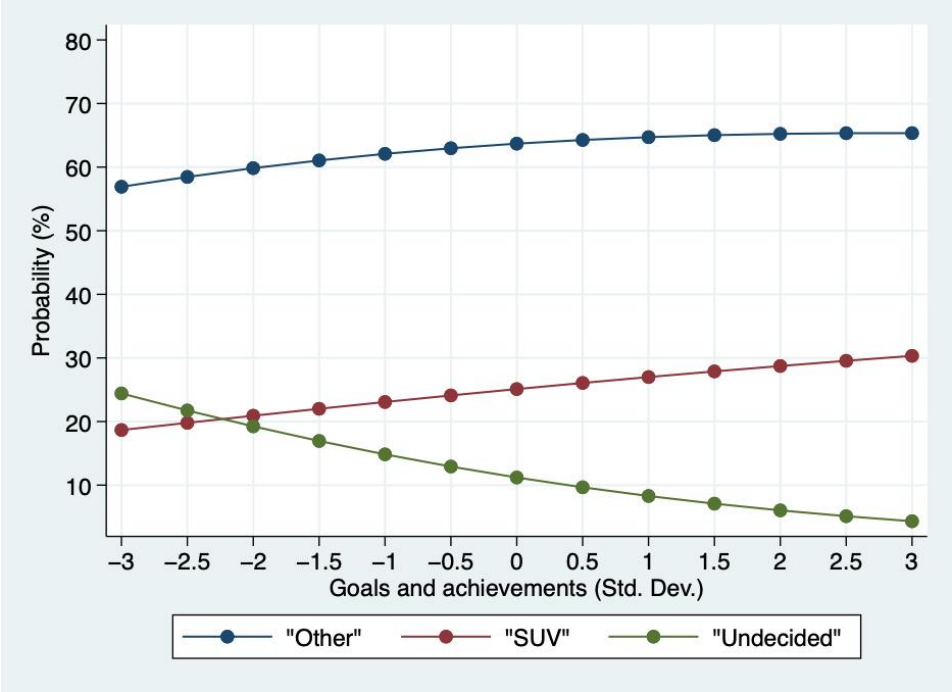

Figure 4. Predictive margins. Goals and achievements.

As presented in Section 5.1, an increase in willingness to pay implies a higher probability of choosing an SUV. To explore this result further, it is of interest to study how this probability changes for different values of the individual's willingness to pay. To do so, the predicted probabilities of the three choice alternatives have been calculated for different values of an individual's willingness to pay (Figure 5).

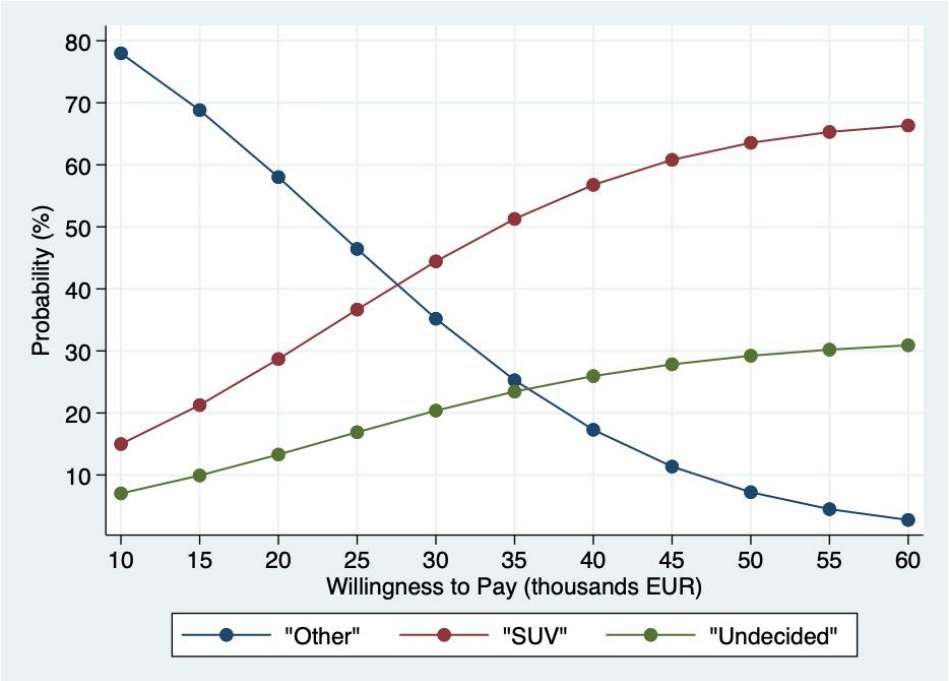

Figure 5. Predictive margins. Willingness to pay.

Willingness to pay has the opposite effect on the choice of an SUV or another type of vehicle. Thus, as willingness to pay increases, the probability of wanting an SUV increases significantly (from 15% to 63.3%) and the probability of choosing another type of vehicle decreases (78% to 2.8%). Likewise, the probability of being undecided also increases as willingness to pay increases (7% to 30.9%).

5.3. The Profiles of the Individuals Most Likely to Choose a New Vehicle

Finally, from the results of 5.1 and 5.2, we present the profiles of the individuals most likely to choose a new vehicle:

- *SUV*: individual aged 40–49, with a high willingness to pay for a new vehicle, with a medium and low income level, who drives fewer km on weekends than on working days, and who has a high predisposition to new technologies and low environmental awareness.
- *Other vehicle*: individual under 30 years old, with a low willingness to pay for a new vehicle, a high income level, who drives more km on weekends than on working days, who resides in a metropolitan area, and who has a low predisposition to new technologies and a high environmental awareness.
- *Undecided*: male, 30–39 years old, high income level, high willingness to pay for a new vehicle, living in the suburbs, high value for money and reliability and low maintenance attributes, low environmental awareness, and low consistency in achieving their goals.

6. Conclusions

This paper analyses the profile of individuals who decide to purchase an SUV in a medium-sized isolated island system. To achieve this objective, we use a survey conducted on the island of Tenerife in 2017, where we identify the characteristics of the individuals most likely to choose one of the following alternatives: (i) choose an SUV (ii) choose another type of vehicle (iii) be undecided on the vehicle to be purchased. Subsequently, a discrete choice model was estimated to assess the probability that an individual chooses one of the three options mentioned above as a function of their socio-economic characteristics, mobility routines, vehicle attributes and psychosocial traits. To our knowledge, this is the first study of its kind to do this.

The results of the estimated model confirm those obtained in the previous descriptive analysis on the profile of individuals most likely to purchase an SUV: individuals aged between 40 and 49 years, with a high willingness to pay for a new vehicle, with a medium or low income level, who drive fewer kilometres at weekends than on working days, and who have a high predisposition for new technologies and low environmental awareness. It is also observed that those who opt for an SUV are less hesitant and more persistent in achieving their goals.

We point out some significant features of the above profile. Firstly, although they are individuals with a high willingness to pay, they are not located in high income segments. In the Canary Islands, this result is consistent with the fact that between 2017 and 2020 [30], the best-selling SUV brands in the islands do not belong to the premium segment. Secondly, this type of vehicle is preferentially used on weekdays and not at weekends, even though, in both cases, the distances travelled are small compared to other geographical areas. Thus, in our study area, the SUV is conceived more as a utility vehicle than as an off-road or family vehicle. Thirdly, the high value given by SUV buyers to technological aspects is confirmed, in line with previous studies.

Current purchases in the SUV market are much higher than those reported in the survey, when only 25% said they wanted to buy SUVs. This could be an indication that companies' commercial policies and public emission reduction targets are contradictory. Considering that the EU 2019/631 regulation does not adequately penalize the sale of heavier vehicles, this creates a competitive disadvantage for manufacturers of smaller and lighter vehicles compared to SUVs [61]. On the other hand, the particularities of the Canary

Islands in terms of electricity mix (83% from petroleum derivatives) mean that SUVs with a "Zero" or "Eco" label can have a similar impact on "indirect" emissions as light petrol vehicles. Therefore, policies should be promoted that are more closely linked to the overall emissions of vehicles and not only to the type of propulsion.

These results show the need to adopt energy policy measures related to vehicle choice, as they put at risk the fulfilment of the decarbonization objectives for the energy transition in the Canary Islands. Firstly, the authorities should carry out campaigns to achieve a more environmentally conscious behaviour by highlighting the higher consumption and emission levels of this type of vehicle. Secondly, subsidies for more efficient new vehicles and taxation should promote the purchase of low-emission vehicles to compensate for the greater willingness to pay of SUV buyers. In particular, purchase taxation should be linked to emission levels (direct and indirect) rather than only considering power, engine characteristics or labelling. Thus, the current tax exemption for hybrid or hybrid-electric SUVs should be reconsidered for not considering indirect emissions. Both types of measures would be more effective if the characteristics of individuals with a higher propensity to choose an SUV identified in this study are considered.

Given the scarcity of studies of this type, the results obtained in this study are novel in terms of characterising the profile of individuals who choose SUVs. Furthermore, it also allows us to identify the profile of those who opt for another type of vehicle and those who are undecided. Similarly, it is clear that energy policy must take into account, in addition to propulsion technologies, the evolution of the different vehicle market segments when designing an effective strategy to reduce emissions.

As possible lines of future research, it would be interesting to carry out a new survey aimed at current SUV buyers to confirm the profile of the SUV buyer in the Canary Islands. The data were collected in 2017; however, the individuals had to meet the condition of holding a valid car driver's license and the intention to acquire a new vehicle before 2021. Thus, it provides valuable information on the intention to purchase this type of vehicle for more recent dates. Moreover, capturing individual's preferences regarding the vehicle choice takes long periods of time. It would also be interesting to extend the analysis to the Canary Islands as a whole and compare it with the profile of other geographical areas. In addition, given the importance of the empirical evidence on the impact of social norms on individuals' behaviour, it would be useful to examine in greater depth which social norms have the greatest influence on the purchase decision. Moreover, it would be interesting to evaluate how the EU decarbonization plans could affect the preferences of individuals in the choice of an SUV. Finally, from a methodological standpoint, the unobserved heterogeneity present in individuals' decisions could be explored by estimating logit mixed models.

Supplementary Materials: The following supporting information can be downloaded at: https://drive.google.com/file/d/1LwhbUkG6qCmdVrzpelHmlxar2TTeAxA-/view?usp=sharing (accessed on 2 September 2022).

Author Contributions: A.J.R.-D.: Conceptualization, Formal analysis, Investigation, Methodology, Supervision, Validation, Writing—original draft. F.J.R.-R.: Conceptualization, Formal analysis, Investigation, Supervision, Writing—review and editing. M.G.R.-B.: Conceptualization, Data curation, Investigation, Methodology, Validation, Writing—original draft. M.C.R.-D.: Conceptualization, Formal analysis, Investigation, Methodology, Validation, Writing—original draft. A.L.d.l.C.: Conceptualization, Data curation, Investigation, Software, Validation, Writing—original draft. All authors have read and agreed to the published version of the manuscript.

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

Appendix A

Table A1. Principal components analysis.

Variable	C1	C2	C3	C4	C5	C6	C7	Unexplained
Q10	0.4291							0.3908
Q11	0.5483							0.3525
Q12	0.5639							0.2698
Q13			0.6409					0.354
Q14			0.4635					0.5464
Q15			0.5452					0.3914
Q16						0.4980		0.425
Q17				0.6997				0.3264
Q18						−0.6807		0.3471
Q19				0.4676				0.4371
Q20								0.5595
Q21							0.8018	0.2343
Q22					−0.6395			0.3205
Q23					0.6096			0.3221
Q24								0.5503
Q25		0.3762						0.4715
Q26		0.6161						0.2833
Q27		0.6404						0.2568

References

1. United Nations Framework Convention on Climate Change (UNFCCC). Glasgow Climate Pact. In Proceedings of the COP26, Glasgow, UK, 31 October–13 November 2021.
2. Delbeke, J.; Runge-Metzger, A.; Slingenberg, Y.; Werksman, J. The Paris Agreement. In *Towards a Climate-Neutral Europe: Curbing Trend*; Routledge: Abingdon-on-Thames, UK, 2019; pp. 24–45. [CrossRef]
3. European Commission. *The European Green Deal*; European Commission: Brussels, Belgium, 2019; pp. 47–65.
4. MITECO. *Plan Nacional Integrado de Energía y Clima 2021*; Ministerio para la Transición Ecológica y el Reto Demográfico: Madrid, Spain, 2020; Volume 25.
5. Instituto Nacional de Estadística (INE). *Contabilidad Regional de España (Serie 2000–2020)*; Instituto Nacional de Estadística: Barcelona, Spain, 2021.
6. Instituto Canario de Estadística (ISTAC). Turistas Según Lugares de Residencia. Comunidades Autónomas de Destino Principal Por Meses. Available online: https://www3.gobiernodecanarias.org/istac/statistical-visualizer/visualizer/data.html?resourceType=dataset&agencyId=ISTAC&resourceId=E16028B_000001&version=1.7#visualization/table (accessed on 2 September 2022).
7. Gobierno de Canarias. *Anuario Energético de Canarias 2020*; Gobierno de Canarias: Santa Cruz de Tenerife, Spain, 2021.
8. Marrero, G.A.; Ramos-Real, F.J. Electricity Generation Cost in Isolated System: The Complementarities of Natural Gas and Renewables in the Canary Islands. *Renew. Sustain. Energy Rev.* **2010**, *14*, 2808–2818. [CrossRef]
9. Díaz, A.R.; Ramos-Real, F.J.; Marrero, G.A.; Perez, Y. Impact of Electric Vehicles as Distributed Energy Storage in Isolated Systems: The Case of Tenerife. *Sustainability* **2015**, *7*, 15152–15178. [CrossRef]
10. Gobierno de Canarias. *Preeliminary PTECan*; Gobierno de Canarias: Santa Cruz de Tenerife, Spain, 2021.
11. Cozzi, L.; Gould, T. *World Energy Outlook 2021*; International Energy Agency: Paris, France, 2021; 386p.
12. Cozzi, L.; Petropoulos, A. Growing Preference for SUVs Challenges Emissions Reductions in Passenger Car Market—Analysis—IEA. Available online: https://www.iea.org/commentaries/growing-preference-for-suvs-challenges-emissions-reductions-in-passenger-car-market (accessed on 9 May 2022).
13. Pralle, S. "I am Changing the Climate, Ask Me How!": The Politics of the Anti-SUV Campaign. *Polit. Sci. Q.* **2006**, *121*, 397–423. [CrossRef]

14. Rollins, W. Reflections on a Spare Tire: Suvs and Postmodern Environmental Consciousness. *Environ. Hist.* **2006**, *11*, 684–723. [CrossRef]
15. Gabler, H.C.; Hollowell, W.T. The Aggressivity of Light Trucks and Vans in Traffic Crashes. *SAE Trans.* **1998**, *107*, 1444–1452.
16. Cozzi, L.; Petropoulos, A. Carbon Emissions Fell across All Sectors in 2020 except for One—SUVs—Analysis—IEA. Available online: https://www.iea.org/commentaries/carbon-emissions-fell-across-all-sectors-in-2020-except-for-one-suvs (accessed on 9 May 2022).
17. Keall, M.D.; Newstead, S. Are SUVs Dangerous Vehicles? *Accid. Anal. Prev.* **2008**, *40*, 954–963. [CrossRef]
18. Wenzel, T.P.; Ross, M. The Effects of Vehicle Model and Driver Behavior on Risk. *Accid. Anal. Prev.* **2005**, *37*, 479–494. [CrossRef]
19. Wallner, P.; Wanka, A.; Hutter, H.P. SUV Driving "Masculinizes" Risk Behavior in Females: A Public Health Challenge. *Wien. Klin. Wochenschr.* **2017**, *129*, 625–629. [CrossRef]
20. Wu, W.J.; Li, C.S.; Peng, S.C. The Relationships between Vehicle Characteristics and Automobile Accidents. *Risk Manag. Insur. Rev.* **2020**, *23*, 331–377. [CrossRef]
21. Zhang, G.; Qin, Q.; Chen, Z.; Bai, Z.; Cao, L. A Study of the Effect of the Front-End Styling of Sport Utility Vehicles on Pedestrian Head Injuries. *Appl. Bionics Biomech.* **2018**, *2018*, 8502507. [CrossRef]
22. Liu, Z.; Zhang, H.; Hao, H.; Zhao, F. Comparative Study of Corporate Average Fuel Consumption Regulations Based on Curb Weight and Footprint Benchmarks. *Clean Technol. Environ. Policy* **2020**, *22*, 1311–1323. [CrossRef]
23. Ramírez-Díaz, A.J.; Barrera-Santana, J.; Ramos-Real, F.J. Fuel Life-Cycle Analysis for Different Types of Vehicles in the Canary Islands. In Proceedings of the International Association of Energy Economics Conference, Concurrent Session Mobility and CO_2, Paris, France, 25–28 July 2021; p. 20.
24. Karaaslan, E.; Zhao, Y.; Tatari, O. Comparative Life Cycle Assessment of Sport Utility Vehicles with Different Fuel Options. *Int. J. Life Cycle Assess.* **2018**, *23*, 333–347. [CrossRef]
25. Bieker, G. *A Global Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars—International Council on Clean Transportation, Beijing, Berlin, San Francisco, Sao Paulo, Wahington*; The International Council on Clean Transportation: Washington, DC, USA, 2021.
26. Ministerio Para la Transición Ecológica y el Reto Demográfico. *Real Decreto 266/2021 de 13 de Abril, Por El Que Se Aprueba La Concesión Directa de Ayudas a Las Comunidades Autónomas y a Las Ciudades de Ceuta y Melilla Para La Ejecución de Programas de Incentivos Ligados a La Movilidad Eléctrica (MOVES III) En El Marc*; Boletín Oficial del Estado (BOE): Madrid, Spain, 2021; p. 41.
27. Cozzi, L.; Petropoulos, A. Global SUV Sales Set Another Record in 2021, Setting Back Efforts to Reduce Emissions—Analysis—IEA. Available online: https://www.iea.org/commentaries/global-suv-sales-set-another-record-in-2021-setting-back-efforts-to-reduce-emissions (accessed on 9 May 2022).
28. ANFAC. *Informe Annual. La Movilidad Del Futuro (2020)*; Annual Report; ANFAC: Madrid, Spain, 2020; Available online: https://anfac.com/wp-content/uploads/2021/07/Informe-Anual-ANFAC-2020.pdf (accessed on 2 September 2022).
29. ANFAC. Matriculaciones Turismos y Todoterreno. Available online: https://www.faconauto.com/wp-content/uploads/2022/01/Informe-Turismos-Diciembre-2021-1.pdf (accessed on 9 May 2022).
30. Dirección General de Tráfico. *Matriculaciones de Vehículos 2015–2020 en Canarias*; Dirección General de Tráfico: Madrid, Spain, 2021.
31. Chijeb, N. Tenerife se Acerca a un Coche por Habitante. *Diario de Avisos*, 24 January 2022.
32. Gunster, S. 'You Belong Outside'. *Ethics Environ.* **2004**, *9*, 4–32.
33. Vanderheiden, S. Assessing the Case against the SUV. *Env. Polit.* **2006**, *15*, 23–40. [CrossRef]
34. Wellings, T.; Williams, M.A.; Pitts, M. Customer Perception of Switch-Feel in Luxury Sports Utility Vehicles. *Food Qual. Prefer.* **2008**, *19*, 737–746. [CrossRef]
35. Higgins, C.D.; Mohamed, M.; Ferguson, M.R. Size Matters: How Vehicle Body Type Affects Consumer Preferences for Electric Vehicles. *Transp. Res. Part A Policy Pract.* **2017**, *100*, 182–201. [CrossRef]
36. Kim, S.W.; Lee, K.; Sohn, J.S.; Cha, S.W. Product Development Using Online Customer Reviews: A Case Study of the South Korean Subcompact Sport Utility Vehicles Market. *Appl. Sci.* **2020**, *10*, 6918. [CrossRef]
37. Mohammadi, A.; Kermanshah, M.; Moeinaddini, A. Investigation of Safety Attitude on Passenger Vehicle Type Choice: An Integrated Choice and Latent Variable (ICLV) Approach. *IATSS Res.* **2021**, *45*, 336–346. [CrossRef]
38. Nyborg, K.; Anderies, J.M.; Dannenberg, A.; Lindahl, T.; Schill, C.; Schlüter, M.; Adger, W.N.; Arrow, K.J.; Barrett, S.; Carpenter, S.; et al. Social Norms as Solutions. *Science* **2016**, *354*, 42–43. [CrossRef]
39. Farrow, K.; Grolleau, G.; Ibanez, L. Social Norms and Pro-Environmental Behavior: A Review of the Evidence. *Ecol. Econ.* **2017**, *140*, 1–13. [CrossRef]
40. Vögele, S.; Hanna Broska, L.; Otte, S.; Rübbelke, D. Why the Trend towards Gas-Guzzlers? A Closer Look at the Complex Effects of Social Norms on German Car Buyers. *Energy Res. Soc. Sci.* **2021**, *72*, 101840. [CrossRef]
41. Larson, P.D.; Viáfara, J.; Parsons, R.V.; Elias, A. Consumer Attitudes about Electric Cars: Pricing Analysis and Policy Implications. *Transp. Res. Part A Policy Pract.* **2015**, *69*, 299–314. [CrossRef]
42. Ramos-Real, F.J.; Ramírez-Díaz, A.; Marrero, G.A.; Perez, Y. Willingness to Pay for Electric Vehicles in Island Regions: The Case of Tenerife (Canary Islands). *Renew. Sustain. Energy Rev.* **2018**, *98*, 140–149. [CrossRef]
43. Hidrue, M.K.; Parsons, G.R.; Kempton, W.; Gardner, M.P. Willingness to Pay for Electric Vehicles and Their Attributes. *Resour. Energy Econ.* **2011**, *33*, 686–705. [CrossRef]

44. Erdem, C.; Şentürk, I.; Şimşek, T. Identifying the Factors Affecting the Willingness to Pay for Fuel-Efficient Vehicles in Turkey: A Case of Hybrids. *Energy Policy* **2010**, *38*, 3038–3043. [CrossRef]
45. Wang, Y.; Sun, M.; Yang, X.; Yuan, X. Public Awareness and Willingness to Pay for Tackling Smog Pollution in China: A Case Study. *J. Clean. Prod.* **2016**, *112*, 1627–1634. [CrossRef]
46. Rodríguez-Brito, M.G.; Ramírez-Díaz, A.J.; Ramos-Real, F.J.; Perez, Y. Psychosocial Traits Characterizing EV Adopters' Profiles: The Case of Tenerife (Canary Islands). *Sustainability* **2018**, *10*, 2053. [CrossRef]
47. Rosen, L.D.; Whaling, K.; Carrier, L.M.; Cheever, N.A.; Rokkum, J. The Media and Technology Usage and Attitudes Scale: An Empirical Investigation. *Comput. Hum. Behav.* **2013**, *29*, 2501–2511. [CrossRef]
48. Valence, G.; d'Astous, A.; Fortier, L. Compulsive Buying: Concept and Measurement. *J. Consum. Policy* **1988**, *11*, 419–433. [CrossRef]
49. Rohrmann, B. *Risk Attitude Scales: Concepts, Questionnaires, Utilizations*; University of Melbourne: Melbourne, VIC, Australia, 2005.
50. Zimbardo, P.G.; Boyd, J.N. Putting Time in Perspective: A Valid, Reliable Individual-Differences Metric. *J. Pers. Soc. Psychol.* **1999**, *77*, 1271–1288. [CrossRef]
51. Ham, M.; Horvat, M.; Mrčela, D. Insights for Measuring Environmental Awareness. *Ekon. Vjesn.* **2016**, *1*, 159–176.
52. Train, K.E. *Discrete Choice Methods with Simulation*, 2nd ed.; Cambridge University Press: Cambridge, UK, 2009; Volume 9780521766, ISBN 9780511805271.
53. Greene, W. Discrete Choice Modeling. In *Palgrave Handbook of Econometrics*; Palgrave Macmillan: London, UK, 2009; Volume 2, pp. 473–556.
54. Kajanova, M.; Bracinik, P. Definition of Discrete Choice Models of EV Owners Based on Different Socio-Demographic Aspects. *Appl. Sci.* **2021**, *11*, 3679. [CrossRef]
55. Rahmani, D.; Loureiro, M.L. Assessing Drivers' Preferences for Hybrid Electric Vehicles (HEV) in Spain. *Res. Transp. Econ.* **2019**, *73*, 89–97. [CrossRef]
56. Kajanova, M.; Bracinik, P.; Belány, P. Analysis of the Discrete Choice Model Representing the Electric Vehicle Owners' Behavior in Slovakia. *Electr. Eng.* **2022**, *104*, 131–141. [CrossRef]
57. Byun, H.; Shin, J.; Lee, C.Y. Using a Discrete Choice Experiment to Predict the Penetration Possibility of Environmentally Friendly Vehicles. *Energy* **2018**, *144*, 312–321. [CrossRef]
58. Domencich, T.; McFadden, D.L. *Urban Travel Demand: A Behavioral Analysis*; North-Holland Publishing Co.: Amsterdam, The Netherlands, 1975.
59. María Carolina, R.D.; Hernández, J.J.C. Modelos de Elección Discreta y Especificaciones Ordenadas: Una Reflexión Metodológica. *Estad. Esp.* **2007**, *49*, 451–471.
60. McFadden, D. *Quantitative Methods for Analyzing Travel Behaviour of Individuals: Some Recent Developments*; Cowles Foundation Discussion Papers; Taylor & Francis: London, UK, 1977.
61. European Union. *Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April Setting CO_2 Emissions Performance Standards for New Passenger Cars and for New Light Commercial Vehicles, and Repealing Regulations (EC), No 443/2009 and (EU) No 510/20*; European Union: Strasbourg, France, 2019.