

### Student participation in sporting activities

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# Student Participation in Sporting Activities

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## Abstract

Given that many universities spend large sums of money supplying sports facilities for student use, comparatively little is known about the factors that influence the quantity of student sporting participation. This paper presents evidence, which suggests that the quantity of student sports participation is negatively related to the number of hours they work, while augmenting social capital and sports literacy are found to enhance their sports participation. Universities need to target their investment in sporting facilities to meet students' demands and not simply to increase the range of sports facilities available to students.

**JEL Classification:** L83; I12; J22

**Keywords:** Sport; Participation; Time; Social capital; Students

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## 1. Introduction

Most universities encourage students to participate in sports and physical recreation activities during their time at university and often provide a wide range of sports and recreation opportunities to cater for all levels of participant needs. Universities often encourage participation in other physical recreational activities by students who are not interested in sporting activities. For example, the University of Birmingham's Student Charter explicitly encourages students who do not already have an active lifestyle to participate in physical recreational activities through the provision of a relaxed, non-intimidating environment and an attractive and relevant programme (University of Birmingham, 2004). Although many universities spend large sums of money in supplying sporting facilities for their students to use, comparatively little is known about the factors that influence the quantity of student participation in sporting activities and whether a broad or narrow range of sporting facilities is necessary.

This paper presents an analysis of factors that influence the quantity of participation in sporting activities by students in a British university by drawing on data collected from a survey and employing ordered logistic regression analysis.

## 2. Theoretical background

There is now a vast literature on the demand for sports participation.<sup>1</sup> This literature reflects the state of the art of sports studies and economics: it is varied; it comes from various theoretical perspectives, and from outside Economics. Nonetheless, the standard treatment of demand for sport remains the neo-classical theory, which analyses

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<sup>1</sup> There is also a large literature on the demand for watching professional sport (see, for example, Jones, et al, 2000). The two demands might be related, given that watching professional sport might inspire emulation. However, the linkages between the two types of demand are not explored here.

1 participation via utility maximisation and a demand function. In said function, demand for  
2 sport (measured in various different ways) is determined by the price of the sports  
3 activity, the prices of other goods, and income. Theoretically, preferences are also  
4 included, as they must be for a neo-classical treatment; but empirically, tastes are often  
5 omitted.  
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12 In Becker (1965) and Vickerman (1975), it is acknowledged that sports is a composite  
13 good, which involves several derived demands, such as equipment, clothing, membership  
14 of organisations, transportation to the place of the activity, and price of the facilities  
15 (assuming facilities are available). The composite nature of the good significantly  
16 complicates the analysis. For example, neo-classical treatments tend also to include a time  
17 element in their analysis. Clearly sport, as with all forms of leisure, involves consumption  
18 of time; moreover, time often plays a significant role in affecting a person's demand for  
19 sport. Furthermore, the time required for sports varies according to the sport, i.e., some  
20 sports are more 'time-intensive' than others, which might be more 'goods-intensive':  
21 mountaineering is considerably more time consuming than table tennis, for example.  
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33 Typically neo-classical treatments analyse time allocation via the labour (or income)-  
34 leisure trade off. That framework applies utility theory, usually indifference analysis, to  
35 the choice of taking more or less leisure, usually in response to changes in wage or tax  
36 rates, subject to physical limits such as the need for sleep and the absolute limit of hours  
37 per time period. The analysis of such changes tends to be decomposed into familiar  
38 income and substitution effects. In standard analysis, the substitution effect usually acts to  
39 shift demand away from the good (or activity) whose opportunity cost has increased as  
40 the result of a price change. With regard to the income effect, it is usually assumed that  
41 leisure is a normal good. Thus, in response to an increase in wage rates, the substitution  
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1 effect drives people to work more, whilst the income effect makes them work less. The  
2 overall effect depends on the relative sizes of the two effects. Thus, according to that  
3 analysis, historically, rising wage levels in Western countries have caused leisure levels to  
4 increase, as the income effect has dominated (Gratton and Taylor, 2000, Ch. 2).  
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10 For a number of reasons (Gratton and Taylor, 2000, pp. 58-9), the standard analysis has  
11 been regarded as overly restrictive for analysis of the participation decision. Therefore,  
12 sports economics has become multidisciplinary, culminating in a much more complex  
13 picture of sports demand than in the neo-classical model; however, many of the additional  
14 variables cited as causing sports participation can be reconciled with the neo-classical  
15 model. An obvious one is age, which is shown to be negatively correlated with sports  
16 participation (see Gratton and Taylor, 2000, p. 74; Thompson *et al.*, 2002). However,  
17 Rodgers (1977) argued that age *per se* is not related with participation; rather, people who  
18 have an established familiarity with sports – what Rodgers calls ‘sports literacy’ – and  
19 have engaged regularly and deeply in sports as younger people (‘sports careers’), will  
20 tend to carry on with sports later in life. For the rest, who are coerced into exercise at  
21 school but otherwise did not participate in sports, this is not the case, and their  
22 participation rates will fall. With such concepts, it is clear that the analysis has moved out  
23 of the raw economic model and into notions of habits (and their persistence).  
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39 Unsurprisingly, psychology has been influential in helping to explain sport participation.  
40 Several authors have highlighted the importance of sport in generating psychological  
41 well-being through stimulation (Scitovsky, 1976), so-called ‘peak experiences’  
42 (Lipscombe, 1999), feelings of control (Csikszentmihalyi, 1975) and the desire to emulate  
43 sporting heroes. Additionally, perception of sport and of one’s participation in it can be  
44 important. Examples would be perceptions of gender or ethnicity, or the perceptions of  
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1 how great constraints, for example time, are on one's sport participation (Alexandris and  
2 Carroll, 1997). Furthermore, sport participation might be affected by gender (see Gratton  
3 and Taylor, 2000: 75; Thompson, *et al.*, 2002), ethnicity, and educational attainment  
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7 (Thompson *et al.*, 2002).

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10 Therefore, there is a large range of possible causal factors for sports participation. The  
11 literature does not suggest one simple model which might be estimated and/or tested. The  
12 goal of this study is to identify whether there is any evidence to support these theories  
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14 from students who might have more time to participate in sporting activities than workers.  
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16 Knowledge of factors influencing sporting participation by students is important if  
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18 universities are going to optimally allocate funds to meet the needs of students, especially  
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20 in the UK where recent evidence suggests a move towards greater proportions of students  
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22 working long hours to support themselves while studying for university qualifications,  
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24 which can impinge on the number of hours available for study and socialising.  
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### 29 **3. Data**

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33 Data were collected via a questionnaire of self-reported, closed questions designed to  
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35 gather evidence for and against the theories discussed above and was distributed to  
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37 students following two modules in two levels in one British university. All respondents in  
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39 the sample were classified as being full-time students. The questions attempted to capture  
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41 the diversity of motives for sports found in the literature. A series of questions dealt with  
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43 the types of sports played; constraints, including cost, on the ability to play sports, which  
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45 takes into account competing demands on their time; physical, psychological and social  
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47 motives for sports participation; and details of the sports played. Given the sample size ( $n$   
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49 = 85), it would clearly not be appropriate to make strong inferences about the population  
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1 of students in general, nor indeed of the whole student body at the university at which the  
2 data were gathered. Descriptive statistics are presented in Table 1.  
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7 **Table 1 here**  
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10 The sample descriptive statistics show a number of key features. First, the sample  
11 comprises active sporting participants, who on average play 3 or 4 sports. Indeed only 6  
12 of the sample played no sports whatever. Sport is defined broadly: first, by allowing the  
13 students to define the sports they participate in; second, by allowing those responses to  
14 stand. The range of sports cited is extremely broad, including walking, which was a  
15 common response, skiing, and yoga; however, otherwise, the most common sports were  
16 as might be expected, including football, rugby, netball, (field) hockey, swimming, tennis,  
17 and running.<sup>2</sup> To some extent, sports played conform to gender stereotypes (no men play  
18 netball, for example); however, a number of women play cricket, football and rugby,  
19 reflecting the shifting gender profile of those sports. A slight majority of the sports played  
20 were competitive, although this was less often in an organised competition, and even less  
21 often intensive (in its level of activity and exertion).  
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35 Most respondents were around the age of 20; all had access to university sports facilities;  
36 all lived in the same city (term-time), so differential access to local facilities was not  
37 relevant. Given the situations of the respondents, none were engaged in high level  
38 managerial work. Moreover, given that all of the respondents are full-time students, and  
39 are assumedly not the main wage earner in their family (although they might be in their  
40 student accommodation), personal income could be less relevant to their sports choices  
41 than it might otherwise be. Nowadays, student income in England and Wales is comprised  
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49 <sup>2</sup> Clearly, each sport requires different quantities of money spent on participation and different amounts of  
50 time for participation, but universities still require information on the sports that students will participate  
51 in and therefore which facilities they need to supply.  
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1 of a combination of parental donation, LEA support, student loans and paid employment  
2 done by the student. However, parental income (if made available to the student) could  
3 affect the student's need to work while at university, and therefore their time available for  
4 sports participation. Furthermore, parental income can affect the range of sports available  
5 to them prior to university, either through their location or the expenditures necessary to  
6 pay for those sports, or again by affecting the students' need to work prior to university.  
7 However, the information on the financial background of the breadwinner in the  
8 household was not sought: it was felt that any information received on this question  
9 would be inaccurate.  
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20 Most respondents live with other students, as is typical of the population. There was a  
21 small majority of men in the sample, and a larger majority of white respondents; however  
22 the data did not suggest that ethnicity is much of a factor affecting sports participation.  
23 Indeed, all those in the sample (men and women) who did not participate in sports were  
24 white. At least in our sample, some preconceptions about ethnicity (often through  
25 religion) and its impact on gender roles and hence participation in sports are challenged.  
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#### 34 **4. Results**

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38 Initially, a series of bivariate analyses and pivot tables were estimated. A selection of  
39 these is presented in Tables 3-5 in the Appendix. The bivariate analysis suggested that  
40 respondents do sport because of the feeling it gives them; and to augment their social  
41 capital. This suggests that for universities, therefore, arranging opportunities for sports is  
42 a sensible strategy, one that might also have positive social spillovers, further enhancing  
43 the student experience. Further, sports participation was part of an investment in health  
44 (Grossman, 1972); however, interestingly, citing fitness as a motive for sports  
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1 participation is also associated with the *least* amount of sporting participation. Our results  
2 suggest a strong sports literacy effect was present. Cost of sports participation did not  
3 affect participation rates. However, time did have an effect. We note that students adopted  
4 strategies for dealing with the perceived time constraint, which included doing less sports,  
5 but also involved changing their chosen sports. With all of these categories, gender did  
6 not seem to play an important role in affecting participation.  
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### 12 *Multivariate Analysis*

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18 To obtain a better understanding of the factors that influence the quantity of sports that  
19 students participate in, an ordered logistic regression was employed to identify the  
20 determinants of the quantity of sporting participation. The corresponding results are  
21 presented in Table 2.  
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28 The literature suggests a wide range of plausible causal factors for sports participation.  
29 Consequently, socioeconomic variables, preferences for types of sports, reasons for not  
30 participating more, motives, partner's sporting activities and work hours were all  
31 employed as explanatory variables. We have employed the 'general-to-specific'  
32 modelling strategy (see originally, Davidson *et al.*, 1978) of two distinct types: first, we  
33 eliminate variables from the model on the basis of theoretical reductions; second, the  
34 elimination process is purely statistical. One process acts as a check on the other; and  
35 both processes generate similar results. The general model is presented in column 1 in  
36 Table 2. In line with the discussion above of sports literacy (Rodgers, 1977), if the student  
37 participated in sports before attending university '*Sports4uni*', then this had a positive  
38 and significant effect on the quantity of sports participation (measured by the number of  
39 sports participated in). Similarly the evidence that a lack of time is a reason for not  
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1 participating more in sporting activities is supported in the multivariate regression  
2 analysis. Having other interests reduces the quantity of sports participation. If the  
3 student's partner participates in the same sports then they are likely to participate in more  
4 sports; the partner might encourage the person to participate in the sports even when  
5 he/she does not necessarily feel like participating in sports at that time. The quantity of  
6 time that the student devotes to work has a negative effect on the quantity of sports  
7 participation; the greater the time spent on work then the greater the effect on reducing  
8 the quantity of sports participation. This is also borne out in the squared term of work  
9 hours. This result largely supports the findings from the bivariate analysis.  
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20 Column 1 might be biased as most people have other interests and being not interested in  
21 some sports does not preclude an individual participating in a different type of sports  
22 (perhaps they just haven't found the sports yet in which they are interested). Also, if the  
23 respondent's partner does a different sport then this is again not necessarily a direct  
24 reason why the person does not participate in other sports. These corresponding variables  
25 are then excluded to simplify the model and the results are presented in column 2 in Table  
26 2. The magnitude and significance of the coefficients of the explanatory variables remain  
27 stable. Column 3 is a reduced model of column 2. In column 3, two variables are  
28 excluded: '*partnersame*' and '*mot: friends*'. Their exclusion is justified on the grounds of  
29 the direction of causation: the respondent might have found their partner and their friends  
30 doing the sporting activity. Once these two variables are excluded, the only important  
31 change in the results is that '*mot: new friends*' now becomes important. The numbers of  
32 variables in column 3 is now reduced to form column 4. In this final column, '*Not: cost*'  
33 and '*Not: time*', '*Not: TV*', and '*Not: Bed*' are all removed as they might be simultaneous  
34 to the number of hours worked: the more a person works then the more money the  
35 respondent might have, the less spare time, the less time to watch TV and the less time  
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1 available to stay in bed. Column 4 in Table 2 suggests that, in line with the earlier results,  
2 sports literacy accounts for an important part of sports participation: those individuals  
3 who did sports before coming to university were statistically significantly more likely to  
4 participate in a greater quantity of sports. Interestingly, respondents whose motive was to  
5 meet new friends also participated in more sports; in this way, sporting participation  
6 could be seen as a fit way of dating or of enlarging the individual's peer group. The  
7 results from the theoretical reduction of the general model yield a specific model, which  
8 consistently suggests a strong and statistically significant effect of greater working hours  
9 impacting on sports participation. We then employ the log-likelihood ratio test for  
10 variable deletion to reduce statistically the model to only the most statistically significant  
11 (and stably so) variables; these are presented in column 5 and empirically support the  
12 finding above that sports literacy, meeting new friends and work hours all influence the  
13 quantity of sports participation. However, once some variables have been omitted it also  
14 indicates that being male increases the quantity of sports.  
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28 **Table 2 here**

## 30 5. Conclusions

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34 Given that many universities spend large sums of money in supplying sporting facilities  
35 for their students to use, comparatively little is known about the factors that influence the  
36 participation rates of students in sporting activities. This paper presents an analysis of  
37 factors that influence the quantity of participation in sporting activities by students in a  
38 British university by drawing on data collected from a survey and employing ordered  
39 logistic regression analysis.  
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48 The results from multivariate analysis suggest that the number of hours in work has a  
49 strong and negative effect on sporting participation, suggesting support for a trade off  
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1 between work and leisure. Throughout the results, time constraints negatively affect  
2 sports participation – this also applies to students who previously rejected sports.  
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4 Participation in sporting activities is seen as a way of increasing social capital: students  
5 participate in sports in order to create new or develop existing social relationships. In  
6  
7 addition, the study does support the theory that agents invest in physical capital, i.e., their  
8 health by participating in sports, which they perceive as increasing their fitness. In  
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10 addition to these rationalistic explanations, there is considerable evidence in the data for a  
11 strong effect of habit persistence in sports participation, or ‘sports literacy’. In short, the  
12 paper provides empirical support for a number of theories of participation. However, in  
13 contrast to much of the literature, cost of participation and preferences for competitive,  
14 organised or intensive sports do not appear to influence the overall quantity of  
15 participation.  
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26 Universities need to know whether the demand for their supply of sporting facilities is  
27 likely to be high. With the increasing number of students being in employment to increase  
28 their income to pay for living expenses while at university, working longer hours is a  
29 reality for contemporary students but will also impact on the demand for sports facilities.<sup>3</sup>  
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33 This paper has identified a need for universities to use several strategies to encourage  
34 students to participate in sports. These strategies might include organizing more sporting  
35 activities, and by attempting to change the perception of sports by students. More  
36 specifically, our analysis suggests that universities should focus on providing organised,  
37 often competitive, social sports and that they should target these sports in their marketing  
38 of sports participation. Our data suggests that the types of students who would engage in  
39 intensive sports are those who would be willing sports participants anyway, and thus for  
40 whom institutional encouragement is unnecessary. Furthermore, students feel time-  
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51 <sup>3</sup> On the issue of student labour market participation, see, for example, Bailey (2003).  
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1 constrained and unable to participate; thus universities might be wise to change the work  
2 culture of the university and the nature of the students' working week, to give them more  
3 opportunity to participate in sports. Our bivariate results in particular show that such  
4 changes might lead to improved sporting activities and, moreover, higher general levels  
5 of activity.  
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Table 1: Descriptive Statistics

Variables	Definition	Mean	Standard Deviation	Min	Max	Skew	Kurt
<i>SportNumber</i>	= sum of the number of sports in which the student participates: 0 = 0 sports; 1 = 1 or 2 sports; 2 = 3 sports; 3 = 4 sports; 4 = 5 sports; 5 = 6 or more sports	2.635	0.153	0	5	0.288	-1.002
<i>Age</i>	= age of student	20.412	0.165	19	28	2.630	9.994
<i>Male</i>	= 1 if Male; = 0 else	0.576	0.054	0	1	-0.315	-1.947
<i>Ethnicity</i>	= 0 if White; = 1 else	0.282	0.049	0	1	0.984	-1.056
<i>LiveFriends</i>	= 1 if the student lives with friends; = 0 else	0.859	0.038	0	1	-2.098	2.460
<i>SportsB4Uni</i>	= 1 if the student participated in sports before university	0.940	0.026	0	1	-3.791	12.676
<i>Competitive</i>	= 1 if they participate in competitive sports; = 0 else	0.553	0.054	0	1	-0.217	-2.001
<i>Organised</i>	= 1 if they participate in organised sports; = 0 else	0.424	0.054	0	1	0.315	-1.947
<i>Intensive</i>	= 1 if they participate in intensive sports; = 0 else	0.271	0.048	0	1	1.051	-0.917
<i>PartnerSame</i>	= 1 if their partner participates in the same sport; = 0 else	0.072	0.029	0	1	3.364	9.548
<i>PartnerOther</i>	= 1 if their partner participates in other sports; = 0 else	0.207	0.045	0	1	1.471	0.167
<i>No-Cost</i>	= 1 if cost stops them participating in more sports; = 0 else	0.213	0.045	0	1	1.436	0.064
<i>No-Time</i>	= 1 if they don't have time to participate in more sporting activities; = 0 else	0.741	0.051	0	1	-0.756	-0.492
<i>No-TV</i>	= 1 if watching TV stops them participating more in sporting activities; = 0 else	0.118	0.035	0	1	2.416	3.931
<i>No-OtherInterests</i>	= 1 if they have non-sporting interests; = 0 else	0.435	0.054	0	1	0.266	-1.976
<i>NotInterested</i>	= 1 if they're not interested in sports; = 0 else	0.059	0.026	0	1	3.818	12.877
<i>No-Bed</i>	= 1 if they'd prefer to stay in bed; = 0 else	0.224	0.045	0	1	1.351	-0.179
<i>No-Family</i>	= 1 if they have family commitments that restrict participation in sporting activities; = 0 else	0.012	0.012	0	1	9.220	85.000
<i>Motive-Fitness</i>	= 1 if they do sports to keep fit; = 0 else	0.824	0.042	0	1	-1.728	1.009
<i>Motive-Friends</i>	= 1 if they meet friends doing sports; = 0 else	0.482	0.055	0	1	0.072	-2.043
<i>Motive-NewFriends</i>	= 1 if they meet new friends doing sports; = 0 else	0.247	0.047	0	1	1.194	-0.588
<i>WorkHours: 0</i>	= 1 if does no work; = 0 else	0.024	0.017	0	1	6.400	39.903
<i>WorkHours: 1-5</i>	= 1 if works 1-5 hours per week; = 0 else	0.059	0.026	0	1	3.818	12.877
<i>WorkHours: 6-12</i>	= 1 if works 6-12 hours per week; = 0 else	0.282	0.049	0	1	0.984	-1.056
<i>WorkHours: 13-20</i>	= 1 if works 13-20 hours per week; = 0 else	0.329	0.051	0	1	0.739	-1.489
<i>WorkHours: 21-34</i>	= 1 if works 21-34 hours per week; = 0 else	0.247	0.047	0	1	1.194	-0.589
<i>WorkHours: 35+</i>	= 1 if works over 35 hours per week; = 0 else	0.059	0.026	0	1	3.818	12.877
<i>WorkHoursSqd</i>	= 0 if no hours work; = 1 if 1-5 hours work; = 4 if 6-12 hours work; = 9 if 13-20 hours work = 16 if 21-24 hours work; = 25 if 35+ hours work	16.212	0.955	1	36	0.549	-0.190

Note: Column D indicates the expected direction of effect of variables on the dependent variable: *SportNumber*. C implies control variable.

**Table 2: What Influences the Number of Sports a Student Participates In?**

	1		2		3		4		5		
<i>Age</i>	0.103	(0.180)	0.052	(0.165)	0.097	(0.147)	0.103	(0.146)	1.127	(0.428)***	
<i>Male</i>	0.940	(0.583)	0.807	(0.559)	0.833	(0.515)	0.728	(0.503)	-	-	
<i>Ethnicity</i>	-0.621	(0.658)	-0.739	(0.630)	-0.457	(0.600)	-0.590	(0.563)	-	-	
<i>Live with Friends</i>	1.038	(0.822)	1.008	(0.783)	0.647	(0.726)	0.545	(0.707)	-	-	
<i>Sportsb4uni</i>	4.798	(1.569)***	4.560	(1.517)***	4.050	(1.479)***	4.024	(1.427)***	3.801	(1.246)***	
<i>Competitive</i>	-0.506	(0.520)	-0.232	(0.486)	-0.168	(0.458)	-0.055	(0.454)	-	-	
<i>Organised</i>	-0.454	(0.552)	-0.434	(0.508)	-0.432	(0.474)	-0.303	(0.461)	-	-	
<i>Intensive</i>	1.046	(0.651)	0.863	(0.633)	0.870	(0.573)	0.838	(0.556)	-	-	
<i>Not: Family</i>	1.214	(2.071)	1.552	(2.037)	0.936	(2.002)	-0.180	(1.866)	-	-	
<i>Not: Cost</i>	0.046	(0.671)	-0.070	(0.629)	0.087	(0.577)	-	-	-	-	
<i>Not: Time</i>	1.292	(0.659)**	1.425	(0.635)**	1.204	(0.609)**	-	-	-	-	
<i>Not: TV</i>	0.693	(0.791)	0.630	(0.736)	0.570	(0.732)	-	-	-	-	
<i>Not: Bed</i>	-0.110	(0.650)	-0.167	(0.615)	0.080	(0.602)	-	-	-	-	
<i>Not: Other Interests</i>	-0.942	(0.514)*	-	-	-	-	-	-	-	-	
<i>Not: Not Interested</i>	0.602	(1.037)	-	-	-	-	-	-	-	-	
<i>Mot: Friends</i>	0.808	(0.604)	0.469	(0.549)	-	-	-	-	-	-	
<i>Mot: New Friends</i>	0.635	(0.753)	1.103	(0.682)	1.519	(0.598)**	1.529	(0.595)***	1.482	(0.515)***	
<i>Mot: Fitness</i>	-0.539	(0.649)	-0.320	(0.636)	-0.488	(0.627)	-0.276	(0.618)	-	-	
<i>Partner Same Sports</i>	1.885	(1.045)*	1.933	(1.051)*	-	-	-	-	-	-	
<i>Partner Other Sports</i>	-0.382	(0.673)	-	-	-	-	-	-	-	-	
<i>Work hrs: 0</i>	-	-	-	-	-	-	-	-	-	-	
<i>Work hrs: 1-5</i>	1.318	(1.897)	1.107	(1.834)	1.454	(1.839)	0.953	(1.782)	-	-	
<i>Work hrs: 6-12</i>	-2.448	(1.934)	-2.814	(1.809)	-2.049	(1.769)	-1.941	(1.762)	-	-	
<i>Work hrs: 13-20</i>	-4.807	(2.353)**	-5.085	(2.203)**	-4.458	(2.150)**	-4.238	(2.149)**	-2.010	(0.753)***	
<i>Work hrs: 21-34</i>	-6.392	(3.063)**	-7.076	(2.854)**	-6.200	(2.728)**	-5.793	(2.712)**	-2.791	(1.233)**	
<i>Work hrs: 35+</i>	-8.200	(4.333)**	-9.647	(4.048)**	-8.406	(3.846)**	-8.310	(3.790)**	-4.230	(2.145)**	
<i>Work hours Sqd</i>	0.254	(0.108)**	0.268	(0.101)***	0.256	(0.096)***	0.241	(0.097)**	0.163	(0.068)**	
<i>Ancillary parameters</i>	Cut 1	0.018	(2.051)	0.532	(1.788)	0.318	(1.825)	-0.488	(1.746)	-2.125	(1.152)
	Cut 2	4.810	(2.250)	4.946	(2.087)	4.321	(2.056)	3.387	(1.953)	1.657	(1.351)
	Cut 3	6.761	(2.298)	6.787	(2.127)	6.173	(2.091)	5.113	(1.972)	3.275	(1.366)
	Cut 4	7.798	(2.323)	7.837	(2.151)	7.196	(2.113)	6.115	(1.991)	4.227	(1.370)
	Cut 5	9.036	(2.358)	8.974	(2.184)	8.385	(2.142)	7.283	(2.017)	5.355	(1.388)
Pseudo R <sup>2</sup>	0.206		0.184		0.171		0.151		0.136		
Likelihood Ratio	54.41***		49.88***		47.46***		41.87***		38.23***		
Log likelihood	-104.683		-110.623		-114.988		-117.782		-121.124		
Likelihood Ratio Test									9.32		

**Notes:** Dependent variable in each case is 'activorder'. Standard errors are in parentheses. \*\*\*, \*\* and \* indicate significance at the 1%, 5% and 10% levels respectively. Normalised observations used throughout. The sample size differs between columns: in (1) it is 80, in (2) it is 82, in (3) and (4) it is 84 and in (5) it is 85. As the results are stable across variable regressions we feel that the differences in sample size are not seriously affecting the results.



## APPENDIX

**Table 3: Of those who cite a motive, how many sports do they do?**

	0	1	2	3	4	5	Total	Mean Average
Males ( <i>n</i> = 49)								
Fitness	0	5	15	7	5	8	40	2.900
Feeling	0	4	8	7	4	7	30	3.067
Friends	0	3	9	5	4	6	27	3.037
New Friends	0	1	2	1	3	4	11	3.636
Females ( <i>n</i> = 36)								
Fitness	2	9	5	6	7	1	30	2.333
Feeling	0	6	2	3	4	0	15	2.333
Friends	0	3	3	2	5	1	14	2.857
New Friends	0	1	1	3	4	1	10	3.300

**Table 4: Reasons why students do not participate in more sports and sports participation**

		Male	Female	All
<b>Not: Cost</b>	<b>Yes</b>	2.556	2.889	2.722
	<b>No</b>	3.051	2	2.621
<b>Not: Time</b>	<b>Yes</b>	2.971	2.444	2.738
	<b>No</b>	3	1.556	2.435
<b>Not: TV</b>	<b>Yes</b>	3	2.75	2.9
	<b>No</b>	2.930	2.156	2.6
<b>Not: Other Interests</b>	<b>Yes</b>	2.5	2.059	2.297
	<b>No</b>	3.242	2.368	2.896

**Table 5: Average 'Activeorder' by Gender and Hours Worked**

	Male	Female	All
<b>No hours work</b>	1.5	3	2
<b>1-5 hours work</b>	3.5	2	2.6
<b>6-12 hours work</b>	3.2	2.111	2.792
<b>13-20 hours work</b>	2.667	2	2.429
<b>21-24 hours work</b>	2.8	2.444	2.632
<b>35+ hours work</b>	5	2.5	3.333
<b>Total</b>	2.939	2.222	2.635