Choosing a university: the results of a longitudinal study using conjoint analysis.

Introduction:

Prior to the introduction in 2012 of a new fee structure for undergraduates at universities in England, Dunnett, et al. (2012) carried out the first wave of a study on prospective university students. Conjoint analysis was used to ascertain the factors (attributes) that were most important in determining the preferences of prospective university students and specifically to see whether the new full cost regime would impact on students' choices.

Conjoint analysis is a statistical technique widely used in market research to determine the importance that consumers attach to various attributes of a good or service. Respondents choose from a controlled set of potential product/service bundles and by analysing the choices they make, the implicit valuation of the individual features may be calculated. These are known as utilities or part-worths. Six attributes for the choice of university were derived from the results of a focus group and a systematic review of literature. (Soutar and Turner, 2002; Bergerson, 2010; Doolan, 2009, Raposo and Alves, 2007; Clarke, 2007; Briggs and Wilson, 2007; Domino et al., 2006; Cubillo et al., 2006; Yamamoto, 2006 and Brooks, 2002). (See Appendix 1).

Dunnett et al (2012) provided evidence that course and university reputation are by far the most important factors influencing a student's choice of university, whatever their background. For prospective students, fees were a relatively unimportant determinant of the overall utility associated with the choice of a particular university. However, a key finding of the original conjoint study was that students whose parents had not attended university experience a greater loss of utility as a result of higher fees. This suggested that there could be policy implications for the fee increases proposed for 2012: that 'non-traditional' students are more likely to be 'put off' university (or at least some university or course options) by higher fees than other groups are. It would appear that the lack of direct experience of university impacts on a student's decision about which university to choose, and given that such students were found to be significantly more price sensitive, potentially about whether to go to university at all.

The wave one analysis was a simulation of students' choice so may inadequately model the real response of students to university attributes and higher fees. With this in mind, the authors determined to conduct a longitudinal study following up the same sample of students, *after* they had made their *actual* choice of university. By focusing on respondents who had made a real choice the intention was to address any shortcomings of the previous conjoint study and evaluate the effectiveness of conjoint analysis as a predictive tool.

Research Aim

The aim of this study is two-fold: firstly to examine the relative importance of factors that affect students' choice of university, and the impact on various segments of the student market, who have now made a university choice; and secondly, to evaluate whether the conjoint method itself can be seen as a reliable predictor of the importance of attributes affecting university preference.

Research Questions

- 1. What factors are most important in determining the choice of university?
- 2. Are patterns of utility significantly different for students from 'non-traditional' backgrounds (that is, families where neither parent attended university) compared to students from families where at least one parent attended university?
- 3. Are patterns of utility significantly different for students from lower socio-economic groups compared to higher socio-economic groups?
- 4. Are patterns of utility significantly different for female students compared to male students?
- 5. Finally, can conjoint analysis be used to usefully predict the importance of attributes and to explain patterns of utility once respondents have made their actual choice of university

Background

The Coalition Government wanted to align more closely the costs and benefits of going to university but there were concerns that introducing a market into higher education would have a negative impact on inclusiveness and disproportionately discriminate against students from non-traditional backgrounds, and fail to deliver any significant improvements in the quality of education quality or in efficiency (Brown, 2012). The idea that a complex and highly involved decision such as choosing a university would be, or even could be, a wholly 'rational' market choice has been called into question by numerous studies of consumer behaviour and education (Allen, 2002; Solomon, 2013; Bergerson, 2010; Durkin, 2011). Nevertheless, results from the previous conjoint analysis on the factors that affect university preferences (Dunnett et al., 2012) did indeed demonstrate the importance of reputation and the relative unimportance of fees. This is not wholly unexpected and is relevant and consistent with services marketing theory. As marketers, we would also expect reputation to be important in higher education as it is a highly complex, intangible service, high in credence qualities. (Lovelock and Wirtz, 2011; Zeithaml et al, 1985). Marketers would also recognise the relevance and importance of fees (price), not simply as an attribute in itself, but as a proxy for 'quality'. This is relevant from both a branding and services perspective specifically for goods and services with which customers are less familiar and where economic and social risks are perceived to be high. (Anderson and Simester, 2003; Kotler and Fox, 1995; Dahlen et al, 2010).

Previous research studies suggest that university preference is affected by the culture, situation and beliefs of prospective students (Moogan, 2011; Allen, 2002; James, 2000). It may be viewed as a multi-layered decision process which has demographic, environmental, psychological and socially constructed influences (Bergerson, 2010; Bourdieu, 1984; Raposo & Alves, 2007; Bettman et al., 1998).

Method - Conjoint Analysis

Conjoint analysis uses statistical techniques to estimate regression parameters. The original wave one conjoint study was based on the response of 400 prospective students. This longitudinal wave two conjoint study is based on the follow-up responses of 272 people from the original 400 who completed an on-line questionnaire (68% response rate). The conjoint questionnaire for wave two followed the same format as that for wave one. There was also an additional open question: "What are the reasons for your choice?" to help explore motivations for the choice of university in the respondent's own words. The questionnaire was hosted by a market research organisation that had access to a specialist 'panel provider' *www.Opinionpanel.co.uk*. This prospective student panel is nationally recognised and used by the UK government and by HEFCE for research purposes. The original characteristics of the wave one sample were mostly determined by quota and the key demographic characteristics of the 272 students who responded to the longitudinal wave two conjoint study, were in similar proportion, except for a slight bias towards female respondents. (See Appendix 2, Table 2.)

In the wave two study each respondent again answered ten questions. Each question asked the respondent to choose one of three competing university packages (see Appendix 3). Each set of questions presented the choices (and the attributes within the choices) in a different order, so as to minimise bias. For each of the 272 respondents this produced information on preferences and these are analysed and compared with the original results from the wave one conjoint in the next section.

Analysis

The relative importance of attributes

Once again it seems that in choosing between universities, course reputation and university reputation are by far the most important factors. Together these two factors account for almost 60 per cent of people's preference for a university. More importantly the top four factors remain consistent between wave one and wave two which suggests that conjoint analysis is a consistent predictor of the importance of attributes (see Appendix 4). The main and significant differences are that in wave 2, fees have become *much less* important and entry qualifications have become *much more* important. Differences in fees (from high to low) now have a much smaller effect on utility. Most interestingly low entry qualifications are now associated with a significant *loss* in utility rather than a gain.

Students whose parents did not attend university

Our second research question relates to the effect of parental influence. We compared those respondents whose parents went to university with those respondents where there was no such history using independent samples t-tests to compare the two groups. In comparing results across wave one and wave two it is worth noting that there is now a bigger difference between the two groups in their attitude towards university reputation. In wave two, respondents whose parents did not go to university gain significantly less utility from a university with a high reputation and are less put off (that is, have less disutility) by a university with a low reputation (see Appendix 5). This could reflect a difference in their social/cultural capital and their lower expectations as less experienced consumers of this complex credence service. (Mitra et al 1999: Allen, 2002). Figure 1 (Appendix 6) is an attempt to represent graphically the differences between these two market segments.

In wave two there is no longer any significant difference in attitude towards course reputation or fees for students whose parents went to university compared to those where neither parent went to university. Nevertheless, the difference in attitude towards high and average entry qualifications is still significant. Respondents whose parents did not attend university *again* experience more disutility towards higher entry qualifications. These 'non-traditional' students also experience more positive utility from medium entry qualifications. On the other hand, there is no longer a significant difference in attitude towards low entry qualifications. In fact in wave two *both* groups now associate low entry qualifications with a loss of utility rather than a gain as they did in wave one. It seems that having made a choice of university, low entry qualifications are seen by both segments as proxy for low quality. This has echoes of Groucho Marx's famous line: "I don't want to belong to any club that will accept me as a member." (Robertson, 1996: 326). The motivation would now seem to be: if it's easy to get in to a particular institution it can't be worth going to.

Students from lower socio-economic groups

The results split by socio-economic group are shown in Appendix 7. There is still a significant difference between the two groups in their attitude towards university reputation. For both groups university reputation is important, but for ABC1s it is more important to be going to a *good* university. In wave two, unlike wave one, there is also a significant difference between the two groups in their attitude to fees. The C2DEs display a marked preference for lower fees over higher fees. The ABC1s are perhaps more confident that parents can or will support them or they have less fear of the loan debt. The analysis also indicates significant difference in the levels of utility related to distance (local versus non-local) between ABC1s and C2DEs with the latter preferring a local university, which might indicate that students from lower socio-economic groups are more likely to stay at home when studying. The difference in attitudes to fees and distance certainly seem to imply some 'cost consciousness' and additional price sensitivity for students from lower socio-economic groups when faced with the reality of going to university.

Gender differences

In wave two the effect of gender on students' utilities, shown in Appendix 8, is insignificant. The reputation of the course and the university is equally important to both. In comparing female students and male students there is no difference in their attitudes to fees. The only factor where there is a significant difference is with regards to entry qualifications. Females see more benefit than males in medium entry qualifications but relative to males they now associate significant disutility with low entry qualifications. Both genders now view low entry qualifications in a negative light.

An initial early review of qualitative responses to the question: 'Why did you choose this university?' indicates that reputation was most frequently cited by all groups (see Appendix 9). However, respondents who had selected and gained entry to Russell Group universities (Tier 1) were nevertheless far more likely to cite 'good / high reputation' than those who selected non-Russell Group Red Brick / Plate Glass universities (Tier 2) and 1992 / new universities (Tier 3). Furthermore Allen's (2002) more intangible FLAG: Fits Like A Glove factors (e.g. *I feel I would be comfortable there; I like the atmosphere; It appeals to me and my needs*) were mentioned far more frequently by students whose parents did not attend university in comparison with those where both parents attended and also by females rather than males.

Conclusion

This study explores the impact of changes in the funding of higher education on the preferences and utilities of students who chose a university in 2012. It attempts to determine whether the value placed on a university education varies across different groups - for example, are 'non-traditional' students' preferences and utilities significantly different from those of more traditional students, as indicated by socio-economic group and parents' university education. Conjoint analysis was used to explore overall attribute importances and differences in utility. The results may be summarised as follows:

Patterns of utility for students with no family experience of university (that is, families where neither parent attended university) compared to students from families where at least one parent attended university: The wave two longitudinal study found marked differences between the two groups in terms of utility related to entry qualifications and university reputation. Students whose parents had no experience of university were less 'put off' by lower reputation and more deterred by high entry qualifications, suggesting that family history of university life is an important factor in affecting choice of university .

Patterns of utility for students from lower socio-economic groups compared to higher socio-economic groups: Again, the wave two study found significant differences in utility related to university reputation, with C2DEs less deterred by a university with a lower reputation. There was also a clear preference for lower fees and also a local university amongst lower socio-economic groups.

Patterns of utility for female students compared to male students: The wave two study found that girls now derive more disutility from universities with lower entry qualifications.

This longitudinal study backs up the findings of the wave one conjoint analysis to confirm that course and university reputation are by far the most important factors influencing students' choice of university despite the rise in fees and irrespective of students' background. Fees remain a relatively unimportant determinant of the overall utility associated with a university. However, a key finding of the study was that students from lower socio-economic groups experience a higher loss of utility as a result of higher fees. Additionally students whose parents did not attend university suffer a smaller loss of utility from a university with low reputation but also gain less from a university with a high reputation. Moreover it would appear that 'non-traditional' students are more likely to be put off by high prices and more likely to accept or 'settle' for a university with a lower reputation and lower entry criteria. The benefits of going to a highly rated university may be under-valued in families that have no direct experience of higher education and so, when faced with a choice, children from these families may decide that less prestigious universities are right for them. This is consistent with findings by UCAS (Hawdon, 2012) and others (Pasternak, 2005; James, 2000.) Whilst females are more significantly put off by universities with low entry requirements, the qualitative attitudinal statements seem to indicate that so-called 'softer' factors may also influence their choice.

Conjoint analysis as a predictor of attribute importance: The wave two conjoint analysis seems to support the view that conjoint analysis can be validly used to make predictions of the factors that are most important in affecting university choice. Whilst the factors that are most important are common to all groups, underlying patterns of utility reveal some cause for concern with regards to inclusiveness, not only in terms of raw numbers going into higher education, but also in terms of the likely participation at elite universities from non-traditional social groups. A combination of the credence quality of education along with the much higher fees may further disadvantage 'non-traditional' students. (See also Brown, 2012.)

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APPENDICES:

Appendix 1

Table 1: University attributes used in the conjoint analysis study (wave 1 and wave 2)

University reputation	High	Average	Low
Course reputation	High	Average	Low
Entry qualifications	Low (200 points)	Medium (260 points)	High (340 points)
Fees per annum	£6000	£7500	£9000
University orientation	Industry focussed	Research focussed	Teaching focussed
Distance from home	Local	Not local	

Appendix 2

 Table 2: Sample characteristics for wave 1 and wave 2 conjoint

		Wave 1 (n=400)	<i>Wave 2 (n=272)</i>
		percent	percent
Social class	ABC1	50	51
	C2DE	50	49
Parents went to university?	neither	55	56
	One or both	45	44
Educational background	state	90	90
	private	10	10
Gender	Male	50	44
	female	50	56

Appendix 3

Table 3: Conjoint question example.	Please choose the most product choices	n the following	
	Choice P	Choice Q	Choice R
University Orientation	Research focused	Teaching focused	Industry focused
University Reputation	Average	High	Low
Course Reputation	Average	Low	High
Distance from home	Not local	Local	Local
Entry Qualifications	Medium (260 points)	Low (200 points)	High (340 points)
Fees	£6000 per year	£9000 per year	£7500 per year

 Table 4: Relative importance of attributes

(W2 in italics)	importa	ance (%)		utility (zero differen	o centred nces)
	W1 n=400	W2 n=272		W1 n=400	W2 n=272
Course reputation	31.2	31.2	low	-106	-107
			average	25	26
			high	81	81
University reputation	27.8	26.2	low	-99	-87
			average	32	18
			high	68	70
			· -		
Orientation	167	16.6	industry	22	-15
	10.7		focussed	-23	
			research	5	2
			focussed	5	
			teaching	18	12
			focussed	10	
			-		
Distance	10.1	9.3	not local	-7	-5
			local	7	5
			-		<u> </u>
Fees	9.5	<mark>3.7</mark>	low	24	<mark>8</mark>
			average	9	6
			high	-33	<mark>-14</mark>
Entry	4.8	<u>13.0</u>	low	10	<mark>-13</mark>
quanneations			average	0	24
			high	-10	
	100	100	mgn	-17	-11
	100	100			

Table 5: Comparison of factors by whether or not parents went to university.

]					
Zero Centred Differences in utility (ZCDs)	yes			no			
		First wave 178/400	Second wave 121/272	First wave 222/400	Second wave 151/272	W1	W2
Course reputation	rse reputation low		-112	-102	-102	***	_
	average	22	26	27	26	*	-
	high	87	86	75	77	-	-
University reputation	low	-102	-99	-95	-78	*	***
_	average	32	22	31	15	-	*
	high	72	77	64	63	-	***
	·			· · · · · · · · · · · · · · · · · · ·			
Orientation	industry focused	-23	-13	-23	-15	-	-
	research focused	7	-4	3	7	-	-
	teaching focused	16	17	20	8	-	-
Distance	not local	-5	-2	-9	-7	-	-
	local	5	2	9	7	-	-
	•						
Fees	low	20	8	27	9	**	-
	average	7	5	10	6	-	-
	high	-27	-12	-37	-15	**	-
	r	r		1		1	
Entry qualifications	low	7	<u>-18</u>	12	<mark>-9</mark>	**	-
	average	6	20	11	28	**	*
	high	-13	-2	-24	-19	**	**

Asterisks indicate a significant difference between respondents whose parents went to university and those who didn't.

p<0.05 = * p<0.01 = ** p<0.005 = ***

Appendix 6





Table 6: Social class comparisons

Zero Centred Differences in utility (ZCDs)		social class					
		AB	C1	C2D	si	g.	
		W1	W2	W1	W2		
Course reputation	low	-110	-112	-101	-101	**	-
	average	23	27	26	25	-	-
	high	87	84	75	77	-	-
			-				
University reputation	low	-106	-95	-92	<mark>-80</mark>	***	*
	average	33	19	31	16	-	-
	high	74	75	61	<mark>64</mark>	***	*
Orientation	industry focused	-22	-17	-24	-12	-	-
	research focused	7	0	2	5	-	-
	teaching focused	15	17	21	7	-	-
Distance	not local	-2	0	-13	<mark>-10</mark>	*	*
	local	2	0	13	<mark>10</mark>	*	*
Fees	low	21	6	27	<mark>10</mark>	-	**
	average	8	4	9	<mark>7</mark>	-	**
	high	-29	-10	-36	<mark>-17</mark>	-	**
			-				
Entry qualifications	low	9	-14	11	-11	-	-
	average	8	22	10	26	-	-
	high	-17	-8	-21	-15	-	-

Asterisks indicate a significant difference between ABC1s and C2DEs p<0.05 = * p<0.01 = ** p<0.005 = ***

 Table 7: Gender effects on attribute utility

Zero Centred Differences in utility (ZCDs)		ma	le	fem	ale	sig.	
		W1	W2	W1	W2	W1	W2
Course reputation	low	-103	-107	-108	-106	-	-
	average	22	27	27	25	*	-
	high	81	80	-81	81	-	-
University reputation	low	-103	-88	-95	-87	*	-
	average	32	17	32	18	-	-
	high	72	71	63	68	-	-
						-	
Orientation	industry focused	-11	-12	-34	-16	***	-
	research focused	0	3	9	2	-	-
	teaching focused	11	9	25	14	*	-
						-	
Distance	not local	-3	-7	-12	-3	*	-
	local	3	7	12	3	*	-
						-	
Fees	low	25	7	23	9	-	-
	average	7	5	11	6	*	-
	high	-32	-12	-32	-15	-	-
Entry qualifications	low	10	-6	<mark>10</mark>	<mark>-18</mark>	_	*
	average	9	20	9	28	-	*
	high	-19	-13	<mark>-19</mark>	<mark>-10</mark>	_	-

Asterisks indicate a significant difference between male and female p<0.05 = * p<0.01 = ** p<0.005 = ***



Appendix 10

TABLE 9	C FILTERS:	A.I	ty did you cho Respondents	oose this univer	sity? (NETS)								PAGE
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i feel i comfortab	would be k e there		20 79	9 8%	6 8%	5 6%	0 0 0	4 3% F	16° 1198	12 8%	4 14%	1 3%	3° 5%