The Non-Monetary Effects of Education on Leisure: Analysis of the Use of Time in Spain
Los efectos no monetarios de la educación sobre el ocio: análisis del uso del tiempo en España

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Resumen: El análisis de los efectos de la educación se ha centrado tradicionalmente en aspectos monetarios, mientras que los efectos no monetarios (tales como aquellos en el uso del tiempo) han recibido menor atención. Este artículo analiza los efectos de la educación sobre el empleo del tiempo de ocio en España, a partir de la Encuesta de Empleo del Tiempo. Los resultados muestran una intensa relación entre el nivel educativo y la dedicación de tiempo a actividades culturales y deportivas y a la lectura de libros y de prensa. Los resultados muestran también, en consonancia con una perspectiva institucionalista, que un mayor nivel educativo no incrementa automáticamente la participación en todas las actividades de ocio beneficiosas, sino que dicho efecto se derivaría del entorno social y los valores de los individuos.

Palabras clave: Educación, Efectos no monetarios, Uso del tiempo, Ocio.

Abstract: The analysis of the effects of education have traditionally focused on income (the monetary effects), whilst other non-monetary effects of education (such as those on the use of time), have received less attention. This paper analyses the effects of education on individuals' use of their leisure time in Spain, using data from the Spanish Time Use Survey. It finds a close relation between education and the dedication of time to cultural activities, sports and reading books and the press. It also finds that a higher educational attainment does not automatically increase participation in all the leisure activities considered as beneficial. The effects, according to an institutionalist perspective, will be derived from social environment and individual's values.

Keywords: Education, Non-monetary effects of education, Use of time, Leisure.

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Introduction

In the field of the analysis of education from an economic perspective (that is, Economics of Education), significant advances have been made in measuring and evaluating performance in education and its impact, proving to be an indispensable tool in the design of education policies. Studies have focused primarily on the so-called monetary effects, that is, the increase in income associated with the acquisition of a higher level of education (Bils and Klenow, 2000). Fewer studies have analysed the non-monetary effects of education: those consequences of acquiring a specific level of education not directly associated with a pecuniary benefit (Wolfe and Zuvekas, 1997; Oreopoulos and Salvanes, 2011).

The non-monetary effects of education are reflected in a broad spectrum of elements, such as health habits, consumer behaviour and patterns of decision-making in the family and social domains. According to the estimations of Haveman and Wolfe (1984), the magnitude of the non-monetary effects of education is no smaller than that of its monetary effects. As a result, the analysis of these effects is of great importance in fully evaluating the individual and social benefits of education and, therefore, in designing educational policies. Among the analyses of the non-monetary effects of education, most of the studies have focused on individuals' consumption decisions and expenditure (Fernández-Gutiérrez and Calero, 2011). Fewer studies have focused on another quite different dimension, but one which is particularly important for this purpose: the use of time. Education is closely related to the diversity of activities that individuals carry out in their free time, in turn having a positive impact on them, promoting beneficial personal outcomes and enhanced social integration (Stalker, 2011). For this reason, understanding and measuring the influence of education on the use of time is critical for an in-depth analysis of its individual and social effects.

The objective of this article is to analyse the non-monetary effects of education on individuals' use of leisure time in the case of Spain. The analysis is carried out using data from the latest edition of the Spanish Time Use Survey (*Encuesta de Empleo del Tiempo*) (INE, 2011). In particular, we analyse the relationship between the educational level acquired and the time dedicated to different activities, focusing on those particularly significant in terms of their benefits for the individual and society: cultural activities, sport, reading the press and reading books. The non-monetary effects of education on the use of time correspond to the impact of education on decisions to participate in activities, as well as on the intensity of that participation, after correcting for the effect of other variables such as income. Given that a higher level of education is associated with a higher expected income,

which in turn may affect decisions on the use of time, the separation of the effects associated with income (that is, the monetary effects of education) and those specifically associated with education (the non-monetary effects) is essential. For this reason, as the information on individual income provided by the Spanish Time Use Survey is limited to the population in employment, the analysis carried out in this paper focuses only on individuals in employment. This paper, following the approach described above, constitutes an updated contribution to the scarce literature existent in Spain on the non-monetary effects of education, providing also a new perspective, based on the use of time. Thus, the results obtained contribute to the furthering of the existing understanding of education and its consequences for individuals in their role as citizens, as well as for the society in which they are integrated.

The rest of this article is structured as follows. After this introduction, the second section describes those areas in which the literature has identified particularly relevant non-monetary effects of education, emphasizing those related to the use of leisure time. The third section examines different interpretations of the nature of these effects. The fourth section describes the source, variables and the methodology used in the analysis. The fifth section presents the results obtained from it and the conclusions and implications of the analysis are discussed in the sixth section.

The non-monetary effects of education: an overview

The non-monetary effects of education are observable in a broad range of different aspects, as reflected in the extensive reviews undertaken by Haveman and Wolfe (1984), Wolfe and Zuvekas (1997) and Calero, Gil-Izquierdo and Fernández Gutiérrez (2011).

Much of the literature examining the non-monetary effects of education has focused on those related to health benefits. Studies have found a relationship between a higher level of education and a greater use of preventive treatments and specialist health care, as well as a greater attention to chronic health problems (Feinstein, Sabates, Anderson, Sorhaindo and Hammond, 2006). In addition, a higher level of education has been related to a series of behaviours that impact health, such as being less likely to smoke or more likely to smoke fewer cigarettes (Bratti and Miranda, 2009), a lower probability of alcohol abuse (Escardíbul and Calero, 2006), a greater propensity for physical exercise and of maintaining a balanced diet (Feinstein et al., 2006). A relationship has also been identified between level of education and chosen place of residence (Wolfe and Zuvekas, 1997), which

impacts health as a result of general living conditions, air pollution and the probability of having an accident (Feinstein et al., 2006). Similarly, a relationship has been found between higher educational levels and less exposure to occupational hazards (Wolfe and Zuvekas, 1997). All these aspects have a bearing on the non-monetary effects of education detected in relation to health outcomes: lower probability of suffering physical limitations in regular activities, being obese or hospitalised (Feinstein et al., 2006), or of suffering from depression (Miech and Shanahan, 2000) and a greater probability of reporting good health (Groot and Maasen Van den Brink, 2005).

Whilst health has been an area of particular interest in the analysis of these effects, education has a broader general impact on the development of individuals' preferences, which in turn underpin most of their consumption and time-use decisions (Calero et al., 2011; Oreopoulos and Salvanes, 2011). Specifically, education influences the leisure activities individuals might engage in and the amount of time they dedicate to them (the non-monetary effects of education on leisure). A higher level of education (and not only the higher income associated with it) has been shown to increase preferences for activities such as reading, music, art and travel, and the amount of time dedicated to them (Haveman and Wolfe, 1984; Favaro and Frateschi, 2007; Ateca Amestoy, 2009).

In the case of Spain, Escardíbul (2002) found a positive relation between educational attainment and households' expenditure on theatre and music shows, as well as the consumption of a set of cultural goods. From the perspective of Cultural Economics, rather than that of Economics of Education, scholars have highlighted the role of education as a determinant of participation in cultural activities (Prieto Rodríguez, Pérez Villadóniga y Suárez Fernández, 2018). In Spain, Ateca Amestoy (2010) found that attainment of higher education is a strong predictor of participation in every cultural form, including artistic performances, cultural media (books, music and so on) and practice of cultural activities. In other research, Muñiz, Rodríguez and Suárez (2011) found that education, in Spain, is positively associated with time spent on both cultural activities and sports (albeit the intensity of this effect is higher for cultural activities). In addition, Muñiz, Rodríguez and Suárez (2017) found that education is an important determinant of both the probability of participating and the frequency of participation in cultural activities.

The effects of education on leisure are explained by the fact that education influences the value individuals attach to different leisure activities. As education increases, the number of options capable of satisfying an individual's leisure needs also increases. This explains the relation between an individual's level of education and the diversity of leisure activities in which they engage, as highlighted

by Stalker (2011). Peterson (1992) and Peterson and Kern (1996) used the term "cultural omnivorousness" to describe the way in which the highest social classes embraced the activities characteristic of the lower social classes. More recently, and closely related to the idea described above, Warde and Gayo-Cal (2009) have used this concept of "cultural omnivorousness" to define the preferences of individuals with a higher educational level for a greater number of different leisure activities.

Studies have also detected non-monetary effects of education on the immediate circle of family and friends. These effects contribute notably to explaining the close relation between the educational level achieved by the parents and that subsequently attained by their children (Wolfe and Zuvekas, 1997). This relationship does not only depend on parents' income, but also on the transmission of culture, determined by the environment and, in particular, by the family (Checchi, 1997; Nagel, 2010). It has been found that parents with higher levels of education dedicate more time to their children, which has an impact on their cognitive development (Gutiérrez-Domènech, 2010), and that the parents' educational level also affects their children's leisure habits, including, for example, their participation in cultural activities and physical exercise (Quarmby and Dagkas, 2010), and their reading habits (Wollscheid, 2014).

Finally, the non-monetary effects of education also impact on society as a whole. Research has found a relationship between education and social mobility (Checchi, 1997); a reduction in criminal activity (Haveman and Wolfe, 1984); greater civic participation and personal involvement in social activities (Huang, Maasen Van Den Brink and Groot, 2005; Wolfe and Zuvekas, 1997), and a greater concern and respect for the environment and its conservation (Worsley and Skrzypiec, 1998).

How to interpret the effects of education on leisure?

In the field of economics, different theoretical approaches have been developed for interpreting the nature of the non-monetary effects of education. From the perspective of neoclassical economics, both the monetary and non-monetary effects of education are explained in terms of human capital theory, emphasising the increase in the efficiency of consumption that would be associated with a higher level of education (Rosenzweig and Schultz, 1989; Kenkel, 1991). Both the consumption of goods and time use are, in this approach, considered inputs in an individual's production of utility. Thus, work serves to generate income that can be used, in conjunction with an individual's free time, in activities of consumption and leisure, thereby generating utility. The demand for leisure, therefore, is modelled on a

decision as to whether an individual allocates their time to leisure or to another activity (such as work) and, if opting for the former, on which leisure alternative is preferred. From this perspective, a higher education level would result in a more efficient use and combination of inputs (consumption and time use) so as to obtain a greater number of positive outputs. Education would also lead to greater value being given to future benefits associated with consumption decisions, and as a result to more appropriate decisions being made throughout the life cycle. As such, the neoclassical approach considers the non-monetary effects of education to be always beneficial, referring to them as the non-monetary *benefits* of education.

From the alternative perspective of institutional economics, the non-monetary effects of education are seen as a result of the influence of the institutional environment (including the family, the social environment and personal characteristics) in forming individual preferences, which in turn are the basis for making decisions about consumption and lifestyle (Escardíbul, 2002; Escardíbul and Calero, 2006). Here, education is conceived as a critical element in the shaping of this institutional environment and, hence, in the development of an individual's patterns of consumption and time use. From this approach, the non-monetary effects of education do not always result in positive patterns of consumption and behaviour. As a result, this perspective does not speak of "benefits" but rather of the non-monetary *effects* of education. The perspective of institutional economics connects the economic view on education with that derived from other disciplines, such as sociology. From a sociological perspective, Stalker's (2011) analysis of the diversity of leisure activities identifies education as one of the keys, together with economic status, for explaining individual consumption and behaviour in relation to leisure.

Data and methodology

To address the objectives of this article, the following hypotheses are tested:

H1. An individual's level of education influences the time they dedicate to a range of leisure activities. Were this hypothesis to be confirmed (after controlling for the effects of other factors, including income), it would indicate the existence of non-monetary effects of education on the use of leisure time, the magnitude of which can then be estimated.

H2. A higher level of education is associated with the dedication of more time to leisure activities that provide individual and social benefits, in keeping with previous results in the literature referring to cultural activities (Haveman and Wolfe, 1984; Favaro and Frateschi, 2007; Ateca Amestoy, 2009); physical exercise (Wolfe

and Zuvekas, 1997; Feinstein et al., 2006); consuming newspapers (Escardíbul and Villaroya, 2009) and books (Fernández-Gutiérrez and Calero, 2011).

H3. A higher level of education has an unequivocally positive relationship with the time spent on the leisure activities analysed. Were this hypothesis to be confirmed, the non-monetary effects of education could be explained in terms of the neoclassical perspective. In contrast, if they were linked exclusively to specific levels of education, the institutional approach would need to be incorporated to an explanation of the effects.

H4. A higher level of education is associated with a greater diversity of leisure preferences. This would be in line with the concept of "cultural omnivorousness", understood in terms of the actual volume of cultural activities (Warde and Gayo-Cal, 2009).

To empirically analyse these hypotheses, we use the microdata from the Spanish Time Use Survey (*Encuesta de Empleo del Tiempo*, henceforth, the EET) (INE, 2011), corresponding to the fourth quarter of 2009 and the first three quarters of 2010. This survey provides information on the distribution of time use of the Spanish population, based on the keeping of a diary, in which the sample subjects noted the sequence and duration of all their activities in a 24-hour period, at 10-minute intervals. The design of these time-use surveys, common across European countries, avoids errors linked to the overestimation of activities considered 'desirable' by society (Wollscheid, 2014). The EET also gathers information on the socioeconomic characteristics of the respondents and their households. The EET 2009-2010, with a sample size of 19,925 individuals, provides information on 2,778,480 time intervals, distributed in 115 categories of activities.

In our analysis, our dependent variable is the logarithm of time (in minutes) dedicated by each individual to the following activities:

— Cultural activities outside the home. This includes the following survey categories: "Cinema" (category nº 521), "Theatre and concerts" (522), "Art exhibitions and museums" (523) and "Libraries" (524). The cultural activities are deemed beneficial insofar as they increase an individual's cultural capital and knowledge and, as a result, those of society as a whole. A review of economic arguments which, based on the social value of cultural activities, may justify public policies to promote participation in them, can be found in Aguado Quintero and Palma Martos (2011).

— Sport. This includes those activities of physical exercise undertaken with a specific goal and carried out intensively: "Running" (612), "Cycling, skiing and skating" (613), "Ball games" (614), "Gymnastics, fitness and bodybuilding" (615) and "Water sports" (616). These activities are deemed ben-

eficial for the future health of those that participate in them, which also makes them beneficial from a social perspective.

— Reading the press (811). This includes reading newspapers, magazines and other periodical publications. We consider the undertaking of these activities to be representative of individuals' cultural capital and their level of involvement in matters of social interest. This means these activities are also associated with beneficial effects, linked to greater civic participation and involvement.
— Reading books (812), including novels, manuals, instructive books and others, for reasons other than work, study or religious practices. Reading books is deemed as being beneficial, increasing the cultural capital and knowledge, as in the case of cultural activities.
— Watching television (821). Watching DVDs or videos, following courses, study programmes or religious services on TV are not included in this category by the survey – all these are included in other categories. This activity is one of the most common leisure options, and one in which individuals sit quite passively in front of the screen. Authors such as Ateca Amestoy (2010) have found that those with higher educational attainment usually dedicate less time to this activity. In contrast to the other activities itemised above, it is not associated, a priori, with obvious benefits. It is included in the analysis so that comparisons can be drawn with the results of the other activities.
— Games. This includes "Solo games, gambling" (731) and "Social games" (732). Computer games and those played on mobile devices, and other unspecified games, are included in other categories. As with watching television, these are leisure activities which are not expected to offer any particular benefits. They are also included so that comparisons can be drawn with the results of the other activities.

Our main independent variables, central to our study, are those representing the level of education attained. Adhering to the simplified classification provided by the EET, these variables allow us to differentiate five levels of education for the survey respondents: primary education or primary education incomplete *(PRIMED)* – which serves as our reference category; lower secondary education (*SECED1*); upper secondary education (*SECED2*); higher level vocational training (*VOCTR*); and university education (*UNIVED*).

The estimations also include a series of control variables designed to correct for effects on time use attributable to the following factors:

— Number of hours usually worked each week (*WORKH*), given that the longer the time spent at work, the less time an individual has available for all other activities.
— Age of respondent (*AGE*) and the square of this variable (*AGE^2*).
— Gender, differentiating women (*WOMAN*) from men – which serves as a reference category.
— Nationality, differentiating between those born in Spain – which serves as a reference category – from those born in another EU country (*FOREU*) or outside the EU (*FORNONEU*).
— Individual's monthly net income. As stressed by Oreopoulos and Salvanes (2011), this is essential for the analysis as it allows us to separate the monetary (associated with income) effects from the non-monetary effects of education. Based on the income brackets employed in the EET and taking that of 601 to 1,200 euros (the most frequent) as our reference category, we introduce five control variables corresponding to the following income brackets of the respondents: up to 600 euros (*INC<601*); 1,201 to 1,600 euros (*INC1201-1600*); 1,601 to 2,000 euros (*INC1601-2000*); 2,001 to 2,500 euros (*INC2001-2500*), and more than 2,500 euros (*INC>2500*). The survey only provides this information for individuals in employment. As a result, as explained in the introduction, the whole empirical analysis developed in this paper is limited to this group. Employed individuals not reporting their income are also excluded.
— The quarter of the year corresponding to the activities reported in the diary is included to correct for the effect of the time of year. The first quarter is taken as a reference category and the control variables corresponding to the remaining quarters are included as *QUA2*, *QUA3* and *QUA4*.
— The day of the week corresponding to the activities reported in the diary is also included, given that this also affects the time dedicated to each activity. The aggregate of Monday, Tuesday, Wednesday and Thursday serves as a reference category and the control variables corresponding to the remaining days of the week are included as *FRIDAY*, *SATURDAY* and *SUNDAY*.

We obtain a sample of 6,918 individuals, for whom we had all the information required for the analysis. Table 1 shows the distribution of this sample according to their level of education, weighted at the population level.

Table 1. Weighted distribution of the sample according to educational level

EDUCATIONAL LEVEL	%
Primary education or primary education incomplete	16.5
Lower secondary education	21.8
Upper secondary education	24.2
Higher level vocational training	10.4
University education	27.1

Source: Based on INE (2011)

As regards the econometric analysis, the amount of time dedicated by the individuals to the activities shows a high number of observations which present a value of zero (that is, the activity was not performed by the individual on the day of the survey). This may produce a bias in estimations using ordinary least squares. In order to correct this bias, we follow the methodology applied by Vaara and Matero (2011) for modelling time use in leisure activities. This consists in a two-part model, in which the time dedicated to an activity is modelled as a decision made in two sequential and independent stages: the first, whether or not to engage in the activity, and if affirmative, the second, how much time to allocate to it. The two-part model can be expressed as follows:

$$f(y \mid x) = \begin{cases} \Pr(d = 0 \mid x), \text{ if } y = 0 \\ (\Pr(d = 1 \mid x)\ f(y \mid d = 1, x), \text{ if } y > 0 \end{cases}$$

where:

y = time, in minutes, dedicated to the activity in question.

x = vector of independent variables.

d is a binary variable taking value of 0 when $y = 0$ (the activity is not carried out), and 1 when $y > 0$ (the activity is carried out).

The effect of the level of education on the probability of each activity being carried out is estimated in the first step of the model, correcting for the effect of the control variables, using probit estimates as follows:

$$\Pr(d_i = 1 \mid x) = \Phi(x_i' \beta)$$

From these estimates we obtain the marginal effects associated with each educational level, which indicate the expected increase in the probability of carrying out

the activity, in absolute values; and the semi-elasticities, which indicate the increase in this probability expressed in percentages.

The effect of the level of education on the time dedicated to each activity by those who carry it out is estimated in the second step of the model, using OLS as follows:

$$ln(y_i \mid d = 1, x) = x_i' \beta + u_i$$

Finally, to test the fourth hypothesis, we take the number of activities carried out by each individual on the day in question as the dependent variable. The effect of the level of education on this variable, correcting for the effects of the control variables, is estimated using an ordered probit as follows:

$$\Pr(n_i = {}_j) = \Phi(\alpha_j - x_i' \beta) - \Phi(\alpha_j - x_i' \beta)$$

where $j = 1, \ldots, m$, and m is the number of activities analysed.

Results

Descriptive analysis

Table 2 describes individuals' time use in relation to the activities analysed. For each activity, the average amount of time spent by the individuals (unconditional average), the percentage of them who carried out the activity on the day of the survey, and the average amount of time these individuals spent on the activity (conditional average) are given, broken down by educational level.

The time spent on cultural activities, sport, and reading the press and books, as well as the percentage of individuals who carried out these activities, increases as the level of education rises. Television (by far, the activity on which most time is spent) and games present the reverse trend: the time spent by individuals as well as the percentage of individuals carrying out these activities tends to decrease as the level of education rises.

Among those individuals who carry out each activity, the time spent on it does not necessarily increase if educational attainment is higher. In fact, the maximum level of time spent on cultural activities, sport and reading books among those carrying out these activities is found for individuals with vocational training, and not for those with university education. The influence of education on the time spent on each activity seems to be derived from the relation between educational attain-

ment and the decision of participating or not in each activity, rather than from differences in the time spent on each activity among those who participate in it.

Table 2. Time spent on activities, as a function of educational level

ACTIVITY		TOTAL	PRIMED	SECED1	SECED2	VOCTR	UNIVED
Cultural activities	Average time spent (all individuals)	3.68	1.84	2.23	3.30	3.16	6.49
	% carrying out activity	3.05%	1.51%	2.05%	2.57%	2.07%	5.58%
	Average time spent (those carrying out act.)	120.71	121.66	108.93	128.31	152.66	116.37
Sport	Average time spent (all individuals)	9.57	5.61	6.80	8.55	11.99	14.17
	% carrying out activity	9.90%	5.21%	7.06%	9.74%	10.74%	14.83%
	Average time spent (those carrying out act.)	96.68	107.77	96.32	87.82	111.70	95.51
Press	Average time spent (all individuals)	4.31	3.82	2.78	4.10	3.45	6.35
	% carrying out activity	8.74%	5.87%	5.90%	8.66%	6.77%	13.58%
	Average time spent (those carrying out act.)	49.33	65.07	47.17	47.29	50.89	46.81
Books	Average time spent (all individuals)	5.29	2.49	3.37	4.55	5.94	8.96
	% carrying out activity	8.26%	3.78%	5.00%	6.84%	8.17%	14.89%
	Average time spent (those carrying out act.)	64.13	65.99	67.41	66.48	72.69	60.20
Television	Average time spent (all individuals)	101.43	124.40	112.09	99.54	94.28	83.34
	% carrying out activity	78.85%	83.25%	80.90%	78.50%	79.41%	74.62%
	Average time spent (those carrying out act.)	128.64	149.43	138.55	126,81	118.72	111.68
Games	Average time spent (all individuals)	3.39	3.60	4.23	3.42	3.25	2.61
	% carrying out activity	3.21%	3.07%	3.87%	3.20%	3.04%	2.85%
	Average time spent (those carrying out act.)	105.41	117.18	109.30	106.67	107.00	91.54

Source: Based on INE (2011)

Econometric analysis

Table 3 shows the marginal effects obtained from the probit estimations, which capture the variation in probability of each of the activities being carried out as a function of educational level and the control variables. Table 4 shows the semi-elasticities obtained from these estimations, which show that variation in terms of percentage values. Table 5 shows the effects of educational level and of the other variables on the amount of time spent on each activity by those individuals that actually carried them out.

Cultural activities. There is a significant positive relation between university education and the time dedicated to these activities. The semi-elasticities estimated show that an individual with university education is 138.4% more likely to engage in cultural activities (that is, the probability is 2.38 times higher) than an individual in the reference category (primary education or primary education incomplete), after controlling for the effects of the control variables. In the case of the other educational levels, only individuals with upper secondary education present a significant positive effect, with the probability of their engaging in this activity being 61.8% higher than for the reference category. When considering only those individuals that carried out this activity, educational level shows no significant effect on the amount of time dedicated to it, except the positive effect observed for those with higher level vocational training.

Sport. In comparison with the reference category, the probability of being involved in a sports activity increases by 47.8% and 38.3%, respectively, for individuals with upper secondary education and higher level vocational training. In the case of university education, the effect is higher: 70.8%. In contrast, the effect is not significant for lower secondary education. When we consider only those individuals that actually carried out this activity, educational level shows no significant effect on the amount of time dedicated to it.

Press. Educational level presents a positive relation with the probability of engaging in this activity. The effect tends to increase as the level of education rises: the probability of reading the press increases by 44.7% for those with lower secondary education (compared to the reference category), 85% for those with upper secondary education, 61.7% for those with higher level vocational training, and 125.5% in the case of university educated individuals. When we consider only those individuals that actually carried out this activity, the amount of time dedicated to it by those with lower secondary education and university education is lower, while there is no significant effect for the remaining educational levels.

Books. As with reading the press, education has a positive effect on the probability of reading books, which tends to increase with rising educational levels. Compared to the reference category, the probability increases by 44.6% in the case of lower secondary education, 67.9% for those with upper secondary education, 95.1% for those with higher level vocational training, and 134.9% for individuals with a university education. Educational level has no significant effect on the time dedicated to this activity by those who reported carrying it out.

Television. Having a university education reduces the probability of watching television on the day of the survey by 8.7% (compared to the reference category). However, no significant relation is found between the other educational levels and the probability of carrying out this activity. When we consider only those individuals that carried out this activity, a higher educational level is associated with the dedication of less time to it (except for those with lower secondary education): 9.4% less for those individuals with upper secondary education, 12.8% for higher grade vocational training, and 18.6% for university education, compared to the reference category.

Games. In contrast to the other activities, educational level has no effect on the probability of carrying out this activity, nor on the amount of time dedicated to it.

Table 3. Marginal effects on the probability of carrying out the activities

		CULT. ACT.	SPORT	PRESS	BOOKS	TV	GAMES
CONTROL VAR.	WORKH	-0.001*	-0.001**	-0.000	-0.001***	-0.004***	-0.000
	AGE	-0.004**	0.001	0.009***	0.004	0.010**	-0.005***
	AGE^2	0.000***	-0.000	-0.000	-0.000	-0.000	0.000***
	WOMAN	0.002	-0.050***	-0.035***	0.056***	-0.041***	-0.006
	FOREU	-0.036*	-0.039	-0.060**	-0.041*	-0.043	-0.011
	FORNONEU	-0.019*	-0.072***	0.001	-0.039**	-0.045*	-0.036**
	INC<601	-0.013	-0.046**	-0.051***	-0.002	-0.079***	-0.012
	INC1201-1600	0.003	0.002	0.001	0.019*	-0.039**	-0.001
	INC1601-2000	0.017**	0.032**	0.006	0.016	-0.011	-0.001
	INC2001-2500	-0.015	0.027	0.034**	0.037**	-0.006	0.009
	INC>2500	0.016	0.077***	0.013	0.043***	-0.070**	0.003
	QUA2	-0.010	-0.002	-0.008	0.001	0.016	-0.023***
	QUA3	-0.003	0.061***	0.011	0.011	-0.037**	0.008
	QUA4	-0.002	-0.011	-0.004	0.009	0.021	-0.006
	FRIDAY	0.017**	0.004	0.021*	-0.002	-0.002	0.010

[CONTINÚA PÁGINA SIGUIENTE]

		CULT. ACT.	SPORT	PRESS	BOOKS	TV	GAMES
CONTROL VAR.	SATURDAY	0.037***	-0.021*	0.040***	-0.009	-0.032**	0.026***
	SUNDAY	0.036***	-0.003	0.073***	0.014	0.054***	0.029***
EDUCATIONAL LEVEL	SECED1	0.011	0.011	0.031**	0.032**	0.000	0.013
	SECED2	0.016*	0.042***	0.059***	0.048***	-0.026	0.007
	VOCTR	0.012	0.034**	0.043**	0.068***	-0.025	0.004
	UNIVED	0.037***	0.062***	0.087***	0.096***	-0.067***	0.001
N		6,918	6,918	6,918	6,918	6,918	6,918
F		106.03	230.66	310.88	248.87	148.46	87.97
PROB>F		0.000	0.000	0.000	0.000	0.000	0.000

Statistical significance: *>90%, **>95%, ***>99%

Source: Based on INE (2011)

Table 4. Effects of educational level on the probability of carrying out the activities, in percentages (semi-elasticities)

		CULT. ACT.	SPORT	PRESS	BOOKS	TV	GAMES
EDUCATIONAL LEVEL	SECED1	0.413	0.129	0.447**	0.446*	0.000	0.444
	SECED2	0.618*	0.478***	0.850***	0.679***	-0.035	0.253
	VOCTR	0.448	0.383*	0.617**	0.951***	-0.033	0.151
	UNIVED	1.384***	0.708***	1.255***	1.349***	-0.087***	0.049

Statistical significance: *>90%, **>95%, ***>99%

Source: Based on INE (2011)

Table 5. Estimates on the time spent on the activities by those that carried them out

		CULT. ACT.	SPORT	PRESS	BOOKS	TV	GAMES
	Constant	5.674***	4.442***	4.455***	4.594***	4.592***	3.716***
CONTROL VAR.	WORKH	0.005	-0.009**	0.004	-0.005	-0.005***	0.003
	AGE	-0.070***	0.022	-0.046	-0.031*	0.002	0.015
	AGE^2	0.001***	-0.000	0.000	0.000*	0.000	-0.000
	WOMAN	-0.043	-0.192***	-0.183***	0.012	-0.156***	-0.108
	FOREU	0.354**	0.484***	0.079	-0.577***	0.076	0.368
	FORNONEU	0.193	-0.217	0.139	0.135	0.126***	0.793**
	INC<601	-0.100	-0.184	0.123	-0.059	-0.012	0.538**

[CONTINÚA PÁGINA SIGUIENTE]

		CULT. ACT.	SPORT	PRESS	BOOKS	TV	GAMES
CONTROL VAR.	INC1201-1600	-0.110	-0.094	0.091	0.178*	0.008	-0.220
	INC1601-2000	-0.112	-0.073	-0.017	0.062	-0.067	0.077
	INC2001-2500	-0.009	-0.157	0.049	0.082	-0.158***	0.091
	INC>2500	-0.136	-0.269**	-0.008	-0.212	-0.100	-0.374
	QUA2	-0.048	0.050	-0.076	0.002	-0.057	-0.112
	QUA3	-0.123	0.066	0.026	0.159*	-0.077**	0.011
	QUA4	-0.142	-0.081	-0.086	-0.138*	-0.017	-0.186
	FRIDAY	0.340**	0.062	-0.007	-0.056	0.059*	0.020
	SATURDAY	0.457***	0.362***	0.081	0.001	0.312***	0.581***
	SUNDAY	0.296**	0.300***	0.237***	0.170**	0.389***	0.673***
EDUCATIONAL LEVEL	SECED1	-0.049	-0.152	-0.243*	-0.039	-0.030	-0.089
	SECED2	0.087	-0.182	-0.181	-0.060	-0.094**	-0.152
	VOCTR	0.393*	0.025	-0.090	0.125	-0.128**	-0.118
	UNIVED	0.117	-0.079	-0.226*	-0.132	-0.186***	-0.207
N		194	691	668	621	5,503	215
F		2.21	4.55	3.10	3.16	17.63	3.18
PROB>F		0.003	0.000	0.000	0.000	0.000	0.000

Statistical significance: *>90%, **>95%, ***>99%

Source: Based on INE (2011)

The fourth hypothesis of the paper (concerning "cultural omnivorousness") is tested by estimating the effects of educational level on the number of activities carried out on the day of the survey. As shown (Table 6), educational level has a significant and positive effect on this number, the effect being greater at higher levels of education. The number of activities carried out is also positively related to the level of income, and negatively related to the number of hours worked, being female and being foreign. The day of the week also has a significant effect on this variable.

Table 6. Estimates on the number of activities carried out on the actual day of the survey

		N OPTIONS
CONTROL VARIABLE	WORKH	-0.013***
	AGE	0.005
	AGE^2	0.000
	WOMAN	-0.123***
	FOREU	-0.310***
	FORNONEU	-0.281***
	INC<601	-0.299***
	INC1201-1600	-0.035
	INC1601-2000	0.116*
	INC2001-2500	0.223***
	INC>2500	0.180*
	QUA2	-0.029
	QUA3	0.083
	QUA4	0.010
	FRIDAY	0.054
	SATURDAY	0.040
	SUNDAY	0.308***
EDUCATIONAL LEVEL	SECED1	0.121**
	SECED2	0.173***
	VOCTR	0.153**
	UNIVED	0.315***
N		6,918
F		0.000
PROB>F		369.03

Statistical significance: *>90%, **>95%, ***>99%

Source: Based on INE (2011)

Conclusions

Studies that analyse and measure the non-monetary effects of education –the consequences of acquiring a certain level of education, separated from those associ-

ated with pecuniary benefits (the monetary effects)– stress the importance of these effects when undertaking a full evaluation of the returns to education and when designing educational policies (Haveman and Wolfe, 1984; Calero et al., 2011). Among them, the non-monetary effects of education on an individual's use of leisure time are highly relevant not only from an individual perspective, but also from the point of view of society and the design of educational policies, as well as leisure policies.

Our analysis of the non-monetary effects of education on the use of leisure time shows that educational level has a deep influence on the time dedicated to leisure activities in Spain (non-monetary effects of education on the use of time). The results obtained show a strong relationship between the educational level and the probability of participating in each leisure activity. For most activities, the effect of education as a determinant of participating or not in them exceeds those associated with other variables, including income. A higher educational level is related, in particular, to a greater propensity to participate in activities that generate individual and social benefits, such as cultural activities, sport, reading the press and reading books. These results are consistent with those previously found in the field of Cultural Economics (Ateca Amestoy, 2010; Muñiz et al., 2011 and 2017), and serve as a link between them and earlier studies in the field of Economics of Education (Escardíbul, 2002; Calero et al., 2011; Fernández-Gutiérrez and Calero, 2011).

We also obtain that a higher level of education is related to a greater diversity of leisure options. This finding is in line with the concept of "cultural omnivorousness", understood from the point of view of the volume of activities (Warde and Gayo-Cal, 2009), where a higher level of education increases the diversity of options to the individual for making use of it. The educational level is negatively related to the amount of time spent watching television, the activity that absorbs the greatest amount of leisure time. As the educational level increases, the probability of dedicating any time to a broader range of activities, including culture, sport and reading the press and books, increases significantly. "Cultural omnivorousness" also explains why, when considering only the individuals who carry out each activity, time spent on it is not necessarily higher among those with the highest educational levels, as they tend to share their leisure time between a broader range of alternatives.

In addition, our results reflect that the effects of education on the use of leisure time not only vary with the type of activity, but also with the level of education considered. Compared to the most basic level of education, all levels show a positive effect on the amount of time dedicated to reading both the press and

books. In contrast, the positive effects on the time dedicated to sport and cultural activities are not significant for the lower secondary educational level. Also, the difference between the magnitude of the effect associated to university education and the rest of levels is particularly high in the case of cultural activities. These results show that a higher level of education is not automatically associated to effects on time dedicated to leisure activities. This evidence suggests that the institutionalist view of the non-monetary effects of education (centred on the role of education in shaping an individual's social environment) can usefully contribute to an accurate explanation of these effects. The main implication from the institutionalist view is that a higher level of education will not have an impact on all the leisure decisions that are beneficial for individuals, but on those that are particularly valued in the social environment linked to that level of education (Escardíbul, 2002; Escardíbul and Calero, 2006). It will be the changes in individuals' environment and values associated with education, and not education *per se*, which concentrate the highest potential for improving leisure habits.

The evidence obtained underlines the importance of analysing and understanding the consequences of education from the point of view of individuals' use of time. The methodology applied allows the effects on the use of time derived from educational attainment (the non-monetary effects) to be separated from those derived from the higher income that a higher education level implies (the monetary effects). A higher level of education is shown to be associated with non-monetary effects consistent in a greater propensity for individuals to dedicate time to leisure activities that positively affect their future health (sport), their cultural capital and knowledge (cultural activities and reading books), and their social involvement (reading the press). In general terms, a higher level of education is associated with a more diverse repertoire of leisure activities, which is in turn linked to a better quality of leisure time and greater social integration (Stalker, 2011). For these reasons, these results are relevant not only for educational policies, but also for the design of leisure policies and, in particular, for those policies aimed at boosting individuals' participation in activities considered as beneficial from the social point of view (such as culture and sports).

Detecting, measuring and understanding the non-monetary effects of education on the time spent on leisure activities provides a more complete view of the individual and social benefits of education. The non-monetary effects of education on leisure constitute an extra dimension which should be taken into account in the design of policies that promote the acquisition of higher educational levels. In the European Union (EU), recent educational policies are focusing on reducing early school leaving (the percentage of young population who abandon the educational

system without finishing more than compulsory studies) (European Commission, 2011). In these efforts Spain, still holding one of the highest early school leaving rates in the EU, is a case in point (Calero et al., 2011). Policies oriented at reducing early school leaving focus primarily on the monetary benefits that this would imply (such as a higher probability of finding a well-paid job). However, as shown in this paper, the acquisition of a higher educational attainment among broader segments of the population may also lead to benefits in terms of more beneficial leisure decisions and a more diverse repertoire of leisure options. These potential benefits should be taken into account when designing and evaluating educational policies, as well as leisure policies.

This research, responding to the concerns highlighted by García (2013), reflects that education may be a key tool for promoting equal access to broad leisure options and the benefits this implies. Nevertheless, given the complexity detected in the relation between education and leisure decisions, further research is needed to identify which changes in individuals' environment and values generated by education have an impact on leisure decisions. This line of research may also provide insights on policies which, apart from education, may be useful for promoting the further involvement of individuals in beneficial leisure activities. In the future, as the last Spanish Time Use Survey dates from 2011, and given the deep and fast rise of the use of information and communication technologies, further research will be also needed in order to analyse how individuals' use of their leisure time has changed, or not, as a result of this emergence of new technologies.

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