Investment in education, Obesity and Health behaviours

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Abstract

This study investigates the relationship between health behaviours and educational choices with a specific focus on gender differences. The empirical analysis relies on Istat microdata drawn from the survey "Aspetti della vita quotidiana" (2012) and on survey data collected at the University of Salerno (2013 e 2014). Our findings indicate, only among females, a significant positive relationship between investments in health and the probability of 1) attending University and of 2) choosing a scientific field of study. Since females are more reluctant to study math and science, our finding suggests that this is the likely reason for their representation in nontechnical occupations. Moreover, our results confirm the existence of complementarities between education and healthy behaviours: females who stay in school longer (and choose more ambitious perspectives) also do the things that contribute to better health.

Keywords: human capital; body weight; educational economics; microeconometrics.

J.E.L. classification: I12; J24; I21; D01; C25.

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Introduction

In recent years there has been a rapid growth of overweight and obesity in many countries and this may yield serious risks for public health(WHO, 2013). There is a large literature documenting a strong association between education and several health measures, including body weight but the interpretations of this association are different: a) an education gradient in health (Mirowsky and Ross, 2003), that is causation (education affects health); b) an health gradient in education(Haas and Fosse, 2008; Palloni, 2006), that is selection (health affects education); c) a confounded gradient, in which both education and health are affected by prior advantages such as psychological strength or family background (Conti et al., 2010). According to Lynch & von Hippel (2016) causation, selection and confounding are explanations not mutually exclusive, whose relative importance must be assessed empirically; they find that at age 31 in the US there is a health gradient in education, shaped primarily by selection and confounding rather than by a causal effect of education on health.
In economics, a mechanism proposed to explain selection is that good health increases subjective life expectancy, which can raise future orientation and long-term investments such as higher education (Fuchs, 1982; Becker & Mulligan 1997; Becker, 2007; Cutler & Lleras-Muney, 2008). As a result, individuals with lower rates of time discount are more likely to stay in school longer and do the things that contribute to better health.
The health and education nexus is interesting also because gender differences have been observed in the relationship between overweight/obesity and educational outcomes (Sabia & Rees, 2015). This paper contributes to the debate on the relevance of gender differences in the health-education link, but education is seen not only as educational outcomes but also as the choice of the field of study(i.e. the choice between the Humanities and Science). Women are traditionally more reluctant to study math and science (Schneeweis & Zweimuller, 2012), whereas investments in scientific studies are important to increase individual probabilities of employment and earnings (Machin & Puhani, 2003; Buonanno & Pozzoli, 2009; Maestri, 2013).
Firstly, we investigate the correlation between health behaviours (i.e. about eating, drinking, smoking, physical exercise, etc.) and investment in education, by focusing on the decision to get a college degree. Secondly, we investigate the correlation between health behaviours and investment in education, by focusing on the choice of the discipline (the Humanities vs. Science).
The empirical analysis relies on two datasets: i) the microdata drawn from the Istat 2012 survey "Aspects of daily life"; ii) survey data collected at the University of Salerno in 2013 and 2014.

The results indicate that individuals who invest more in education, also adopt healthy behaviours such that one could argue that they have lower rates of time discount; these results, however, emerge only for females. The asymmetry of the findings between males and females is interesting in that it suggests that, in line with Sabia & Rees (2015), during late adolescence physicality plays different roles according to gender.

The outlay of the paper is as follows. Section 1 reviews previous main contributions in literature. Section 2 describes the data and the empirical model. Section 3 contains the results. Concluding remarks are reported in section 4.

1. The Health-Education link: theoretical background

According to economists, individuals rationally invest in human capital through education, training and health behaviors, and their decisions are optimal responses to their initial talents and preferences. Even if education, on the job training and health have been considered by Schultz(1962) and Becker(1964) as types of human capital investments, it has been Grossman to model optimal investment in health in order to increase longevity (Grossman,1972) and to distinguish the returns to an investment in knowledge from those to an investment in health (Grossman, 2006). This because *"investments in knowledge raise wage rates, while investments in health raise the total amount of time available for market and household production in a given year and prolong length of life"*(Grossman, 2016, p.4).

The basic mechanisms through which health and schooling may be related are three. First, schooling may improve health by improving allocative and productive efficiency. Second, better health may facilitate education. Third, factors such as physical activity, time preferences and parental characteristics may influence health and study habits(Grossman, 2000).

In a recent paper Grossman (2015) underlines that "*many studies suggest that years of formal schooling completed is the most important correlate of good health. There is much less consensus as to whether this correlation reflects causality from more schooling to better health. The relationship may be traced in part to reverse causality and may also reflect omitted third variable that cause health and schooling to vary in the same direction"*, concluding that it is necessary "*to warrant more research on whether more schooling does in fact cause better health outcomes*".

Becker (2007) has modeled complementarities between health and schooling so deep that resources spent earlier- perhaps in childhood – such as *time, money and energy* on what he calls "imagination capital" help to reduce how much future utilities are discounted in decision-making; thus healthier

persons *both* invest more in education and in lowering their discount rates on future utility. In this view health and education vary in the same direction in a deeper complementarity giving to schooling a different role, as vehicle in the construction of a future orientation, required to make decisions today that will have favorable consequences for many years to come (Grossman, 2015, p. 14).

The literature looking at the health-education link(Truong & Sturm, 2011; Eide & Showalker, 2011) is closely related to the literature about the economic causes and consequences of obesity (Cawley, 2011, 2015). Among the economic consequences of obesity, of our interest is that obese people, particularly women, receive lower wages and have a lower probability of employment (Register & Williams, 1990; Averett & Korenman, 1996; Harper, 2000; Cawley, 2000; Cawley, 2004; Cawley, Grabka, & Lillard, 2005; Garcia Villar & Quintana-Domeque, 2007; Conley & Grauber, 2007; Brunello & d'Hombres, 2007; Averett, 2011). But, according to Averett (2014), despite these studies, "it is not for sure whether the lower wages, particularly for obese women, are due to employers' subjective antipathy towards obese women, due to statistical discrimination, or due to real differences in productivity. The link between education and obesity also needs further study. There is mixed evidence on whether obese children and adolescents have lower academic outcomes, thus limiting their future productivity".

In this respect, it is interesting to consider the link between education and being overweight/obese before entering the labour market. This in order to understand the negative impact that being overweight can have on human capital accumulation and later in the labour market performance in terms of wages and occupation.

Suhrcke and de Paz Nieves (2011) classify educational outcomes into shorter and longer term indicators. Academic performance(GPA or grades, grade repetition, truancy) is the shorter term educational indicator while educational attainment(level or years of education achieved, dropping out, college enrolment) is the longer term one. Even if some authors have concluded that overweight and obese children aged 5-12 (Kaestner & Grossman, 2009) and teens (Kaestner, Grossman & Yarnoff, 2011) have levels of educational attainment that are approximately the same as those of average weight, most studies in this field have found that the relationship between obesity and educational achievement is negative. Taras and Potts-Datema (2005) have demonstrated that being overweight and obese is associated with poor levels of educational achievement. Subsequent to Sabia's work (2007), finding that for adolescents aged 14-17 a higher BMI is associated with a lower GPA, other studies have discovered a significant negative relationship between weight and education (Barone & O'Higgins in terms of higher early school leaving, 2010; von Hippel & Lynch, 2014; Lu, Chou, & Lin, 2014). In this relationship, some authors(Komlos,

2004; Smith et al., 2005; Dodd, M.C., 2014; Brown & Biosca, 2016) emphasized the role played by time preference.

More interestingly, several studies have reported gender differences as well as different patterns across genders. In line with results by Datar, Sturm, and Magnabosco (2004), this negative association between body weight and educational attainment is stronger for boys than girls (Cawley & Spiess, 2008) in children ages 2-3; in older children (Wendt & Kinsey, 2009), adolescents and young adults (Sabia, 2007; Crosnoe, 2007), the association is stronger for young women than for young men. Barone & Nese (2014, 2016), using survey data from second year students at the University of Salerno, found that there is a significant negative relationship between body weight and academic performance, particularly for female students, while overweight/obese females are less likely than those of average weight to pursue scientific studies, and hence, more remunerative careers.

2. The empirical model and the data

This study first focuses on the relationship between investment in education and investment in health. Thus, we estimate a probit model in which the individual choice of undertaking university depends on certain measurable factors, *x*, body weight (*B*), healthy behaviours (*w*), and unobserved factors, η_i. The latent variable P_i^* follows:

$$P_i^* = \beta_1' x_i + \beta_2 B_i + \beta'_3 w_i + \eta_i \qquad (1)$$

What we observe is $P_{i,}$ (such that P_i =1 if P_i^* >0, 0 otherwise), that is a binary indicator equal to 1 if the individual is graduated or enrolled at University, 0 otherwise. The set of explanatory variables *x* includes age, region of residence, family background, an indicator for the presence of chronic disease, cultural interests. Family background was proxied by two variables: a) the degree of satisfaction with the family economic conditions; b) number of books in the house. Cultural interests were proxied by the number of visits in the previous year to museums, cinema, theatre (i.e., they represent investment in human capital. The variables capturing healthy behaviours (*w*) include: the habit of weight control, physical exercise, no smoking, no drinking alcohol, the consumption of healthy foods. We also control for body weight *(B)* by including an indicator of overweight, obesity, underweight.

Second, this work investigates the relationship between healthy behaviours and educational attainment in terms of the choice between humanities and sciences. The latent probit model is:

$$H_i^* = \delta_1' z_i + \delta_2 BMI_i + \delta_3' y_i + \nu_i \qquad (2)$$

The observed variable is H_i (H_i=1 if H_i^*>0, 0 otherwise), a binary indicator equal to 1 when the individual chooses the Humanities(vs. Science) and 0 otherwise; *z* is a vector of explanatory variables other than body mass index (BMI) and healthy behaviours (y). ν_i is the stochastic component.

The main explanatory variables used in the empirical estimates of equation 2 are the following.

Parents' schooling level is included as proxy of family background. *Homework help* (a dummy that indicates whether and to what extent parents helped respondents with homework) captures the importance awarded by parents to educational achievement. *Tales* (a dummy variable that indicates whether parents told stories to our sampled students when they were children) facilitates controlling for parental interest in the child's development that could have influenced the child's future learning.

Liceo and upper secondary school score may be considered as proxies of individual ability and motivations to study (i.e., the liceo indicates a cultural background more oriented to tertiary education than the upper-secondary diploma for technicians and accountants, which is more skills-oriented). *Attending courses* indicates how often the student attended lectures. This variable should capture individual motivation to study.

Body mass index, *weight control*, *physical exercise*, *smoking* and the habit of consuming *home food* (instead of snacks) are the variables included to investigate whether and to which extent individuals invest in their health.

2.1 The data

The estimate of equation 1) is based on Istat microdata drawn from the 2012 survey "Aspects of daily life". This is a large annual sample survey that covers the resident population in private households, by interviewing a sample of 20.000 households and 50.000 people; it provides population estimates for the main topics of daily life and behaviours. We selected a sub-sample of young adults aged 19-34 and, after removing the observations with missing on the main variables, the final sample includes about 950 females and 650 males. The main statistics are reported in Table 1.

The analysis of the choice of field of studies (equation 2) is based on cross-section data collected at the University of Salerno at the beginning of the first-term academic courses in two different years: October–November 2013 and October–November 2014. The questionnaires were usually distributed before the lectures started[1] in the classrooms in which second-year courses were taught. A distinct feature of our sample is that the recruited students were enrolled[2] in different courses of studies: sociology, arts, foreign languages, primary teacher education, computer science, management engineering, civil engineering, mechanical engineering, pharmacy and herbal sciences.

The questionnaire included fifty questions and addressed (1) individual demographic characteristics and family background (i.e., parents' schooling), (2) past studies (i.e., type of secondary school and score reported), (3) current studies (i.e., number of academic credits earned and mean score reported) and finally (4) health (i.e., any illness; height and body weight) and healthy behaviours (e.g., weight control, consumption of snacks and cakes). The questionnaires were completed anonymously and returned after 20 minutes on average. Few students refused to complete the questionnaire (fewer than 20), and in total, 2200 questionnaires were collected. After excluding observations with 'missing' values for the explanatory variables[3], the final sample included approximately 2000 students most of whom (approximately 80%) were second-year students. The sample used to estimate equation 2 is described in table 2.

[1] In a few cases, we distributed the questionnaire during the lecture break.

[2] Unfortunately, we have no information on the socio-demographic and physical characteristics of the students who did not attend. We tried to address this issue by recruiting students who attended main courses at the beginning of the second academic year (when the rate of attendance is still high). Typically, students who do not attend lectures are those who are less motivated, with a lack of positive academic results. Thus, one could argue that their exclusion from the sample might negatively bias the relationship between BMI and academic achievement. However, we are confident that the sample selection issue is not relevant to our aim because i) we primarily focus on gender differences and ii) the probability of withdrawing from the university (or of not attending lectures) should not be affected by gender differences (as confirmed in data collected from different courses of study).

[3] We have investigated the presence of sample selection bias by regression of the probability of no response on variables observed for the entire sample: gender, course of study and age, and the presence of the professor in class during questionnaire administration (e.g., at the beginning of the lesson or during the break). We did not find significant evidence of self-selection bias (results available upon request).

TABLE 1 - Summary statistics- data drawn from Istat survey "Aspects of daily life", 2012

Panel a: Females

	age 19-34			age 19-29		
	Mean (std)	Min.	Max	Mean (std dev)	Min.	Max
Age	8.059 (0.830)	7	9	7.493 (0.500)	7	8
Body weight	2.149 (0.636)	1	4	2.1 (0.612)	1	4
Family econ. problems	2.894 (0.763)	1	4	2.906 (0.768)	1	4
Books	4.105 (1.866)	1	8	4.193 (1.887)	1	8
Weight control	3.181 (1.077)	1	5	3.166 (1.052)	1	5
Physical Exercise	2.878 (1.296)	1	4	2.813 (1.308)	1	4
Smoking	2.463 (0.812)	1	3	2.479 (0.817)	1	3
Alcohol	5.716 (0.607)	3	6	5.695 (0.632)	3	6
Cultural interests	4.841 (1.967)	3	15.5	5.014 (1.968)	3	15
Unhealthy food	11.633 (2.125)	5	16	11.569 (2.161)	5	16
	%					
Graduate/Undergraduate	33.02	0	1	37.63	0	1
Ill	7.94	0	1	6.44	0	1
n. of observations	938			585		

Panel b: Males

	age 19-34			age 19-29		
	Mean (std dev)	Min.	Max	Mean (std dev)	Min.	Max
Age	8.125 (0.831)	7	9	7.504 (0.500)	7	8
Body weight	2.413 (0.632)	1	4	2.317 (0.590)	1	4
Family econ. problems	2.927 (0.796)	1	4	2.886(0.777)	1	4
Books in family	3.787 (1.873)	1	8	3.913 (1.836)	1	8
Weight control	3.723 (1.012)	1	5	3.720 (0.998)	1	5
Physical Exercise	3.018 (1.220)	1	4	3.008 (1.212)	1	4
Smoking	2.001(0.934)	1	3	2.053 (0.933)	1	3
Alcohol	5.299(0.912)	1	3	5.290 (0.932)	1	6
Cultural interests	4.589 (1.702)	3	11.1	4.723 (1.657)	3	11.1
Unhealthy food	11.208 (2.214)	3	16	11.029 (2.153)	5	16
	%			%		
Graduate/Undergraduate	16.67	0	1	17.78	0	1
Ill	7.87	0	1	7.65	0	1
n. of observations	648			379		

Legend. **Age**: classes of age (18/19=7; 20/24=8; 25/29=9; 30/34=10). **Body weight**: 1= underweight; 2=normal weight; 3=overweight; 4= obese.**Family econ. problems**: degree of satisfaction about family economic conditions (it ranges from 1 to 4: 1= very satisfied; 4=not satisfied at all). **Books**: number of books in the house: 1=no books; 2=1/10; 3=11/25;4=26/50;5=51/100;6=101/200;7=201/400;8=more than 400. **Weight control**: frequency of controlling weight (1=every day; 5=never).**Physical Exercise**: how often he/she practices physical activity (it ranges from 1 to 4: 1=never; 4=very often). **Smoking:** 1=he/she has never smoked; 3=he/she smokes. **Alcohol**: consumption of spirits (it varies from 1 to 6: 1= no consumption of spirits; 6=more than 40ml every day). **Cultural interests**: number of visits, respectively, to museums, cinema and theatre in the last year (with each variable ranging from 0 to 8: 0 never, 8 more than 12 visits) plus the number of books read in the last year (the number of books is deflated by 10 such that the index varies from 0 to 9). **Unhealthy food**: consumption of snacks (from 1 to 5: 1 indicates "never", 5 indicates "more than once by day"), of cakes (from 1 to 5: 1 indicates "never", 5 indicates "more than once by day"), of sodas (from 1 to 5: 1 indicates "never", 6 indicates "more than 1 lt by day"). **Ill**: dummy variable equal to 1 if affected by chronic disease.

TABLE 2 - Summary statistics- data drawn from the survey at the University of Salerno

	I- Females			II-Males		
	Mean (std dev)	Min.	Max	Mean (std dev)	Min.	Max
Body mass index	21.817 (0.090)	14.69	41.18	24.013 (0.146)	17.37	66.414
Parents' education	2.724 (0.019)	1	4	2.900 (0.024)	1	4
Age	20.762 (0.060)	18	35	20.857 (0.067)	18	32
Attending courses	3.555 (0.016)	1	4	3.586 (0.021)	1	4
Upper second. school's score	82.718 (0.298	60	100	82.619 (0.389)	60	100
Smoking	4.356 (1.028)	1	5	4.228 (1.155)	1	5
Tales	0.410 (0.492)	1	5	0.208 (0.406)	1	5
Homework help	0.436 (0.496)	1	6	0.339 (0.473)	1	6
	%			%		
Humanities	67.00	0	1	18.98	0	1
Physical exercise	33.23	0	1	58.81	0	1
Liceo	62.84	0	1	69.19	0	1
Ill	16.27	0	1	14.16	0	1
Healthy food	65.47	0	1	56.52	0	1

Legend: **Body mass index**: weight/(height in cm)^2; **homework help**: variable ranging from 1to 5 if he/she received help with homework by his/her parents or someone else in the family (1=every day; 5=never); **tales**: variable ranging from 1to 5 if his/her parents or someone else in the family told him/her fairy tales (1=every day; 5=never); **attending courses**: varying from 1 (usually) to 5 (never), the variable indicates whether the student usually attended courses in the previous academic years; **upper schooling's score**: score reported at the upper secondary school diploma (ranging from 60/100 to 100/100);**humanities**: dummy equal to 1 if he/she is enrolled in a humanities discipline (sociology, arts and philosophy, school of education), 0 otherwise (computer sciences, engineering, chemistry); **parents'education**: average parents' schooling level (1=none; 2=primary school; 3= secondary school; 4=university degree);**liceo**: dummy equal to 1 if he/she attended a liceo, equal to 0 otherwise; **ill:** dummy equal to one if he/she suffers from chronic diseases that makes more difficult to study, equal to 0 otherwise; **weight control**: variable ranging from 1 to 3 if he/she controls his/her weight, respectively, never, sometimes, very often; **healthy food:** dummy equal to 1 if he/she consumes home food at lunch time at the University (instead of food from vending machines); **smoking:** variable ranging from 1 to 5according to the number of cigarettes smoked(1=no smoker; 5=strong smoker); **physical exercise:** dummy equal to 1 if he/she practices gym.

3 The Results

3.1 Evidence on Istat data: the decision to go on to college

We investigate the correlation between overweight, lifestyles and education by focusing on the decision to get a college degree. Given that gender differences have been observed in this field (see preceding discussion in the previous sections), equation 1) is estimated separately for women and men and the results are reported respectively in table 3 and 4. Firstly, taking into account that, on average, in Italy people complete tertiary education when they are aged 27 year old[4] (Almalaurea, 2016), we focus on a subsample of people aged 19-29 years; then we select a larger sample, including people aged 19-34 years, taking into account that people do not become obese or change their habits suddenly, but such changes take time to develop (moreover most people go on to postgraduate studies).

With reference to the huge literature on the relationship between body weight and education, the most interesting result is the estimated coefficient on "body weight", negative and statistically significant only when females are considered. The asymmetry of the findings between males and

[4] In 2013, in Italy were observed the lowest proportions of those aged 30 to 34 having completed tertiary education (22.4%) and one of highest proportion (17%) in all EU member states of early leavers from education and training(17%), defined as population aged 18-24 who had at most lower secondary education and were currently not in further education or training(Eurostat, 2014).

females is interesting in that it suggests that, in line with Sabia & Rees (2015), during late adolescence physicality plays different roles according to gender.

However, one must be cautious in interpreting such estimate causally because of a likely endogeneity bias: the coefficient on body weight might result in biased estimates in cases of reverse causality (i.e., investment in education might affect overweight) or if unmeasured characteristics influence both body weight and academic performance. Unfortunately, in absence of convincing instruments we gave up the possibility of testing for endogeneity. We use several explanatory variables in order to reduce the risk that the coefficient on body weight could pick up the effect of some other variables influencing investment in education. Such an approach however is itself open to criticism in that some of these explanatory variables may be endogenous as well.
As suggested above, infact, individuals with lower rates of time discount are more likely to stay in school longer and do the things that contribute to better health. Hence, let's consider the correlation between the probability of going on to college and individual lifestyles: consistently with our argumentations, the estimated coefficients indicate that individuals who invest more in education are also more likely to adopt healthy lifestyles in that they do not smoke, practice physical exercise and consume healthy food. Once again, however, significant evidence is reported only for females (with the exception of the coefficient on "smoking").

3.2 Evidence from Salerno: the choice of the field of studies

The results for the sample of students in Salerno are reported in table 5. Consistently with the argumentations above, our evidence shows that females who invest more in education (in that they choose more ambitious carriers in scientific fields) also invest more in health: they are more likely to report normal body weight, to consume healthy food, to practice gym and they are less likely to smoke. However, when we control for the score reported at the secondary school in table 5, the main relationship between body weight (and smoking) and field of study is no longer significant: evidently body weight and the habit of smoking are the result of past choices.
Once again, we report different results for males in that, in this case, we observe a positive relationship between body weight and field of study, statistically significant only at ten percent; respect to the variables capturing lifestyles, a statistically significant correlation emerge only respect to the consumption of healthy food.

Table 3 Probability of being graduated or enrolled at University- Females				
Independent variables[a]	Age 19-34	Age 19-34	Age 19-29 .	Age 19-29
Ill	0.087 (0.176)	0.078 (0.185)	-0.128 (0.249)	0.116 (0.257)
Age	-0.144*** (0.056)	-0.120** (0.059)	-0.016 (0.116)	-0.021 (0.12)
Body weight	-0.262*** (0.076)	-0.207*** (0.079)	-0.281***(0.100)	-0.227** (0.105)
Economic cond.	-0.284*** (0.062)	-0.262***(0.066)	-0.276*** (0.076)	-0.241*** (0.079)
Books	0.311*** (0.028)	0.231*** (0.031)	0.342*** (0.035)	0.268 ***(0.037)
Weight control		0.003 (0.046)		-0.033 (0.059)
Physical Exercise		0.093***(0.038)		0.074* (0.047)
Smoking		-0.129 **(0.064)		-0.145* (0.079)
Alcohol		0.045 (0.086)		0.071 (0.111)
Cultural interests		0.219*** (0.028)		0.213*** (0.035)
Unhealthy food		-0.056** (0.025)		-0.052*(0.308)
n. obs.	945	938	590	585
Log. pseudolik.	-484.799	-439.284	-310.786	-282.948
Wald χ^2	184.07	233.83	135.79	151.90
Pseudo R^2	0.19	0.26	0.20	0.27
Legend: *a* constant and regional dummies are included.				

Table 4 Probability of being graduated or enrolled at University- Males				
Independent variables[a]	Age 19-34	Age 19-34	Age 19-29 .	Age 19-29
Ill	-0.253 (0.252)	-0.299 (0.262)	-0.222 (0.355)	-0.298 (0.389)
Age	-0.006 (0.083)	-0.004 (0.084)	-0.161 (0.191)	-0.106(0.199)
Body weight	-0.117 (0.112)	-0.087 (0.118)	-0.206 (0.164)	-0.187 (0.178)
Economic cond.	-0.151* (0.086)	-0.091 (0.088)	-0.158°(0.116)	-0.112 (0.120)
Books	0.397*** (0.043)	0.343***(0.046)	0.489*** (0.065)	0.410*** (0.069)
Weight control		-0.026 (0.070)		0.008 (0.122)
Physical Exercise		0.027 (0.054)		0.029 (0.074)
Smoking		-0.190** (0.083)		-0.167* (0.107)
Alcohol		-0.110 (0.077)		-0.147 (0.114)
Cultural interests		0.146*** (0.041)		0.062*** (0.023)
Unhealthy food		-0.032 (0.034)		-0.005 (0.47)
n. obs.	648	638	341	334
Log. pseudolik.	-219.272	-204.017	-120.953	-107.084
Wald χ^2	112.50	130.83	78.51	101.43
Pseudo R^2	0.25	0.29	0.28	0.35
Legend: *a* constant and regional dummies are included.				

Table 5- Probit estimates - Probability of enrollment in Humanities

Independent Variables [a)]	Coefficients (std err.)	Coefficients (std err.)	Coefficients(std err.)	Coefficients(std err.)	Coefficients(std err)	Coefficients(std err.)
	I	II	III	IV	V	VI
	FEMALES				MALES	
Parents' education	-0.222*** (0.564)	-0.213*** (0.057)	-0.223*** (0.057)	-0.182*** (0.058)	-0.004 (0.078)	-0.013 (0.082)
Tales	0.155** (0.077)	0.161** (0.077)	0.161** (0.077)	0.176** (0.078)	-0.005 (0.138)	0.0005 (0.141)
Homework help	0.127* (0.076)	0.128* (0.076)	0.120 (0.077)	0.089 (0.078)	0.184* (0.112)	0.197*(0.115)
Attending courses	-0.428*** (0.077)	-0.413*** (0.078)	-0.399*** (0.078)	-0.328*** (0.077)	-0.490*** (0.084)	-0.456***(0.088)
Body mass index	0.023** (0.012)	0.022* (0.012)	0.020* (0.012)	0.016 (0.012)	-0.025* (0.015)	-0.024* (0.014)
Illness	-0.132 (0.100)	-0.153 (0.101)	-0.153* (0.101)	-0.159 (0.101)	0.025 (0.150)	-0.049 (0.158)
Age	-0.048*** (0.017)	-0.047*** (0.017)	-0.049*** (0.017)	-0.064*** (0.018)	0.020 (0.027)	0.017 (0.028)
Upper sec. school's score				-0.22*** (0.037)		
Physical exercise		-0.179**(0.079)	-0.174** (0.079)	-0.209** (0.081)		0.136 (0.109)
Weight control		-0.015 (0.060)	-0.022 (0.060)	-0.019 (0.060)		-0.123° (0.085)
Smoke		0.077** (0.037)	0.067* (0.037)	0.030 (0.038)		0.028 (0.048)
Healthy food			-0.147** (0.058)	-0.128** (0.059)		-0.286*** (0.076)
Number of observations	1297	1297	1297		806	806
LL	-784.903	-780.151	-776.805		-369.332	-359.385
Wald test	59.38	69.10	74.92		42.24	57.51

Legend: a) see legend in table 1; b) robust std. errors; *statistically significant at 10% level; **statistically significant at 5% level; ***statistically significant at 1% level.

5. Concluding remarks

This study has investigated the relationship between lifestyles and educational choices at the University of Salerno and, at a national level, on Istat data, with a specific focus on gender differences.

Our findings confirm, for females only, the existence of complementarities between education and healthy lifestyles: females who stay in school longer (and choose more ambitious perspectives) also do the things that contribute to better health. This evidence is interesting in order to understand whether gender differences in the labour market (i.e. between obese and normal weight people) are due to discrimination or due to real differences in human capital (Sabia and Rees, 2015; Averett,2014).

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