THE NEW MOTOR VEHICLES MARKET: AN ANALYSIS OF ATTRIBUTES CONSIDERED BY UNIVERSITY STUDENTS IN THE PURCHASE OF A NEW CAR

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Abstract. University students are increasingly becoming an important segment in the market for new motor vehicles. The growth of the market for new cars during 1994 is analysed and followed by the identification of a number of attributes considered by students in making their car purchase decision. Explorative qualitative research using conjoint analysis is used to identify the ideal combination of attributes and attribute levels.

Introduction

The new motor vehicles market can be split into a first time buyer category and a replacement buyer segment. With over 6000 students at university many young adults are finding it possible, and certainly desirable, to buy their first car during this stage in their life cycle. Previously such a decision had to be deferred until after graduation and regular employment. However since most students still live with their parents and have access to a regular stipend the decision to buy a new car has been considerably facilitated. Rightly or wrongly students today probably account for a significant market share of the total first time new car buyers segment of the market.

The aim of this study is to provide an overview of the new motor vehicle market in Malta and to investigate, using a qualitative technique, the attributes considered by students in determining the different aspects to

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which they give priority in their choice of motor vehicle. These preferences by students are investigated using conjoint analysis which provides a means of understanding the trade-offs made among the different attributes of what is probably the most expensive decision students make at this stage in their life. Some implications for car importers who may wish to target the student market are drawn.

The New Motor Vehicle Market by Make

The new motor vehicle market is very well served by some fifteen importers offering a wide range of models that are able to meet a variety of requirements. Sales for 1994 totalled 9,749 units compared to 6,658 in 1993 – an impressive increase of 46.4%. Table 1 provides details of all the players in the market.

In terms of make, Peugeot was the top performer with sales of 1800 units; a healthy 142% increase over the 744 sold during 1993. This performance meant that Peugeot replaced Skoda to become the market leader with an overall market share of 18.5%. At 263% the highest market growth was achieved by Seat whose sales rose to 700 units from a small base of 193 the previous year. This reflects an overall market share of 7.2% up from the 2.9% of 1993. Daewoo, which was launched on the market in 1994, managed to secure a 2.6% share placing itself in direct competition with established names such as Volkswagen, Toyota, Subaru, and Renault.

The New Motor Vehicle Market by Importing Company

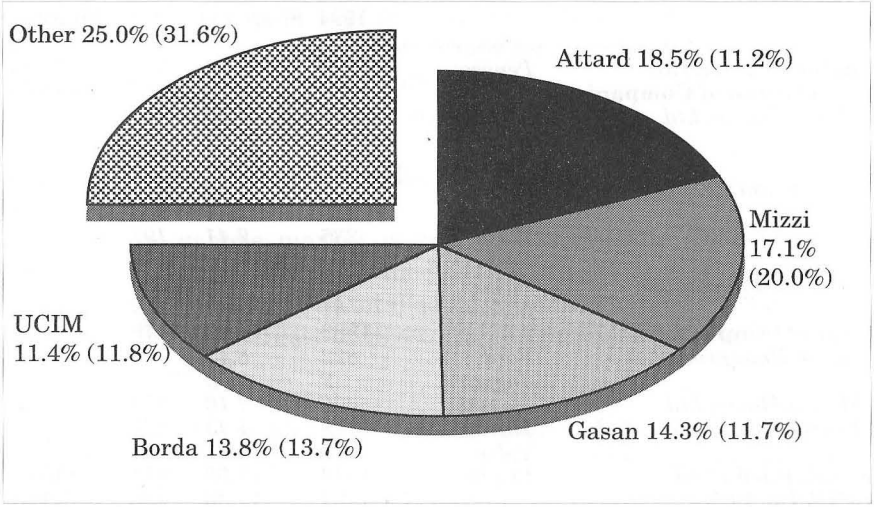
In terms of company performance, the top five firms account for 75% of all sales (Figure 1), an increase of almost 7% over 1993. Of these Michael Attard Ltd and the Gasan Group have managed to increase their market share; Mizzi Group lost 2.9%; while the market share of the F. Borda Ltd and UCIM Co Ltd have remained stable. The significant growth achieved by Michael Attard Ltd, who were only in fifth position in 1993, and the entry of new aggressive contenders, namely Universal Imports, and KIA Motors is putting pressure on the other players in the market. However unlike the other top players, Michael Attard Ltd represents only the Peugeot agency and unlike most other competing companies cannot spread his risk across different agencies. The strength of Peugeot

Table 1
Market Shares by make and importer for 1993 and 1994

Company	Makes	Sales 1994	Market Share (%0)	Sales 1993	Market Share(%)
Michael Attard Ltd	*Peugeot*	**1800**	**18.46**	**744**	**11.17**
Mizzi Group of Companies		**1669**	**17.12**	**1332**	**20.01**
Muscat Motors Ltd	*Alfa Romeo*	*66*	*0.68*	*89*	*1.34*
	Rover	*208*	*2.13*	*91*	*1.37*
	Daihatsu	*49*	*0.50*	*191*	*2.87*
Continental Cars Ltd	*Audi*	*9*	*0.09*	*6*	*0.09*
	Citroen	*215*	*2.21*	*146*	*2.19*
	Volksvagen	*235*	*2.41*	*197*	*2.96*
	Seat	*700*	*7.18*	*193*	*2.90*
Industrial Motors Ltd	*Suzuki*	*106*	*1.09*	*299*	*4.49*
	Mitsubishi	*81*	*0.83*	*120*	*1.80*
Gasan Group of Cos.		**1389**	**14.25**	**1179**	**17.71**
Gasan Enterprises Ltd	*Ford*	*822*	*8.43*	*578*	*8.68*
	Jaguar	*2*	*0.02*	-	-
Maruti Motors Ltd	*Maruti*	*406*	*4.16*	*350*	*5.26*
International Autom. Ltd	*Mazda*	*139*	*1.43*	*227*	*3.41*
	Volvo	*20*	*0.21*	*24*	*0.36*
Frank Borda Ltd	*Skoda*	**1348**	**13.83**	**911**	**13.68**
UCIM Co. Ltd		**1107**	**11.36**	**786**	**11.81**
	Fiat	*466*	*4.78*	*288*	*4.33*
Meridian Enterprises Ltd	*Lancia*	*7*	*0.07*	*12*	*0.18*
	Hyundai	*634*	*6.50*	*486*	*7.30*
Auto Sales Ltd		**532**	**5.46**	**323**	**4.85**
Kind's	*Renault*	*378*	*3.88*	*250*	*3.75*
	Mercedes	*154*	*1.58*	*73*	*1.10*
United Automobiles Ltd		**468**	**4.80**	**254**	**3.81**
	Opel	*458*	*4.70*	*247*	*3.71*
	Saab	*10*	*0.10*	*7*	*0.11*
Subaru Motors Ltd	*Subaru*	**326**	**3.34**	**291**	**4.37**
Universal Imports		**253**	**2.60**	**3**	**0.05**
	Daewoo	*252*	*2.58*	-	-
	Holden	*1*	*0.01*	*3*	*0.05*
Michael Debono	*Toyota*	**250**	**2.56**	**276**	**4.15**
Zammit Automobiles		**167**	**1.71**	**143**	**2.15**
Associated Motor Co. Ltd	*BMW*	*56*	*0.57*	*27*	*0.41*
	Honda	*28*	*0.29*	*36*	*0.54*
	Isuzu	*8*	*0.08*	*23*	*0.35*
Mira Motors Ltd	*Vauxhall*	*75*	*0.77*	*57*	*0.86*
Nissan Motor Sales Ltd	*Nissan*	**167**	**1.71**	**151**	**2.27**
Lada Motors Ltd	*Lada*	**161**	**1.65**	**182**	**2.73**
Easysell-Kia (Malta) Ltd	*KIA*	**60**	**0.62**	-	-
Russian Motors Ltd	*Tavria*	**49**	**0.50**	**76**	**1.14**
Others		**3**	**0.03**	**7**	**0.11**
TOTALS		**9749**	**100.00**	**6658**	**100.00**

Source: Police Licensing Department

Figure 1
Split of Motor Car Market in 1994 (1993)



appears to lie with its price and shape. This combination makes it particularly popular among first time buyers, particularly youths. During 1994, Ford awarded the Jaguar representation to Gasan Enterprises Ltd. However, Jaguar has a niche not a volume positioning.

The New Motor Vehicle Market by Country of Origin

1994 was characterised by a significant drop in the sale of Japanese cars, whose market share fell 13.5% to 16% in 1993 (Figure 2). This is mainly the result of a less favourable exchange rate for the Japanese yen against the Malta lira, and perhaps to a growing perception that most Japanese cars have higher spare parts costs and availability problems. The loss of share by Japanese cars has been the gain of cars originating from France, Germany, and Spain in particular. An aspect worth noticing is the advance made by Korean cars which, with the entry of KIA and Daewoo in 1994, represent a 9.7% market share. Since 1993 Skoda has started to form part of the Volkswagen group. However, it is not usually perceived as a German car, and has been included with the 'Other' segment in

Figure 2
Market Share by Country of Origin

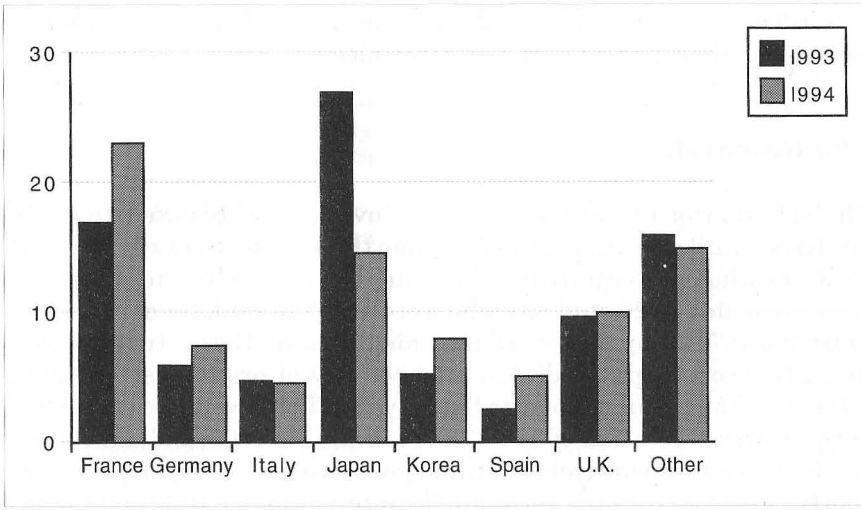


Figure 2 where it accounts for 84.7% of all automobiles in this category.

Deciding Between Attributes

In our broad review of the new motor vehicle market we have identified attributes of shape, price, model and country of origin as possibly playing a role in the decision criteria of new motor vehicle buyers. Lancaster's attribute approach stresses that very often consumers do not buy products for their own sake. What they buy is a bundle of attributes and it is these that give the consumer satisfaction (Lancaster, 1971). Total utility is seen to consist of the sum of the utilities attached to each attribute. Thus, demand for goods is derived, in the sense that goods are required only in order to provide the desired characteristics (Gravelle and Rees, 1981: 119-120). By understanding the attributes' trade-offs that buyers make in buying a particular product offering, providers can vary the proportion of attributes in their offering to more closely approach the bundle of characteristics desired by their target customers. The growing importance of understanding the trade-offs consumers make among key

product characteristics, and in predicting consumer buying responses to proposed changes in attributes, has led to the development of conjoint analysis (Green, 1977; Green and Srinvasan, 1975; Green and Nkonge, 1989). The research conducted focuses on the attributes that students consider in their purchase of a motor vehicle.

The Research

The selection of the attributes to be investigated resulted from the analysis considered above as well as from three in-depth interviews with students who had recently bought a car. The nine attributes identified were presented to 20 students who were asked to rank them in order of importance. The top four attributes identified by these students were price, fuel consumption, design, and country of origin. Each of these attributes had a number of attribute levels. Thus it was decided to look at three price levels (Lm 4000 to 5000; Lm 5001 to 6000; and, Lm6000+); two fuel consumption levels (high and low); two designs (sporty and non-sporty), and; four countries of origin (France, Germany, Italy and Japan). In asking respondents to decide between alternatives, the choice needs to be minimised while at the same time ensuring that the attribute levels allowed good end results. This required some restrictions on the number of attribute levels that could be investigated for certain attributes such as price.

The combination of attributes and attribute levels chosen resulted in a total of 48 possible motor vehicle combinations. Even at this level, the cost of administering evaluations of this magnitude are prohibitive and can cause consumer confusion and fatigue (Green and Wind, 1975; Birn, Hague and Vangelder, 1990). Fortunately it is possible to run an orthogonal array which, in this case, reduced the number of possible alternatives to twenty choice combinations thus providing manageable alternatives while still allowing analysis for the entire number of combinations.

The resulting arrays were tested on 15 students to see if they would present any difficulties. No problems were encountered and during April and May 1995, replies to the arrays from a quota sample of 120 respondents from the student population, based on gender and two age categories

Table 2
Utilities by attribute and attribute levels

Attributes	Attribute Levels	Total Sample	Total Males	Total Females
Design	Sporty	0.6240	0.7458	0.5021
	Non-Sporty	- 0.6240	- 0.7458	- 0.5021
Country of Origin	France	- 0.0229	- 0.1750	0.1292
	Germany	0.6396	0.9125	0.3667
	Italy	- 0.3271	- 0.6792	0.0250
	Japan	- 0.2896	- 0.0583	- 0.5208
Price (Lm)	4000-5000	- 6.5939	- 5.3576	- 7.8303
	5000-6000	- 8.2424	- 6.6970	- 9.7879
	6000 +	- 9.8909	- 8.0364	-11.7450
Fuel Consumption	High	3.3521	3.2292	3.4750
	Low	6.7042	6.4583	6.9575
	CONSTANT	11.3022	10.0184	12.5860

(early maturity: 18-20 and late maturity 21+) were obtained. Classificatory data was also collected. Samples over 100 have been shown to provide useful results for this type of study. Data was analysed with the conjoint analysis module in SPSS for windows v 6.O.

Results

Of the 120 respondents 69 (or 57.5%) were found to own a car and of these 43 (or 62.3%) were males and 26 (or 37.7%) were females. Out of the 51 who did not own a car 34 were females and only 17 were males. In performing the conjoint analysis, price and fuel consumption were treated as linear variables while design and country of origin were treated as discrete variables. On the basis of the ranking obtained from respondents the routine generated a set of utility results for each attribute level. It should be noted that with discrete factors, the utility values across levels of attributes sum up to zero. These utility scores

Table 3
Averaged Importance of Attributes

	Design	Country of Origin	Price	Fuel Consumption
Total Sample	14.08	26.30	34.21	25.41
Total Sample	15.79	27.27	31.63	25.31
Total Females	12.37	25.32	36.80	25.51
Total Car Owners	16.06	28.25	32.33	23.36
Male Car Owners	16.44	30.47	29.29	23.81
Female Car Owners	15.43	24.58	37.36	22.63
Total Non-Owners	11.41	23.66	36.76	28.18
Male Non-Owners	14.14	19.18	37.55	29.12
Female Non-Owners	10.04	25.90	36.37	27.70

which are shown in Table 2 are expressed on a common scale. Attributes can be compared by looking at the ranges of these utilities.

Not surprisingly, all respondents seemed to agree that in the case of the design attribute the utility derived from a sporty car was always higher than that for a non-sporty car. In the country of origin attribute it is German cars that provide the highest levels of utility with Italian and Japanese vehicles being assigned minimum values. Further analysis of those not presently owning a car indicated that although German cars maintain the highest utility scores this attribute level is only slightly higher than that for French cars. However, within this sector females assigned higher utilities to French and German cars respectively. The results for the price attribute yielded no surprises. Lower-priced cars provide greater utility in all cases as also did lower fuel consumption.

Utilities were treated as additive in nature. From the attributes and attribute levels considered the combination that maximises utility for

respondents is given by a new motor vehicle in the Lm 4,000 to Lm 5,000 range with a sporty design, low fuel consumption and made in Germany. Apart from the utility values, the computer routine also generates a constant which should be added to the utilities, in order to arrive at a total value. Results show that women would maximise their utility with the same combination but with a French rather than a German car. Table 3 provides numerical values for the importance that the various student subsegments give to the various attributes. These are computed by taking the utility range for the particular attribute and dividing it by the sum of all utility ranges.

The attribute which is generally given the most importance is price. Respondents who do not own a car, consider price as more important than the rest of the students in the sample. Car owners give less importance to this attribute, although it is still given first priority but male car owners consider country of origin as more important than price. The second attribute given most importance is country of origin. Car owners, particularly men, emphasise the importance of this attribute in purchasing a car. However, non car owners appear to give less importance to country of origin and considered fuel consumption as being far more important than country of origin. With all respondents the design attribute is given least importance with female, non car owners, giving this attribute the lowest utility score.

Conclusions

To a large extent the results confirm the ranking of importance which one would expect. However the importance given to country of origin is an interesting finding. It is also interesting that non car owners do not give this aspect as much importance as petrol consumption probably because these respondents still aspire to a car and the price issue is seen as the major hurdle. On the other hand car owners give much less importance to fuel consumption probably because once one owns a car the convenience provided outstrips any running costs. The conjoint analysis technique provides the ideal combination, in this case for students, among a number of attributes. If any importer could provide the ideal attribute and attribute level mix he is onto a winner. However, such a combination is often not feasible. Nonetheless the technique provides an ideal or

benchmark against which any supplier can assess his offering. The further away his combination of attributes is from this ideal the less it is worth his while to target this segment.

Limited resources precluded the analysis of a wider variety of attributes and attribute levels such as colour, seating, type of fuel and much more. Although an attempt was made to identify and investigate the major attributes considered by students, the study represents a less realistic picture than what is involved in actual choice decisions. Indeed the country of origin attribute is probably in part acting as a surrogate for make. Buyers may be thinking more of Peugeot or Renault, even down to specific models, rather than French cars. The study is primarily qualitative and explorative in nature. In a strict statistical sense the findings pertain to the sample and should be considered as only indicative for the entire student population.

The study provides a spring board for further research. It is possible to consider the choice decisions made by various buyers' segments not only among offerings in the same product category but also between products in different categories that are substitutes such as between cars and motorcycles.

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