

Students as consumers: the market for essays

Abstract

We report on the willingness of students at 3 UK universities to buy essays provided by commercial writers. This is done via a choice experiment in which students due to submit assessed coursework are presented with essays of differing price and grade each of which is associated with differing risks of detection and penalties.

Half of the sample reveal a willingness to buy an essay. The essays' grade, price, risk and penalty are all found to significantly affect choices. The willingness to pay for essays rises to £307 for 1st class essays, with the value decaying as the risk and penalty increase. We find the individuals' risk preferences significantly affect their valuations of the illicit essays offered.

1. Background & contribution of the Paper

Plagiarism is a growing problem in the Higher Education sector. The problem is so pervasive that the personal statements submitted by students as part of their UCAS application are now systematically checked for plagiarism¹. The precise scale of the plagiarism problem is only imperfectly understood because of the illicit nature of activity – only a proportion of those cheating are caught, plagiarisers are reluctant to reveal their behaviour to researchers and Universities are often reluctant to publicise the scale and severity of the problem among their students.

The nature of plagiarism is changing; detection systems and patterns of plagiarism are co-evolving. The use *TurnItIn* may deter some potential plagiarisers but they also have the option of adaptation. One such form of adaptation is to shift away from a 'copy and paste' approach to plagiarism toward the 'contract cheating' market. This market provides bespoke, original material which will not be identified as plagiarised by *TurnItIn*.

The information available about this illicit but growing industry is patchy and nearly all concerns the supply side of the market. *The Guardian* newspaper reported in 2006 that plagiarism problem was "compounded by the booming industry of websites which are selling tailor-made essays, some at £1,000 a time." (October 17, 2006). The market in online plagiarism was estimated to be worth £200m in 2006. One well known 'Essay Bank' company (UKEssays) is reported to have 3,500 specialist writers with a turnover in 2005 of £1.6m.

Historically detection of plagiarism was left to the individual marker. Detection may have occurred because of similarities between the work submitted and material publicly available, contrasts of style and/or quality within the submitted work or across submissions by a student.

However the growth in student numbers makes this formation of expectations about particular students by a marker increasingly difficult and so this mode of detection becomes less feasible. In addition, even where such expectations are formed the use of anonymised marking systems means that identifying a discrepancy between the expectation/experience of quality and that found in

¹ In 2006/07 234 UCAS personal statements featured a childhood incident, which was the catalyst for their subsequent passion for science, in which the applicant accidentally burnt a hole in their pyjamas.

submitted work is increasingly infeasible. The very trends in Higher Education which are leading to greater levels of plagiarism are also undermining the classical means of detection.

The use of *TurnItIn* is likely to have a deterrent effect on those who would otherwise copy and paste material into their work (as long as they were pasting from a source held within the *TurnItIn* database). However it also pushes people toward the Contract Cheating market ((Clarke and Lancaster 2006, 2007, 2008). There has been a proliferation of websites and companies offering essays written to order. The turnover of these companies in 2006 was estimated to be £200m and is thought likely to have grown rapidly in the period since. A JISC Plagiarism Advisory Service (JISCPAS) survey found that 11% of students thought that “buying an essay from a ghost writing service” was common.

This paper investigates the contract cheating market. More specifically, it investigates the demand side of this rapidly growing market. We report the results of research conducted with students at 3 UK universities into the willingness to buy, and willingness to pay for (WTP), original essays written by third parties. The research was conducted using choice experiments in which students were offered essays which systematically differed in terms of their price and quality as well as the risk of detection and the penalty if caught. This approach allows us to identify the proportion of the sample who are prepared to buy essays, and how this willingness to buy is moderated by the grade of the essay and its price. We identify the WTP for essays of varying quality and how these valuations decay as the risk and penalty associated with purchase are increased.

2. Research Methodology

Much of the research that has been done previously with students on the decision to cheat has been quite routine in terms of the analytical approaches employed. For example asking students if they have in the past committed various acts, whether they know other people who have, what their perceptions are of the extent or seriousness of these behaviours. Some of the more methodologically innovative work has used randomised response methods (see Nowell & Laufer, 1997; Kerkvliet, 1994) in order to encourage truthful revelation of illicit/incriminating behaviours. The research reported here uses an established method (“choice experiments”) in the economics and marketing literature in an innovative way. It uses choice experiments to address students’ willingness to buy essays. More specifically it investigates whether students’ willingness to buy an essay is affected by the essay’s price, grade, the risks of being caught and the associated penalties. Similarly we seek to identify the proportion of students who are unwilling to buy an essay no matter how the price, risk etc vary.

A more basic issue being investigated in the research was whether we could induce any student to reveal information in this regard given that it might be considered as embarrassing or incriminating. A uniform response of ‘not willing to buy’ might have been the truth or simply an artefact of the fear of incrimination. The choice experiment approach used in the study is now briefly explained before the empirical results are presented and discussed.

Choice experiments originate from the conjoint techniques developed in marketing (Green and Rao 1971) and are now widely used in economic analyses of, *inter alia*, health (Ryan *et al.*, 2008), agricultural (Burton *et al.*, 2001) environmental (Bateman *et al.*, 2008) and transport (Hensher *et al.*, 2005) issues. Their theoretical underpinnings date back to Lancaster (1966) and consumer theory where the value of a product can be decomposed into the sum of the values of the product’s

attributes. This theoretical framework was effectively operationalised with the development of random utility theory and associated statistical models of choice (McFadden 1974)

Respondents in choice experiment survey are presented with repeated choice situations. Each choice (it may be a product, a policy scenario, etc) is comprised of a series of attributes. By (systematically) varying the levels of these attributes the choices presented are varied. Respondents are not asked to report how much they prefer an alternative, nor how much they value changes in the level of a particular attribute, they are merely asked to identify which of the options they prefer.

In this case students were asked to consider essays which differed in terms of the 4 attributes shown in Table 1 (price, grade, risk and penalty). An example of a choice set presented to the students is shown in Table 2

Table 1. Attributes and Levels

Attribute	Levels
Essay grade	1st class, 2(i), 2(ii), 3rd class
Risk of being caught	None, 1/1000, 1/100
Penalty	None, 0% for module, Repeat the year
Price	£100, £50, £75, £25

With sufficient responses across a sufficiently wide range of choice situations, one can analyse the implicit weight given to attributes and their levels in the choices that have been made. Further, one can analyse how the attributes are traded off against each other in the choices made. For example, we expect potential buyers to prefer cheaper essays, and to prefer better grade essays. A particular question of interest is how the price they are prepared to pay increases as the grade improves and falls as the risk or penalty increase.

The students recruited into the study were always presented with a “buy none” option: they were never forced into buying an essay. The None option raises a critical issue regarding the recruitment of students into study of this nature. Some students are expected to always choose the None option, whether that be for ethical reasons or because of a fear of choosing to buy (whether that be in reality or within the survey context). However, for those who will consider the purchase, then a critical issue is what the “buy none” alternative will mean for them. That is, the student will consider what will be involved if they decide not to buy and instead write the essay themselves. Consequently it is necessary to ask the participating students for a prediction of the grade they would receive if they completed the work alone. This then defines the none option for each individual: an essay of a predicted grade with zero penalty, risk and price.

This ‘none’ option will vary across students and across courses/modules. A student might be prepared to buy an essay for one course unit in which they struggle, but not in a unit in which they excel. This means that the research into the willingness to purchase needs to be conducted regarding specific course units, it can not be meaningfully done in a generic setting. To this end, the recruitment process at the 3 universities² was to identify a 2nd/3rd year module which had a piece of coursework due which accounted for a significant proportion of the unit’s

² Identified here only as Universities A, B and C

Table 2. An example choice set.

	Buy Essay 1	Buy Essay 2	Buy Essay 3	Buy None of Them
Price of Essay	£50	£100	£75	
Risk of Being Caught	1 / 1000 chance of being caught	1 /1000 chance of being caught	1/100 chance of being caught	
Penalty if Caught	0% Mark for the Module	Repeat the Year	0% Mark for the Module	
Essay Grade	2(ii) Mark	2(i) Mark	1 st Class Mark	
What option would you choose?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

final mark. Then, with the approval of the unit lecturer, students were recruited to attend the survey/experiment which was held 2-3 weeks before submission was due. At this session the precise purpose and format of the survey was explained and students given the opportunity to leave. It was made clear that the research was unequivocally based on confidentiality, and had been approved by the University of Manchester Research Ethics Committee on that basis.

Recruitment was conducted in Autumn 2008/ Spring 2009. Given the need to identify a suitable unit, get the permission of the relevant lecturer, circulate the recruitment letters and then run the session this was a difficult and time consuming recruitment process. In total we recruited 90 students to the sessions split unevenly across the 3 universities.

3. Results I - Attitudes towards, and experiences of, plagiarism & cheating

All but 2 of the students participating indicated that they had been informed about the policies regarding plagiarism and cheating. Responses to a question about their perception of the frequency with which plagiarism occurred at their University are shown in Table 3. Over a third of the sample thought that it occurred “often” or “very often” at their University.

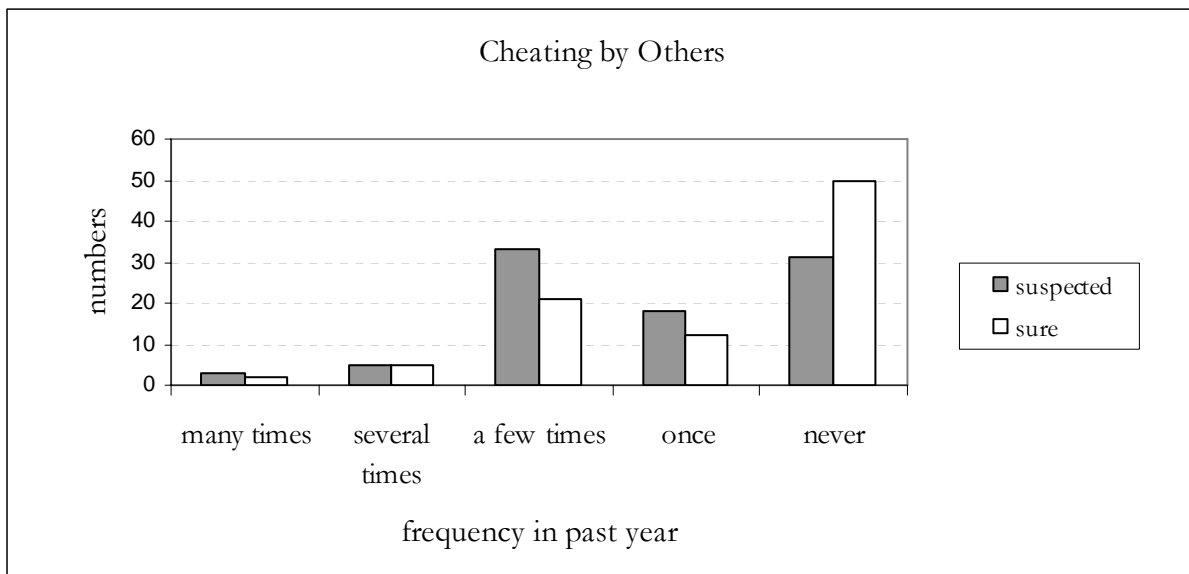
Table 3. Perceived frequency of plagiarism.

“frequency with which plagiarism occurs at your University”	Nos	%
very seldom	18	20.0
seldom	40	44.4
often	30	33.3
very often	2	2.2

The students were asked more about their perceptions about the prevalence of cheating. They were asked how frequently in the past year they had ‘suspected’ a student they knew of cheating. They are then asked the same question but this time asked how frequently they had been ‘sure’ someone they knew had cheated. As Figure 1 indicates, two thirds of the students had suspected a fellow student cheating in the past year, and 45% reported that they had been sure of such cheating on one or more occasion. 37% reported having suspected cheating “a few times” while this figure was 23% for those who had been sure of the cheating.

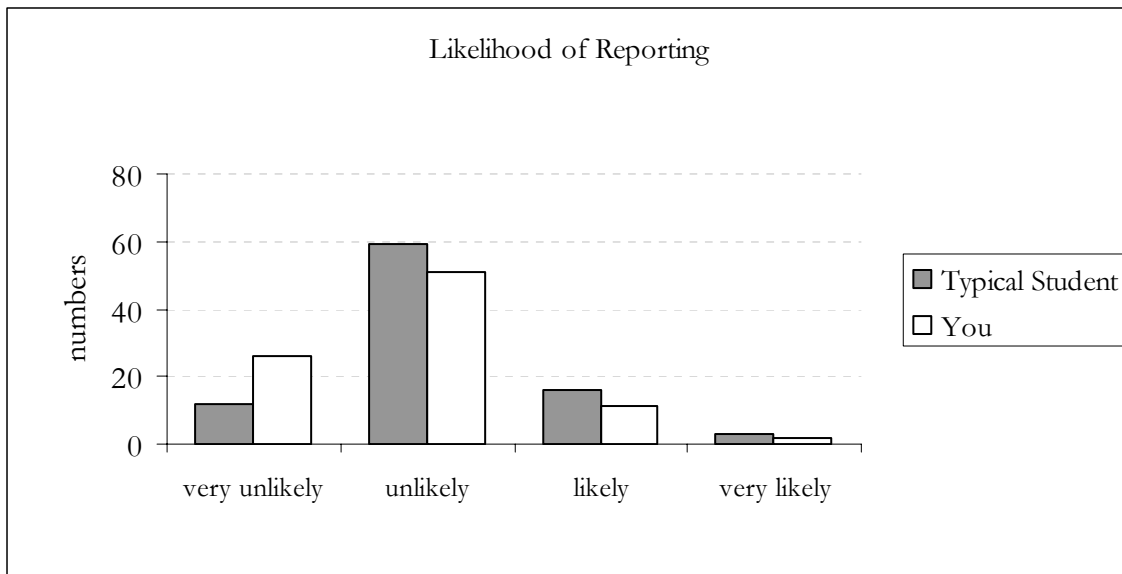
Despite the prevalence of such suspicions (or stronger) of cheating only 1 of the 90 students indicated they had ever reported a fellow student for plagiarism.

Figure 1. Perceptions of cheating by others in the past year.



This issue of willingness to report was further explored by asking respondents about the likelihood of a student reporting another student that they suspected of plagiarism. This question was asked in terms of (i) the respondent themselves, (ii) the typical student. As shown in Figure 2 86% thought it “unlikely” or “very unlikely” that they would report such a student, while the figure was 79% for the ‘typical student’.

Figure 2. The likelihood of reporting.



These (low) levels of willingness to report students who are suspected of, or known to be, cheating are particularly significant for the Contract Cheating issue given the difficulty of identifying material sourced in this way as plagiarised by other means. Universities are heavily dependent on students reporting but these results do not suggest a culture of reporting offenders. Ten of the 90 students interviewed knew of someone who had bought one or more essays online. In each of the 3 universities where we surveyed the number was non zero, with 4/29, 5/46 and 1/15 students indicating this at universities A, B and C respectively.

We now turn to the results from the choice experiment.

4. Results II – The Choice Experiment

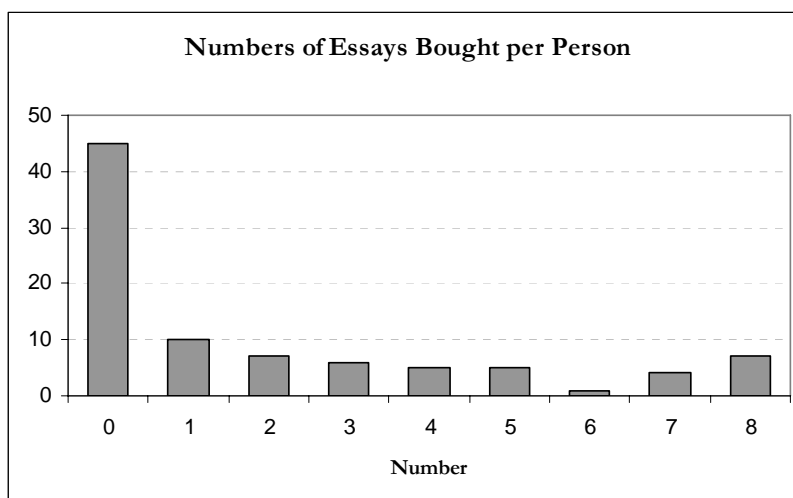
Each of the 90 respondents was presented with 8 choice sets, leading to 720 choice occasions in total. Initial analysis concerns the numbers of respondents who chose to buy an essay on one or more occasion (as opposed to those who choose “buy none” on each occasion). We find that 50% of the sample indicated they would have bought one of the essays offered on one or more occasion. This 50% proportion of “buyers” was stable across the 3 universities (Table 4

Table 4. Essay ‘purchasing’ patterns.

	University			Total
	A	B	C	
Buyer?				
No	13	24	8	45
Yes	16	22	7	45
Total	29	46	15	90

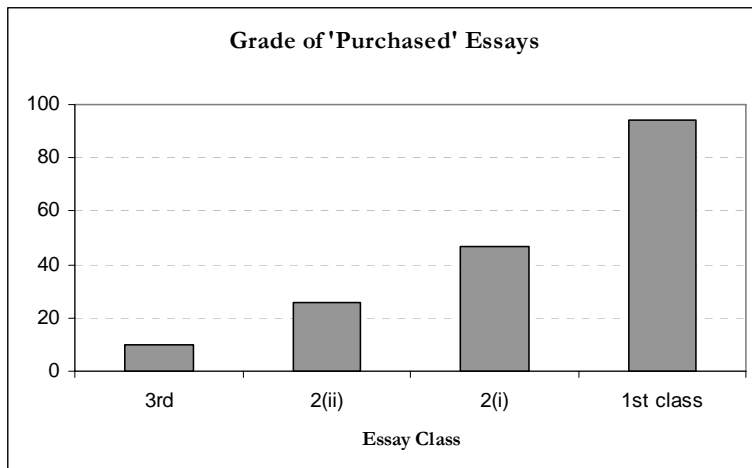
The frequency of ‘purchase’ was variable across the sample, with 7 indicating they would buy on each occasion.

Figure 3. Essays ‘purchased’ per person.



Overall, the ‘buyers’ chose to purchase rather than complete their own essay in 177 of the 720 situations. As one would expect, and is shown in Figure 4, better quality essays were chosen more frequently with 1st class essays most often bought [94/177]. However 2(i) grade essays [47/177], 2(ii) essays [26/177] and some 3rd class essays [10/177] were also bought.

Figure 4. Quality of the essays 'purchased'.



Next we formally analyse the decision to buy essays within the survey employing random utility approach. The central idea driving the analysis of choice experiment data is that people choose the option they prefer. Formally, the approach is based within the framework of Random Utility Theory which contends that consumers choose the alternative that yields the greatest utility to them and hence the probability of selecting an alternative rises as the utility associated with them increases.

The utility to consumer i from option j comprises a deterministic (observable) component (v_j) and an unobservable or stochastic component (e_j):

$$U_j = v_j + e_j \quad (1)$$

In this case the utility for person i from essay j is given as:

$$U_{ij} = \beta_{grade} Grade_j + \beta_{risk} Risk_j + \beta_{penalty} Penalty_j + \beta_{price} Price_j + e_j \quad (2)$$

The β terms are weights or 'marginal utilities' that people have for the attributes and which therefore drive the choices they make. So we expect β_{price} to be negative (since people prefer cheaper products), but β_{grade} to be positive (since people prefer higher quality essays).

The aim of the statistical analysis is to estimate these β weight terms, that is, find values of them that best explain the pattern of choices observed. A particular aim of this analysis is to understand the trade offs people make when making their choices between essays. For example, how much higher risk will someone be prepared to take on in order to get a higher quality essay, or how much more will they pay for a 1st class essay than for a 2(i).

The economic value of any the change in the level of any attribute is given by the ratio of the attribute's marginal utility to the negative of the marginal utility of the cost term. Hence the additional amount people are prepared to pay for an improvement in the grade of the essay purchased is given by:

$$\beta_{grade} / -\beta_{price}$$

We present results from a set of models below. We will sidestep statistical issues for the moment since the aim of this paper is to convey intuitively both our method, and the results we derive from it, to a general audience.

The models reported in this paper are conditional logit models (McFadden, 1974). These seek to statistically explain the effects that changes in the levels of attributes have on the probability of an option being chosen. We are interested in the sign and statistical significance of the coefficients and, later, the ratios between them.

Table 5 reports a simple conditional logit model³. The important message from these results are that changes in all attributes are significantly affecting the probability of an essay being chosen (since the z-stat>2 for all 4 attributes) and have the expected sign (increases in *price*, *risk* and *penalty* reduce the probability of an essay being chosen, while an increase in *grade* increases the probability). This suggests the students are taking account of all the attributes of the essays offered when making their choices.

Table 5. A simple conditional logit model on attributes – Universities A & B

	Coef	Std. Err	z	Prob>z	[95% Conf.	Interval]
price	-0.006	0.002	-2.570	0.010	-0.011	-0.002
grade	0.765	0.078	9.850	0.000	0.612	0.917
risk	-0.940	0.146	-6.430	0.000	-1.227	-0.654
penalty	-0.492	0.149	-3.310	0.001	-0.783	-0.200

Log likelihood = -421.19593
N=2400

We next combine the *risk* and *penalty* attributes since, for example, the risk attribute itself has little intuitive meaning if there is no penalty if the offender is caught, and vice versa. Therefore we create combined risk-penalty attribute (*rp*) which take the values shown in Table 6.

Table 6. A combined Risk-Penalty Measure

Risk	Penalty	rp
If either risk or penalty is zero		rp0
1/1000	0% for the module	rp1
1/1000	repeat the year	rp2
1/100	0% for the module	rp3
1/100	repeat the year	rp4

We present a model in Table 7 in which this combined risk-penalty attribute (*rp*) is introduced in levels, with zero risk-penalty as the baseline. The grade attribute is also introduced in levels with a 3rd class essay as the baseline.

³ University C is excluded from the sample at this point because statistical tests showed that interviewees at University C had very different marginal utilities and valuations than those at Universities A&B, even though 50% bought essays at each University. The models presented here exclude those 15 students from University C, meaning the sample is reduced from 90 to 75 students.

The sequence of magnitudes of the marginal utilities are consistent with expectations (and indicate that respondents appearing to be weighing up the attributes' levels when making their choices). The magnitude of the sequence of disutilities from more stringent risk-penalty regimes are consistent: $\beta_{rp1} > \beta_{rp2} | \beta_{rp3} > \beta_{rp4}$. Similarly the marginal utility of a 1st Class essay [2.8] exceeds that of a 2(i) [1.9] which exceeds that of a 2(ii) essay [1.5].

Table 7. A conditional logit model on attribute levels

	Coef	Std. Err	z	Prob>z	[95% Conf.	Intervall]
price	-0.009	0.004	-2.30	0.021	-0.017	-0.001
rp1	-1.132	0.356	-3.18	0.001	-1.829	-0.434
rp2	-1.575	0.300	-5.24	0.000	-2.163	-0.986
rp3	-1.961	0.277	-7.07	0.000	-2.505	-1.418
rp4	-3.611	0.432	-8.37	0.000	-4.457	-2.765
Grade_2(ii)	1.483	0.310	4.79	0.000	0.876	2.090
Grade_2(i)	1.915	0.303	6.33	0.000	1.322	2.508
Grade_1 st	2.767	0.317	8.72	0.000	2.144	3.389

Log likelihood = -413.84131

N=2400

As explained above the economic value of any change in the level of any attribute is given by the ratio of the attribute's marginal utility to the negative of the marginal utility of the cost term. Hence the monetary value (willingness to pay, WTP) for an improvement in the grade of the essay purchased is given by $\beta_{grade}/-\beta_{price}$.

Hence the model in Table 7 reveals implicit WTP values for essays of increasing quality⁴ (assuming a zero risk/zero penalty) of:

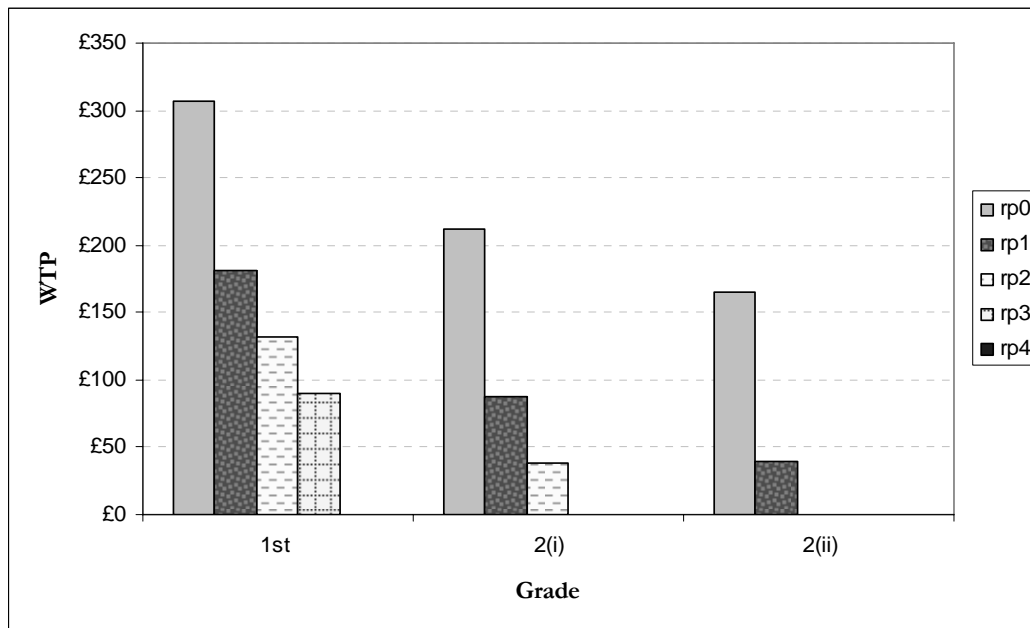
Grade	Value of Essay
2(ii)	£164
2(i)	£212
1 st class	£307

An immediate question when considering these implicit valuations is how they compare with the prices observed in the market. The problem that arises when trying to evaluate this is that many/most of the prices one observes online for essays are from companies which will deliver nothing or deliver virtually worthless material. However the equivalent prices observed on some of the more 'reputable' sites were £101, £135 and £270 respectively. The implication is that the WTP of these students exceeds the marginal cost of provision: a requirement for the market to exist.

As one would expect the WTP for an essays degrades as the risk-penalty regime within which it is being purchased and submitted becomes more stringent. If the disutility from the ramping up of the risk-penalty regime is sufficiently large then eventually the WTP for an essay of given grade will fall to zero. Figure 5 shows the decay in the WTP as the risk-penalty regime changes. The WTP falls to zero (or less) for all essay grades under the toughest regime (rp4: 1/100 chance of detection & repeat the year if caught). This zero value is reached also for a 2(ii) under rp3.

⁴ The equivalent valuations when University C is retained in the sample are £102, £172 and £247, however tests reject this pooling of the data.

Figure 5. The decay in WTP as risk-penalty increases



The final extension to the model incorporates personal characteristics to moderate the utility derived from changes in attribute levels. One could include demographics, educational background, or attitudinal characteristics. At present we limit ourselves to only one characteristic: the individuals' risk preferences. Participants in the survey were asked to choose, on 8 sequential occasions, between pairs of gambles. These choices between gambles allow one to estimate a relative risk aversion coefficient for each individual.

Having retrieved these individual specific estimates of the respondents' risk aversion scores we incorporate them in the conditional logit model of essay choice. More specifically we interact the risk-penalty attribute (rp) with the risk scores. The results of this estimation are shown in Table 8. The attributes are found to play significant roles as before. The sign of the $rp*risk_score$ interaction terms are all negative: the disutility associated with a move to a more stringent regime is greater for those who are more risk averse.

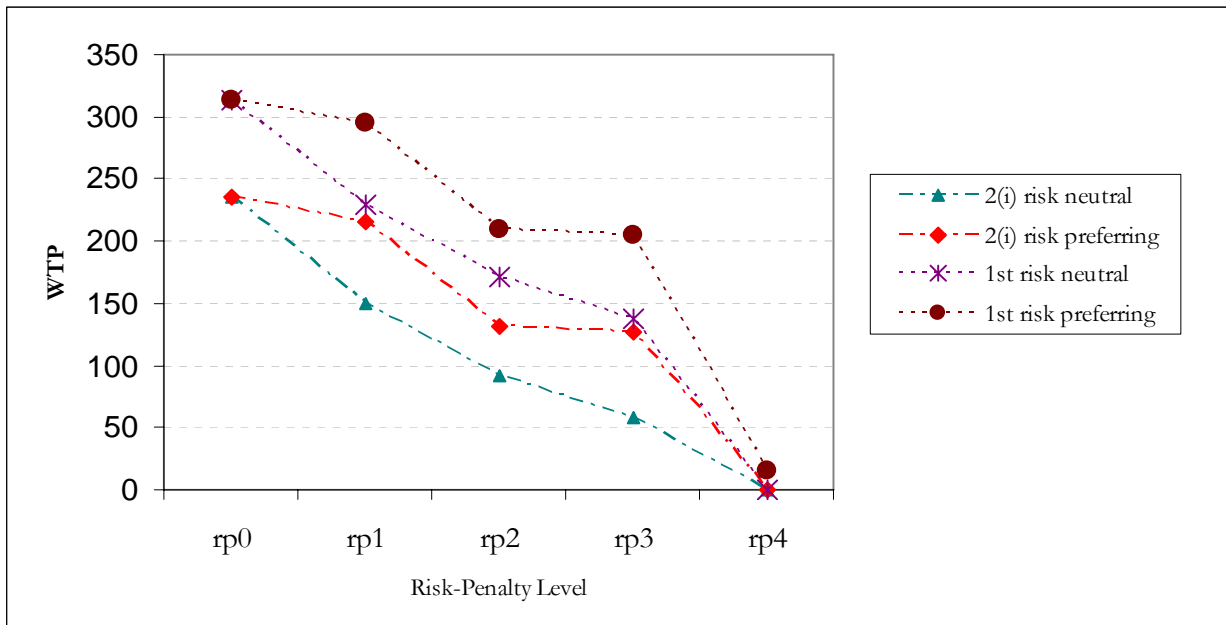
Table 8. Choice model incorporating risk aversion scores.

	Coef	Std. Err	z	P>z	[95% Conf.	Interval]
price	-0.009	0.004	-2.38	0.017	-0.017	-0.002
rp1	-0.802	0.366	-2.19	0.029	-1.520	-0.084
rp2	-1.355	0.316	-4.30	0.000	-1.974	-0.737
rp3	-1.671	0.289	-5.78	0.000	-2.238	-1.105
rp4	-3.353	0.442	-7.58	0.000	-4.220	-2.486
rp1*risk_score	-3.508	0.892	-3.93	0.000	-5.255	-1.760
rp2*risk_score	-2.101	0.909	-2.31	0.021	-3.883	-0.319
rp3*risk_score	-3.632	1.170	-3.11	0.002	-5.924	-1.340
rp4*risk_score	-2.961	1.929	-1.53	0.125	-6.742	0.820
Grade_2(ii)	1.602	0.331	4.84	0.000	0.953	2.252
Grade_2(i)	2.226	0.330	6.74	0.000	1.579	2.873
Grade_1 st	2.973	0.342	8.69	0.000	2.302	3.643

Log likelihood = -399.67331
N=2400

This model specification generates WTP values for an essay which will depend upon the essay's grade, the risk penalty regime in operation and the individuals' degree of risk aversion. Figure 7 shows the decline in WTP for a 1st class and a 2(i) essay under different *rp* regimes for both a risk neutral and a risk preferring individual. Note that for the risk preferring person the WTP for a 1st class essay is non-zero under even the *rp4* risk-penalty regime.

Figure 6. The decay in WTP for 1st and 2(ii) class essays: risk neutral and risk preferring individuals.



8. Conclusions

This paper has investigated the willingness to buy, and willingness to pay for, bespoke, original essays from external commercial providers. It has done so using choice experiments and is the first study of its kind. To investigate these issues meaningfully it is necessary to pose the choices with respect to a realistic scenario for the potential buyer. Given that an individual's willingness to buy may differ across course units, it is necessary to frame the choices with respect to a specific piece of work on a specific course unit. This approach was employed with a total of 90 students at 3 UK universities. This sample is small (because of the difficult sampling process described above) and while the results are indicative, they are statistically robust and rather disturbing.

Half of the sample, in each of the universities, indicated a willingness to buy one or more essays. Statistical analysis of the choice data reveal that respondents typically considered all of the essay's attributes, with all attributes having significant impacts on the probability of an essay being chosen. The naive WTP values for essays range between £164 for a 2(ii) class essay, up to £307 for a 1st class piece of work. These valuations decline as the risk and penalty associated with the illicit behaviour increase. This decay in the WTP for academic work as the risk & penalty increase is significantly moderated by the individuals' risk preferences.

A degree of caution is required when considering results from such stated preference studies as one needs to consider how reliable and realistic the choices, and implicit valuations they reflect, are. When considering such hypothetical bias one is wary of systematic misreporting of preferences. For example, economists often conduct such choice experiments regarding choices where there may be a 'warm glow' associated with certain choices, for example choosing to buy a 'green' product. This leads to over-valuation of that green product. In this case it might be the case that students might not treat the choices sufficiently seriously and over-report their willingness to buy. However, in this study there may be an opposite effect: the fear of self incrimination may have caused respondents to under-report their willingness to buy. The warm glow of giving might have been replaced by the cold fear of self-incrimination. Given the illicit nature of the choices we tested for significant misreporting using the Bayesian misreporting framework of Balcombe *et al.*, (2007). We found little or no evidence of a tendency to misreport and over-select the "buy none" option.

We are currently developing the approach employed to accommodate a randomised response mechanism within the choice process and associated estimation of the choice models. In addition, replicating the investigation with a much larger sample alongside a deeper exploration of heterogeneity among respondents are the obvious next steps for this research.

In conclusion, it is (to us) quite remarkable how many students indicated a willingness to buy. Their apparent lack of concern at revealing this in a survey run by academics at their university is startling. The assurances of confidentiality were genuine but the level of purchasing indicated was still contrary to our expectations. Why is there such an apparent lack of stigma in revealing a willingness to purchase coursework? It may be that the ethical line that most lecturers perceive as being crossed when such purchases are made is not that significant to many students. One could argue that in the modern University the student is treated as, and increasingly identifies and mobilises as, a consumer demanding 'value for money'. Perhaps subcontracting some of the work required to achieve the qualification, which is the ultimate goal of the process, is seen as just another rational choice by many informed consumers on campus.

References

- Balcombe, K., Bailey, A., Chalak, A. and Fraser, I. Bayesian Estimation of Willingness to Pay where respondents Mis-Report their Preferences. *Oxford Bulletin of Economics and Statistics* (2007), 69(3), p.413-437.
- Bateman, IJ, Munro, A and GL Poe (2008) Asymmetric Dominance Effects in Choice Experiments and Contingent Valuation. *Land Economics* 84(1):115-127
- Burton M., Rigby D., Young T. and James S. (2001). Consumer Attitudes to genetically modified organisms in food in the UK. *European Review of Agricultural Economics* 28(4): 479-498.
- Clarke, R and T.Lancaster (2006). "Eliminating the successor to plagiarism? Identifying the usage of contract cheating sites" in Proceedings of the 2nd International Plagiarism Conference, Gateshead, UK.
- Clarke, R and T.Lancaster (2007). "Assessing Contract Cheating through Auction Sites — a Computing Perspective", Proceedings of the 8th Annual Conference of the Higher Education Academy Subject Centre for Information and Computing Sciences pp. 91-95.
- Clarke, R and T.Lancaster (2008). "The Phenomena of Contract Cheating", in Roberts (2008), pp. 144-158.
- Green, P and V.R. Rao (1971) Conjoint measurement for quantifying judgmental data. *Journal of Marketing Research*, Vol. 8 pp.355 - 363.
- Hensher, D.A., Rose, J.M. and Greene, W.H. (2005) The implications on willingness to pay of respondents ignoring specific attributes, *Transportation* 32: 203-222.
- Kerkvliet, J. (1994). "Cheating by Economics Students: A Comparison of Survey Results." *Journal of Economic Education* 25: 121–133.
- Lancaster, KJ (1966) A New Approach to Consumer Theory, *Journal of Political Economy* 74 (1966): 132-157.
- McFadden, D. (1974). Conditional Logit Analysis of Qualitative Choice Behavior. In P. Zarembka (ed.), *Frontiers in Econometrics*. Academic Press, 105-142.
- Nowell, C., & Laufer, D. (1997). Undergraduate cheating in the fields of business and economics. *Journal of Economic Education*, 28, 3-12.
- Ryan, M., Gerard, K. and Amaya-Amaya M. *Using discrete choice to value health and health care*. Springer, 2008.