THE NATURE OF SAMPLE ATTRITION IN THE ECHP

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Abstract

The attrition represents one of the most important problems of panel surveys. Erosion of a panel over time might not be a serious problem if it was evenly spread across all demographic, behavioural and economical subgroups. Unfortunately, in practice, the pattern of attrition is not like this, and particular subgroups are lost in disproportionately large numbers.
Using the UDB 1-8 we examine the extent and the nature of the sample attrition in the 11 countries which have taken part to the ECHP project since its beginning (1994).
The aim of the paper is to give an answer to the question "is the attrition pattern selective across the different countries and for different types of variables?".
The unit of analysis considered in the paper is the individual belonging to the 1994 sample (approximately 127.000 units). This set has been split into three groups depending on the pattern during the 8 years: 1) non-attritors, individuals that have taken part into the survey each year since 1994; 2) attritors, individuals who leave the sample for ever at a certain wave (the exits due to death are excluded); 3) returnees made of people who do not answer some years and then start answering again.
Using a non-parametric approach of event history analysis we model the probability to be still in the sample at different duration conditional on some characteristics of the sample units. The paper tries to detect which variables (if there are any) drive the attrition process in the different countries considered.

Keywords: Attrition, European Community Household Panel, Event History Analysis.

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1. Introduction

Compared to cross-sectional surveys, the newness and the analytic advantages of panel surveys are undisputable (Kasprzyk *et al.*, 1989; Ghellini, Trivellato, 1996; Trivellato, 1999). However this kind of surveys could suffer from some problems, the most relevant of which is the progressive loss over time of respondent units, phenomenon known as attrition: some respondents to the first waves could subsequently leave the sample for ever. In other cases, respondents could participate to the survey irregularly, for example to the first wave, leave for the second one, take part in the third and so on. In both the circumstances, the consequence is a lack of information for some waves concerning certain individuals.
In any case, erosion of a panel over time might not be a serious problem if it was equally spread across all demographic, behavioural and economical subgroups. In other terms, the gravity of the consequences of the attrition is not related to its extent but to its nature (Little and Rubin, 1987). As a matter of fact, if the attrition is random, the effect will be the casual reduction of the sample size, implying a decrease in the efficiency of the estimates. On the opposite, a selective attrition, affecting differently various subgroups of population, could be cause of bias. It is therefore essential to verify what kind of respondents do not take part in panel surveys. In fact, if particular kinds of respondents regularly interrupt their participation to the panel, the sample becomes increasingly less representative of the population.
The aim of the paper is to examine the extent and the nature of the sample attrition in the European Community Household Panel (ECHP), the first experience of a panel survey on a great scale, completely harmonised at European level. Using event history analysis, the probability to be still in the sample at different duration has been modelled, conditional on some characteristics of the sample units.
The work is organized as follows: after a brief description of the data source contained in the subsequent section, the extent of attrition across countries is examined in section 3. Section 4 introduces the analytic approach, based on non parametric tools of the Event History Analysis, used to examine the attrition over time, that is described in section 5. Section 6 illustrates the nature of attrition from a descriptive point of view, while section 7 deepens this last aspect through models of the probability of being attritors. Some conclusions have been included in section 8.

2. Data Source

Although the ECHP is a project involving Germany, Denmark, The Netherlands, Belgium, Luxembourg, France, United-Kingdom, Ireland, Italy, Greece, Spain, Portugal, Austria and Finland only 11 countries, which have taken part to the ECHP project since its beginning (1994), have been considered.
Austria and Finland have been excluded as their National Data Units started ECHP respectively in 1995 and 1996. Luxembourg has been excluded as well, because the complete data set from the "Panel Socio-économique «Liewen zu Lëtzebuerg»" (PSELL) begins from 1995. As far as Germany and United Kingdom are concerned, in order to have information completely comparable, data from the German Socio-Economic Panel (GSOEP) and the British Household Panel Survey (BHPS) have been used.
UDB 1-8 waves data have been employed and the unit of analysis is the individual because the longitudinal concept of household is controversial.
All individuals aged at least 16 years, who answered to the first wave (1994) personal questionnaire of the ECHP, have been taken into account. For the countries considered, the total number of individuals aged 16 and more, who participated to the 1994 survey, is equal to 127.253.

3. The extent of attrition

Analysing the pattern of individuals participation over all the panel duration, from 1994 to 2001, tree different behaviour have been identified:

1. individuals that have taken part into the survey each year since 1994 (non attritors);
2. individuals who, at a certain wave, left the sample for ever (attritors);
3. individuals who were missing in one or more intermediate waves and answered later on (returnees).

The exits due to death are excluded from analysis. Their amount is 0.4% of the initial sample (table 1), reaching highest value in Portugal and the lowest in the Netherlands.
In the present work, therefore, attrition is defined as the proportion of the initial sample people who abandoned definitively the sample from reasons different from natural causes.
In formal terms, we define I_i^t a function that assumes value 1 if the person *i* is interviewed at time *t* and 0 otherwise (note that I_i^1 =1), D_i^t a function that assumes value 1 if the person *i* died at time *t*, and 0 otherwise, and E_i a function that assumes value 1 if:

$$\sum_{t=1}^{W-1} \left| I_i^t - I_i^{t+1} \right| = 1$$

and

$$\sum_{t=1}^{W} D_i^t = 0 \qquad where \quad W = number\ of\ waves$$

and 0 otherwise. The attrition is defined as follows:

$$attrition = \frac{\sum_{i=1}^{N} E_i}{N} \qquad where\ N\ is\ the\ initial\ number\ of\ individuals$$

Similarly the proportion of returnees and the proportion of non attritors are defined. If R_i assumes value 1 if

$$\sum_{t=1}^{W-1} \left| I_i^t - I_i^{t+1} \right| > 1$$

and 0 otherwise, the re-entry rate is defined as follows:

$$re-entry = \frac{\sum_{i=1}^{N} R_i}{N} \ .$$

Finally if P_i equals 1 if

$$\sum_{t=1}^{W-1} \left| I_i^t - I_i^{t+1} \right| = 0$$

and 0 otherwise, the non attrition rate is defined as follows:

$$non\ attrition = \frac{\sum_{i=1}^{N} P_i}{N} \quad .$$

The share of initial respondents who have taken part to all the waves (i.e non attritors) is about a half in the 11 EU-countries.
A relevant proportion of the initial individuals (40%) left the sample without participating any longer (attritors), while about 8% of the initial sample have not participated regularly, taking part to some waves but not all (returnees).

[Insert Table 1 about here]

In details, looking at the differences across countries (figure 1), the highest participation is observed in the United Kingdom, where the share of non attritors reaches 67.3%, followed by Portugal (64.2%) and Germany (63.3%). Besides Portugal, the proportion of non attritors is considerable in the two countries that based ECHP on an ongoing more mature panel. The lowest proportion of non attritors is observed in Ireland (29.8%). Italy, with 54.7%, shows a ratio greater than the EU mean.
The highest share of the attritors is observed in Ireland (67%), followed by Spain, Belgium (45%) and Denmark (43%). The minimum value characterises the United Kingdom and Portugal (27%), followed by Germany (30%) and Italy (37%).
The propensity to an irregular participation is stronger in Denmark, where the returnees reach 13% and in Spain (11%), while it seems that in Ireland, the United Kingdom and Germany the returnees are a small percentage of the initial sample (respectively 3% and about 6%).

[Insert Figure 1 about here]

4. Methodological background

Focalising the attention particularly on the attritors and non attritors, the relation between the exits and the length of the participation to the survey is examined adopting an Event History Analysis approach (Tuma and Hannan, 1984; Blossfeld *et al.*, 1989; Blossfeld, Rohwer, 1995; Mastrovita, 2004).
The event studied is here the definitive exit from the sample. The duration of the spells of the participation to the survey is the number of consecutive waves for which the individual has been interviewed.
Since the duration of the spell starts for all individuals in 1994 and it is known, no left censored spells exist. The non attritors represent the right censored observations and of course their spell duration is the maximum, 8 years.
A non parametric approach, based on the survival function and hazard rate, has been applied. The survival function at time t is defined as the share of individuals still at risk of exit at time t out of

initial subset at risk of exit at the beginning (i.e. it is the probability that an individual will have a lifetime exceeding t):

$S(t)$=Pr(T>t)

where T is a continue non negative random variable representing time between the entrance in the risk set and the time of the event of interest.
The hazard function at time t is defined as the probability that an individual exits between t and t+Δt, given that the individual is at risk at time t, for Δt becoming smaller and smaller:

$$h(t) = \lim_{\Delta t \to 0} \frac{\Pr\left\{ t \le T \le t + \Delta t \mid T \ge t \right\}}{\Delta t}$$

5. Attrition over time

Descriptive analysis showed above has enlightened the presence of strong differences across countries. Considering also the relation between attrition and time, figure 2 illustrates the survival functions for each country.

[Insert Figure 2 about here]

As emerged before, Ireland is the country with the highest attrition: in fact it shows the lowest proportion of survived in the panel at each time. On the opposite, the United Kingdom has the least loss of respondents units from the 5th wave onwards. Italy, that at the beginning of the second wave had the highest level of survived, from the 4th wave onwards suffers of a progressive and increasing loss of respondents. It seems as if the prolongation of the Italian ECHP after wave 3 yielded a higher number of drop-outs in wave 4 than in other waves. This is partly due to the fact that at the beginning the ECHP was supposed to last for three years, till 1996. Therefore, the decision to continue ECHP for other three years after 1996, had a negative impact on the participation.
Examining more in details the dynamic of the attrition over time, at the beginning of the second wave, the share of Irish 16+ aged individuals still in the sample is only 81% compared to 95% of Italy and Portugal and to 94% of Germany. Spain follows Ireland with a survival function value of only 0.86.
At the beginning of the third wave, the individuals still surviving in the Irish sample are 68 out of 100 initially interviewed. Spain shows a low level of survived (78%) as well, but its relative position is a bit better than Denmark, with a percentage of 77% survived.
At the beginning of the fourth wave, the Irish survival function value decreases to 0.59, while the highest values are those of Portugal and Germany that still have at his stage 85% of initial 16+ aged people surviving in the sample.
From the 5th wave onwards, the United Kingdom remains the country with the highest level of survived up to 71% for the last wave, followed by Portugal, Germany and Italy. On the opposite site, Denmark and Spain follow Ireland (in the last wave Spain shows the identical survival proportion as Denmark).
Looking at the hazard function values, a clear monotonic pattern doesn't seem to exist: that is the probability of exit does not seem to increase or decrease depending on the time spent in the survey.

From these initial analyses, therefore, the assumption that the permanence in the sample make easy to continue the participation or that, at the opposite, the longer is the participation the easier is abandoning the sample as a consequence of individuals tiredness does not find confirmation.
In any case, there are some countries where the initial hazard function values are higher than the latter: Denmark (from about 0.13 to 0.04), Greece (from about 0.10 to 0.03), Spain (from about 0.15 to 0.07). The opposite happens for Italy (from 0.05 about to 0.10) and the Netherlands (from about 0.05 to 0.12): increasing the panel duration, the probability of exit increases.

6. The nature of attrition

As pointed out above, attrition represents a serious problem when it affects in different ways particular subgroups of populations. Information on characteristics of individuals and households can be used to examine any differences that may exist between those successfully followed till the end of the panel and those lost.
That's why the survival analysis has been performed also with respect to several stratifications of the sample, based on socio-economic variables, at the time of the last interview.
In order to make clearer the interpretation of the results, the survival proportion for a specific category is divided by the survival proportion for all the individuals in each country. In such a way, it is possible to detect which subgroups suffer higher or lower attrition with respect to the medium attrition within the country. To avoid difficulties in interpreting the outcomes, only the ratios related to the last duration (i.e. survival functions ratios at the beginning of the 8th wave) are reported.
As far as gender is concerned, females are a bit more likely to survive in the sample than males in all countries: the ratios are always over 1 (figure 3). However this characteristic is more relevant in Belgium (1.04) followed by Ireland, Spain and the Netherlands.

[Insert Figure 3 about here]

Greater age differentials and trend variation across countries have been observed (figure 4). Elderly people remain more easily in the sample in Ireland (1.27 times the average), Spain (1.09) and Greece (1.06). While they are less likely to remain till the end of the panel in Denmark (0.83 times the average), the United Kingdom (0.94) and Portugal (0.95). The youngest have a minor propensity to survive till the end of the survey in all the countries, and in a stronger way in Ireland.

[Insert Figure 4 about here]

Considering other characteristics specifically object of study of the survey, and therefore more critical if connected to a selective attrition (i.e. income), the quintile class (in the national income distribution) which belongs to the individual's household, has been taken into account (figure 5). Individuals with the lowest level of income have more chances to survive till the end of the survey in Ireland (1.32 times the average), Greece (1.09), Spain (1.07) and Italy (1.05). The opposite happens in the remaining countries; the highest ratios for the 5th quintile category have been observed in Denmark, France and the United Kingdom and this result is consistent with other ECHP analysis (Behr et al. 2002).

[Insert Figure 5 about here]

As far as household income source is concerned (figure 6), three categories have been considered: wages and salaries, pensions and self-employment income. Different patterns have been observed across countries. Individuals living prevalently with their pensions survive more likely in Ireland,

Spain, Greece and France, while the ratio is to some extent less than 1 in Denmark. In this country, individuals with an income household source based on salaries survive more than the mean: the opposite happens in Greece. People living in households where the principal source is from self-employment or farming leave soon the sample in Denmark, while remain more likely in the Greek sample. In Italy no relevant differences are observed among the three household income source.

[Insert Figure 6 about here]

With regard to the degree of intensity of the social relationships, measured by the frequency with which the individual talks to neighbours[3] (figure 7), it should be emphasized that, the greater is the frequency of talking, the more likely is the survival in the panel. The only exception is Denmark, where for individuals talking to any of their neighbours "on most days", the survival function value at duration 8 is less than that of those talking "sometimes", equal to 1.1 times the total survival function value. The Netherlands is the country where those talking to the neighbours on most days survive 1.09 times the total 16+ population, followed by Italy (1.08), Spain(1.07) and Greece (1.06).

[Insert Figure 7 about here]

7. Modelling the probability of being attritor

Having observed that, in some way, a relation between attrition and some socio-economic characteristics does exist, the nature of attrition is studied in more depth by modelling the probability of being attritor conditioned to certain demographic and socio-economical variables.
The returnees have been excluded as done in the previous analysis. The characteristics of the individuals who were lost from the sample in any of the 7 waves, compared to those who were still in the sample in the last wave have been examined. Since no information is available after the exit of the individual, the reference time for the time-varying variables is the first wave, available for everyone.
The personal characteristics considered in the models are gender, age (both simple and squared), the level of education, the main activity status and the degree of social relationships. Some household variables such as main source of income and household quintile class of income have also been taken into account.
The logistic regression model, estimated for each country, is the following:

$$\frac{\text{Prob}(E=1)}{1-\text{Prob}(E=1)} = \frac{\text{Prob}(E=1)}{\text{Prob}(P=1)} = \frac{\exp(\vec{\beta}\vec{X})}{1+\exp(\vec{\beta}\vec{X})}$$

where E is a variable that assumes value 1 if the individual is an attritor, P is a variable that assumes value 1 if the individual stays in the sample till the end of the panel (see section 3), $\vec{\beta}$ is the vector of coefficients to be estimated and $\vec{X}$ is the vector of independent variables some of which are dummy (female, ISCED 02, ISCED 3, employed, inactive, talking to neighbours less often than once a month, talking to neighbours on most days, pensions as main household source of income, self-employment as main household source of income, other sources as main household source of income, first household quintile class of income, second household quintile class of income, third household quintile class of income, fourth household quintile class of income), some other are continues (age). The reference individual is a male, with ISCED 5-7, unemployed, talking to

[3] This variable does not exist for the German panel GSOEP and for the first three waves of the UK-BHPS, that is why they have been excluded from the analysis. For France the category "on most days" is absent.

neighbours sometimes, with wages and salaries as main household source of income and in the 5th household income quintile class.
Being female implies a minor probability of exit from the sample in all the countries (table 2), except in Italy. In Italy and Spain, however, the estimated parameters are not significant if a p-value 0.05 is used. In Portugal and United Kingdom the maximum effect of gender is observed, with odds values respectively equal to 0.772 and 0.784.

[Insert Table 2 about here]

As far as age is concerned, significant for all countries, the probability of being attritors is higher for the youngest and the elderly as the parameter for the squared age is positive.
The level of education is not significant for Ireland, Italy, Spain, and United Kingdom. For the other countries, the lower is the level of education, the higher is the probability of exit, with the exception of Greece and Portugal, where an opposite relation is observed.
The main activity status is significant for France, Ireland (only for inactive), Italy (only for employed), Spain, Portugal and Germany (only for inactive). In Italy the employed have a higher probability to leave the sample, while in all other countries the employed and the inactive are less likely to exit compared to the reference category.
The greater is the frequency of conversation with the neighbours, the less likely is the definitive exit from the sample. The differences are stronger in the Southern countries (except Italy) and Ireland.
Comparing pensions with salaries as main household income source, the probability of being attritor is lower in Belgium, France, Portugal and Germany. Considering instead self-employment or farming as principal household income source, probability of being attritor is higher in Denmark, the Netherlands, Italy and Germany and lower in Greece and Portugal.
As regards the relationship between household income level and attrition, the pattern observed is different across countries: in general, in Southern countries, namely Italy, Greece, Spain and Portugal and in Ireland, the probability of being attritors is lower for lowest levels of income, although some quintile classes are not significant.
The opposite is observed for France and Germany where the probability of being attritors is higher for lowest levels of income. In the United Kingdom individuals in the medium high classes of income are less interested by attrition. In the remaining countries, no significant differences are observed.

8. Conclusions

The attrition represents one of the main problems of panel surveys. Erosion of a panel over time might not be critical if it is equally spread across all subgroups of interest, that is if attrition is random. Problems arise where attrition interests differently certain kinds of individuals. This paper provides an overview of the sample attrition in ECHP, analysing the extent and the nature of attrition across the 11 European countries taking part to the ECHP project since 1994.
As far as the extent is concerned, the analyses have shown that about a half of the initial European sample of 16+ aged individuals have been remained in the panel till the last wave (2001). The countries where the share of attritors is higher are Ireland (67%), followed by Spain, Belgium (45%) and Denmark (43%). The minimum values are observed in the United Kingdom and Portugal (27%), Germany (30%) and Italy (37%).
Adopting a non parametric approach of the Event History Analysis, based on survival and hazard function, the dynamic of the attrition over time have been examined across countries.
Ireland has showed the lowest proportion of survived in the panel at each time. On the opposite, the United Kingdom has had the least loss of respondents units from the 5th wave onwards. Italy, that at

the beginning of the second wave had the highest level of survived, from the 4th wave onwards has experimented a progressive and increasing loss of respondents. Looking at the hazard function values, it does not seem that a clear monotonic pattern exists: that is, the probability of exit does not seem to increase or decrease depending on the time spent in the survey.
With regard to the nature of attrition, some initial descriptive analyses, based on the ratio between the survival function value for specific categories and the survival function value for the total sample, and logistic regression models have shown that females, individual aged 50-64 and with a good deal of social relationships, are more likely to survive in the sample till the last wave. As far as household income level and main source, level of education and main activity status are concerned, the pattern is different across countries. In the Southern countries and in Ireland, the lower is income, the higher is the probability of surviving in the sample. The opposite is observed in France and Germany. Comparing pensions with salaries as main household income source, the probability of being attritor is lower in Belgium, France, Portugal and Germany. Considering instead self-employment or farming as principal household income source, probability of being attritor is higher in Denmark, the Netherlands, Italy and Germany and lower in Greece and Portugal. The level of education and the activity status do not result to have a significant impact on the attrition in most countries.
Even though from these analyses it seems that some socio-economic characteristics have a significant effect on the probability of exit from the panel and therefore that the attrition is selective to some extent, the impact on the main indicators the survey aims to estimate could be slight, when adequate weights are used, taking into account these variables in the construction of corrective weight factors. Gender, age, income level and source are used for the construction of the sample weights for ECHP in addition to other variables (Eurostat, 2003): therefore attrition should not produce any great influence on the key indicators provided by the survey.

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Table 1 – Non attritors, attritors, returnees and initial sample size of population 16+ by countries – 1994-2001

	Non attritors (%)	Attritors (%)	Returnees (%)	Died (%)	Initial sample size
Denmark	43.3	43.3	12.7	0.6	5903
The Netherlands	49.7	41.4	8.9	0.0	9407
Belgium	48.0	44.5	7.1	0.4	6710
France	51.0	40.8	7.8	0.4	14333
Ireland	29.8	66.9	3.1	0.2	9904
Italy	54.7	37.1	7.5	0.6	17729
Greece	52.7	39.0	8.0	0.3	12492
Spain	44.0	44.7	10.8	0.5	17893
Portugal	64.2	27.2	7.9	0.7	11621
Germany –SOEP	63.3	30.0	6.2	0.5	12233
United-Kingdom-BHPS	67.3	26.8	5.7	0.3	9028
EU	**52.0**	**39.8**	**7.8**	**0.4**	**127253**

Figure 1 – Initial person sample by pattern of participation and by country – 1994-2001

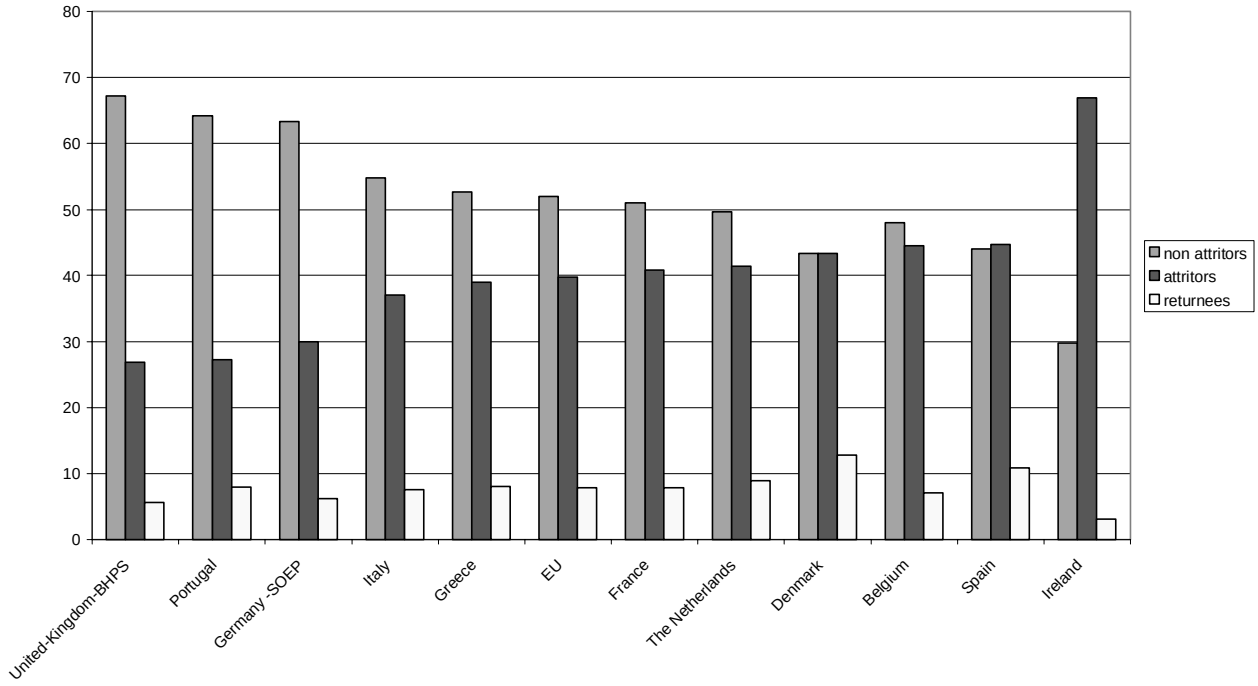

Figure 2 –Survival functions for individuals 16+ still in the sample by country - 1994-2001

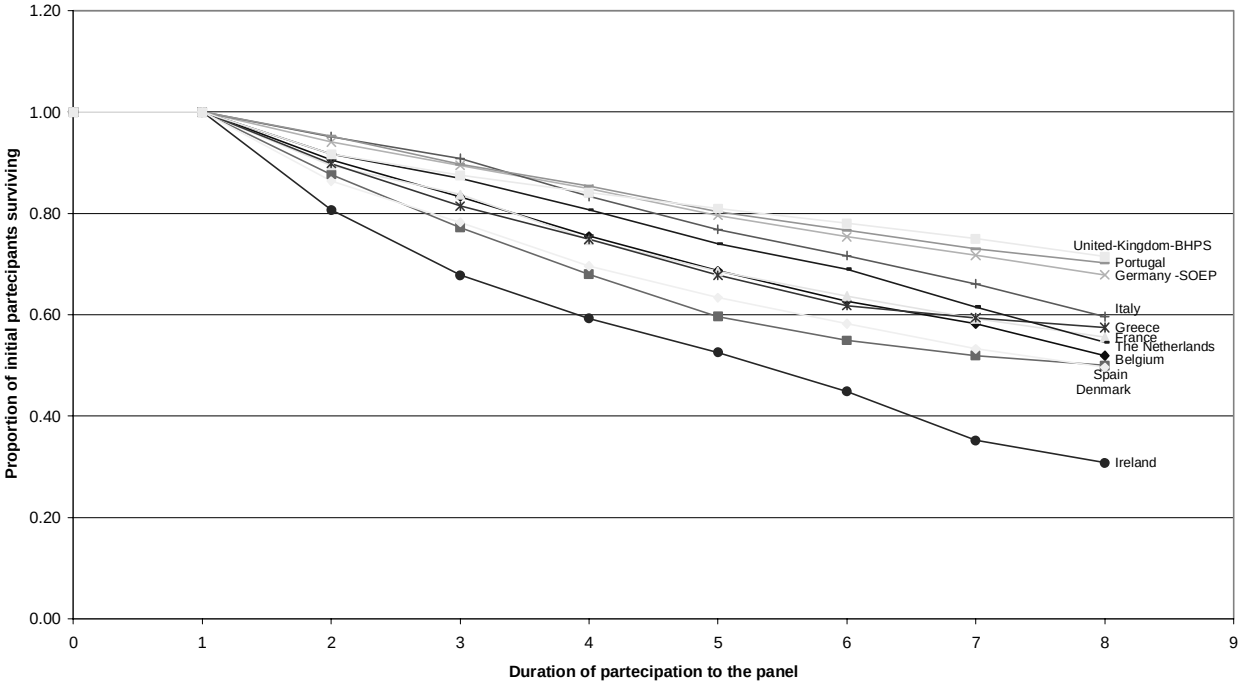

Figure 3 – Ratio between the survival function by gender and survival function for the total population 16+ at duration 8.

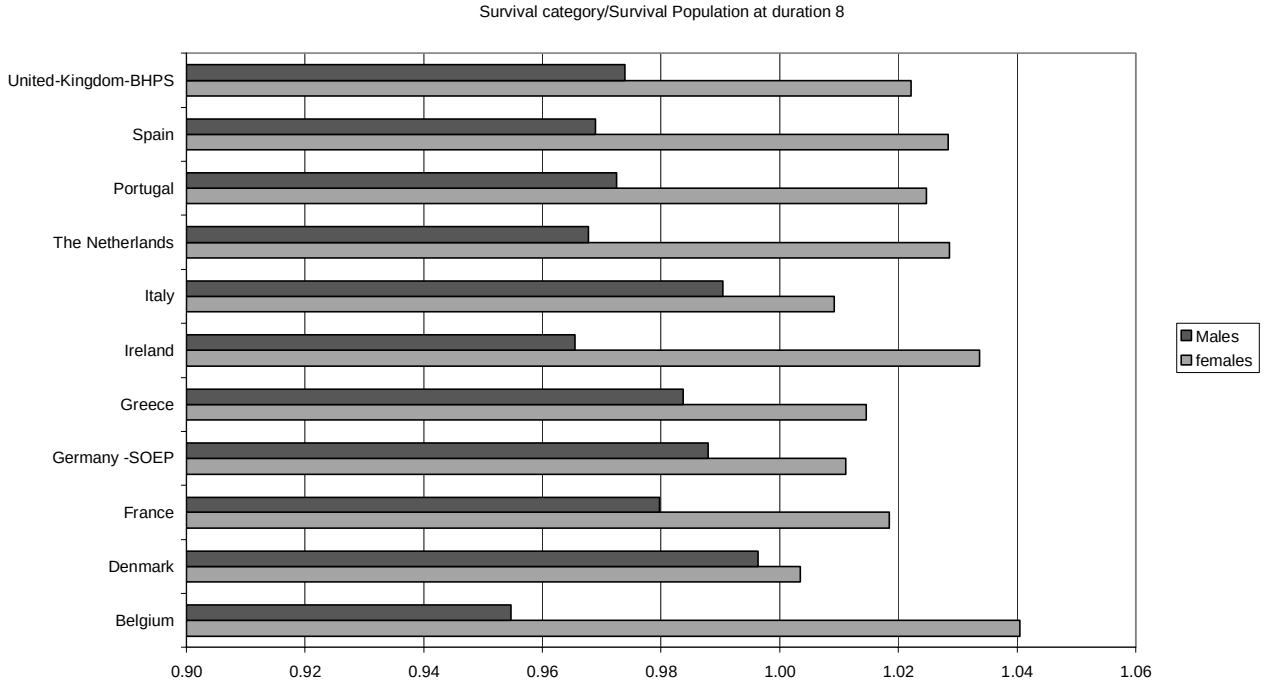

Figure 4 - Ratio between the survival function by age and survival function for the total population 16+ at duration 8.

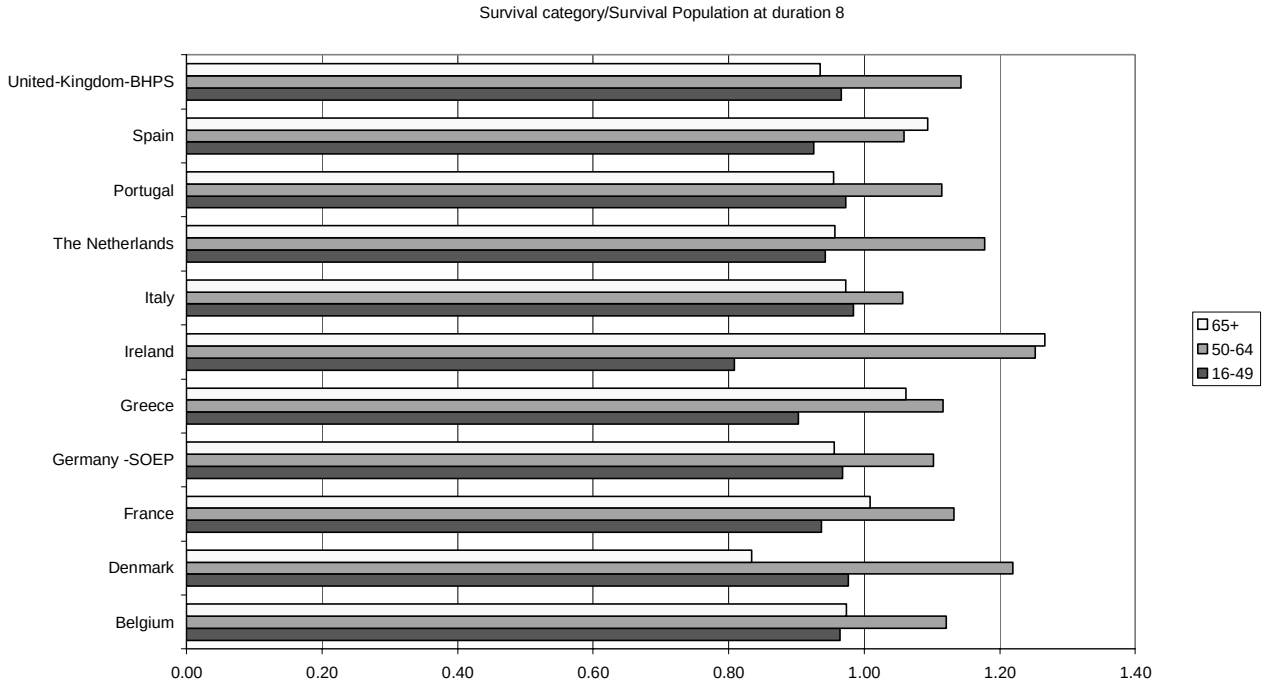

Figure 5- Ratio between the survival function by income level and survival function for the total population 16+ at duration 8.

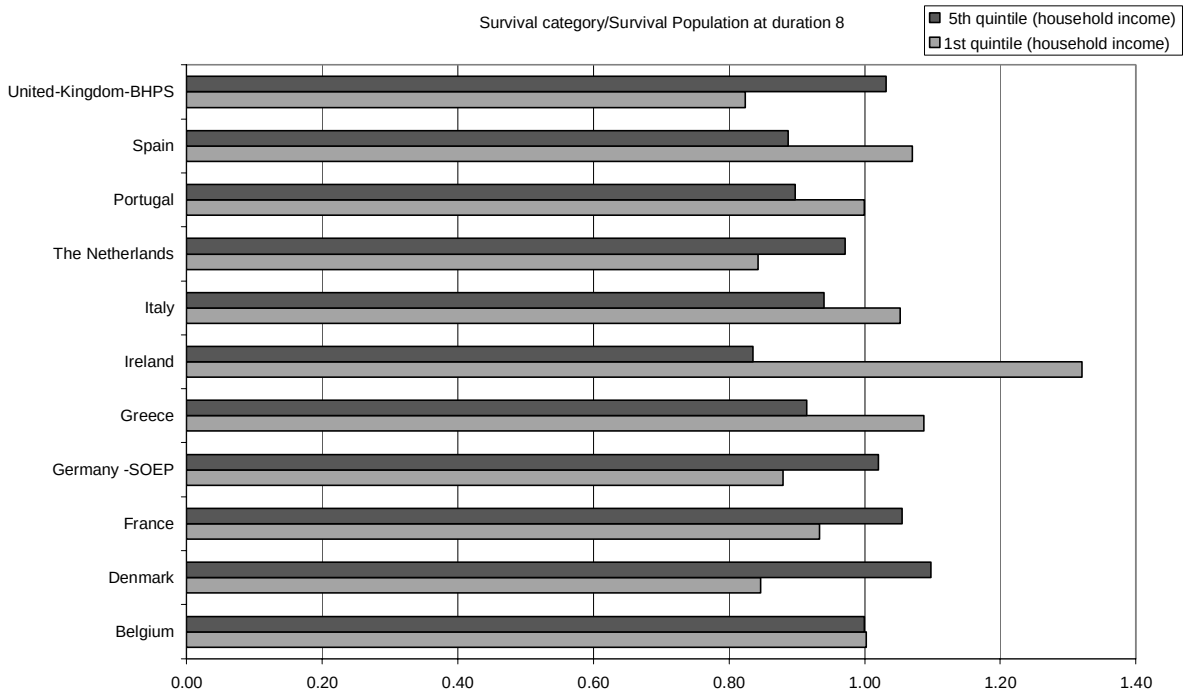

Figure 6 - Ratio between the survival function by household income principal source and survival function for the total population 16+ at duration 8.

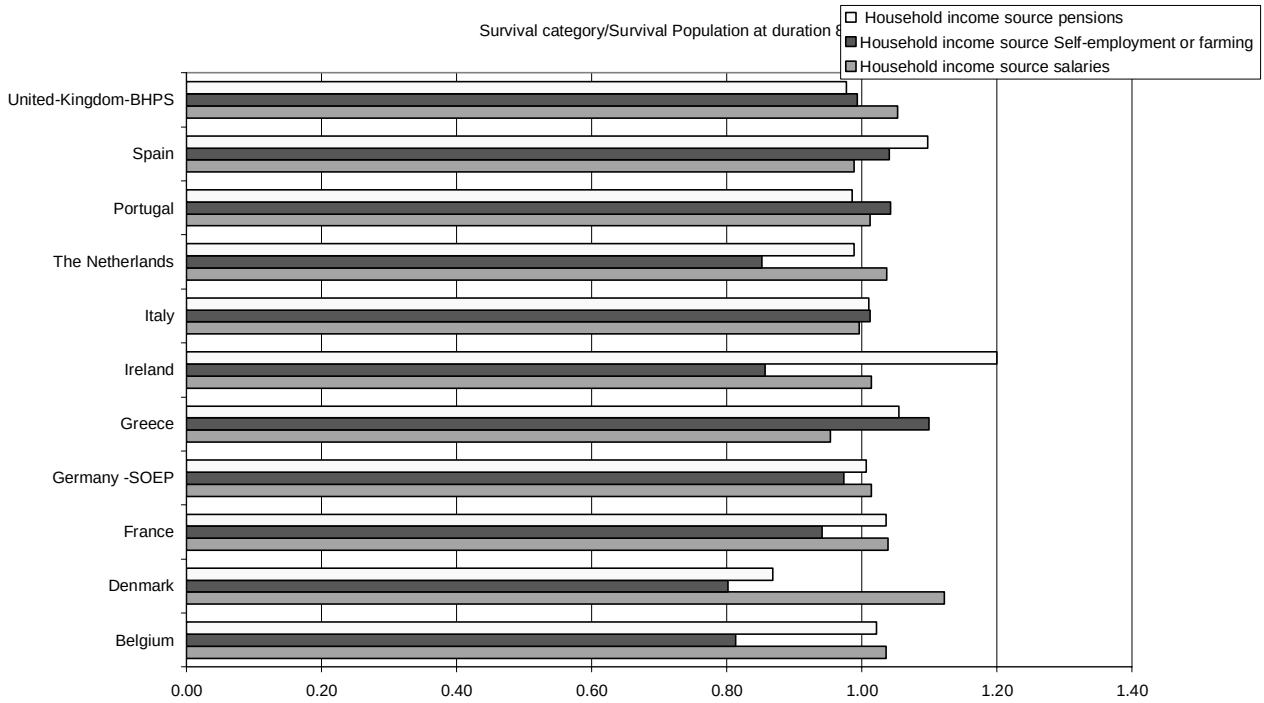

Figure 7 - Ratio between the survival function by social relationships level and survival function for the total population 16+ at duration 8.

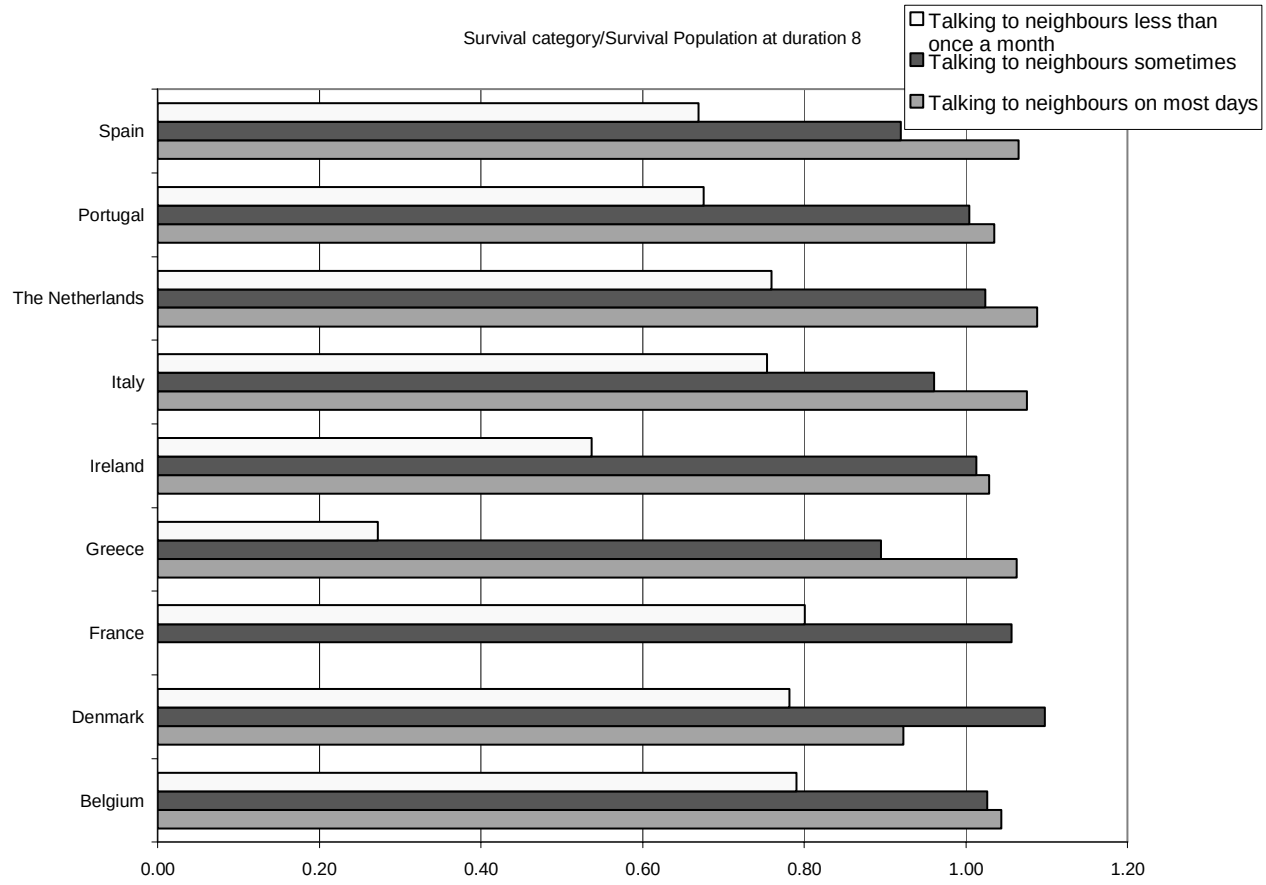

Table 2 – Logistic regression model estimates for the probability of being attritors – 1994-2001

	Denmark				The Netherlands				Belgium				France				Ireland				Italy			
	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)
Intercept	0.778	7.921	0.005	2.176	2.620	121.534	<.0001	13.729	1.940	62.373	<.0001	6.955	1.713	115.164	<.0001	5.543	3.611	335.288	<.0001	37.004	0.757	29.232	<.0001	2.132
Female	-0.119	3.999	0.046	0.888	-0.188	15.864	<.0001	0.828	-0.203	14.114	0.000	0.816	-0.143	14.377	0.000	0.867	-0.022	0.198	0.656	0.978	0.010	0.080	0.777	1.010
age	-0.062	32.415	<.0001	0.940	-0.126	214.627	<.0001	0.882	-0.108	127.433	<.0001	0.898	-0.097	231.873	<.0001	0.908	-0.120	249.922	<.0001	0.887	-0.065	147.292	<.0001	0.937
age^2	0.001	34.267	<.0001	1.001	0.001	195.278	<.0001	1.001	0.001	135.457	<.0001	1.001	0.001	244.412	<.0001	1.001	0.001	215.465	<.0001	1.001	0.001	189.529	<.0001	1.001
(ISCED 0-2)	0.612	58.935	<.0001	1.844	0.384	24.861	<.0001	1.468	0.322	20.492	<.0001	1.381	0.170	8.568	0.003	1.186	0.024	0.091	0.763	1.024	0.028	0.147	0.702	1.028
(ISCED 3)	0.285	14.492	0.000	1.330	0.063	0.923	0.337	1.065	0.192	6.729	0.010	1.212	0.147	6.364	0.012	1.158	0.064	0.662	0.416	1.067	0.025	0.116	0.733	1.025
Employed	-0.151	1.365	0.243	0.860	-0.183	1.902	0.168	0.833	-0.103	0.596	0.440	0.902	-0.455	36.067	<.0001	0.634	-0.065	0.418	0.518	0.938	0.195	9.098	0.003	1.215
Inactive	-0.018	0.017	0.897	0.982	-0.142	1.079	0.299	0.867	-0.246	3.128	0.077	0.782	-0.422	27.579	<.0001	0.656	-0.221	4.683	0.031	0.802	0.048	0.539	0.463	1.049
Less often than once a month	0.235	6.706	0.010	1.265	0.122	4.195	0.041	1.129	0.244	8.804	0.003	1.276	0.327	55.123	<.0001	1.386	0.433	9.926	0.002	1.542	0.165	9.646	0.002	1.179
On most days	-0.060	0.883	0.348	0.942	-0.147	7.032	0.008	0.863	-0.095	2.577	0.109	0.910					-0.186	14.069	0.000	0.830	-0.198	29.038	<.0001	0.821
Other sources	0.305	8.569	0.003	1.357	-0.170	4.044	0.044	0.844	0.394	15.788	<.0001	1.483	0.325	21.554	<.0001	1.384	-0.003	0.001	0.974	0.997	0.219	8.727	0.003	1.244
Pensions	0.216	2.226	0.136	1.241	-0.165	2.389	0.122	0.848	-0.255	5.598	0.018	0.775	-0.186	6.442	0.011	0.830	-0.107	1.266	0.261	0.899	0.077	2.145	0.143	1.080
Self-employment	0.408	8.233	0.004	1.503	0.310	6.972	0.008	1.363	0.141	1.130	0.288	1.151	0.076	1.037	0.309	1.079	-0.018	0.077	0.781	0.983	0.117	6.214	0.013	1.124
1st quintile	0.193	2.468	0.116	1.213	-0.071	0.539	0.463	0.932	-0.063	0.344	0.558	0.939	0.156	4.980	0.026	1.168	-0.208	4.043	0.044	0.812	-0.321	29.153	<.0001	0.725
2nd quintile	0.195	3.323	0.068	1.215	-0.119	2.314	0.128	0.888	0.150	2.700	0.100	1.162	0.141	5.163	0.023	1.152	-0.293	12.732	0.000	0.746	-0.253	21.417	<.0001	0.777
3rd quintile	0.126	1.954	0.162	1.135	-0.253	13.801	0.000	0.777	0.165	4.397	0.036	1.179	0.113	3.974	0.046	1.119	-0.161	5.606	0.018	0.851	-0.322	41.500	<.0001	0.724
4th quintile	0.004	0.002	0.962	1.004	-0.120	3.518	0.061	0.887	-0.075	1.058	0.304	0.927	0.088	2.644	0.104	1.092	0.095	2.302	0.129	1.100	-0.132	7.939	0.005	0.876
Test Likelihood Ratio																								
Chi-Square	396.287				462.276				295.106				602.685				384.857				451.637			
DF	16				16				16				15				16				16			
Pr > ChiSq	<.0001				<.0001				<.0001				<.0001				<.0001				<.0001			

	Greece				Spain				Portugal				Germany				United Kingdom			
	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)	Estimate	Wald Chi-Square	Pr > ChiSq	Exp(Est)
Intercept	2.452	227.507	<.0001	11.606	1.743	185.031	<.0001	5.711	2.623	145.249	<.0001	13.771	1.429	55.911	<.0001	4.176	1.967	103.503	<.0001	7.151
Female	-0.099	5.398	0.020	0.906	-0.060	3.021	0.082	0.942	-0.259	30.038	<.0001	0.772	-0.199	21.284	<.0001	0.820	-0.244	22.010	<.0001	0.784
age	-0.085	175.297	<.0001	0.919	-0.068	171.491	<.0001	0.934	-0.120	301.961	<.0001	0.887	-0.120	262.550	<.0001	0.887	-0.143	308.118	<.0001	0.867
age^2	0.001	204.099	<.0001	1.001	0.001	206.543	<.0001	1.001	0.001	360.264	<.0001	1.001	0.001	270.158	<.0001	1.001	0.002	301.726	<.0001	1.002
(ISCED 0-2)	-0.604	89.720	<.0001	0.546	-0.080	2.357	0.125	0.923	-0.648	27.505	<.0001	0.523	0.421	39.150	<.0001	1.524	-0.015	0.058	0.809	0.985
(ISCED 3)	-0.128	3.851	0.050	0.880	-0.093	2.388	0.122	0.911	-0.219	2.564	0.109	0.803	0.102	2.806	0.094	1.107	0.076	0.821	0.365	1.079
Employed	-0.101	1.575	0.210	0.904	-0.111	3.864	0.049	0.895	-0.512	19.609	<.0001	0.600	-0.167	3.389	0.066	0.846	-0.060	0.724	0.395	0.942
Inactive	0.069	0.700	0.403	1.072	-0.301	27.114	<.0001	0.740	-0.288	5.939	0.015	0.749	-0.264	7.096	0.008	0.768				
Less often than once a month	0.307	6.297	0.012	1.359	0.308	16.898	<.0001	1.360	0.367	14.298	0.000	1.443								
On most days	-0.797	246.284	<.0001	0.451	-0.271	52.418	<.0001	0.762	-0.289	34.379	<.0001	0.749								
Other sources	0.438	26.054	<.0001	1.550	0.160	7.927	0.005	1.174	-0.161	2.626	0.105	0.851	0.083	1.087	0.297	1.087	0.317	13.862	0.000	1.373
Pensions	-0.079	1.556	0.212	0.925	-0.083	2.364	0.124	0.921	-0.183	5.716	0.017	0.832	-0.236	6.544	0.011	0.790	-0.127	1.295	0.255	0.881
Self-employment	-0.297	32.905	<.0001	0.743	-0.053	1.014	0.314	0.948	-0.165	3.979	0.046	0.848	0.268	7.666	0.006	1.307	-0.080	0.639	0.424	0.923
1st quintile	-0.286	14.890	0.000	0.752	-0.190	9.508	0.002	0.827	-0.105	1.422	0.233	0.900	0.333	16.067	<.0001	1.396	0.209	4.751	0.029	1.233
2nd quintile	-0.081	1.477	0.224	0.922	-0.088	2.543	0.111	0.916	-0.137	3.065	0.080	0.872	0.253	12.486	0.000	1.288	0.040	0.212	0.645	1.041
3rd quintile	0.017	0.072	0.788	1.017	-0.093	3.306	0.069	0.911	-0.168	4.821	0.028	0.845	0.191	9.922	0.002	1.211	-0.021	0.074	0.786	0.979
4th quintile	-0.116	3.853	0.050	0.891	-0.138	7.864	0.005	0.871	-0.172	5.440	0.020	0.842	0.080	1.897	0.168	1.083	-0.236	9.691	0.002	0.790
Test Likelihood Ratio																				
Chi-Square	1083.385				420.602				832.614				567.424				601.837			
DF	16				16				16				14				13			
Pr > ChiSq	<.0001				<.0001				<.0001				<.0001				<.0001			