

A Work Project, presented as part of the requirements for the Award of a Master's degree in  
Economics from the Nova School of Business and Economics.

HIDDEN SACRIFICES: A DCE THAT EVALUATES STUDENTS' PRIORITIES IN  
PORTUGAL

Rita Moreira  
41019

Work project carried out under the supervision of:

Pedro Pita Barros

Luís Filipe

16-12-2021

## **Abstract**

A good GPA is essential to every student's future. This Discrete Choice Experiment was conducted to evaluate students' preferences during exam season. We estimate the level of sacrifice that college students are willing to do to have better grades. According to the survey results, during the exam season students would sacrifice one hour of sleep, one less hour of leisure per day and study three more hours per day to increase their GPA by approximately 1 point and would become depressed if their GPA increase by 3.82 points. As mental health issues become more prevalent among young adults, these results will contribute to identify how students prioritize depression levels and grades.

**Keywords:** Time Allocation, Grades, Depression, Daily Activities, Willingness to Give Up.

## **1. Introduction**

For students, managing their time can be one of the most difficult tasks to do. Activities with friends, leisure with family and time spent doing sports, are examples of students' choices when not occupied with academic matters. But how do they optimize between leisure and study? How much importance do students place on their academic results? And how much are students willing to sacrifice their mental health to improve their grades?

Grade point average (GPA) is frequently used as a first step in evaluating job applicants, particularly for high-level positions. Additionally, in a Job Outlook 2019, it was concluded that 73% of potential employers select their candidates according to the GPA, and do not consider applications with a GPA lower than B (equivalent to a 16 in the Portuguese grade scaling points). So, to have a solid career and to enter multinational companies, a good GPA has an important role. Additionally, if one wants to follow an academic career, and wants to take a PhD, a good GPA is also crucial. According to research by Ben Davis in MV Organizing, the graduate management admission council, to enter in a PhD, the GPA score has to B or above. Therefore, students face a lot of pressure to do well and achieve an academic competitive advantage.

In this paper our focus question is: "How much a university student is willing to trade for good grades?". With this study our main goal is to find out what importance students give to grades. To achieve it, we are going to study the time allocation of university students and how they feel about their mental health. How do students organize their time and how much time students are willing to allocate to each of their daily activities? We are going to focus on five attributes: GPA, average sleep time lost per day, daily average time spent in leisure, average time spend studying per day and depression levels.

We use a *Discrete Choice Experiment* (DCE), a quantitative research methodology to elicit latent preferences. We presented several hypothetical scenarios to the respondents. To find out what are students' priorities and their willingness to pay for better grades, we used the five attributes mentioned in the previous paragraph, with different levels each, all with respect to the exam season. Each respondent is confronted with 16 dilemmas where she must choose between two options. Each option presents every attribute at different levels. When an answer is made, it is possible to obtain information about the level of importance of an attribute level, when compared to the others, for that respective person. With this we are able to understand how much of each attributes' levels students are willing to trade for a higher GPA.

In a study focused on how students allocate their time, Brian K.Coffey, Andrew Barkley, Glynn T. Tonsor and Jesse B.Track (2020), found that when students make choices relating to time allocation, they are concerned with grades. In that same study, the authors identified a group of several activities that students could do during their free time and used them to evaluate students' choices. One of the main conclusions was that staying at home, relaxing, and watching movies is more attractive to students than doing sports or studying. Furthermore, it was found that an important factor that influences students' behavior is the previous level of academic performance, meaning that students with a higher GPA will allocate more time in going to classes and studying, than a student with a lower GPA.

Additionally, Barbara S.Grave (2010) evaluated how students' time allocation influences academic achievement in specific degrees. It was concluded that there is a positive correlation between time spent assisting courses and grades for high ability female and sciences/engineering students. In

contrast, if a student has an ability below the average, time spent in assisting tutorials or student work groups has a negative impact on grades. Furthermore, students that allocate more of their time to self-study are going to have higher grades, independently of gender or degree.

A study in Pakistan by Muhammad Jehangier Khann, Aqsa Ashraf and Aamir Nadeem (2020), concluded that, students who are willing to attend more courses, seminars and put more effort into self-study, are going to have higher GPA. On the other hand, according to Besides, Ogundipe & Falade (2014), having an extreme participation in activities with friends and social life can harm students' academic performance. Moreover, Khanam et al. (2017) found that students who achieve higher grades are those with an effective time management skill.

In line with this bulk of evidence, our main results are that the students in our sample place more importance on GPA during the exam season, followed by depression levels, leisure time, daily study hours, and sleep hours, in that order. The study demonstrated that students are only willing to be extremely depressed during exam season if their GPA increases 3.82 points and only willing to lose one hour of sleep each day if their GPA increases by approximately one point.

This paper is innovative in several aspects. First, it provides evidence regarding the priority that students give to grades. Until now, there were numerous studies focused on students knowing the importance of grades and the linkage between time spent studying and higher grades. However, there is relatively little information about how students prioritize grades and their willingness to pay/give up for a higher GPA. Additionally, this study includes a variable that is not common in the previous literature, that is, mental health. In 2017, 63% of college students in the United States

reported coping with anxiety and 23% said they were being followed by a mental health professional or were diagnosed with anxiety, according to the Fall 2018 National College Health Assessment. Furthermore, in a study by S. Conley et al., in 2018, it was found that students' anxiety and depression levels have the tendency to increase during the first semester of college and remain at high levels during the second semester. They conclude that the first year of college can lead to the manifestation or worsening of anxiety among students. In light of the prevalence of depression among students today, it is important to include this dimension in our study, to understand how students view mental health issues and how do they prioritize relatively to grades.

The remainder of the paper is organized as follows. The next section describes the methodology. Section 3 goes through the results of the discrete choice experiment. Section 4 discusses our results and presents the description of the research limitations and recommendations for future work. Section 5 concludes.

## **2. Methodology**

### **2.1. Discrete Choice Experiment**

The strategy used in this study is a DCE. With this strategy it is possible to evaluate the preferences of college students regarding their daily life activities and habits, such as, leisure time, hours of sleep lost, depression levels and daily study hours. The DCE method is a quantitative method to gather preferences from participants, without asking them directly to state their preferences. It is a recognized methodology to elicit latent preferences and has been used when presenting the respondents with difficult tradeoffs.

One important step to have in mind when doing a DCE is the choice of relevant attributes and levels. In this case, our attributes and levels are going to be related to how students allocate their time and their effort to get better grades. With this methodology we are going to be able to find the weights that each respondent assigns to each dimension in the analysis. Additionally, this methodology enables the transformation of each student's preferences in willingness to pay (WTP), which is crucial for potential cost benefit evaluations.

## 2.2. Attributes

The study uses five attributes: GPA, average sleep time lost per day, daily average time spent in leisure, average time spend studying per day and depression levels. Each attribute is divided into levels of intensity. These specific attributes were chosen based on previous literature.

The importance of having good grades have been increasing in the last few years. According to a study by Northeast University, USA, we are facing unprecedented challenges in social, economic, and environmental areas. As globalization and technology increase there are more challenges for everyone in the labor market, especially students, who are the ones with less work experience. Even with the number of opportunities also increasing, students must differentiate from each other. Thus, the importance of grades. As our first attribute we choose GPA. This attribute is meant to compute the willingness to trade grades for all the other attributes.

Throughout the exam season, college students are at risk of losing hours of sleep. In a study by Campbell, Soenens, Beyers and Vansteenkiste (2018) it was found that during the exam period sleep-related functioning worsens. This behavior can be justified by the increase in academic

demands that lead to stress. It was also concluded that the pressure derived from the exam season led to decreases in daytime functioning and sleep quality. Leon Lack (1986) concluded, in a sample of 211 university first-year students, that the time of going to bed and waking up on weekends when compared to weekdays can be over 90 minutes, which indicates clear sleep deprivation during weekdays. This situation can also be applied to the exam season. Additionally, Lund et al. (2010) concluded, in a cross-sectional study in university students that poorer sleep quality was associated with perceived stress. Also, in a study during an entire elective year, Galambos et al. (2010), found that sleep quality and quantity are both lower in months where students presented higher levels of stress, which would be compatible with exams periods. For that reason, our second attribute is daily hours of sleep lost during the exam season.

In their free time students can choose whether to focus on any work related with college or, whether they spend more time in leisure activities. We now proceed to the next attribute: “Average leisure time per day”. Campbell, Converse and Rodgers (1976) concluded that the domain covering non-working or leisure activities was the one with a stronger relation with the index of well-being. In 2017, in a study of students’ free time activities, Anić, Roguljić and Svegar (2017) reached the conclusion that, after reading, the most common free time activity was leisure with family, achieving a percentage of 60,17%.

The fourth attribute is daily study hours during the exam period. In a study by Carl R. Zulauf and Amy K. Gortner (1999), it was determined that the time each student spent studying is positively related to her grades. In that same study it is also discussed the importance of the quality of study time. The authors mentioned that this variable is difficult to measure and therefore is not typically

included in this type of analysis. To improve this variable, researchers defend that it is truly important to have the ability of managing time. With this ability, each student will set goals and priorities to keep study the most organized possible. To support this theory, Macan *et al.*, (1990), Britton and Tesser (1991) and Tureman and Hartley (1996), found that there is a positive relationship between time management skills and academic performance. However, in their study, quality of time was not one of the included variables. In the conclusions of that same study, it was found that the amount of time spent studying has a positive impact on quarterly GPA.

Finally, our last attribute is related to students' mental health status. A study, in a university in Bursa, Turkey, Nurdan Sakin Ozen, Ilker Ercan, Emel Irgil, Deniz Sigirli (2009) reached the conclusions that difficulty in understanding lectures, difficulty adapting to university life, having to solve problems independently and satisfaction with their department of study could have a significant negative impact in students' anxiety levels. Additionally, in a Portuguese study focused on the anxiety in medical students, João Moreira de Sousa, Cátia Moreira, Diogo Telles Correia (2018), it was concluded that in most of the courses the anxiety levels increase gradually until the last year. On the opposite side, medical school students present higher levels of anxiety at the beginning of their bachelor path due to the adaptation to a new academic environment. Test anxiety can be defined as the manifestation of anxiety symptoms in evaluation moments. It can also be linked to moments when a student does not feel confident with her knowledge and hence, is afraid of failing. In students, test anxiety is surging progressively. Everson and Millsap (1991) concluded that test anxiety influences academic performance. In addition, Sarason and Sarason (1990), concluded that the same students who get anxious during an evaluation moment, do not have any fear of failing in any other situations, defending that the anxiety is linked with academic issues and

more stressful situations, such as, exam season. In our study we focus more on depression instead of anxiety. However, it is still relevant to mention anxiety in students since it can trigger depression symptoms.

### 2.3. Levels

As we mentioned before, our goal with this study is to measure how much students are willing to give up to have better grades. Hence, we decided to use grades as the base attribute, meaning that WTP will be computed in terms of GPA. The levels of this attribute are 12, 14, 16 and 18. The lowest number of this attribute is justified by the fact that students are not going to be willing to trade anything to obtain a GPA of 12 points. A student who finishes a university degree with a GPA of 12 did not make that much effort to increase their grades. On the other side, 18 points is the maximum grade that we are going to include because it is the maximum GPA that students get in Nova SBE, by the end of the course.

As the study exam season approaches, students tend to sleep less, in order to have more time to study or even due to the increase of stress levels. For that reason, the second chosen attribute is “average sleep time per day lost”. The levels in this attribute are “1 hour”, “2 hours” and “3 hours” that correspond to the time each student can lose per day, on average, when in exam season. In a study focused on the consequences of sleepiness among college students, Hannah G. Lund, Brian D. Reider, Annie B. Whiting, Roxanne Prichard (2010), it was concluded that most college students have a sleep deprivation rate of 70.6% and that they can achieve a deficit of one-to-three-hour sleep on weekdays and when in stressful periods. These differences in sleeping patterns can

lead to a lower academic performance, change of students' disposition, and can even increase the risk of having driving motor vehicle accidents.

Leisure represents an important part of a student's daily activities. It is defined as the time that remains after all crucial needs of life, such as working hours and sleeping. This can be spent for instance in social activities with friends, staying home with family, going to the cinema or reading a book. However, with the increase of pressure to study in exam season, the time each student spends in leisure normally decreases. The result will be a reduction in general satisfaction and a restriction on students' freedom. As a third attribute, we include the hours that each student spends per day as leisure time. The levels for this attribute are "Never", "Average of 1 hour a day" and "Average of 2 hours a day". The levels we choose were partly based on a study Kadir Pepe and Ibrahim Bozkurt (2017) conducted at a Turkish university focused on the amount of college students' free time, where it was questioned how many hours they spend daily in leisure activities. 39.4% of the students, responded one to two hours and 8.2% responded that they would not have leisure time at all. Additionally, we gathered an informal group of 20 students and asked them the same question, with the only difference being that it referred to the exam season. The conclusions were very similar with students going from zero to a maximum of three hours. Since three hours was uncommon, (only four students in a total of 20), we decided to use two hours per day, on average, as our maximum level.

Good grades require students to work hard. It is proved, in previous literature, that the time each student spend studying is positively correlated with grades. Even if it is not proven what the exact ideal time each student should study daily during the exam season, we choose as the fourth attribute

the “Average time spend studying per day”. For this attribute, the levels are “2 hours”, “5 hours” and “8 hours”. Because there is not much information regarding the ideal number of hours of study in exam season, we decided to gather the same 20 students as in the previous attribute and ask them how many hours they spent studying per day, during the exam season. The maximum detectable time was eight hours. Although it is an extreme value, it is also realistic for some people during exam season. On the other side, the minimum detectable time was two hours per day. According to a study from the University of Florida, if a student has been attending all classes and studying daily since the beginning of each course, two hours can be realistic. Furthermore, in a study by Barbara S.Grave (2010), it was concluded that time spent attending to classes and the time spent in self-study are substitutes.

One important factor to have in mind when talking about tests and evaluation moments in students is depression levels. 41% (John Elflein, 2021) of university and college students in the United States reported having some type of depression symptoms (severe or moderate). For the fifth attribute, we therefore chose depression levels. The levels are two: “slightly depressed” and “extremely depressed”. These two levels of depression can be defined as the extreme levels of this disorder. As is defined in the survey, the major difference between these two levels is the duration of the disorder. A person is extremely depressed when symptoms last an average of six months.

#### 2.4. Data

A questionnaire was administered to 361 college students, irrespective of course or university. Answers were anonymous, and the survey took on average seven minutes to be completed. The

sources of distribution were mailing lists of Nova School of Business and Economics (in Lisbon) and social media.

The survey was created in Qualtrics and divided into two parts. The first focused on the respondents' personal characteristics such as, age, gender, nationality, university, degree, year of studies and household income. The second implemented a DCE: sixteen tables with two options each, "Option A" and "Option B. In the first choice set students had the option of quitting the survey if they did not feel comfortable. Respondents were given a brief instruction on how to interpret the depression attribute (the explanation is repeated as a footnote in all choice sets). The full survey is available in the Appendix.

The alternatives for each choice set were generated by a D-Optimal design (Cook, 1980; Carlsson, 2003). A pilot study was conducted between the 18<sup>th</sup> September 2021 and 1<sup>st</sup> October 2021, to verify our assumptions for the priors. Initial priors per the authors' guesses were subsequently updated with the conditional logit coefficients of this pilot study, including a total of 60 respondents. Using that calculated coefficients, we did the actual survey. The survey's distribution occurred between the 5<sup>th</sup> October 2021 until the 25<sup>th</sup> November 2021. Table 1 illustrates a choice set.

**Table 1:** Example of a choice set

During the exam season	Option A	Option B
Average sleep time per day lost	- 1 hour	- 3 hours
GPA	18	12
Average time spend in leisure per day	1 hour	2 hours
Average time spend studying per day	2 hours	5 hours
Depression Levels*	Extremely depressed	Slightly depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

## 2.5. Descriptive statistics

From the 361 responses collected, 58.45% were women and 40.72% were men. The average age of the respondents was 22 years old. Regarding nationalities, we have respondents from 20 different countries, with 86.70% being from Portugal. The next country with more respondents was Germany with 3.60%. 89.20% of the respondents are currently living in Portugal, mostly in Lisbon (83.90%).

34.35% of our respondents are NOVA SBE students. 63.16% are in masters or doctorate programs, while 33.52% are in undergraduate programs. 21.05% in the first year, 44.32% are in the second year of their degree, 11.08% are in the third year and 18.01% are enrolled in university for more than three years. 5.54% of the respondents did not feel comfortable in saying for how long they were enrolled in university.

Finally, regarding the monthly household net income of the respondents, 39.34% have less than 2000€, 36.57.% have between 2001€ and 8000€, 4.99% have more than 8000€ and 19.11% of the students did not feel comfortable responding to this question.

**Table 2:** Descriptive statistics

Variables	Freq.	Percent	Variables	Freq.	Percent
<b>Gender</b>			<b>Living in Portugal</b>		
Female	211	58,45%	Yes	322	89,20%
Male	147	40,72%	No	38	10,53%
Other	3	0,83%	Do not answer	1	0,28%
<b>Age</b>			<b>District</b>		
17	2	0,55%	Lisboa	271	83,90%
18	14	3,88%	Porto	7	2,17%
19	30	8,31%	Braga	2	0,62%
20	17	4,71%	Setúbal	19	5,88%
21	31	8,59%	Aveiro	5	1,55%
22	69	19,11%	Leiria	5	1,55%
23	114	31,58%	Santarém	2	0,62%
24	29	8,03%	Faro	2	0,62%
25	20	5,54%	Coimbra	2	0,62%
>25	33	9,14%	Açores	1	0,31%
Do not answer	2	0,55%	Vila Real	1	0,31%
<b>Country</b>			Castelo Branco	1	0,31%
Argentina	1	0,28%	Évora	2	0,62%
Belgium	1	0,28%	Bragança	1	0,31%
Brazil	2	0,55%	Portalegre	2	0,62%
Cameroon	1	0,28%	<b>Nova Student</b>		
Canada	1	0,28%	Yes	124	34,35%
Colombia	1	0,28%	No	237	65,65%
France	5	1,39%	<b>Degree</b>		
Germany	13	3,60%	Bachelor	121	33,52%
Guinea-Bissau	1	0,28%	Master	211	58,45%
India	2	0,55%	Doctorate	17	4,71%
Italy	5	1,39%	Do not answer	12	3,32%
Morocco	1	0,28%	<b>Years since in University</b>		
Netherlands	1	0,28%	1st year	76	21,05%
Portugal	313	86,70%	2nd year	160	44,32%
Spain	3	0,83%	3rd year	40	11,08%
Switzerland	2	0,55%	More than the 3rd year	65	18,01%
Turky	1	0,28%	Do not answer	20	5,54%
United Kingdom	3	0,83%	<b>Household Income</b>		
United States of America	3	0,83%	0-1100€	60	16,62%
Yemen	1	0,28%	1101-1500€	42	11,63%
			1501-2000€	40	11,08%
			2001-5000€	107	29,64%
			5001-8000€	25	6,93%
			>8000€	18	4,99%
			Do not answer	69	19,11%

## 2.6. Analysis

In our analysis we use a conditional logit model. Respondent  $n$ 's utility from choosing alternative  $i$  in choice set  $s$  is described by a linear-in-parameters function:

$$U_{nis} = \beta X_{nis} + \varepsilon_{nis} \quad (1)$$

Where,  $X_{nis}$  are the levels of attributes of a given alternative, and  $\varepsilon_{nis}$  is the error term. Assuming  $\varepsilon_{nis}$  is IID type I extreme value distributed, we obtain the conditional logit model:

$$Pr(i_{ns}|X_{nis}) = \frac{\exp(\beta X_{nis})}{\sum_j \exp(\beta X_{njs})} \quad (2)$$

The expression above gives the probability that respondent  $n$  chooses alternative  $i$  in choice set  $s$ .

Our results are shown in three steps. First, we provide the simple coefficients of the conditional logit, characterizing the ranking of preferences of the population in our survey. Then we present WTP for every attribute, with GPA depicted as a continuous variable and used as a base measure (e.g., how many GPA points would it cost to give up another attribute level). Finally, we do subgroup analysis.

To improve our analysis, we decided to create groups according to the personal characteristics of students. Starting with age, we decided to group students into three age intervals, students with ages between 17 and 20, 21 and 24 and 25 or more. Regarding the nationality we divided students into "Portuguese" and "Not Portuguese". From the students who live in Portugal we create two groups, the ones living in Lisbon and those not living in Lisbon. Relatively to the university degree

and respective years, we separate students who were in their bachelor degrees from students who were doing a master or doctorate, as well as separating students who were in the first or second year, third year and more than 3 years in college. Finally, in matters of household income, we organized students into three groups: students who have a monthly household income until 2000€, the second group was from 2001€ to 8000€ and the last includes students who have a monthly household income greater than 8000€.

### 3. Results

**Table 3:** Coefficients from the main conditional logit model on the overall sample

Choice	Coef.	95% conf.	interval
GPA - 14	0.6086435	0.5138442	0.7034428
GPA - 16	1.029333	0.8977021	1.160964
GPA - 18	1.768147	1.591608	1.944685
Lost hours of sleep -2 hours	-0.0773944	-0.1615357	0.0067469
Lost hours of sleep -3 hours	-0.4434081	-0.5250124	-0.3618038
Leisure time - 1 hour	0.5554669	0.470161	0.6407727
Leisure time - 2 hours	0.6012815	0.4988257	0.7037372
Time studying - 5 hours	0.0398207	-0.0563324	0.1359739
Time studying - 8 hours	-0.5547457	-0.6584136	-0.4510779
Depressed levels - extremely depressed	-1.398953	-1.557535	-1.24037

The table above shows both positive and negative attributes' levels. Positive coefficients imply that students derive benefits from those attributes' levels, with respect to their base attribute level. Negative coefficients mean the opposite. Grades and leisure time have positive coefficients for the levels displayed in table 3, because as GPA or leisure time increases, students' utility grows. Sleep time deprivation per day, studying time per day, and depression levels, are negative because as they go up, the student will be worse off. The only exception to this is when students begin to study five hours a day instead of two. The fact that this coefficient is (positive) non-statistically

significant may be because students do not place a big importance on going from studying 2 hours a day to studying 5 hours a day during their exam period. With this level of construction, the GPA (score of 18) of each student is the attribute that affects utility the most. Following in this order, depression status comes next, then leisure time, daily study hours, and sleep hours.

**Table 4: WTP estimates of the overall sample**

	Lost hours of sleep		Leisure time		Study hours		Depression levels	N
<b>All sample</b>	0.28	1.44	-1.61	-1.49	-0.18	1.63	3.82	361

The respondents in this survey are willing to sacrifice one hour of sleep (from three to two) for an increase of 1.44 points in their GPA, during the exam season. Alternatively, the result can be interpreted as the respondents' willingness to accept 1.44 fewer points of GPA to sleep one more hour (from two to three). They would also accept to reduce 1 hour of leisure time, to increase their GPA by 1.49 points; study three more hours to increase their GPA by 1.63 points and be extremely depressed to have an additional 3.82 points of GPA. Since levels in some attributes, for instance lost hours of sleep and study hours, increase more than others, we can conclude that the increase between levels is not linear.

### 3.1. Heterogeneity analysis

**Table 5:** WTP estimates for subgroups of our sample

	Lost hours of sleep		Leisure time		Study hours		Depression levels	N
<b>Gender</b>								
Female	0.35	1.57	-1.63	-1.49	-0.37	1.32	4.05	211
Male	0.18	1.22	-1.56	-1.49	0.16	2.10	3.45	147
<b>Age group</b>								
17-20	0.44	1.51	-1.64	-1.37	-0.22	1.95	4.12	63
21-24	0.19	1.46	-1.64	-1.61	-0.12	1.64	4.01	243
>=25	0.68	1.75	-1.50	-1.15	-0.48	1.71	2.30	53
<b>Nationality</b>								
Portuguese	0.31	1.42	-1.67	-1.61	-0.19	1.63	3.89	313
Non-Portuguese	0.12	1.56	-1.23	-0.70	-0.11	1.60	3.42	47
<b>District</b>								
Lisbon	0.29	1.55	-1.71	-1.68	-0.07	1.72	3.77	271
Other	0.21	0.97	-1.05	-0.82	-0.71	1.04	4.01	53
<b>University</b>								
NOVA	0.26	0.87	-1.01	-1.00	-0.46	0.85	3.36	124
Not NOVA	0.38	1.93	-2.19	-1.96	0.04	2.23	4.32	237
<b>University Degree</b>								
Bachelor	0.31	1.64	-2.33	-2.15	0.35	2.62	4.56	121
Masters & Doctorate	0.23	1.28	-1.36	-1.25	-0.38	1.24	3.53	228
<b>Years since in college</b>								
First or second year	0.11	1.25	-1.40	-1.29	-0.33	1.42	3.58	236
Third year	0.78	2.19	-3.32	-3.16	-0.62	2.13	5.59	40
> 3 years	0.34	1.43	-1.69	-1.44	0.42	1.99	3.83	65
<b>Household Income</b>								
0-2000€	0.32	1.47	-1.81	-1.72	-0.32	1.53	3.68	102
2001-8000€	0.20	1.19	-1.20	-1.19	-0.12	1.54	3.70	147
>8000€	0.36	1.51	-2.03	-1.83	0.23	2.11	4.16	43

The attributes that differ the most between the two genders are study hours per day and depression levels. Women are willing to study three more hours (from five hours to eight hours) per day to increase 1.32 points in the final GPA, whereas men would only do it for 2.10 more points in the GPA. Nevertheless, women have a higher WTP concerning depression levels. They are willing to be extremely depressed if their GPA increases by 4.05 points, while men are willing to be extremely depressed if their GPA increase at least 3.45 points.

Students with 25 years old or more are willing to give up more easily the leisure and depression attributes to have a higher GPA. Regarding the sleep and study attributes, this age group presents the highest WTP, whereas students that have between 21 and 24 years old present the lowest WTP.

Students that live in Lisbon have a higher WTP in the sleep, leisure, and study (last level) attributes. However, students that live in other districts have a higher WTP for depression levels. They are willing to be extremely depressed to increase 4.01 points in GPA whereas students from Lisbon are willing to be extremely depressed if their GPA increases by 3.77 points.

When comparing students from NOVA and those who study in other universities it is possible to conclude that the latter present a higher WTP in every attribute, meaning that they would need a greater increase in grades to be willing to trade attributes. Concluding, NOVA students would be willing to give up the same hours of sleep, time spent in leisure, time studying per day and rate of depression status as students that are not from NOVA but for a lower increase in grades.

Regarding the university degree, we considered students enrolled in bachelor programmes, masters, and doctorates. We concluded that regarding lost sleep hours, the WTP of students from the different degrees is very similar. However, when talking about the study hours and leisure time attributes, we concluded that bachelor students are willing to give up fewer attributes to have an increase in GPA. They are willing to study three more hours to increase 2.62 points of their GPA, whereas master and doctorate students are willing to study that same time if their GPA increases by 1.24 points. Additionally, regarding depression levels, bachelor students are only willing to

give up the attribute if the GPA increase is higher than masters and doctorate students (4.56 points versus 3.53 points).

Students in the third year of college have a higher WTP in every attribute when compared to other students' groups. This conclusion can be drawn since, for example, they are willing to be extremely depressed only if their GPA increases by 5.59 points, whereas students in the other groups are willing to be in that same mental health status approximately for 3.00 more points in their GPA. Also, students in the third year, are going to give up one hour of leisure time only if their GPA increases by 3.16, which is a greater value if we compare to the other groups (1.29 for first and second year students and 1.44 for plus three years students).

Finally, regarding the level of monthly household income, we conclude that, in every attribute, students with more than 8000€ per month are the ones with a higher WTP. These students are less willing to trade attributes to have higher grades when compared to the other groups.

In the appendix it is represented the coefficients from the main conditional logit model on the subgroup analysis.

#### **4. Discussion**

Overall GPA is the most important attribute for students who contributed to the study as it has the biggest coefficient value (for a score of 18). This means that students give more importance to grades than any other attribute included in this survey. The heterogeneity section of this study has

the purpose to highlight the main differences between students and to confirm if past literature findings are verified.

By observing the WTP results we can conclude that regarding gender the main differences between young females and young males are in the study time and depression attributes. According to a study by Katherine Wiley and Kenneth W. Merrel (2010), there is a tendency for females to experience more internal distress. Since they experience stress more frequently and understand how damaging it is, they are less willing to be extremely depressed and, consequently their WTP is bigger for this attribute. On the other side, males present a higher WTP regarding the study hours. According to “Office for National Statistics”, the average man has five hours more leisure time per week than the average woman. A reason for this can be that men have a higher revealed preference for free time, derived from the different education between genders, and, consequently, they are willing to study additional three hours daily during the exam season, decreasing their leisure time, only if their GPA increase 2.10 points whereas women are willing to give up that same time for an increase of 1.32 points.

Regarding the different age intervals, we can conclude that, in general, students with ages between 17 and 20 years old are the ones less willing to give up attributes to have higher grades. This can be justified by the fact that these students (probably bachelor students) are in less expensive university degrees and consequently, do not feel the responsibility to compensate all the investment, whereas the older students who are in master or doctorate degrees (more expensive degrees) feel that they must recompense it. Additionally, when evaluating WTP between different universities degrees we can conclude that master and doctorate students have a lower WTP,

meaning that these are willing to give up more attributes, during the exam season, to have a higher GPA than bachelor students. We can justify this using the same rationale as before: in general, masters and doctorate degrees are more expensive than a bachelor. As a result, students may have to sacrifice more things in their daily lives to compensate for all the financial effort. Also, one possible explanation for this behavior can be the fact that these students know more easily what they want to do in the future and therefore are going to be more determined to achieve the desired grades. Moving on to the number of years since in college, results show that students who are in the third year are the ones who present the higher WTP. A study by Muhammad Waris Farooka (2018) supports this idea, by concluding that medicine students get demotivated in the third year of college. Because students are less motivated, they are going to give up fewer attributes' levels to have better grades. On the other side, students with lower WTP are the ones who are in the first or second year. When entering in college, students are in general younger and more motivated, being willing to give up more attributes to have better grades. To justify this idea, Ruffalo Noel Levitz, in a study in 2020, focused on the freshman college students and concluded that first-year students are highly motivated. Additionally, the low levels of WTP for the depression attribute in the group that includes first year students are in line with the previous literature in the area. As we concluded, freshman students are more motivated to have higher grades. Thus, to achieve their goals, they are willing to be more depressed and anxious, having a lower WTP for this attribute.

Based on the results we can conclude that nationality does not seem to be a factor that influences the preferences of students regarding grades. The results are very similar between Portuguese students and students from other countries and consequently these groups appear to be similarly sensitives to GPA.

The findings suggest that students that are not from Lisbon are willing to give up more attributes to increase their GPA. This means that they will do extra effort, giving up on some of their daily activities (more than Lisbon students) to have higher grades. This behavior might be explained by the fact that finding a job in smaller cities is more challenging, since there are fewer job opportunities, so students need to put in more effort to become distinctive. Moreover, one additional possible explanation for this comportment can be the lack of recognition given to smaller universities. Students from smaller universities may have to achieve higher scores in order to be comparable to students from bigger universities.

In terms of academic matters, it is interesting to compare the WTP of students from Nova SBE and students from other universities. Being Nova SBE one of the top-ranking universities in economics in Portugal, there is a reputation of gruelling competitiveness environment between students. One evidence of this reputation is Nova SBE's entry GPA of 18.2 for the management degree in the first entry phase, the highest amongst all Portugal's business universities. In comparison, the next highest entry GPA university, ISCTE, for the same degree and entry phase has a value of 17.4. Therefore, students will work harder, since they know that the students around them are good students and are willing to make an effort. A study by Clive R Belfield and Henry M Levin (2002), support this idea as it was concluded that competition contributes positively to education quality.

Finally, regarding differences in household income, the results suggest that students with a higher monthly household income are going to give less effort to have better grades. This behavior may be explained by the fact that students with less monthly income have fewer opportunities to enroll

in better schools (since they have higher prices) and also have fewer opportunities to take tutorial classes if they need them. Thus, they are going to work harder during the exam season to obtain the desired results.

There are some drawbacks to this research; the first is the potential lack of national representativeness. The survey for this study was distributed locally, hence, it is not representative of national college students. However, in our respondents we have students from Nova and from other universities, as well as from Lisbon and other areas of the country. Another limitation is the absence of heterogeneity between degrees and universities. We could do a more detailed analysis if we had questioned students about their courses and universities, to find out if their preferences change according to those distinctions. However, to do that analysis we would need to create innumerable subgroups in our heterogeneity section which would require a much greater amount of answers to our survey. To minimize this limitation, we distinguish between Nova SBE students and students from other universities. A third identifiable limitation is related to the method used to understand how preferences change with observable characteristics. We explore heterogeneity by using a non-conditional analysis. This factor is going to limit the interpretation since the varied characteristics of a respondent can be correlated. For instance, differences in university degrees can be driven by age, or differences in where the student lives can be driven by his nationality. Nevertheless, our results help to confirm previous findings in the theme, and additionally, contribute with added value to education and labor economics studies. Another limitation of our study is regarding the household income heterogeneity section. In our analysis it is not included the number of individuals for each household, hence we cannot accurately identify income differences among students in real terms. A fourth limitation is the short temporal period that our

survey refers to. Future research could be the analysis of students' preferences for the entire academic year and not only during the exam season. That would add to our analysis by showing how much preferences change during critical periods.

## **5. Conclusion**

Students make sacrifices to improve their grades. Our paper presents a DCE that aimed to identify students' priorities during exam season. The included survey involves 361 college students, mainly Portuguese and between 17 and plus 25 years old. Results show that through the exam period, the attribute that students in the sample give more importance is GPA (score of 18), followed by depression levels, leisure time, study time and lost hours of sleep, in this order. Furthermore, they show that students' preferences change by gender, age, area of residence, household income, university and respective degree and years since in college. The computation of WTP for the aforementioned attributes provides information on, for example, how much students' grades would need to increase for them to give up part of their mental health. As a result of all stress and anxiety students face nowadays, and its tendency to increase, this would be important information to guide policy making. Further, an objective measure such as WTP would allow preferences to be monitored, in the future, and used to evaluate potential new policies affecting students' preferences towards allocation of their time and mental health.

## References

- American College Health Association, "Undergraduate Student – Reference Group", 2018, [https://www.acha.org/documents/ncha/NCHA-II\\_Fall\\_2018\\_Undergraduate\\_Reference\\_Group\\_Data\\_Report.pdf](https://www.acha.org/documents/ncha/NCHA-II_Fall_2018_Undergraduate_Reference_Group_Data_Report.pdf)
- Anić, Petra, Domagoj Roguljić, and Domagoj Švegar. 2017. "What do students do in their free time and why?." *Polish Psychological Bulletin* 48.4
- Belfield, Clive R., and Henry M. Levin. 2002. "The effects of competition between schools on educational outcomes: A review for the United States." *Review of Educational research* 72.2: 279-341.
- Bergin, David A. 1992. "Leisure activity, motivation, and academic achievement in high school students." *Journal of Leisure Research* 24.3: 225-239.
- BetterHealth Channel, "Depression explained", <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/depression>
- Britton, Bruce K., and Abraham Tesser. 1991. "Effects of time-management practices on college grades." *Journal of educational psychology* 83.3: 405.
- Campbell, Rachel, et al. 2018. "University students' sleep during an exam period: The role of basic psychological needs and stress." *Motivation and Emotion* 42.5: 671-681.
- Conley, Colleen S., et al. 2020. "Navigating the college years: developmental trajectories and gender differences in psychological functioning, cognitive-affective strategies, and social well-being." *Emerging Adulthood* 8.2: 103-117.
- Conley, Colleen S., et al. 2020. "Navigating the college years: developmental trajectories and gender differences in psychological functioning, cognitive-affective strategies, and social well-being." *Emerging Adulthood* 8.2: 103-117.
- Everson, Howard T., Roger E. Millsap, and Caroline M. Rodriguez. 1991. "Isolating gender differences in test anxiety: A confirmatory factor analysis of the Test Anxiety Inventory." *Educational and Psychological Measurement* 51.1: 243-251.
- Farooka, Muhammad Waris. 2018. "Demotivating factors among third year medical students in a public medical college in Pakistan." *J Coll Physicians Surg Pak* 28.8: 628-630.

Forbes, "Do College Grades Predict Future Success?" Accessed October 19, 2020, <https://www.forbes.com/sites/theyec/2020/10/19/do-college-grades-predict-future-success/?sh=4305da8b5af6>

Grave, Barbara S. 2011. "The effect of student time allocation on academic achievement." *Education Economics* 19.3: 291-310.

Harvard Health Publishing, "Anxiety in college: What we know and how to cope", Accessed August 27, 2019, <https://www.health.harvard.edu/blog/anxiety-in-college-what-we-know-and-how-to-cope-2019052816729>

Hastings, P. D. (2007). Ready to make nice: Parental socialization of young sons' and daughters' prosocial behaviors with peers. *The Journal of Genetic Psychology*, 177--200.

Hatch, Robert, A- University of Florida – "How to study?", <http://users.clas.ufl.edu/ufhatch/pages/02-teachingresources/study/>

Healthline, "Signs and Symptoms of Mild, Moderate and Severe Depression" Accessed August 22, 2018, <https://www.healthline.com/health/depression/mild-depression>

Hershner, Shelley D., and Ronald D. Chervin. 2014. "Causes and consequences of sleepiness among college students." *Nature and science of sleep* 6: 73.

K.Coffey, Brian, Barkley, Andrew, T.Tonsor, Glynn, B.Tack, Jesse. 2020. "How Do Students Allocate Their Time? An Application of Prospect Theory to Trade-offs between Time Spent to Improve GPA Versus Time Spent on Other Activities"

Khan, Muhammad Asif. 2014. "Students' passion for grades in higher education institutions in Pakistan." *Procedia-Social and Behavioral Sciences* 112: 702-709.

Khan, Muhammad Jehangir, Ashraf, Aqsa, Nadeem, Aamir. 2020. "The Effect of Time Management on the Academic Performance of Studens in the Higher Educational Institutions of Islamabad"

Khanam, Najnin, et al. 2017. "A study on university student's time management and academic achievement." *International Journal of Community Medicine and Public Health* 4.12: 4761-4765

Khatab, Nabil. 2015. "Students' aspirations, expectations and school achievement: What really matters?." *British educational research journal* 41.5: 731-748.

Lack, Leon C. 1986. "Delayed sleep and sleep loss in university students." *Journal of American College Health* 35.3: 105-110.

Lund, Hannah G., et al. 2010. "Sleep patterns and predictors of disturbed sleep in a large population of college students." *Journal of adolescent health* 46.2: 124-132.

Macan, Therese H., et al. 1990. "College students' time management: Correlations with academic performance and stress." *Journal of educational psychology* 82.4: 760.

Miller, Julie, Becca Berkey, and Francis Griffin. 2016. "Preparing international students for a competitive job market: Challenges and opportunities." *Campus support services, programs, and policies for international students*. IGI Global. 119-142.

Moreira de Sousa, João, Cátia A. Moreira, and Diogo Telles Correia. 2018. "Anxiety, depression and academic performance: a study amongst portuguese medical students versus non-medical students." *Acta médica portuguesa* 31.9: 454-462.

MVOrganizing, "Do grades matter for PhD?" Accessed June 1, 2021, <https://www.mvorganizing.org/do-grades-matter-for-phd/>

National Association of College and Employers. 2018 . "Job Outlook 2019"

Noel Levitz, Ruffalo. 2020. "2020 National Freshman Motivation to Complete Report"

Office for National Statistics. 2018. "Men enjoy five hours more leisure time per week than women", Accessed January 9, 2018, <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/menjoyfivehoursmoreleisuretimeperweekthanwomen/2018-01-09>

Pepe, Kadir, and Ibrahim Bozkurt. 2017. "The study of the duration of college students free time and the way they observe and evaluate their free time and activities." *Science, Movement and Health* 17.2: 440-450.

Romer, Natalie, et al. 2011. "Gender differences in positive social–emotional functioning." *Psychology in the Schools* 48.10: 958-970.

Sakin Ozen, Nurdan, Ercan Ilker, Irgil, Emel, Sigirli, Deniz. 2009. "Anxiety Prevalence and Affecting Factors Among University Students"

Sakin Ozen, Nurdan, et al.2010. "Anxiety prevalence and affecting factors among university students." *Asia Pacific Journal of Public Health* 22.1: 127-133

Sansani, Shahar, and Afik Rahamim. 2019 "Available study time and undergraduate student exam performance." *Journal of Applied Research in Higher Education*.

Sarason, Irwin G., and Barbara R. Sarason. 1990. "Test anxiety." *Handbook of social and evaluation anxiety*. Springer, Boston, MA,. 475-495.

Statista, "Percentage of college students with symptoms of depression in the United States". Accessed October 21, 2021, <https://www.statista.com/statistics/1126287/percentage-of-college-students-with-mental-disorders-us/>

Trifoni, Anisa, and Miranda Shahini. 2011. "How does exam anxiety affect the performance of university students?." *Mediterranean Journal of Social Sciences* 2.2: 93-93.

Trueman, Mark, and James Hartley.1996. "A comparison between the time-management skills and academic performance of mature and traditional-entry university students." *Higher education* 32.2: 199-215.

Vadeboncoeur, Claudia, Nicholas Townsend, and Charlie Foster. 2015. "A meta-analysis of weight gain in first year university students: is freshman 15 a myth?." *BMC obesity* 2.1: 1-9.

Vitasari, Prima, et al.2010. "A research for identifying study anxiety sources among university students." *International Education Studies* 3.2: 189-196.

VuliC-PrtoriC, Anita. 2012. "Depression in University Students"

World Health Organization. 2012. "How to Conduct a Discrete Choice Experiment for Health Workforce Recruitment and Retention in Remote and Rural Areas"

Zulauf, Carl R., and Amy K. Gortner.1999. Use of Time and Academic Performance of College Students: Does Studying Matter?. No. 371-2016-19323.

## Appendix

**Table 6: Survey**



This survey intends to understand how much university student are willing to trade for good grades.

Welcome! Thank you in advanced for your participation.

This survey was designed in the scope of a Master Thesis in Economics (NOVA SBE), under the responsibility of Rita Moreira, 41019@novasbe.pt, and is divided in two parts: first we will start with your personal characteristics followed by an experiment that aims to understand how much you are willing to trade for good grades.

By answering this survey, your anonymised personal data will be stored and processed with your consent. The results obtained through the survey are going to be used in an academic context only.

This is an anonymous survey intended to any college/university student.

What is you gender?

Female

Male

Other

AGE?

17

18

19

20

21

22

23

24

25

> 25

I prefer not to answer

From which country are you from?

Do you currently reside in Portugal?

Yes

No

I prefer not to answer

If you reside in Portugal, in which district do you reside?

Are you a Nova SBE student?

Yes

No

In which college/university degree are you enrolled in?

Bachelor

Master

Doctorate

For how long are you enrolled in the previous mentioned college/university degree?

It's my first year

It's my second year

It's my third year

+3

I prefer not to answer

What is approximately your household net income per month?

0 - 1100€

1101 - 1500€

1501 - 2000€

2001 - 5000€

5001 - 8000€

> 8000€

I prefer not to answer

### Introduction – Experiment

In this experiment we will introduce you to 16 hypothetical scenarios. In each scenario you will have to choose one of two options with different situations a student can face during an exam season. Based on these options, we will be able to understand which attributes you value the most. The scenarios are hypothetical and there are no right or wrong answers.

If you wish to leave the experiment you can select the option "I prefer not to continue answering this survey" which is available at the end of the first scenario.

#### Instructions:

1. The choices should be made assuming that situations occur during the **exam season**. If you are a master or doctoral student or in stage where and you do not have more exams, you may think of your last exam season.
2. To respond, please consider the following concepts:
  - Depression can be defined as a constant feeling of sadness, unhappiness, and loss of interest in daily activities.
  - GPA means "Grade point average" which in this context represents the average of your grades in this exam season. Is measured on a scale from 0 to 20.

We truly appreciate your contribution! Thank you for your time.

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 3 hours	- 1 hour
GPA	12	14
Average time spend in leisure per day	1 hour	Never
Average time spend studying per day	2 hours	5 hours
Depression Levels*	Extremely depressed	Extremely depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

I prefer not to continue answering

During the exam season	Option A	Option B
Average sleep time per day lost	- 1 hour	- 3 hours
GPA	12	14
Average time spend in leisure per day	2 hours	Never
Average time spend studying per day	2 hours	5 hours
Depression Levels*	Extremely depressed	Slightly depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 1 hour	- 3 hours
GPA	18	12
Average time spend in leisure per day	1 hour	2 hours
Average time spend studying per day	2 hours	5 hours
Depression Levels*	Extremely depressed	Slightly depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 2 hours	- 1 hour
GPA	16	14
Average time spend in leisure per day	1 hour	Never
Average time spend studying per day	5 hours	8 hours
Depression Levels*	Extremely depressed	Extremely depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 2 hours	- 1 hour
GPA	12	16
Average time spend in leisure per day	Never	1 hour
Average time spend studying per day	2 hours	5 hours
Depression Levels*	Slightly depressed	Slightly depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 2 hours	- 3 hours
GPA	12	18
Average time spend in leisure per day	1 hour	Never
Average time spend studying per day	8 hours	2 hours
Depression Levels*	Slightly depressed	Extremely depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 1 hour	- 3 hours
GPA	18	16
Average time spend in leisure per day	1 hour	2 hours
Average time spend studying per day	5 hours	8 hours
Depression Levels*	Extremely depressed	Extremely depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 3 hours	- 2 hours
GPA	14	18
Average time spend in leisure per day	1 hour	2 hours
Average time spend studying per day	2 hours	5 hours
Depression Levels*	Slightly depressed	Slightly depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 2 hours	- 1 hour
GPA	14	16
Average time spend in leisure per day	1 hour	2 hours
Average time spend studying per day	2 hours	8 hours
Depression Levels*	Extremely depressed	Slightly depressed

\*Slight depression(Symptoms are serious enough to cause problems at home and work)

Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 2 hours	- 1 hour
GPA	14	12
Average time spend in leisure per day	2 hours	Never
Average time spend studying per day	8 hours	2 hours
Depression Levels*	Extremely depressed	Slightly depressed

\*Slight depression(Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 1 hour	- 3 hours
GPA	16	12
Average time spend in leisure per day	Never	1 hour
Average time spend studying per day	2 hours	5 hours
Depression Levels*	Slightly depressed	Slightly depressed

\*Slight depression(Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 1 hour	- 3 hours
GPA	12	16
Average time spend in leisure per day	Never	2 hours
Average time spend studying per day	8 hours	2 hours
Depression Levels*	Slightly depressed	Extremely depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 2 hours	- 1 hour
GPA	18	12
Average time spend in leisure per day	1 hour	Never
Average time spend studying per day	8 hours	5 hours
Depression Levels*	Slightly depressed	Slightly depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 1 hour	- 3 hours
GPA	14	18
Average time spend in leisure per day	2 hours	Never
Average time spend studying per day	2 hours	8 hours
Depression Levels*	Extremely depressed	Extremely depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 1 hour	- 2 hours
GPA	16	14
Average time spend in leisure per day	1 hour	2 hours
Average time spend studying per day	8 hours	2 hours
Depression Levels*	Extremely depressed	Slightly depressed

\*Slight depression (Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

From the following options, which one do you prefer?

During the exam season	Option A	Option B
Average sleep time per day lost	- 2 hours	- 1 hour
GPA	16	18
Average time spend in leisure per day	Never	2 hours
Average time spend studying per day	5 hours	5 hours
Depression Levels*	Extremely depressed	Extremely depressed

\*Slight depression(Symptoms are serious enough to cause problems at home and work)

\*Extreme depression (Symptoms last an average of six months and are severe and noticeable to the closest persons)

Option A

Option B

**Table 7:** Coefficients from the main conditional logit model on the subgroup analysis

	GPA_Cont	Lost hours of sleep		Leisure time		Study hours		Depression levels	N
<b>Gender</b>									
Female	0.37	-0.13	-0.58	0.60	0.55	0.14	-0.49	-1.49	211
Male	0.32	0-.06	-0.39	0.50	0.48	-0.05	-0.67	-1.11	147
<b>Age group</b>									
17-20	0.35	-0.15	-0.52	0.57	0.47	0.76	0-67	-1.42	63
21-24	0.33	-0.06	-0.48	0.54	0.53	0.04	-0.54	-1.32	243
>=25	0.35	-0.24	0-.61	0.53	0.40	0.17	-0.60	-0.81	53
<b>Nationality</b>									
Portuguese	0.34	-0.11	-0.49	0.58	0.57	0.07	-0.56	-1.34	313
Non-Portuguese	0.35	-0.04	-0.55	0.44	0.25	0.04	-0.57	-1.21	47
<b>District</b>									
Lisbon	0.34	-0.01	-0.53	-0.58	0.57	0.03	-0.59	-1.28	271
Other	0.39	-0.08	-0.38	0.41	0.32	0.27	-0.41	-1.57	53
<b>University</b>									
NOVA	0.57	-0.15	-0.50	0.57	0.57	0.26	-0.48	-1.91	124
Not NOVA	0.26	-0.10	-0.51	0.58	0.52	-0.01	-0.59	-1.14	237
<b>University Degree</b>									
Bachelor	0.26	-0.08	-0.43	0.62	0-57	-0.09	-0.69	-1.21	121
Masters & Doctorate	0.41	-0.10	-0.52	0.55	0.50	0.16	-0.50	-1.43	228
<b>Years since in college</b>									
First or second year	0.38	-0.04	-0.47	0.53	0.49	0.12	-0.54	-1.36	236
Third year	0.23	-0.18	-0.50	0.76	0.73	0.14	-0.49	-1.29	40
> 3 years	0.33	-0.11	-0.47	0.56	0.48	-0.14	-0.66	1.23	65
<b>Household Income</b>									
0-2000€	0.31	-0.10	-0.46	0.56	0.53	0.10	0.48	-1.15	102
2001-8000€	0.40	-0.08	-0.48	0.48	0.48	0.05	-0.62	-1.48	147
>8000€	0.37	-0.13	-0.55	0.74	0.67	-0.08	-0.77	-1.52	43