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The Obesity Epidemic in Europe

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Abstract

This paper uses longitudinal micro-evidence from the European Community Household Panel to investigate the obesity phenomenon in nine EU countries from 1998 to 2001. The author documents cross-country prevalence, trends and cohort-age profiles of obesity among adults and analyses the socioeconomic factors contributing to the problem. The associated costs of obesity are also investigated, both in terms of health status, health care spending and absenteeism.

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Contents

1. Introduction

According to the International Obesity Taskforce (2002, 2003), obesity has become a pan-European epidemic and at least 135 million EU citizens are affected. The United States has the largest incidence of obesity among OECD countries and U.S. obesity rates are two times higher than in the early 1970s (Cutler et. al., 2003). Hence, it is not surprising that obesity has long been at the centre of health policy debate and the focus of academic research in the U. S. (Cutler et. al., 2003, Chou et. al., 2004). In Europe, obesity has only become a growing concern for health policymakers in recent years and during the 2002 EU "Obesity Summit" held in Copenhaguen, health ministers of the EU recognised the significance of the threat posed by obesity set the stage for new strategies to emerge.

As pointed out by Finkelstein et. al. (2005), obesity is not only a health but also an economic phenomenon, and it entails important economic costs. Apart from being recognised as a disease by the World Health Organisation (WHO, 2000), obesity is also a substantial risk factor for chronic non communicable diseases, which lead to both direct medical costs and indirect costs related to morbidity and mortality. Moreover, since the seminal work of Hamermesh and Biddle (1994) the relationship between labour market outcomes and physical appearance has been widely documented and recent studies focusing on obesity have shown that weight lowers wages for both men and women in Europe (d'Hombres and Brunello, 2005) and for white women in the U.S. (Cawley, 2004).

Studies analysing the incidence of obesity across demographic and socioeconomic groups and its health and economic consequences in European countries are rare, probably due to the lack of suitable data at the individual level. The only exception is, to the best of my knowledge, Michaud and van Soest (2005), who focus on the elderly population and use cross-section data from the 2004 Survey of Health, Ageing and Retirement in Europe and the 2002 wave of the Health and Retirement Study for the U.S. to explore cross country differences in obesity prevalence among adults older than 50.

In this paper I use the European Community Household Panel, a longitudinal micro-level database that allows one to provide comparable information on obesity across individuals aged 15-75 in nine EU countries. The remainder of the paper proceeds as follows. Section 2 describes the data set used. Section 3 provides up-to-date comparable figures on obesity prevalence and trends in the countries under study and documents the existing cohort-age profiles. Section 4 explores cross-country patterns in the socioeconomic determinants of obesity prevalence and Section 5 analyses the consequences of obesity on health and attempts to quantify its impact on the demand for health services. Section 6 investigates the link between obesity and absenteeism. Section 7 provides some concluding comments.

2. Data

I use individual-level data from the European Community Household Panel (ECHP), an annual longitudinal household survey that was collected under the coordination of Eurostat, the European Statistical Office, in all 15 countries of the European Union between 1994 and 2001. The ECHP not only contains a wide range of economic and socio-demographic information both at the household and the individual level, but it also includes questions related to health status and the use of health services. Moreover, the harmonized design of the ECHP ensures a good level of comparability across countries and over time.[1]

In order to measure body fatness, the Body Mass Index (BMI) is used. BMI is the standard measure of fatness in epidemiology and medicine and is calculated as weight in kilograms divided by height in meters squared. It is also the measure used by the World Health Organization to provide a clinical classification of BMI status for adults: below 18.5 is underweight, between 18.5 and 25 is healthy or normal, between 25 and 30 is pre-obese and over 30 is obese.[2] The ECHP recorded the BMI of respondents in 1998, 1999, 2000 and 2001 for the following nine countries: Denmark, Belgium, Ireland, Italy, Greece, Spain, Portugal, Austria and Finland. Hence, the analyses are restricted to these nine countries during the period 1998-2001.

The ECHP BMI variable is derived using self-reports of weight and height, which may include some degree of reporting error since persons with a higher weight are more likely to underreport their weight. Cawley (2000, 2004) used information on the relationship between true and reported values from the Third National Health and Nutrition Examination Survey (NHANES III) to correct the self-reports of weight and height from the National Longitudinal Survey of Youth (NLSY). Unfortunately, such correction is not possible when using European data as I am not aware of any European dataset comparable to NHANES III. However, it is worth noting that when Cawley (2000) re-estimates all models without correcting for reporting error in height and weight he finds very similar results. Hence, in

[1] For further details on the ECHP, see Peracchi (2002).

[2] The pre-obese category is often referred to as overweight although this term technically refers to all those with a BMI of 25 or above, including the obese.

what follows it is assumed that reporting errors are the same across countries and constant over time.

3. Is There an Obesity Epidemic in Europe?

3.1 BMI Distributions and Obesity Prevalence

Table 1 displays mean 2001 BMI levels as well as various percentiles of the BMI distribution for men and women in the nine countries analysed, while Table 2 reports OLS and quantile regression estimates of log-BMI on country dummies that allow one to assess whether the cross-country differences documented in Table 1 are statistically significant.

The results for women indicate that Portugal, Greece, Finland and Spain are the countries with the highest mean BMI while Italy's mean BMI (23.56) is the lowest one, 4% smaller than the mean BMI of Spanish women (24.64). The ranking for men is similar: Greece, Spain and Finland have the higher mean BMI while Italian men have the lowest one. These differences are statistically significant at standard levels of testing, as the results in the first column of Table 2 indicate. An analysis of the median of the BMI distributions reveals a very similar ranking of countries and indicates that at least 50% of men in all countries but Italy, Denmark and Belgium would be classified as pre-obese or obese according to the WHO definition and the same would happen to at least 25% of women in all countries analysed.

Differences across countries do not arise only at the mean and at the median. The results in Tables 1 and 2 indicate that cross-country differences are larger at the right tail of the BMI distribution and the hypothesis that cross-country differences are constant quantiles is generally rejected.[3] This is in line with the findings of Michaud and van Soest (2005) for the elderly in the U.S. and in Europe.[4] For example, the 90^{th} percentile of Italian women's BMI distribution (28.95) is 7% lower than that of Spanish women (31.14), while this gap amounts only to 4% at the median.

As obesity is defined as the percentage of individuals with BMI>30, this finding suggests that the largest cross-country differences are to be found when examining obesity rates. Figure 1

[3] Results from tests for equality of coefficients on country dummies at different quantiles of the BMI distribution are available upon request from the author.

[4] It is worth noting that not only the age segment analysed but also the sample of countries under study differs between this paper and Michaud and van Soest (2005). They have data for Germany, France, Sweden, Netherlands and Switzerland, which I do not, while I have data for Belgium, Portugal, Finland and Ireland, which they do not.

displays 2001 obesity rates for men and women in each of the countries under study. For women, Finland and Spain's obesity rates (around 13%) are the highest, while Italy and Ireland have the lowest obesity rates (7.4% and 8.8%, respectively). The ranking is similar for men: Spain (13.9%) and Finland (12.4%) have the highest obesity rates, whereas Ireland (8.4%) and Italy (9%) have the lowest ones.

In order to assess whether this ranking of countries varies with age, Graph 2 replicates Graph 1 for four different age groups. There are several features worth noting. First, consistent with existing figures for developed countries, obesity prevalence increases with age up to a certain point. A closer examination of the obesity-age profile reveals that obesity rates in most countries reach their peak around age 60.[5] Second, for all age groups Finland and Spain are among the highest-ranking countries for men and women, with the remarkable exception of Spanish women in the youngest group (15-29), who are at the bottom of the obesity ranking. Third, Italy is typically among the least obese countries for all age groups. Finally, Denmark ranks among the two least obese countries for men and women aged 45 and older, while among the youngest group it is one of the top ranking countries.

3.2 The Evolution of Obesity

The prevalence of obesity is not the only concern of health policy makers, with much of the current debate focusing on obesity's expected growth and its potential consequences on future health and health care spending. Data on changes in obesity in Europe, however, are hard to find and I am not aware of comparable figures for changes in obesity across European countries. Table 3 attempts to fill in this gap by exploiting the information available in the ECHP, the only dataset that I know of that collects individual information on the BMI of European adults over time.

Panel A of Table 3 displays obesity rates in 1998, 2001 and the resulting percentage variation in obesity prevalence that took place during the period 1998-2001 while Panel B of Table 3 displays analogous figures for pre-obesity rates.

Panel A of Table 3 indicates that, on average, obesity levels rose by 8.5% for both men and women in my sample of countries between 1998 and 2001. This is a large increase for a four year period, not out of line with the pessimistic forecast from the World Health Organization according to which "the growth in the number of severely overweight adults is expected to be

[5] These results are available upon request from the author.

double that of underweight during 1995-2025" (WHO, 1998a, p. 132).[6] As for the change in the percentage of individuals who are pre-obese, documented in Panel B of Table 3, it has been on average, and in most countries, much lower than the growth of the obesity rate. This indicates that the right tail of the BMI distribution is growing particularly fast, which is in line with the U.S. experience documented by Cutler et. al. (2003).

Regarding cross-country comparisons in obesity changes, the growth rate of obesity has been positive for all countries and substantial in most of them, with the exception of Belgian women and Irish men, for whom the obesity rate has not grown beyond 0.7% but the pre-obesity rate has actually increased much more than in the other countries. Italy, which departs from low 1998 obesity levels, has quite a high growth in obesity (11.86% for women and 14.31% for men) and seems to be catching up with the rest for the countries. On the other hand, the 1998-2001 increase in obesity does not appear to be less pronounced for the most obese countries in 1998, such as Finland or Spain. The case of Finland is particularly worrisome, since it has both one of the highest levels of obesity in 1998 and the highest growth in obesity between 1998 and 2001 (13.54% for women and 18.48% for men).

3.3 Cohort-Age Profiles of Obesity Prevalence

The increasing trend in obesity previously documented is consistent with several interpretations. It could be the aging of the population that has caused the increase in obesity (age effects). An alternative view is that people born at different times have different preferences, habits and/or lifestyles (cohort effects). Yet another interpretation of the increase in obesity rates is that it relates to the dates of observation (time effects).

In order to investigate whether at a given age, individuals recently born are more likely to be obese than those belonging to less recent cohorts I have re-arranged the data and grouped individuals into cohorts. Figure 3 plots mean obesity rates from 1998 to 2001 for each cohort. In other words, observations in the same birth cohort are connected together across the four time periods available. For clarity, the average birth year is indicated below each cohort line (for instance, "33" refers to individuals born between 1931 and 1935). The vertical differences between lines measure the "cohort-time" effect while the differences along the same lines measure the "age-time" effect. This terminology, due to Kapteyn et. al. (2003), is used to

[6] Note that in this report the following broad classification is used: underweight (BMI<18.5) and overweight (BMI>25).

emphasize that because time, age and cohort do not vary independently, even when panel data is available it is not possible to separately identify time, age and cohort effects.[7]

Within the same cohort, mean obesity rates are increasing over time (and with age) until approximately the age of 60. This is particularly true for the middle-age cohorts of women, as the steep slopes of their obesity profiles indicate. Looking across cohorts, it is found that men older than 50 (approximately, those born before 1951) are heavier than they used to be and a similar pattern is observed for women, with the largest cohort-time effects being observed among the eldest cohorts. This is consistent with the U.S. evidence presented by Michaud and van Soest (2005), who show the existence of important cohort-time effects for the U.S. elderly population.

As for men and women younger than 50, they do not appear to be heavier than they were in the past. In sum, at a given age, younger cohorts of European individuals (those born after 1951) do not appear to be heavier than they used to be, while, among older cohorts (those born before 1951) obesity rates are higher than they were in the past. This indicates that, while obesity is more prevalent for current generations of elderly individuals than it was in the past, such difference does not arise when focusing on individuals younger than 50.

4. The Socioeconomic Determinants of Obesity

Most previous studies on obesity in Europe are based on macroeconomic data that are aggregated at the country level or, at most, disaggregated by gender and age group, which does not allow one to explore the link between obesity and other demographic and socioeconomic characteristics (see International Obesity TaskForce 2002, 2003). The ECHP allows one to investigate these associations at the individual level and therefore to identify the individual profiles more vulnerable to the obesity epidemic, which can be useful information for the design of health policy campaigns aimed at preventing and/or reducing obesity.

I estimate probit models for the prevalence of obesity separately by country and gender and include the following set of demographic and socioeconomic controls: age group, household size, marital status, education level, household income quintiles and labour market status indicators. The 1998-2001 rounds of the survey are stacked and all regressions include multiple observations on individuals. In what follows, standard errors are clustered by individual to correct for these multiple observations and year dummies are included in each

[7] At least, in the absence of further assumptions. For a further discussion on this issue, see also Ameriks and Zeldes (2004).

regression. Tables 4 and 5 display probit average marginal effects for women and men, respectively.

Several patterns are worth noting. First, the evidence suggests that individuals younger than 45 are significantly less likely to be obese than those older than 55, on the other hand, there is no statistically significant difference in the probability of being obese between individuals in age group 45-55 and those older than 55. Second, in several countries being married is associated with a higher probability of being obes compared to being single, this effect being more remarkable for men. Third, among women, employees are less likely to be obese than their inactive counterparts in most countries, while the same pattern does not arise for men. Finally, consistent with the evidence presented by Michaud and van Soest (2005) for the elderly, the prevalence of obesity is clearly associated with low socioeconomic status. The socioeconomic status variables available are education and household income indicators. It is found that both the education and income sets of indicators have a statistically significant impact for women, while for men only education exhibits the expected pattern. Note that the magnitude of the income effect (which is expected to be negative if poorer people consumed cheaper, more fattening, foods) may be overestimated due to the reverse causality from obesity to income (Cawley, 2004). As for education, men and women with primary education are substantially more likely to be obese than their counterparts with tertiary education.

5. Health, Health Care Demand and Obesity

The negative association between obesity and health has been documented in numerous epidemiological studies. Individuals who are obese have a higher risk of premature death compared to those who are within a healthy BMI range and overweight and obese individuals have an increased risk for coronary heart disease, type 2 diabetes, endometrial, colon, postmenopausal breast and other cancers and certain musculoskeletal disorders, such as knee osteoarthritis. Overweight and obesity are also known to exacerbate many chronic conditions such as hypertension and elevated cholesterol (see U.S. Department of Health and Human Services, 2001, for a review and references). Moreover, in a recent study for the U.S., Sturm (2002) shows that obesity appears to have a stronger association with the occurrence of chronic medical conditions and increased health care and medication spending than smoking or problem drinking has. All this evidence demonstrates the relevance of obesity treatment and prevention in maintaining and improving health and quality of life.

From an economic perspective, overweight and obesity have, through their associated health problems, a substantial impact on health care spending. Direct health care costs include preventive, diagnostic, and treatment services related to overweight and obesity (for example, physician services and medications). Recent evidence for the U.S. suggests that the annual medical expenditures of obese adults are 37% higher than expenditures of health-weight individuals (Finkelstein et. al., 2003). Moreover, Wolf and Colditz (1998) and Finkelstein et. al. (2003, 2004) provide evidence that the aggregate annual obesity-attributable medical costs in the U.S. are between 5% and 7% of annual health care expenditures.

Evidence on the health and medical costs of obesity is scarcer for Europe and mostly based on aggregate data (International Obesity TaskForce, 2002). While the ECHP does not provide information on the prevalence of different specific conditions, it does, however, contain some more general information on health related issues. Respondents are asked to evaluate their own health status, whether they have any chronic physical or mental health problem, illness or disability and whether they are hampered in their daily activities by any condition. Regarding health care spending, it is not possible to model the total amount of health care expenses because the ECHP does not provide information on the costs of medical care. Instead, the demand for health care is measured as the number of physician visits. More specifically, the ECHP records the number of times respondents visited a general practitioner (GP) and a specialist (SP) in the past 12 months.

In order to explore the association between obesity and health, probit models for the probability of being in bad/very bad health, suffering from a chronic condition and being hampered in daily activities by any condition are estimated. I include as control variables the same set of demographic and socioeconomic characteristics used in Tables 4 and 5. All models have been separately estimated by country and gender and the average marginal effects of the underweight, pre-obese and obese indicator variables (normal or healthy weight is the omitted reference category) are displayed in Table 6. The results indicate that, as expected, being obese significantly increases the probability of being in bad or very bad health, suffering from a chronic condition and being hampered in daily activities due to illness for both men and women.[8] Moreover, the magnitude of the estimated effects is generally large: for instance, being obese increases the probability of suffering from a chronic condition by 12.5 (11.5) percentage points for Danish women (men). Interestingly, the evidence also reveals that in most cases the estimated effects of obesity are larger for men than for women. In line with this finding, the results also indicate that the marginal effects associated with the pre-obese indicator variable are positive and statistically significant for women[9] but not for men in most of the cases; in other words, while pre-obese women are more likely to declare to be in bad health than their healthy-weight counterparts, this is not the case for pre-obese men. This is

[8] The exceptions are Danish, Belgian and Greek men, for whom the impact of obesity on the probability of being in bad or very bad health is not statistically significant (model 1 of Table 6).

[9] With the exception of Irish and Greek women in model 1 and Greek women in model 3.

consistent with the evidence that women in most communities report more illness and distress than men (WHO, 1998b) and use more medical care than men (Sindelar, 1983).

Given the negative association between health and obesity, the demand for health services is expected to be higher among obese individuals. Figures 4 and 5 provide some descriptive evidence on this issue at the aggregate level, relating the log change in obesity to the log change in the number of visits to the GP (Figure 4) and the log change in the number of visits to the SP (Figure 5) between 1998 and 2001. Obesity and GP visits growth are highly and positively related (the correlation coefficient is 0.49), while the positive association between the growth of obesity and SP visits is weaker (the best-fit line is more horizontal, with a correlation coefficient of 0.20). Although this evidence is suggestive, no strong assertions can be made on the basis of so few observations. Therefore, the core of this analysis focuses on the microeconometric evidence that follows.

In order to account for the count nature of the GP and SP variables, negative binomial models are used to estimate demand for GP and SP services equations.[10] These two equations are estimated by country, separately for men and women and controlling for a wide set of demographic and socioeconomic indicators. Table 7 reports the average marginal effects of the underweight, pre-obese and obese indicator variables.

The results for GP convey a clear message for both men and women: obese and pre-obese individuals visit the GP significantly more often than those who are within a healthy BMI range. Marginal effects of the obese indicator variable are all positive and highly significant and this is the also the case for the pre-obese indicator variable for most countries. Moreover, the magnitude of the effect of obesity appears to be economically relevant when measured against the corresponding GP visits sample means, displayed in Appendix Table A.1. In Finland, being obese increases the annual number of visits to the GP among women (men) by 1.14 (0.76) visits, which represents a 47% (43%) increase when measured against the mean number of visits to the GP for the corresponding group. In general, the magnitude of the impact of obesity on GP visits is quite large, being higher than 30% among women in all countries except for Greece and Portugal and higher than 28% among men in all countries with the exception of Italy, Greece and Spain.[11]

[10] Because the overdispersion tests carried out for all countries and estimated equations provide strong evidence of overdispersion, the negative binomial model is preferred to the Poisson model.

[11] Not surprisingly, since obesity is expected to increase the demand for health services through its effects on health, coefficient estimates on the obesity dummy variable are no longer statistically significant when including health indicators in the regressions.

The results for SP visits are qualitatively similar, suggesting that obesity significantly increases the annual number of visits to the SP in all countries and for both men and women, with the exception of Danish women and Italian, Greek and Finish men, for whom the effect of interest is positive but does not achieve standard levels of statistical significance.[12] For women, the estimated marginal effects represent an increase of more than 25% of the mean number of visits to the SP in all countries with the exception of Portugal, where the increase in SP visits associated with obesity amounts to 13%. Moreover, the magnitude of the effects is remarkably large for some countries, such as Ireland (66%) and Italy (44%). For men, obesity increases the annual number of visits to the SP by more than 30% in Denmark, Belgium and Austria, reaching a maximum of 79% in Ireland. Moreover, the estimated effects of obesity on SP visits indicate that the increases in obesity prevalence documented in Section 3.2 are predicted to account for relevant shares of the increase in GP visits during the 1998-2001 period. For instance, the coefficient on the obese dummy is only statistically significant at the 10% for Spanish men, but the 8.53% increase in obesity between 1998 and 2001 for this group (see Table 3) is predicted to account for 13.7% percent of the increase in GP visits.[13]

6. Obesity and Absenteeism

The increase in medical expenditures is not the only cost associated with obesity. Obesity is also expected, through its impact on health, to lead to decreased productivity, restricted activity and absenteeism. Previous research based on U.S. data suggests that obese employees are significantly more likely to be absent from work than their healthy-weight counterparts,[14] although the estimated magnitude of this gap varies across studies.

The ECHP asks respondents to report the number of days they were absent from work during the last four working weeks because of illness or other reasons. This question is only asked to individuals who work at least 15 hours per week, so the analysis is restricted to this sample.[15] A negative binomial model for the number of absent episodes is estimated and, on top of the

[12] Note that in Denmark, Spain and Portugal, the effect of being obese is only statistically significant at the 10% level for men.

[13] This figure is calculated by multiplying the coefficient on the obese indicator variable by the log change in obesity for Spanish men over the 1998-2001 period (0.138*0.085=0.012) and dividing by the log change in GP visits for this group (0.012/0.087=0.137).

[14] See, for instance, Wolf and Colditz (1998) and Tucker and Friedman (1998).

[15] Appendix Table A.2. reports the mean number of absent episodes for the samples used in this analysis.

weight categories, the following individual and job characteristics are included as controls: age group, household size, marital status, education level, hourly wage, tenure, occupation, industry, establishment size, temporary contract, part time and household income indicators. Table 8 displays the resulting average marginal effects for men and women. The evidence for men suggests that neither overweight nor obese men are significantly more likely to be absent from work with the only exception of obese Finish men. The message for women is not consistent across countries: in six out of the nine countries under study either pre-obese or obese women (or both, as it is the case in Spain) are significantly more likely to be absent from work than healthy-weight women. Denmark, Greece and Austria are the countries where neither being pre-obese nor being obese significantly increases the number of absent episodes among women.

It should be noted that the absenteeism measure provided by the ECHP includes absent episodes due to illness *and* any other reason so it is not possible to isolate the impact of obesity on illness-related episodes. If this were positive, as suggested by most previous studies, my results would imply that obese men (and, to a smaller extent, obese women) tend to compensate their sickness-related absent episodes by reducing absenteeism due to any other reason.

The evidence presented on obesity and absenteeism also relates to the obesity wage gap documented in the labour economics literature. The negative association between weight and wages has been rationalised as the consequence of reduced productivity and/or discrimination.[16] If absenteeism is considered as a reliable proxy for productivity, then my results would suggest that, at least for men, discrimination is most likely the cause of the negative relationship between obesity and wages. Detailed data on the nature and reasons of each absent episode, combined with rich information on employment and household characteristics would be particularly useful to provide further evidence on this issue.

7. Conclusion

While the U.S. is still the developed country with the highest obesity rate and most available research on obesity is based on U.S. data, the prevalence of obesity is increasing worldwide (WHO, 1998a). This paper uses homogeneous data from the 1998-2001 waves of the ECHP to

[16] Another potential explanation is reverse causality: low wages cause obesity. However, after accounting for reverse causality by using instrumental variable methods previous studies still find that weight lowers wages for both men and women in Europe (d'Hombres and Brunello, 2005) and for white women in the U.S. (Cawley, 2004).

investigate the obesity epidemic in nine E.U. countries: Denmark, Belgium, Ireland, Italy, Greece, Spain, Portugal, Austria and Finland.

Several interesting results stand out. First, while U.S. obesity levels have not yet been achieved, obesity has become a common problem among European adults and in some countries, such as Finland and Spain, obesity levels among the elderly are not too far from U.S. standards. It is also found that the growth rate of obesity is positive in all countries analysed and quite large in most of them. The analysis also uncovers the existence of cohort-time effects among the elderly population: recent cohorts of elderly individuals are more likely to be obese than their counterparts from less recent cohorts.

Second, several interesting socioeconomic patterns are common across countries. Obesity is more common among low socioeconomic groups, and in particular among those with low levels of education. Married men are also more likely to be obese while obesity is less common among working women. Third, in all countries analysed obesity is negatively associated with health, especially for women. Consistent with this evidence, obesity is also shown to be a relevant contributor to the demand for general practitioner and specialist services. Finally, regarding the relationship between obesity and absenteeism the evidence is less conclusive. While obese women in most countries are found to be absent from work more often than healthy-weight women, no significant effect is found for men.

Overall, the results of this paper may contribute to a better understanding of the obesity problem in Europe and provide useful information for the design of strategies for improving the prevention of obesity and limiting its impact on individuals. However, it is worth noting that while most of this study has focused on the socioeconomic determinants of obesity and on its direct and indirect economic costs, the design of a successful strategy for preventing and managing the obesity epidemic will require the combination of multidisciplinary inputs and the consideration of environmental, cultural and behavioural factors.

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Table 1. BMI Distributions by Country and Gender

	Percentiles						
	Mean	10	25	50	75	90	N. Obs.
Women							
Denmark	24.16	19.60	21.25	23.42	26.36	29.73	1,747
Belgium	24.10	19.37	21.00	23.18	26.21	30.04	2,052
Ireland	24.26	19.72	21.25	23.53	26.37	29.61	1,886
Italy	23.56	19.10	20.76	22.89	25.71	28.95	6,295
Greece	24.86	20.19	22.03	24.38	27.34	30.06	4,320
Spain	24.64	19.46	21.23	23.87	27.34	31.14	5,437
Portugal	24.87	20.20	21.90	24.22	27.33	30.29	5,174
Austria	24.40	19.53	21.23	23.80	26.83	30.11	2,626
Finland	24.78	19.81	21.45	23.88	27.33	30.89	2,505
Men							
Denmark	25.37	21.22	22.94	24.90	27.17	29.84	1,719
Belgium	25.38	20.70	22.64	24.96	27.95	30.42	1,919
Ireland	25.39	21.05	23.04	25.18	27.46	29.71	1,783
Italy	25.32	21.29	22.94	24.83	27.34	29.67	6,139
Greece	26.09	22.20	23.89	25.83	27.75	30.04	4,025
Spain	25.00	21.48	23.38	25.65	28.31	30.99	5,231
Portugal	25.56	21.60	23.18	25.26	27.55	29.76	4,766
Austria	25.61	21.33	23.18	25.26	27.68	30.42	2,533
Finland	25.82	21.50	23.18	25.25	27.77	30.67	2,479

Note: Author's calculations based on 2001 ECHP data.

Table 2. Log(BMI). OLS and Quantile Regression Estimates

	OLS	Quantile Regression – Percentiles:				
		10	25	50	75	90
Women						
Denmark	-0.016	0.007	0.001	-0.019	-0.036	-0.046
	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)	(0.007)
Belgium	-0.021	-0.004	-0.010	-0.029	-0.042	-0.035
	(0.004)	(0.005)	(0.005)	(0.006)	(0.008)	(0.009)
Ireland	-0.012	0.013	0.001	-0.014	-0.036	-0.050
	(0.004)	(0.006)	(0.005)	(0.006)	(0.006)	(0.010)
Italy	-0.041	-0.019	-0.022	-0.042	-0.061	-0.072
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.006)
Greece	0.012	0.036	0.037	0.021	-0.001	-0.035
	(0.003)	(0.004)	(0.004)	(0.004)	(0.001)	(0.009)
Portugal	0.012	0.037	0.031	0.014	-0.001	-0.027
	(0.003)	(0.004)	(0.004)	(0.003)	(0.001)	(0.005)
Austria	-0.007	0.003	-0.001	-0.002	-0.018	-0.033
	(0.004)	(0.004)	(0.005)	(0.005)	(0.006)	(0.007)
Finland	0.006	0.017	0.010	0.001	-0.001	-0.007
	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)	(0.008)
Constant	3.187	2.968	3.055	3.172	3.308	3.438
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.004)
Men						
Denmark	-0.023	-0.012	-0.019	-0.029	-0.040	-0.037
	(0.003)	(0.005)	(0.004)	(0.004)	(0.007)	(0.010)
Belgium	-0.025	-0.037	-0.032	-0.027	-0.019	-0.018
	(0.004)	(0.006)	(0.004)	(0.005)	(0.005)	(0.008)
Ireland	-0.022	-0.020	-0.014	-0.018	-0.030	-0.042
	(0.003)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
Italy	-0.025	-0.008	-0.019	-0.032	-0.034	-0.043
	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)	(0.006)
Greece	0.005	0.033	0.021	0.006	-0.019	-0.031
	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)	(0.006)
Portugal	-0.014	0.005	-0.008	-0.015	-0.027	-0.040
	(0.002)	(0.004)	(0.004)	(0.003)	(0.004)	(0.005)
Austria	-0.014	-0.006	-0.008	-0.015	-0.022	-0.018
	(0.003)	(0.006)	(0.005)	(0.004)	(0.005)	(0.008)
Finland	-0.006	0.001	-0.008	-0.015	-0.018	-0.010
	(0.003)	(0.005)	(0.004)	(0.004)	(0.006)	(0.007)
Constant	3.247	3.066	3.152	3.244	3.343	3.433
	(0.002)	(0.003)	(0.002)	(0.002)	(0.004)	(0.004)

Note: Dependent variable: log(BMI). Number of observations: 32042 for women and 30493 for men. Spain is the country of reference. Standard errors are displayed in round brackets.

Table 3: Evolution of Obesity Rates. 1998-2001

	1998	2001	Growth 1998-2001	1998	2001	Growth 1998-2001
Obesity		Women			Men	
Denmark	8.42	9.33	10.77	9.19	9.48	3.17
Belgium	10.03	10.09	0.60	10.01	11.61	15.91
Ireland	8.34	8.85	6.22	8.36	8.41	0.68
Italy	6.63	7.42	11.86	7.91	9.04	14.31
Greece	9.34	10.16	8.84	9.83	10.11	2.88
Spain	11.83	13.02	10.03	12.88	13.97	8.53
Portugal	10.37	10.92	5.26	8.87	9.50	7.14
Austria	9.94	10.89	9.62	10.75	11.37	5.81
Finland	11.74	13.33	13.54	10.52	12.46	18.48
All	9.63	10.45	8.53	9.81	10.66	8.54
	1998	2001	Growth 1998-2001	1998	2001	Growth 1998-2001
Pre-Obesity		Women			Men	
Denmark	23.93	25.53	6.67	37.29	39.33	5.46
Belgium	21.90	23.44	7.05	37.14	37.95	2.20
Ireland	25.73	27.57	7.17	40.33	42.51	5.41
Italy	22.79	22.80	0.02	38.56	39.19	1.64
Greece	33.39	33.45	0.18	50.67	49.59	-2.13
Spain	26.24	27.48	4.73	41.47	42.11	1.55
Portugal	30.30	31.18	2.88	42.49	42.97	1.14
Austria	26.89	27.23	1.24	39.76	41.69	4.86
Finland	26.93	27.11	0.67	41.26	40.26	-2.42
All	26.46	27.31	3.40	41.00	41.73	1.97

Table 4.

The Socioeconomic Determinants of Obesity. Probit Marginal Effects. Women

	DNK	BEL	IRL	ITA	GRC	ESP	PRT	AUT	FIN
Age 15-29	-0.005	-0.097	-0.038	-0.107	-0.093	-0.158	-0.083	-0.131	-0.178
	(0.023)	(0.021)	(0.017)	(0.006)	(0.009)	(0.010)	(0.009)	(0.013)	(0.015)
Age 30-44	-0.000	-0.084	-0.020	-0.074	-0.041	-0.121	-0.023	-0.072	-0.092
	(0.020)	(0.018)	(0.015)	(0.007)	(0.012)	(0.010)	(0.013)	(0.016)	(0.018)
Age 45-54	0.032	-0.009	0.006	-0.021	-0.012	-0.069	0.038	0.007	-0.021
	(0.023)	(0.022)	(0.018)	(0.011)	(0.013)	(0.013)	(0.015)	(0.021)	(0.020)
Married	0.038	0.016	0.033	0.011	0.029	0.017	0.041	0.012	-0.005
	(0.017)	(0.018)	(0.014)	(0.008)	(0.012)	(0.010)	(0.010)	(0.017)	(0.016)
Div./sep.	-0.002	-0.006	0.025	-0.001	0.022	0.008	0.014	0.026	-0.007
	(0.018)	(0.018)	(0.025)	(0.008)	(0.017)	(0.011)	(0.013)	(0.019)	(0.015)
Widowed	0.062	0.055	0.020	0.027	0.041	0.037	0.054	0.013	0.002
	(0.036)	(0.029)	(0.021)	(0.010)	(0.016)	(0.013)	(0.015)	(0.018)	(0.019)
HH Size	-0.013	0.010	0.003	0.005	0.001	0.012	0.007	0.002	0.005
	(0.006)	(0.005)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.004)	(0.005)
Primary Ed.	0.064	0.054	0.046	0.047	0.058	0.082	0.054	0.088	0.045
	(0.018)	(0.015)	(0.015)	(0.013)	(0.014)	(0.010)	(0.014)	(0.029)	(0.014)
Secondary Ed.	0.021	0.027	0.022	0.009	0.006	0.011	-0.001	0.048	0.041
	(0.011)	(0.011)	(0.012)	(0.006)	(0.008)	(0.006)	(0.009)	(0.019)	(0.011)
Employee	-0.004	-0.010	0.002	-0.018	-0.029	-0.016	-0.033	-0.035	-0.037
	(0.014)	(0.013)	(0.010)	(0.007)	(0.010)	(0.008)	(0.009)	(0.011)	(0.013)
Self-employed	0.033	-0.028	0.018	-0.008	-0.012	-0.031	-0.040	-0.014	-0.024
	(0.045)	(0.026)	(0.025)	(0.011)	(0.011)	(0.014)	(0.011)	(0.023)	(0.020)
Unemployed	0.013	0.041	0.012	-0.000	0.007	0.015	-0.012	-0.022	0.012
	(0.024)	(0.026)	(0.029)	(0.012)	(0.018)	(0.014)	(0.018)	(0.031)	(0.021)
HH Income 2q	0.019	-0.036	-0.027	-0.013	0.016	-0.021	-0.007	0.027	0.003
	(0.017)	(0.014)	(0.012)	(0.007)	(0.010)	(0.009)	(0.011)	(0.016)	(0.015)
HH Income 3q	0.030	-0.022	-0.031	-0.026	0.000	-0.015	-0.023	0.001	-0.008
	(0.019)	(0.016)	(0.013)	(0.007)	(0.011)	(0.009)	(0.011)	(0.015)	(0.015)
HH Income 4q	0.015	-0.045	-0.030	-0.012	0.009	-0.030	-0.021	-0.021	-0.005
	(0.019)	(0.015)	(0.014)	(0.008)	(0.011)	(0.009)	(0.011)	(0.015)	(0.016)
HH Income 5q	-0.005	-0.065	-0.034	-0.026	0.019	-0.039	-0.028	-0.048	-0.032
	(0.018)	(0.014)	(0.014)	(0.008)	(0.013)	(0.010)	(0.012)	(0.014)	(0.015)
N	6969	9105	9418	27389	17661	22151	20871	10918	11846

Note: The dependent variable takes value 1 if the person is obese and value 0 otherwise. Standard errors, in round brackets, are corrected for individual clustering. Additional controls are year dummies.

Table 5.

The Socioeconomic Determinants of Obesity. Probit Marginal Effects. Men

	DNK	BEL	IRL	ITA	GRC	ESP	PRT	AUT	FIN
Age 15-29	-0.050	-0.091	-0.052	-0.092	-0.087	-0.107	-0.065	-0.112	-0.113
	(0.023)	(0.015)	(0.012)	(0.008)	(0.011)	(0.011)	(0.010)	(0.015)	(0.013)
Age 30-44	-0.038	-0.037	0.019	-0.067	-0.053	-0.056	-0.026	-0.050	-0.039
	(0.020)	(0.021)	(0.016)	(0.009)	(0.013)	(0.013)	(0.013)	(0.019)	(0.018)
Age 45-54	-0.019	0.001	0.053	-0.013	-0.016	-0.037	0.007	0.030	-0.011
	(0.020)	(0.023)	(0.019)	(0.012)	(0.014)	(0.014)	(0.015)	(0.024)	(0.018)
Married	0.041	0.038	0.008	0.026	0.051	0.049	0.042	0.022	0.013
	(0.018)	(0.017)	(0.013)	(0.009)	(0.011)	(0.010)	(0.010)	(0.016)	(0.013)
Div./sep.	0.055	-0.010	0.038	-0.001	0.001	0.010	0.017	-0.001	-0.013
	(0.029)	(0.015)	(0.035)	(0.009)	(0.017)	(0.018)	(0.016)	(0.019)	(0.014)
Widowed	-0.005	0.055	0.016	0.002	0.042	0.009	0.027	0.050	0.057
	(0.030)	(0.039)	(0.029)	(0.013)	(0.025)	(0.017)	(0.020)	(0.033)	(0.040)
HH Size	-0.009	-0.001	-0.003	0.001	-0.002	-0.001	-0.002	-0.008	-0.008
	(0.006)	(0.005)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Primari Ed.	0.082	0.055	0.021	0.041	0.002	0.043	0.031	0.099	0.027
	(0.021)	(0.015)	(0.014)	(0.012)	(0.013)	(0.010)	(0.015)	(0.027)	(0.015)
Secondary Ed.	0.038	0.046	0.006	0.014	0.018	0.006	0.005	0.089	0.018
	(0.012)	(0.013)	(0.012)	(0.009)	(0.011)	(0.009)	(0.014)	(0.016)	(0.011)
Employee	0.001	0.027	-0.006	0.002	0.005	0.014	-0.012	-0.007	-0.012
	(0.017)	(0.016)	(0.012)	(0.008)	(0.011)	(0.009)	(0.010)	(0.015)	(0.013)
Self-employed	-0.028	0.016	0.005	0.027	0.037	0.041	-0.003	0.020	-0.004
	(0.025)	(0.023)	(0.015)	(0.010)	(0.012)	(0.013)	(0.011)	(0.025)	(0.017)
Unemployed	0.063	0.129	-0.015	-0.008	0.012	0.019	-0.009	0.037	-0.027
	(0.041)	(0.037)	(0.017)	(0.011)	(0.019)	(0.014)	(0.020)	(0.034)	(0.018)
HH Income 2q	0.019	0.004	0.013	-0.002	-0.008	0.002	0.027	-0.013	0.018
	(0.017)	(0.018)	(0.013)	(0.007)	(0.010)	(0.010)	(0.010)	(0.016)	(0.013)
HH Income 3q	0.025	-0.001	0.017	-0.010	0.004	-0.003	0.028	-0.011	0.025
	(0.020)	(0.018)	(0.014)	(0.008)	(0.011)	(0.010)	(0.011)	(0.016)	(0.015)
HH Income 4q	0.023	-0.021	-0.000	-0.008	0.008	-0.008	0.022	-0.018	0.026
	(0.019)	(0.017)	(0.013)	(0.008)	(0.012)	(0.010)	(0.011)	(0.017)	(0.016)
HH Income 5q	-0.005	-0.013	0.009	-0.014	0.012	-0.013	0.028	-0.014	0.011
	(0.018)	(0.018)	(0.015)	(0.008)	(0.013)	(0.011)	(0.012)	(0.017)	(0.016)
N	6872	8152	9019	26660	16402	21531	19289	10425	11809

Note: The dependent variable takes value 1 if the person is obese and value 0 otherwise. Standard errors, in round brackets, are corrected for individual clustering. Additional controls are year dummies.

Table 6. The Health Consequences of Obesity. Probit Marginal Effects.

	(1) Bad/Very Bad Health			(2) Chronic Condition			(3) Hampered Daily Act.		
	Underweight	Pre-obese	Obese	Underweight	Pre-obese	Obese	Underweight	Pre-obese	Obese
Women									
Denmark	0.021	-0.001	0.033	-0.019	0.024	0.125	-0.006	0.019	0.133
	(0.017)	(0.007)	(0.014)	(0.038)	(0.019)	(0.031)	(0.029)	(0.016)	(0.028)
Belgium	0.058	0.011	0.037	0.041	0.024	0.095	0.045	0.028	0.082
	(0.016)	(0.006)	(0.011)	(0.024)	(0.013)	(0.021)	(0.022)	(0.012)	(0.019)
Ireland	0.035	0.002	0.025	0.115	0.047	0.104	0.098	0.029	0.072
	(0.016)	(0.004)	(0.008)	(0.030)	(0.012)	(0.021)	(0.028)	(0.010)	(0.018)
Italy	0.033	0.016	0.075	0.024	0.023	0.089	0.030	0.018	0.071
	(0.010)	(0.005)	(0.010)	(0.011)	(0.006)	(0.012)	(0.011)	(0.005)	(0.011)
Greece	0.021	0.001	0.038	0.023	0.015	0.074	0.022	0.011	0.069
	(0.014)	(0.005)	(0.008)	(0.021)	(0.008)	(0.012)	(0.021)	(0.007)	(0.012)
Spain	0.029	0.019	0.058	0.014	0.050	0.112	0.009	0.032	0.080
	(0.010)	(0.005)	(0.007)	(0.012)	(0.008)	(0.011)	(0.010)	(0.006)	(0.009)
Portugal	0.030	0.015	0.054	0.054	0.021	0.073	0.055	0.018	0.060
	(0.022)	(0.008)	(0.011)	(0.024)	(0.009)	(0.013)	(0.022)	(0.009)	(0.012)
Austria	0.039	0.014	0.039	0.061	0.026	0.101	0.047	0.026	0.085
	(0.018)	(0.006)	(0.010)	(0.029)	(0.011)	(0.018)	(0.024)	(0.010)	(0.016)
Finland	0.024	0.013	0.046	0.012	0.072	0.211	0.025	0.052	0.146
	(0.015)	(0.005)	(0.009)	(0.034)	(0.014)	(0.021)	(0.030)	(0.012)	(0.019)
Men									
Denmark	0.026	0.001	0.013	0.134	0.019	0.115	0.169	0.035	0.053
	(0.031)	(0.006)	(0.010)	(0.077)	(0.017)	(0.029)	(0.070)	(0.013)	(0.020)
Belgium	0.096	-0.007	0.012	0.117	0.010	0.075	0.126	-0.001	0.041
	(0.036)	(0.005)	(0.010)	(0.055)	(0.012)	(0.022)	(0.051)	(0.010)	(0.018)
Ireland	0.026	0.007	0.018	0.034	-0.002	0.077	0.034	-0.005	0.041
	(0.019)	(0.004)	(0.007)	(0.049)	(0.011)	(0.021)	(0.039)	(0.009)	(0.018)
Italy	0.074	-0.001	0.014	0.070	0.004	0.023	0.049	0.002	0.016
	(0.028)	(0.004)	(0.007)	(0.030)	(0.005)	(0.009)	(0.025)	(0.005)	(0.008)
Greece	0.053	-0.013	0.004	0.130	-0.022	0.024	0.141	-0.019	0.020
	(0.034)	(0.006)	(0.008)	(0.048)	(0.008)	(0.012)	(0.048)	(0.007)	(0.011)
Spain	0.063	-0.004	0.013	0.095	0.011	0.057	0.067	0.001	0.036
	(0.022)	(0.004)	(0.006)	(0.031)	(0.007)	(0.011)	(0.025)	(0.006)	(0.009)
Portugal	0.100	-0.006	0.029	0.101	-0.012	0.035	0.087	-0.010	0.032
	(0.030)	(0.007)	(0.011)	(0.042)	(0.008)	(0.015)	(0.037)	(0.008)	(0.014)
Austria	0.110	-0.000	0.019	0.214	0.000	0.075	0.185	-0.000	0.067
	(0.045)	(0.005)	(0.008)	(0.060)	(0.010)	(0.017)	(0.057)	(0.009)	(0.016)
Finland	0.092	0.001	0.024	0.122	0.015	0.124	0.120	-0.001	0.054
	(0.040)	(0.004)	(0.008)	(0.052)	(0.012)	(0.020)	(0.048)	(0.010)	(0.017)

Note: The dependent variables take value 1 if the respondent declares to have bad or very bad health (model 1), suffer from a chronic condition (model 2), be hampered in her daily activities by any condition (model 3) and value 0 otherwise. Standard errors, in round brackets, are corrected for individual clustering. Additional control variables are: age, household size, marital status, education, household income, labour market status and year dummies.

Table 7:

Obesity and the Demand for Health Services. Negative Binomial Marginal Effects.

	(1) GP Visits			(2) Specialist Visits		
	Underweight	Pre-obese	Obese	Underweight	Pre-obese	Obese
Women						
Denmark	-0.054	0.159	0.953	-0.091	-0.082	0.165
	(0.380)	(0.177)	(0.278)	(0.192)	(0.108)	(0.169)
Belgium	0.493	0.747	2.295	-0.117	0.497	0.613
	(0.348)	(0.225)	(0.390)	(0.219)	(0.159)	(0.248)
Ireland	1.336	0.486	1.890	0.398	0.184	0.493
	(0.568)	(0.183)	(0.323)	(0.183)	(0.064)	(0.140)
Italy	0.011	0.629	1.857	0.167	0.165	0.687
	(0.226)	(0.124)	(0.302)	(0.141)	(0.063)	(0.148)
Greece	-0.157	0.160	0.462	-0.285	0.239	0.742
	(0.167)	(0.064)	(0.107)	(0.148)	(0.079)	(0.136)
Spain	0.125	0.765	1.355	0.303	0.247	0.502
	(0.190)	(0.114)	(0.171)	(0.148)	(0.074)	(0.116)
Portugal	0.376	0.381	0.981	0.279	0.042	0.206
	(0.249)	(0.088)	(0.157)	(0.206)	(0.062)	(0.105)
Austria	0.119	0.637	1.896	0.215	0.083	1.107
	(0.297)	(0.178)	(0.332)	(0.275)	(0.120)	(0.300)
Finland	0.029	0.301	1.142	0.185	0.062	0.487
	(0.233)	(0.091)	(0.162)	(0.329)	(0.064)	(0.127)
Men						
Denmark	0.782	0.227	0.997	-0.012	0.147	0.258
	(0.371)	(0.121)	(0.232)	(0.216)	(0.082)	(0.141)
Belgium	2.601	0.295	1.567	0.711	-0.018	0.505
	(0.962)	(0.157)	(0.353)	(0.539)	(0.095)	(0.228)
Ireland	1.878	0.270	1.135	0.477	0.051	0.437
	(0.895)	(0.126)	(0.294)	(0.387)	(0.043)	(0.151)
Italy	1.040	0.227	0.454	0.377	0.016	0.042
	(0.721)	(0.092)	(0.176)	(0.310)	(0.043)	(0.074)
Greece	-0.024	-0.107	0.109	0.530	-0.137	0.122
	(0.432)	(0.058)	(0.088)	(0.507)	(0.074)	(0.129)
Spain	0.515	0.186	0.439	0.719	0.044	0.138
	(0.520)	(0.082)	(0.122)	(0.396)	(0.058)	(0.075)
Portugal	0.039	0.198	0.623	0.106	-0.004	0.139
	(0.272)	(0.067)	(0.130)	(0.202)	(0.049)	(0.076)
Austria	0.221	0.256	1.273	0.366	0.184	0.485
	(0.558)	(0.139)	(0.245)	(0.315)	(0.090)	(0.149)
Finland	0.060	0.248	0.759	0.267	-0.072	0.123
	(0.221)	(0.064)	(0.115)	(0.258)	(0.059)	(0.094)

Note: The dependent variables measure the number of times the individual visited the GP (model 1) and the SP (model 2) in the past 12 months. Additional control variables are: age, marital status, education, household income, labour market status and year dummies and household size. Standard errors, in round brackets, are clustered by individual.

Table 8. Obesity and Absenteeism. Negative Binomial Marginal Effects

	Absent Episodes		
	Underweight	Pre-obese	Obese
Women			
Denmark	-0.261	0.422	-0.202
	(0.401)	(0.292)	(0.352)
Belgium	0.383	1.050	0.555
	(0.616)	(0.467)	(0.524)
Ireland	-0.168	0.723	-0.126
	(0.222)	(0.231)	(0.177)
Italy	-0.034	0.454	0.202
	(0.312)	(0.198)	(0.354)
Greece	-0.354	0.022	0.268
	(0.098)	(0.124)	(0.257)
Spain	0.005	0.698	2.313
	(0.272)	(0.239)	(0.694)
Portugal	0.332	-0.051	1.054
	(0.414)	(0.146)	(0.461)
Austria	-0.052	0.247	0.513
	(0.213)	(0.178)	(0.378)
Finland	0.489	0.282	1.368
	(0.625)	(0.224)	(0.516)
Men			
Denmark	2.978	0.013	-0.296
	(2.540)	(0.129)	(0.156)
Belgium	0.072	0.234	0.313
	(0.746)	(0.238)	(0.395)
Ireland	-0.485	0.021	0.140
	(0.039)	(0.081)	(0.176)
Italy	0.324	0.029	0.235
	(0.368)	(0.066)	(0.149)
Greece	-0.102	-0.066	-0.159
	(0.247)	(0.064)	(0.091)
Spain	0.565	-0.096	0.128
	(0.667)	(0.083)	(0.135)
Portugal	0.340	-0.073	-0.199
	(0.445)	(0.088)	(0.113)
Austria	1.007	-0.105	-0.245
	(0.845)	(0.106)	(0.137)
Finland	0.249	-0.027	0.826
	(0.755)	(0.115)	(0.316)

Note: The dependent variable measures the number of times the worker was absent from work during the last four working weeks because of illness or other reasons. Additional control variables are: age group, household size, marital status, education level, hourly wage, tenure, occupation, industry, establishment size, temporary contract, part time, household income and year dummies. Standard errors, in round brackets, are clustered by individual.

Figure 1: Obesity Rates by Country and Gender. 2001.

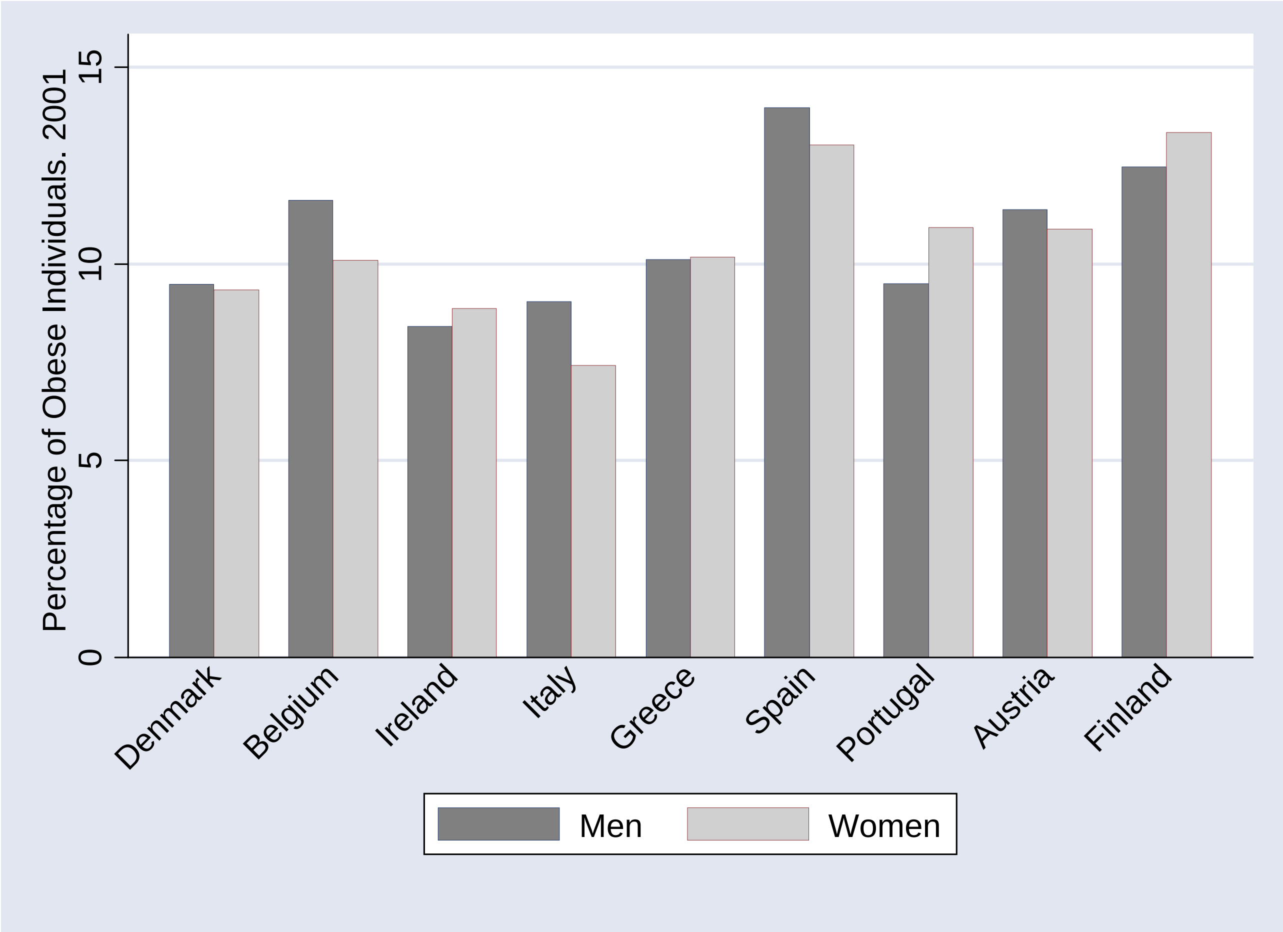


Figure 2: Obesity Rates by Country, Gender and Age Group

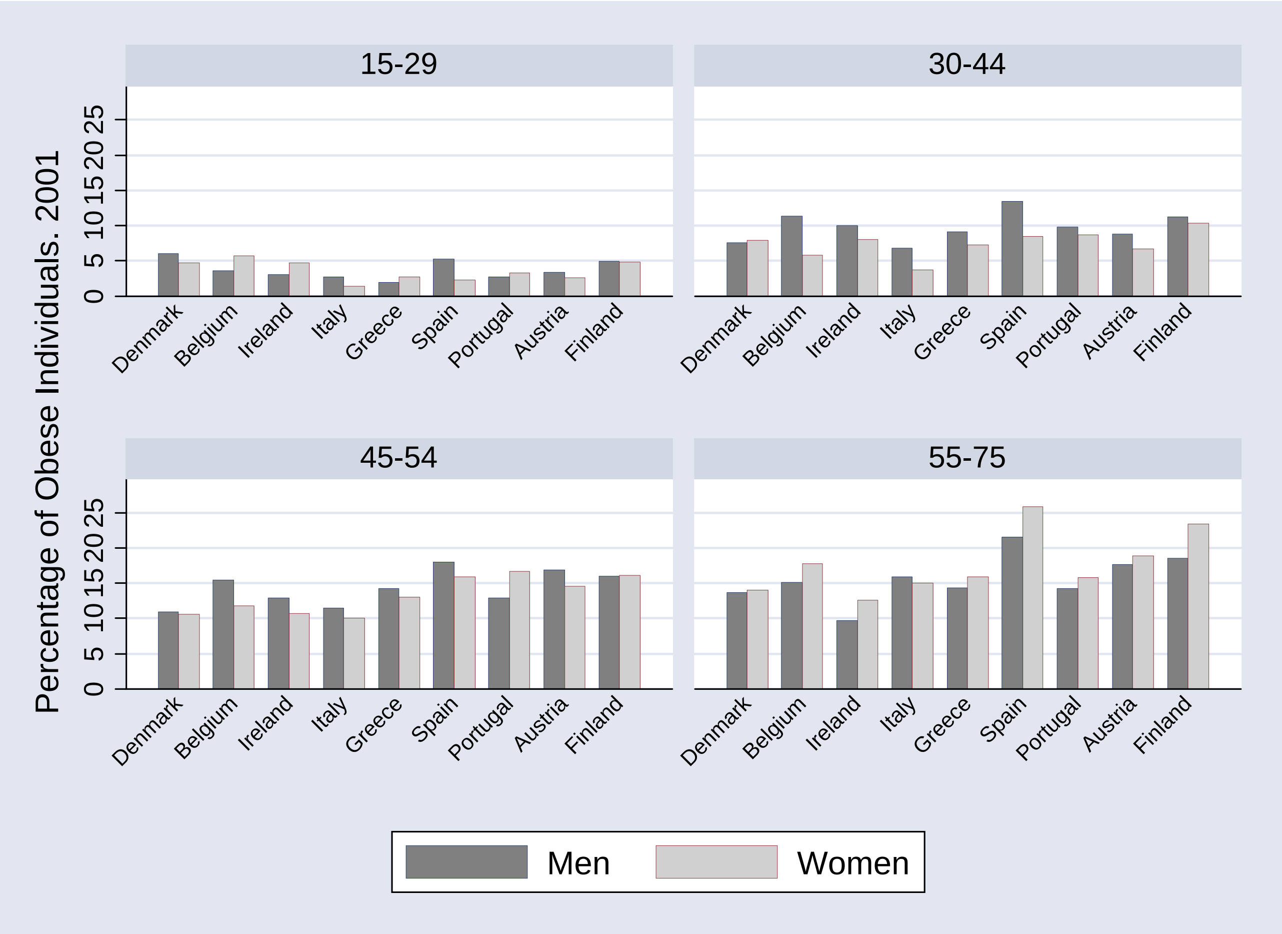
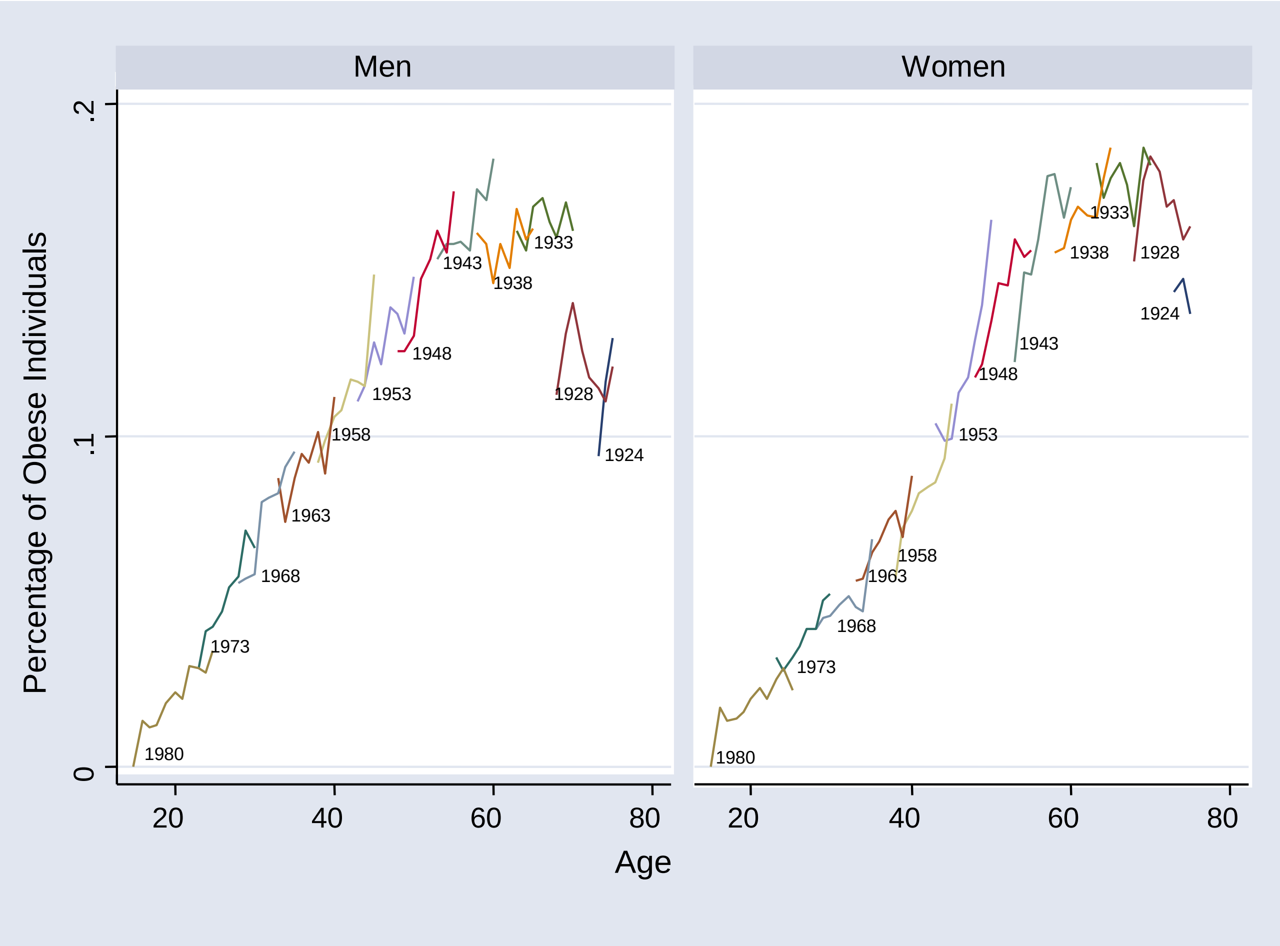


Figure 3: Average Obesity Rate by Age and Cohort



Note: Individuals in the same birth cohort are connected together across the four time periods available (1998-2001). The average birth year is indicated below each cohort line.

Figure 4: Correlation Between Log Change in Obesity Rate and Log Change in Visits to the General Practitioner, 1998 to 2001

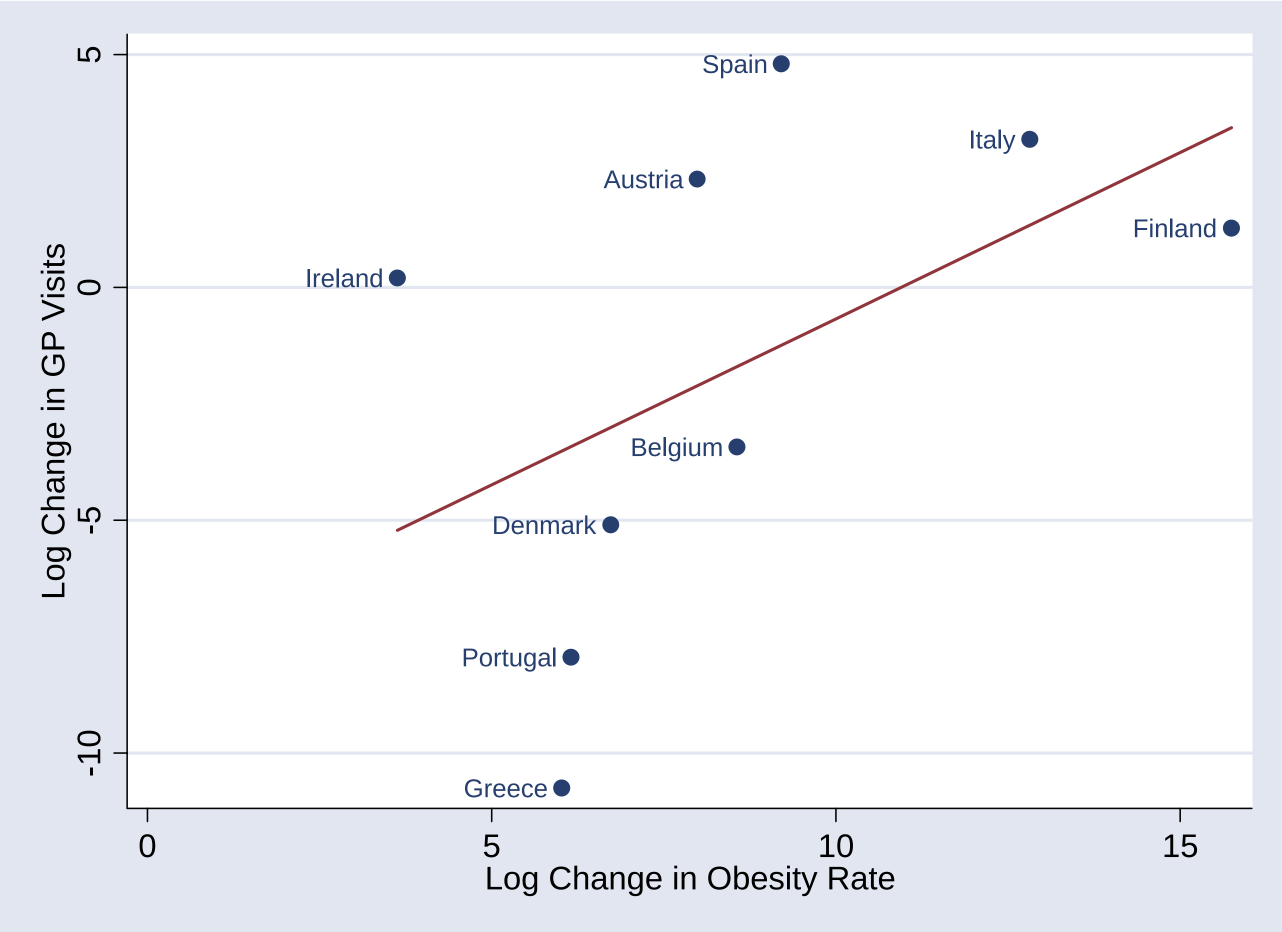
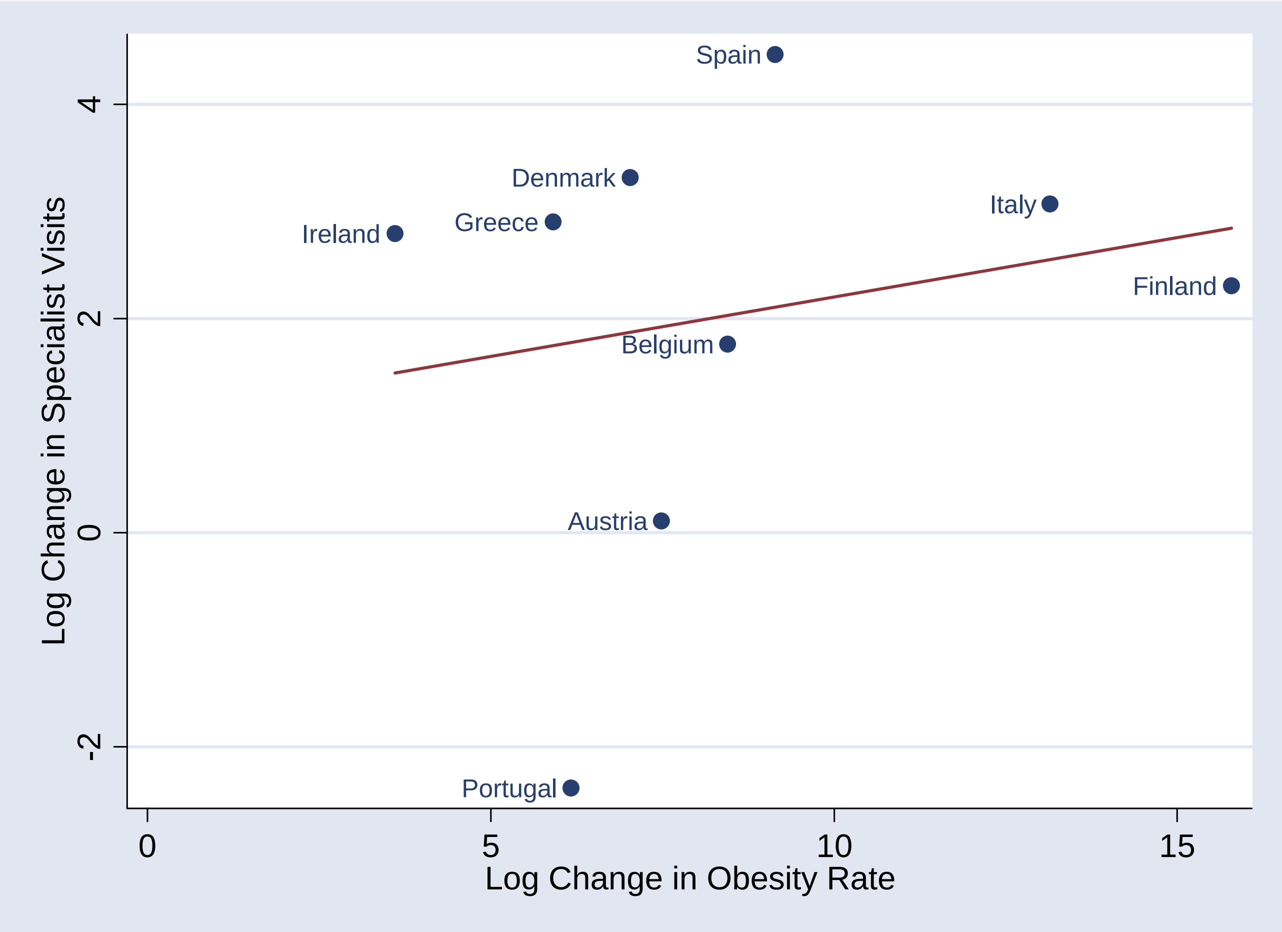


Figure 5: Correlation Between Log Change in Obesity Rate and Log Change in Visits to the Specialist, 1998 to 2001



Appendix Table A.1. Means of Health Care Use Variables by Country and Gender

	GP Visits		Specialist Visits	
	Women	Men	Women	Men
Denmark	3.39	2.09	1.23	0.82
Belgium	5.01	3.89	2.45	1.54
Ireland	3.81	2.67	0.74	0.55
Italy	4.80	3.47	1.56	0.92
Greece	1.98	1.43	1.81	1.22
Spain	4.06	2.76	1.86	1.20
Portugal	3.45	2.21	1.55	0.91
Austria	4.77	3.74	2.57	1.55
Finland	2.32	1.77	1.24	0.78

Appendix Table A.2. Absent Episodes by Country and Gender

	Women		Men	
	Mean	N	Mean	N
Denmark	1.68	4097	0.85	4396
Belgium	1.89	2101	1.26	2366
Ireland	0.90	3473	0.46	4552
Italy	1.11	6398	0.63	9746
Greece	0.64	3439	0.52	5376
Spain	1.10	5692	0.75	9693
Portugal	0.98	7245	0.63	9491
Austria	0.85	3873	0.83	5787
Finland	1.92	5244	1.03	5173