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 adversely affected by greater hours of work and increased by greater sports literacy and the decision to augment social capital. Effective investment in sports facilities by Universities would meet students' demands and not simply increase the range of sports facilities available to students.

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1. Introduction

Most universities encourage students to participate in recreation activities during their time at university and often provide a wide range of sporting opportunities to cater for all levels and types 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.[1] 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 participation via utility maximisation and a demand function. In said function, demand for

[1] There is also a large literature on the demand for watching professional sport. 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.

sport (measured in various different ways) is determined by the price of the sports activity, the prices of other goods, and income. Theoretically, preferences are also included, as they must be for a neo-classical treatment; but empirically, tastes are often omitted.

In Becker (1965) and Vickerman (1975) it is acknowledged that sports participation is a composite good, which involves several derived demands, such as equipment, clothing, membership of organisations, transportation to the place of the activity, and price of the facilities (assuming availability). The composite nature of the good significantly complicates the analysis. For example, neo-classical treatments tend also to include a time element in their analysis. Clearly sport, as with all forms of leisure, involves consumption of time; moreover, time often plays a significant role in affecting a person's demand for sport. Furthermore, the time required for sports varies according to the sport, i.e., some sports are more 'time-intensive' than others, which might be more 'goods-intensive': mountaineering is considerably more time consuming than table tennis, for example.

Typically neo-classical treatments analyse time allocation via the labour (or income)-leisure trade off. That framework applies utility theory, usually indifference analysis, to the choice of taking more or less leisure, usually in response to changes in wage or tax rates, subject to physical limits such as the need for sleep and the absolute limit of hours per time period. The analysis of such changes tends to be decomposed into familiar income and substitution effects. In standard analysis, the substitution effect usually acts to shift demand away from the good (or activity) whose opportunity cost has increased as the result of a price change. With regard to the income effect, it is usually assumed that leisure is a normal good. Thus, in response to an increase in wage rates, the substitution effect drives people to work more, whilst the income effect makes them work less. The overall effect depends on the relative sizes of the two effects. Thus, according to that analysis, historically, rising wage levels in Western countries have caused leisure levels to increase, as the income effect has dominated (Gratton and Taylor, 2000, Ch. 2).

For a number of reasons (Gratton and Taylor, 2000, pp. 58-9), the standard analysis has been regarded as overly restrictive for analysis of the participation decision. Therefore, sports economics has become multidisciplinary, culminating in a much more complex picture of sports demand than in the neo-classical model; however, many of the additional variables cited as causing sports participation can be reconciled with the neo-classical model. An obvious one is age, which is shown to be negatively correlated with sports participation (see Gratton and Taylor, 2000, p. 74; Thompson *et al*., 2002). However, Rodgers (1977) argued that age *per se* is not related with participation; rather, people who have an established familiarity with sports – what Rodgers calls 'sports literacy' – and have engaged regularly and deeply in sports as younger people ('sports careers'), will tend to carry on with sports later in life. For the rest, who are coerced into exercise at school but otherwise did not participate in sports, this is not the case, and their participation rates will fall. With such concepts, it is clear that the analysis has moved out of the raw economic model and into notions of habits (and their persistence).

Unsurprisingly, psychology has been influential in helping to explain sport participation. Several authors have highlighted the importance of sport in generating psychological well-being through stimulation (Scitovsky, 1976), so-called 'peak experiences' (Lipscombe, 1999), feelings of control (Csikszentmihalyi, 1975) and the desire to emulate sporting heroes. Additionally, perception of sport and of one's participation in it can be important. Examples would include the perceptions of how great constraints are on one's sport participation in terms of gender and ethnicity (Alexandris and Carroll, 1997). Furthermore, sport participation might be affected by gender (see Gratton and Taylor, 2000: 75; Thompson, *et al*., 2002), ethnicity, and educational attainment (Thompson *et al*., 2002).

Therefore, there is a large range of possible causal factors for sports participation. The literature does not suggest one simple model which might be estimated and/or tested.

The goal of this study is to identify whether there is any evidence to support these theories from students who might have more time to participate in sporting activities than workers. Knowledge of factors influencing sporting participation by students is important if universities are going to optimally allocate funds to meet the needs of students, especially in the UK where recent evidence suggests a move towards greater proportions of students working long hours to support themselves while studying for university qualifications, which can impinge on the number of hours available for study and socialising.

3. Data

Data were collected via a questionnaire of self-reported, closed questions designed to gather evidence for and against the theories discussed above and was distributed to students following two modules in two levels in one British university. All respondents in the sample (n = 85) were classified as being full-time students. The questions attempted to capture the diversity of motives for sports participation found in the literature. A series of questions dealt with the types of sports played; constraints, including cost, the ability to play sports, competing demands on their time; physical, psychological and social motives for sports participation; and details of the sports played.

{Table 1 about here}

The descriptive statistics show a number of key features. First, the sample comprises active sporting participants, who on average play 3 or 4 sports. Indeed only 6 of the sample played no sports whatever. Sport is defined broadly: first, by allowing the students to define the sports they participate in; second, by allowing those responses to stand. The range of sports cited is extremely broad, including walking, which was a

common response, skiing, and yoga; the most common sports were as might be expected, including football, rugby, netball, (field) hockey, swimming, tennis, and running.[2] To some extent, sports played conform to gender stereotypes (no men in the sample indicated they play netball, for example); however, a number of women play cricket, football and rugby, reflecting the shifting gender profile of those sports. A slight majority of the sports played were competitive, although this was less often in an organised competition, and even less often intensive (in its level of activity and exertion).

Most respondents were around the age of 20; all had access to university sports facilities; all lived in the same city (term-time), so differential access to local facilities was not relevant. Given that all of the respondents are full-time students, and are assumedly not the main wage earner in their family (although they might be in their student accommodation), personal income could be less relevant to their sports choices than it might otherwise be. Nowadays, student income in England and Wales is comprised of a combination of parental donation, Local Education Authority (LEA) support, student loans and paid employment done by the student. However, parental income (if made available to the student) could affect the student's need to work while at university, and therefore their time available for sports participation. Furthermore, parental income can affect the range of sports available to them prior to university, either through their residential location or the expenditures necessary to pay for those sports, or again by affecting the students' need to work prior to university. However, the information on the financial background of the breadwinner in the household was not sought: it was felt that any information received on this question would be inaccurate.

Most respondents live with other students, as is typical of the British student population. There was a small majority of men in the sample, and a larger majority of white respondents; however the data did not suggest that ethnicity is much of a factor

[2] Clearly, each sport requires different quantities of money spent on participation and different amounts of time for participation, but universities still require information on the sports that students will participate in and therefore which facilities they need to supply.

affecting sports participation. Indeed, all respondents who did not participate in sports were white. At least in our sample, some preconceptions about ethnicity (often through religion) and its impact on gender roles and hence sports participation are challenged.

4. Results

Bivariate Analyses

Initially, a series of bivariate analyses and pivot tables were estimated. A selection of these is presented. The questionnaire asked respondents for their motives for doing sport. The responses to those questions are shown in Table 2, which presents data on several factors that act as motives for sports for respondents within our sample. The data support the physiological-psychological hypothesis that people do sports for the release of endorphins (and possibly also to reduce stress): across the sample – although there was a slightly greater proportion of men who gave this as (one of) their reason(s) for doing sports – respondents expressed the view that they did sports because of the feeling it gave them. This evidence supports Scitovsky's hypothesis. Table 2 also suggests that those individuals who cite 'new friends' as a motive for sports participation also participate in more sports; this is slightly greater for males than for females. For universities, therefore, arranging opportunities for sports is a sensible strategy, one that might also have positive social spillovers, further enhancing the student experience.

{Table 2 about here}

The high value for '*motive: fitness*' in the descriptive statistics suggests that respondents are participating in sports in order to increase health, in line with Grossman's

(1972) theory. However, interestingly, citing fitness as a motive for sports participation is also associated with the *least* amount of sporting participation. Indeed, two female respondents suggested '*fitness*' as a motive but also indicated that they did not participate in any sports; this could be capturing the perception that sporting activities are only for those individuals who wish to keep fit. Overall, then, to encourage sporting activity, therefore, its perception needs to be changed to that of a social event.

The descriptive statistics suggest, in line with Rodgers' (1977) theory, a strong sports literacy effect and lock-in to specific sports. All of the few who claimed not to have done sport before university were women; but neither age nor ethnicity could explain this fact. Two of the prior non-participants have now taken up some kind of sport: one now does swimming, walking and gym, while the other now does aerobics. It is interesting that the sports chosen are generally non-competitive geared towards fitness, and social. This finding fits with the fact that in our sample, women did sports with friends slightly more (30.6% of respondents) than did men (26.5% of respondents). We might infer that the women who now participate in sport have discovered that in the new and different context of university, sporting activity is now a means of increasing their social capital. This point reinforces the one above about the need to change the perception of sports.

As noted above, neo-classical treatments tend to emphasise price, income, preferences, and latterly, time. As explained above, no data was collected on income. Respondents were asked if they did not participate in sports because they were not interested in it. However, only four respondents gave this response. The data do suggest some interesting findings on the price of sports and on the time constraint. In general, price ('*cost: not*' in the tables) did not figure heavily in deterring sports participation. The average value for '*cost: not*' was only 0.213. There was a slight difference between men and women in the sample, with women (0.25) slightly more likely than men (0.1875) to cite cost as a prohibitive factor. Again, this difference might be explained in terms of a

greater perception of a cost constraint; or it might reflect different social circumstances, although we do not have data to determine that.

The issue is examined in more depth in Table 3, which shows '*SportsNumber*' values (i.e., number of sports participated in) for the whole sample and divided between men and women, according to the reasons given for not participating more in sport. An important difference can be seen between men and women in these responses. Men that cite cost as a reason for lower participation participate in fewer sports. This is to be expected and conforms to the predictions of consumer theory. However, women that cite cost as a reason why they do not participate in more sports actually participate in *more* sports than other women who do not cite cost as a reason. Moreover, 3 out of 8 women who claimed that cost was prohibiting further sports participation nevertheless play golf, which typically involves larger fixed and variable costs. Another respondent claimed to find sports prohibitively expensive, yet was engaged in water-skiing. One explanation for this seemingly puzzling result is that these women would participate in these goods-intensive, expensive sports – perhaps as continuation of habits from pre-university, but were thwarted from participating in other sports or the same sport with greater frequency by the higher costs of participation. Overall though, women who felt constrained by cost had chosen cheaper pursuits, perhaps as compensation. Another interpretation is that sports-loving women have different perceptions of price constraints than do other groups. Again, this would support the theory that perceptions of constraints are a significant determinant of sports participation (Alexandris and Carroll, 1997).

{Table 3 about here}

A similar story can be told with regard to time. The high values for '*no time*' suggests that time is a constraint on sports participation. Again, men conform to the predictions of the theory: men that cite time as a reason why they do not participate in

more sports participate in fewer sports. However, women that cite time as a reason why they do not participate in more sports actually participate in more sports than other women who do not cite time as a reason. Perhaps these women are so busy doing other sports that they feel time-pressured; but they are such sports-lovers that they still regard time as a constraint against doing even more sports. For instance, seven of the women who claimed to have too little time to do extra sports nevertheless claimed to be spending at least 10 hours per week on sports. Drawing again on the distinction between time- and goods-intensive goods, it might be inferred, as above, that sports-loving women are substituting from time-intensive to goods-intensive or at least less time-intensive sports. However, a large proportion of women who fell into this category were engaged in team sports, such as football, hockey, rugby, rowing, volleyball and netball, all of which require a considerable time commitment. Nevertheless, a large number of the women in this category are engaged in sports, which give *time flexibility*, such as gym, swimming, walking, aerobics, running, tennis and badminton. Thus, the types of sports played also gives mixed results. One might then have to revert to explaining the different behaviour in terms of different perceptions of constraints (Alexandris and Carroll, 1997). Another possible explanation is that when the students indicate they have no time for further participation in sporting activities they are actually indicating a preference for the consumption of alternative activities to which they are already committed by virtue of their tastes.[3]

Another finding reported in Table 3 was that men and women who prefer watching television rather than participating in more sports actually participate in more sports than those who do not blame TV. This finding supports the earlier finding about time pressure more generally. One explanation is that activity creates time pressures and perceptions of constraints. Another is that activity creates energy (the sport's physiological benefits) and the desire to pursue more activities. For example, those (mostly men in our sample) who

[3] We acknowledge Peter Howells for this insightful comment.

would rather stay in bed than do sports might have generally lower levels of activity and thus lower desire for activity. However, men and women who cite other interests as a reason why they do not participate in more sports do indeed participate in fewer sports, yet they are active. In this case, simply their preferences are towards other activities. Also, it is not clear whether those who feel the need to stay in bed do so in order to recover from strenuous activities.

Overall, from the analysis of raw data, descriptive statistics and pivot tables, time does appear to be a constraint on sports participation. Time is clearly being spent on other leisure activities, including other sports. A significant draw on people's time is also work. Students face two work requirements: study (including class attendance) and, increasingly given changed educational funding arrangements, paid employment. Table 4 explores this issue further: it shows the '*SportsNumber*' for the sample, cross-referenced to hours worked (on paid work and study) per week.[4]

{Table 4 about here}

Table 4 re-confirms that on average, according to our sample, men participate in more sports than women. Moreover, for all but the category of students who do no work per week, men participate more than women. This supports the suggestion made above that for women who are working, time pressures are perceived to be higher. The figures also support the hypothesis (proffered above) that activity breeds activity: the lowest figure for '*SportsNumber*' for men and overall is for those engaged in no work; whereas, the highest figure for *SportsNumber* for men and overall is for 35+ hours work. It seems that when men work hard they also play hard; or they are lazy and engage in no activity. Again,

[4] In retrospect, it would have been extremely helpful to distinguish between paid work and study, in order to assess the substitution of leisure for work (and vice-versa); moreover, study can be interpreted as an investment in future earnings. Thus, students who substitute study for sports are sacrificing current consumption of sports and its attendant effects for future earnings. They might also be choosing (or be forced by circumstance) to work for current consumption and study for future consumption, at the expense of current sporting activity. However, the distinction between paid work and study was not made in the questionnaire. This is clearly an important area for future research.

activity inspires activity: sports create fitness and the feeling of well-being, which inspires them to do more of other things too. However, the picture is murkier than that. Overall, and for men, if one plotted the hours worked against '*SportsNumber*', one would get an N-shaped curve. For women, their curve is W-shaped: the two highest levels of '*SportsNumber*' are at 0 hours worked and at 35+ hours worked. There is evidence that some women are substituting work and study for sport: the fall in '*SportsNumber*' from 6-12 hours to 13-20 hours worked further supports that claim; but also, there is evidence that others have higher general levels of activity, as shown by the increase in '*SportsNumber*' when women work longer than 20 hours per week. These findings suggest that encouraging sporting activity creates the capacity in students for more activity; that universities should not worry if students are engaged in lots of work; and that students are a diverse group and that a 'one size fits all' strategy might be inappropriate. However, the results partially support the earlier hypothesis that time acts as something of a constraint on sports participation. That would suggest that universities should seek creative ways to give their students more time for sport.

Multivariate Analysis

To strengthen the analysis, an ordered logistic regression was employed to identify the determinants of the quantity of sporting participation. The corresponding results are presented in Table 5.

{Table 5 about here}

The literature suggests a wide range of plausible causal factors for sports participation. Consequently, socioeconomic variables, preferences for types of sports,

reasons for not participating more, motives, partner's sporting activities and work hours were all employed as explanatory variables. We have employed a 'general-to-specific' modelling strategy of two distinct types: first, we eliminate variables from the model on the basis of theoretical reductions; second, the elimination process is purely statistical. One process acts as a check on the other; and both processes generate similar results. The general model is presented in column 1 of Table 5. In line with the discussion above of sports literacy (Rodgers, 1977), if the student participated in sports before attending university '*Sportsb4uni*', then this had a positive and significant effect on the quantity of sports participation (measured by the number of sports participated in). Similarly the evidence that a lack of time is a reason for not participating more in sporting activities is supported in the multivariate regression analysis. Having other interests reduces the quantity of sports participation. If the student's partner participates in the same sports then they are likely to participate in more sports; the partner might encourage the person to participate in the sports even when he/she does not necessarily feel like participating in sports at that time. The quantity of time that the student devotes to work has a negative effect on the quantity of sports participation; the greater the time spent on work then the greater the effect on reducing the quantity of sports participation. This is also borne out in the squared term of work hours. This result largely supports the findings from the bivariate analysis.

Column 1 might be biased as most people have other interests and being not interested in some sports does not preclude an individual participating in a different type of sports (perhaps they just haven't found the sports yet in which they are interested). Also, if the respondent's partner does a different sport then this is again not necessarily a direct reason why the person does not participate in other sports. These corresponding variables are then excluded to simplify the model and the results are presented in column 2 in Table 5. The magnitude and significance of the coefficients of the explanatory variables remain

stable. Column 3 is a reduced model of column 2. In column 3, two variables are excluded: '*partnersame*' and '*mot: friends*'. Their exclusion is justified on the grounds of the direction of causation: the respondent might have found their partner and their friends doing the sporting activity. Once these two variables are excluded, the only important change in the results is that '*mot: new friends*' now becomes statistically significant. The numbers of variables in column 3 is now reduced to form column 4. In this final column, '*Not: cost*' and '*Not: time*', '*Not: TV*', and '*Not: Bed*' are all removed as they might be simultaneous to the number of hours worked: the more a person works then the more money the respondent might have, the less spare time, the less time to watch TV and the less time available to stay in bed. Column 4 in Table 5 suggests that, in line with the earlier results, sports literacy accounts for an important part of sports participation: those individuals who did sports before coming to university were statistically significantly more likely to participate in a greater quantity of sports. Interestingly, respondents whose motive was to meet new friends also participated in more sports; in this way, sporting participation could be seen as a fit way of dating. The results from the theoretical reduction of the general model yield a specific model consistently suggest a strong and statistically significant effect of greater working hours impacting on sports participation. We then employ a log-likelihood ratio test to reduce statistically the model to only the most statistically significant (and stably so) variables; these are presented in column 5 and empirically support the finding above that sports literacy, meeting new friends and work hours all influence the quantity of sports participation. However, once some variables have been omitted it also indicates that being male increases the quantity of sports participation.

5. **Conclusions**

Given that 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

participation rates of students in sporting activities. 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.

The results from multivariate analysis suggest that the number of hours in work has a strong and negative effect on sporting participation, suggesting support for a trade off between work and leisure. Throughout the results, time is a significant factor affecting (usually negatively) sports participation, which in general students seem disposed to – this even applies to students who previously rejected sports, but whose perception of it has now changed. Participation in sporting activities is seen as a way of increasing social capital. That is to say, students often participate in sports in order to create new or develop existing social relationships. In addition, the study does support the theory that agents invest in physical capital, i.e., their health by participating in sports, which they perceive as increasing their fitness. In addition to these rationalistic explanations, there is considerable evidence in the data for a strong effect of habit persistence in sports participation, or 'sports literacy'. In short, the paper provides empirical support for a number of theories of participation. However, in contrast to much of the literature, cost of participation and preferences for competitive, organised or intensive sports do not appear to influence the overall quantity of participation.

Universities need to know whether the demand for their supply of sporting facilities is likely to be high. With the increasing number of students being in employment to increase their income to pay for living expenses while at university, working longer hours is a reality for contemporary students but will also impact on the demand for sports facilities. Students are likely to become increasingly selective in their sports participation decisions, with sports literacy, meeting new friends and time constraints all playing an important role. This paper has identified a need for universities to use several strategies to

encourage students to participate in sports. These strategies might include organizing more sporting activities, and by attempting to change the perception of sports by students. More specifically, our analysis suggests that universities should focus on providing organised, often competitive, social sports and that they should target these sports in their marketing of sports participation. Our data suggests that the types of students who would engage in intensive sports are those who would be willing sports participants anyway, and thus for whom institutional encouragement is unnecessary. Furthermore, students feel time-constrained and unable to participate; thus universities might be wise to change the work culture of the university and the nature of the students' working week, to give them more opportunity to participate in sports. Our bivariate results in particular show that such changes might lead to improved sporting activities and higher general levels of activity.

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Table 1: Descriptive Statistics

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

	0	1	2	3	4	5	Total	Mean
	Males (n = 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 (n = 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 3: Reasons why students do not participate in more sports and sports participation

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

Table 4: Average '*SportsNumber*' by Gender and Hours Worked

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

Table 5: What Influences the Number of Sports a Student Participates In?

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