AN EMPIRICAL ANALYSIS OF THE DEMAND FOR PHYSICIAN SERVICES ACROSS THE EUROPEAN UNION*

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ABSTRACT

Using three waves of data from the *European Community Household Panel* this paper estimates demand for health equations for 12 European Countries. The focus is on three specific points: i) the identification of behavioural similarities and differences in the demand for health across the countries; ii) the variability of the demand for health captured through a joint model for all the countries; iii) the selection of the most appropriate econometric specification for visits to general practitioners and to specialists among two-part and latent class models. We find that there are significant differences across countries, although there are also similarities in the effect of variables such as the health stock, income or family structure. We also find some differences between the behaviour of men and women mainly in the decisions to visit and the number of visits to specialists. The results also suggest that latent class models are more appropriate than two-part models to estimate the general practitioners equations while the opposite is found for visits to the specialists.

Keywords: count data; latent class model; two-part model

JEL classification : C25, C42

1. INTRODUCTION

During the last two decades, many European countries have been reviewing their health systems. Table 1 shows that the health systems differ across EU countries in many respects, as the type of payment and functional role of the physicians, the governments contribution to health expenditure and the amount of co-payments of the patients to the health expenditure. However, similarities in the reforms undertaken are the changing role of the state in health care, the decentralisation of the systems, the changing role of public health provision and the increase in patients choice (selection of doctors and hospitals). The implementation of any of this reforms requires a clear knowledge of the characteristics that determine the demand for health across the EU countries.

This paper estimates demand for health equations for the twelve EU countries listed in Table 1 (France, Finland and Sweden are excluded from the analysis because of the lack of adequate and/or sufficient data). The goal is to identify behavioural similarities and differences across the countries in the sample. Additionally we determine how much of the variability of the demand for health can be captured through a joint model which accounts for differences in the health systems across these twelve countries. We also provide evidence on what is the more suitable econometric specification for health demand equations.

We use a sample of males and females drawn from the three available waves of the European Community Household Panel (ECHP). Although the ECHP focuses on household income and living conditions across EU15 countries it also collects the necessary information to estimate demand for health equations. In particular it collects information about the general health situation of the individuals (self-perceived health status, chronic conditions, whether the individual was admitted as in-patient in a hospital or whether the individual is hampered by its health condition in its daily activities) and more importantly, it records the individuals' number of visits to a general practitioner (*GP*) and to a specialist (*SP*) during the previous year. We will take these two measures as indicators of the demand for health care.

Using maximum likelihood we estimate alternative econometric models: two-part models (TPM) and latent class models (LCM). We estimate two demand equations (for *GP* services and *SP* services) separately for males and females. The estimation is done by country (heterogeneous model) and pooling the whole set of countries in the sample (homogeneous model). The results from the econometric specifications are then compared and the performance of the models tested.

The reasons to estimate TPM and LCM are as follows. The TPM are appealing from an economic point of view since they can be derived directly from a theoretical model. The underlying model accounts for the fact that the physicians can induce the patients' demand for health (see Cromwell and Michell, 1986 or Pohlmeier and Ulrich, 1995). Therefore, the induced demand model arises within the framework of the principal-agent theory as opposed to the traditional model of Grossman (1972) which is derived from an individual maximisation problem. Consequently, demand induction implies a two-stage model: in the first stage the individual decides whether or not to visit a physician; in the second stage the duration of the treatment is decided partially or entirely by the physician (see Kenkel and Terza, 1999 or Kenkel 1990). The TPM are the corresponding empirical specification for the induced demand theoretical models: the first stage is modelled as a binary choice model (a probit in our case) and the second stage is modelled as a truncated count model (a negative binomial in our case).

However, there is some empirical evidence suggesting that the TPM can not separately identify the parameters driving the two decision processes described above (Santos-Silva and Windmeijer, 1999). A widespread alternative to the TPM are the LCM. The LCM are based on a standard count data specification (derived from a traditional Grossman's model of demand for health), but they allow for unobservable heterogeneity. The distribution function of the unobservable characteristics is approximated by a finite mixture distribution function (Heckman and Singer, 1984). The results of Deb and Trivedi (1999 a, b) and Deb and Holmes (2000) suggest that a specification with two support points (two components) for the finite mixture distribution is flexible enough to explain the demand for health. We therefore estimate a LCM with two components. Note that other modelling alternatives could be used instead of the TPM, e.g. the joint Generalised Method of Moments estimation of the parameters of the two processes using the conditional mean of the total demand as in Santos-Silva and Windmeijer (1997).

We obtain three main results. First, we find that a homogeneous model for all countries is not supported by the data, which implies that there are significant behavioural differences across countries. However we also find important regularities across countries, e.g. the effect of the individual health stock, the income, and the family structure on the demand for health. Second, we find differences in the behaviour of men and women, especially in the decisions to visit a specialist. Third, we find that the LCM are more appropriate to model the visits to a *GP* whilst the TPM are more appropriate to model the visits to a *SP*.

The novelty of this paper is that it uses a homogeneous and comparable data set to estimate a common model of demand for health for a group of European countries. It makes two contributions to the literature on demand for health. First, it sheds some light on the empirical determinants of demand for health in Europe. There is little empirical evidence on the demand for health across Europe. Exceptions are Pohlmeier and Ulrich (1995), who estimate demand for health equations for Germany, Santos-Silva and Windmeijer (1997) for the UK and Vera-Hernández (1999) for Catalonia. These papers use different data sets and different model specifications, which makes the results difficult to compare. Second, this paper provides economic and statistical evidence on the more appropriate econometric specification for *GPs* and *SPs* health demand equations.

The rest of the paper contains four sections. In Section 2 we set up the model in a theoretical framework, specify it and explain the econometric techniques. Section 3 describes the data source. The model specification tests and the empirical results are reported in Section 4. Section 5 contains the conclusions. Finally the Data Appendix describes the variables used.

2. THEORETICAL FRAMEWORK, SPECIFICATION AND ESTIMATION PROCESSES

We assume that medical care (measured as the number of visits to a physician) is purchased and used as an input in the household production function of health, closely following Grossman's model. The demand of medical services is in this context a derived demand, because services are not consumed per se but to maintain or improve upon a certain health status. The patient perceives the marginal product of the different medical services in order to take her decisions about contacting different physicians. In general, the consumer (the patient) decides whether to visit a physician by comparing the marginal benefits and marginal costs of improving her health. The duration of the treatment would be decided on a second stage by both the patient and more importantly the physician. This second stage cannot be accommodated within the demand model of Grossman but in the context of a principal – agent framework in which the agent (physician) could induce or not demand for his services.

Although probably this simple decision process can adequately describe visits to a *GP*, this is not the case of visits to the specialist. The reason is that a visit to the *GP* is also a compulsory step for visiting a specialist (both being normally covered by the National Insurance systems, see Table 1). At a second stage, the *GP* decides upon a possible visit to a specialist and the specialist decides at a third stage the number of visits. No attempt to model this type of complex and interrelated process has been made in this paper given the data we use. Moreover, throughout the paper we assume that the individual only suffers an illness spell during the period covered by the survey, which seems to be an important assumption concerning the econometric models (see Santos-Silva and Windmeijer, 1999). This hypothesis is a necessary one for TPM and our main aim for estimating LCM is not to impose it on the data. In addition to these considerations, the lack of sufficient data in the ECHP does not allow to estimate a full structural model. On the contrary, we assume a reduced form as follows:

$$I_{iljk} = f_{1iljk}\left(Z_{iljk}, e_{1iljk}\right) \tag{1}$$

$$Y_{iljk} = f_{2iljk}\left(X_{iljk}, e_{2iljk}\right) \tag{2}$$

where $I_{iljk} = \mathbf{1}(Y_{iljk} > 0)$ is the binary index used for the first decision (latent variable) with **1***(A)* indicating the occurrence of event *A*. Y_{iljk} is the number of visits of individual *i*, belonging to country *k* and group *j* to physician *l* (*l = GP and SP*) and we omit the time sub-index, *t*, for simplicity. Note that Y_{iljk} only takes non-negative integers as values. Finally, *X* and *Z* are conditionings of both dependent variables that can have common elements and e_1, e_2 are error terms.

Suppose that we have a sample of N_{ljk} observations on (Y_{ljk}, w_{ljk}), where the vector of covariates w_{ljk} includes variables both in *X* and *Z* that, following Winkelman (1998), may be disjoint or overlapping. We also assume that $Y_{iljk} = 0$ for N_{ljk0} observations and $Y_{iljk} > 0$ for N_{ljk+} and $N_{ljk} = N_{ljk0} + N_{ljk+}$. We are interested in explaining the conditional expectation of the number of visits to physician *l* made by individual *i*, belonging to group *j* and country *k* Y_{iljk}, given the covariates. In the TPM this expectation can be decomposed in two terms, the probability of observing a positive outcome (part one or first hurdle) times the conditional expectation of Y_{iljk} given that it is positive (part two or second hurdle). This decomposition is made in two parametric models. The first component is usually estimated assuming a discrete choice model (Probit or Logit). The second component can be seen as a count data model (Poisson or Negative Binomial).

The most common specification for the count model is the Poisson regression. However, there are some undesired features of the model (because of data characteristics or failures from Poisson distribution, see Cameron and Trivedi (1986, 1998)) and one of them is the equality of mean and variance conditional on the explanatory variables. This equi-dispersion property generally appears as restrictive in empirical applications. A Negative Binomial (NB from now on) model could be assumed for the data generating process to overcome the previous assumption (see Hausman *et al.* (1984) or Cameron and Trivedi (1990)).

Under these circumstances, if Y_{iljk} follows a Poisson distribution with mean l_{ljk}, we can write the probability of y_{iljk} visits of patient *i* (belonging to group *j* in country *k*) to physician *l* as:

$$P(Y_{iljk} = y_{iljk} / l_{iljk}) = \frac{e^{-l_{iljk}} \, l_{iljk}^{y_{ijkl}}}{y_{iljk}!} \qquad y_{iljk} = 0,1,2,... \tag{3}$$

where $l_{iljk} = E(y_{iljk} / X_{iljk}, e_{2iljk}) = \exp(X_{iljk}' b + e_{2iljk})$, and e_{2iljk} represents unobserved heterogeneity which is uncorrelated with the *X's* by assumption. On the other hand, the NB can be written as a mixture of a Poisson and Gamma distributions. If we specify l_{iljk} as a Gamma distribution and make the integration over l_{iljk}, we obtain a NB for Y_{iljk} (see Cameron and Trivedi, 1986, 1998, for details).

$$P(Y_{iljk}=y_{iljk})=\int_0^\infty P(Y_{iljk}=y_{iljk}/\,l_{iljk})\,f(l_{iljk})dl_{iljk}=\frac{\Gamma(y_{iljk}+v_{iljk})}{\Gamma(y_{iljk}+1)\Gamma(v_{iljk})}\left(\frac{v_{iljk}}{v_{ljk}+q_{ijkl}}\right)^{v_{iljk}}\left(\frac{q_{iljk}}{v_{iljk}+q_{iljk}}\right)^{y_{iljk}} \quad (4)$$

being Γ a Gamma distribution with parameters y_{iljk} and v_{iljk}. The moments of the resulting NB are $E(Y_{iljk})=q_{iljk},\ q_{iljk}>0$ and $Var(Y_{iljk})=q_{iljk}+\frac{1}{v_{iljk}}q_{iljk}^2$ where we must understand *E(.)* and *Var(.)* as conditional on covariates. Since $q_{iljk} > 0$, the distribution derived in this way allows for over-dispersion. Moreover, v_{iljk} permits to introduce a stochastic error term that captures unobserved heterogeneity and possible measurement errors. Finally, we could include conditioning variables through q_{ljk}, v_{ljk} or both. In fact modelling in different ways the variance yields different NB models. In this work we consider the NB2 in the terminology of Cameron and Trivedi (1990).

However, the behaviour of the individuals regarding demand for health services, at least in the light of the data or previous work with the ECHP by Jiménez-Martín *et al*. (2000) seems to follow a double decision process: a process where the individual decides to go to the practitioner and a process where the practitioner has the decision to determine the length of the treatment. The patient is also competent in this second stage for many reasons: i) a visit to a General Practitioner, for instance, could have the solely purpose of obtaining information in order to know the specialist she needs to go; ii) although the *GP* has, at least in some countries, the faculty to send patients to the specialist, an individual can decide not to go; iii) the patient can decide the number of visits independently of the opinion of the physician.

From an econometric viewpoint is very important to note that the results provided by the previous models are correct only when the process governing the discrete part of the model (the zero observations) and the process describing the positive counts are the same. Even when the same determinants appear as important in the two parts of the decision process, their effects and interpretations could be different. In this work we use, as in Pohlmeier and Ulrich (1995), the hurdle models for count data proposed by Mullahy (1986). Unlike Mullahy, we assume that the underlying distribution for the first stage is normal and we model that decision by a probit. For the second stage, as suggest by a previous exploration of the same data set, we opt for a NB process. If we further assume absence of zeros in the second stage using a truncated distribution for this second process, we can write the log-likelihood function for the sample as:

$$L_{TPMl} = \sum_{k=1}^{K}[\sum_{i\in N_{k0}} \ln P(I_{iljk}=0 \mid Z_{iljk}; \boldsymbol{b}_{1ljk}, \boldsymbol{s}^2_{1ljk}) + \sum_{i\in N_{k1}} \ln(1-P(I_{iljk}=0 \mid Z_{iljk};\boldsymbol{b}_{1ljk},\boldsymbol{s}^2_{1ljk}))$$

$$+ \sum_{i\in N_{k1}} \ln P(Y_{iljk} \mid X_{iljk}; b_{2ljk}, s^2_{2ljk}) - \sum_{i\in N_{k1}} \ln P(Y_{iljk}\ge 1 \mid X_{iljk}; b_{2ljk}, s^2_{2ljk})\ ] \quad l = GP, SP \qquad (5)$$

where the first two terms in (5) govern the binary outcome and the last two terms the number of visits once the first decision has been taken. The second hurdle is governed by a truncated NB distribution. Note that although we maintain sub-index *j*, it does not vary in this model. Given the nature of the data that we have, the Zero Inflated Model (see Cameron and Trivedi, 1986, 1998 or Mullahy, 1986) is not reasonable since we know that a patient decides to contact a physician just when she makes a visit. Therefore, the count for those that decide to visit a physician in the first stage is always at least one. The likelihood implicit in (5) has been expressed as the product of two parametrically independent likelihood functions for each country. The errors of the two parts of the model can be assumed to be correlated although this would imply the use of a different method of estimation (for instance, a Simulated Method of Moments as in Winkelman, 1998). This specification of the log-likelihood function for all the sample allows us to test among different models by imposing simple restrictions on the parameters (for instance, pooled estimates are easily obtained by imposing appropriate restrictions in (5)).

A second problem we would like to deal with concerns the impossibility of distinguishing different illness spells in the data during the period information is collected. This is know as the excess zeros problem (Cameron and Trivedi, 1986, 1998 or Mullahy, 1986). Although TPM allow to deal with this problem by means of zero inflated NB, i.e. without truncation at the second stage as above, they only permit mixing with respect to zeros and not with respect to positives, whereas the problem of unique spell affects both positives and zeros. One could account for this deficiency by using recent proposals in the health economics literature of Deb and Trivedi (1999a, b). LCM are expressed as mixing distributions and in particular finite mixtures distributions. The log-likelihood function for these models, when considering data from several countries, is given by,

$$L_{LCMl} = \sum_{k=1}^{K} \sum_{i=1}^{N_k} \ln\left[\sum_{j=1}^{J} p_{ljk} f_{lijk}(Y_{lijk} \mid X_{iljk}; \boldsymbol{d}_{lijk})\right] \qquad l = GP, SP \qquad (6)$$

where p_{ljk} and $f_{ljk}(.)$ are respectively the mixing probability and the density corresponding to group *j*, country *k* and physician *l* and d_{ljk} is the set of parameters to estimate. Note that the specification is restricted to the case in which the number of groups is homogenous across countries. The mixing probabilities are unknown parameters to be estimated jointly with the rest of parameters of the model. In order to identify all the parameters we estimate subject to the restriction $1=\sum_{j=1}^{J} p_j$. If we specify *f(.)* as in equation (4), the LCM allows for over-dispersion. As in the case of (5), this general specification of the log-likelihood function for all the sample allows us specify a variety of testing procedures as simple restrictions on the parameters of the model (for instance, equality of the coefficients across countries and equality of the coefficients across groups).

This approach has a number of advantages respect to TPM. First, the possibility of modelling unobserved heterogeneity which is accommodated in the model through the density and permits unobservables to affect the different types of groups in different ways. Second, the approach is semiparametric because it does not require distributional assumptions for the mixing variable and as noted by Heckman and Singer (1984), finite mixture models may provide good numerical approximations even if the underlying mixing distribution is continuous. They are also useful if the data shows multimodality.

It is also worth to mention that the LCM analysis suffers from a few disadvantages. While TPM are natural extensions of economic models (in the principal – agent framework, for instance), LCM are forced by statistical reasoning. This model has a long history in statistics (Everitt and Hand, 1981) but it is a very new proposal in health economics. Second, it is sometimes difficult to estimate (by maximum likelihood) due to over-parameterisation since the mixing distribution has to be estimated jointly with the rest of parameters of the model. There are, however, several recent approaches to deal with the estimation using the EM procedure (Böhning, 1995). Third, misspecification of the density is as possible in LCM as it is in TPM. Moreover, they are not nested and we can not answer whether the better adjustment of LCM to the data is only a question of over-parameterisation, i.e. the subsets of observations belonging to the different groups defined are statistically different. In our view, unobserved heterogeneity is much more related to economic issues (differences in tastes, preferences, etc.) than to statistical ones.

3. DATA AND VARIABLES

The data that we use is a sample of males and females drawn from waves 1 to 3 of the ECHP. This panel survey (see Peracchi, 2000, for a description of the features of the ECHP), which is carried out since 1994, contains valid information, for the purposes of this paper, on 12 European countries. Given the reduced time span of the panel we pool the three waves and use the longitudinal nature of the data only to construct some explanatory variables as explained below.

Despite that the ECHP focuses on household income and living conditions across EU15 countries it still provides interesting information on individual health and related issues. Apart from the traditionally asked questions on health status, such as a self-statement on global health or whether the person is hampered in daily activities, the survey includes some additional ones. More specifically, it records whether the individual has any chronic physical or mental health problem, illness or disability. Individuals are also asked if they have been admitted to a hospital as in-patients (the number of nights spent in a hospital as in-patient are confidential information for Germany and therefore will not be used in this study). Finally, the survey collects information on how many times an individual has consulted a doctor, a dentist or an optician during the past 12 months (visits to a doctor, optician or dentist are aggregated for the first wave) which allows us to construct some measures of health demand as the quantity of health services purchased.

Let us concentrate on the latter pieces of information namely the counts of visits to *GPs* and *SPs*. Table 2 shows a crude descriptive information on the zeros and positive counts in the 12 countries that are analysed herein. Several remarks are in order as regards contacting a physician. First of all, women visit more often doctors than men. Although we do not report these figures in the paper, this is so at practically all ages as shown in Jiménez-Martín *et al.* (2000). In all countries individuals visit more often a *GP* than a *SP*. There is more over-dispersion of *GP* counts than of *SP* counts. Notorious differences are detected by country, sex and kind of physician. Several reasons can be behind these figures. First, there seems to be a strong relationship between visits to a *GP* and per capita income, since individuals do visit a *GP* substantially less frequently in Southern countries and Ireland. Second, the pattern for visits to the specialist is less clear and differences may respond to accessibility criteria, which varies from country to country. And third, the differences by sex are more evident in the case of visits to *SP* than in *GP* visits, probably because of the type of physicians that the specialists include.

The explanatory variables used in the estimation can be divided in three groups (see the Data Appendix for a detailed description). The first group is formed by variables that affect the individual's health perception. It includes age and its square, and income and its square. It also includes variables which try to pick the individuals' health endowments or stocks (see Anderson and Burkhauser (1985) for details on measures and problems of health variables): a dummy for self-perceived good health, a dummy for suffering a chronic condition, a dummy for individuals that were accepted as in-patients at a hospital, and dummy for individuals hampered in their daily activities. Finally, this group of variables also include measures of the time opportunity cost, that is, variables relating job status (dummies for employment, self-employment, unemployment, and retirement; dummies for part-time jobs) and variables relating the family structure of the individual (marital status, household size, and dummy for heads of the household). We consider a second group of variables that is composed by those that affect the probability of having a health shock and the knowledge of this likelihood: education (dummy for high education), occupation (dummies for professional workers, for clerical workers, and for services workers; dummy for doing any type of supervisory job; dummy for working in the public sector), and risk of the job (dummy that equals one if the individual perceive its job as risky).

Finally, the third group of variables is formed by country specific variables approximating the differences on the health systems (see Table 1). This group includes two dummies reflecting the more common type of remuneration for doctors in every country: capitation (i.e. doctors are paid a fee for each patient registered with them), and salary (i.e. doctors are employed by the state or the insurer); the omitted dummy is fee-for-service (i.e. doctors are paid on the base of the services provided). Also in this group are the number of physicians per 1000 inhabitants for the countries paying their doctors mainly with a fee-for-service scheme, the total health expenditure in each country, the contribution of public expenditure to the total health expenditure, and a dummy which equals one for countries were *GPs* act as “gatekeepers”.

In our empirical application, all the job, income, and health related variables are lagged, since they may be endogenous to the health demand process. However there is a notorious exception, since it is not possible to have a lagged indicator of the chronic health condition because of it was not asked for in the first wave of the survey. This does not cause major problems (except through persistent individual heterogeneity) since the chronic conditions today and yesterday are practically collinear.

4. RESULTS AND DISCUSSION

This section discusses the model selection and main results of the estimation. Section 4.1 presents a set of tests, that are used to select the econometric specification that fits better the modelling of the visits to *GPs* and to *SPs*. Section 4.2 presents the results of the independent estimation by country of the preferred models (heterogeneous model). Finally, Section 4.3 reports the estimation results of the preferred model for the pool of all the countries (homogeneous model).

4.1 Model Selection

We have estimated a single TMP specification and three LCM specifications, all of them characterized by a two points of support (that is, two components or two groups) finite mixture distribution. In the first LCM specification (LCM0) only the constant varies across groups; in the second (LCM1), both the constant and the parameter characterizing over-dispersion vary across groups; finally in the third (LCM2) also the rest of the coefficients vary across groups. All the models are estimated by maximum likelihood. The values of the log-likelihood for the estimated models are reported in Table 3. The estimation is carried out separately for males and females since differences in behaviour regarding health demand can be expected according to sex. In particular, differences on the visits to the specialist related to fertility can emerge. Before commenting on the results of these models, we first proceed to select the preferred models on the basis of a battery of tests. Our testing procedure is as follows: we first decide between LCM and TPM on the basis of information criteria. For any given pair of equivalent TPM-LCM we compare the Akaike Information Criterion (*AIC*) and the Bayesian Information Criterion (*BIC*). The former is defined as $AIC = -2lnL + 2K$ and the latter as $BIC = -2lnL + Kln(N)$, where *lnL* is the value of the log-likelihood function for either the TPM or the LCM, *K* the number of parameters estimated and *N* the sample size. We prefer those models with smaller values of *AIC* and *BIC*. The values of the *LnL* and *AIC* for each specification are reported in Table 3. The values of the *BIC*, which always gives the same results than the *AIC* are available upon request.

In the *GP* equation, both the *AIC* and the *BIC* criteria clearly favour LCM when comparing the aggregated values of the tests and they also support LCM when making comparisons for individual countries, just with the exceptions of Greece and Portugal in the equations for males and UK, Greece and Portugal in equations for females. These results do not depend on the specification of the LCM we use, except when we group countries according to classification North-South, in which case the TPM is preferred to the LCM0 for South countries, where the average of the counts for *GPs* is smaller. Multiple spells in the count of visits to *GPs* (which in addition is a previous step for visiting *SPs* in most of the countries analysed) help explain the fact that LCM are preferable for a majority of countries in terms of *lnL*, *AIC* and *BIC*.

The situation is not as clear in the *SPs* equations as it is in the *GPs* ones. We do not reject the TPM model both in the case of males and females in at least 6 out of 12 countries (Denmark, The Netherlands, Greece and Portugal are always in the list of countries where the TPM adequately reflect the individuals' decisions as regards health services). More importantly the *AIC* (and *BIC*) tests favour TPM for both men and women in all the summary measures we present, that is when adding up the country specific *AIC* or when comparing *AIC* for pooled data models.

The second testing procedure we employ concerns the comparison of specifications within the same model, i.e. the three different specifications for LCM described at the beginning of the section, in order to test whether imposing restrictions in various parameters of the model is supported by the data. Columns under headings LCM0, LCM1 and LCM2 provide the necessary information to obtain the value of these LR test. A common result to all these diagnostics is that enriching the specifications using additional heterogeneous parameters help explain better the demand for health services. However, the quantitatively small difference between the log-likelihood of both the LCM1 and LCM2 specifications (although formal *LR* test still favour LCM2 specifications in a majority of cases, see at the bottom of Tables 4a and 4b for the case of *GP* equations) suggests that there is an unsolved question: whether this result is product of over-parameterisation of the models or is based on economic intuition.

Finally, our results reject a homogenous specification for both *GPs* and *SPs*. The result still holds, although less clearly, when considering more flexible pooled data specifications. For example, when either interacting age and income with country specific dummies, when permitting the over-dispersion parameter to vary across countries, or when estimating separately for two groups of countries, namely Northern (Germany, Denmark, The Netherlands, Belgium, Luxembourg, Austria and UK) and Southern (Ireland, Italy, Greece, Spain and Portugal). Particularly, in the latter case there is an important fraction of the differences across countries that is collected for males in the *GP* equation and for both males and females in the specialist equations, but still a significant fraction of the differences remain unexplained in the female decision of visiting a specialist. In addition, we have conducted tests among male and female specifications and the results (although not reported) confirm significant differences in 10 out of 12 countries in the *GP* equation and in all 12 countries in the *SP* equations. The results of such tests are available upon request.

Thus, given the above testing results and in order to preserve comparability across countries we pick the LCM2 and the TMP for visits to *GP* and specialists, respectively. Note that our model selection is highly coherent with theory. This is so because visits to *GP* are more likely to suffer from a multi-spell problem (see Table 2). In such case, TPM perform poorly relatively to LCM. On the contrary, visits to specialist are less frequent in all the countries and, consequently less likely to suffer from the same problem in our data. In such alternative case, TPM may, as in our case, represent adequately the data.

4.2 Country estimates

In this section we discuss the results obtained from the estimation of the models selected in the previous section for the visits to the *GP* and for the visits to the *SP*, namely a LCM with two components for the *GP* visits and a TPM for the *SP* visits. We concentrate here on the estimation by country. We first discuss the effect of the explanatory variables on the number of visits to the *GP* and on the number of visits to the *SP* and afterwards comment these effects in relation with the existent literature.

We start with the discussion of Tables 4.a and 4.b that content the results for the *GP* visits for males and females respectively. As it can be seen from these tables, the effect of the variables differ across countries for males and females although some regularities can still be found. The effect of age on the number of visits to the *GP* is for most of the countries convex or non-existent for both males and females. Income, that enters the model with a quadratic term, does not have a clear effect across countries. For most of them, this variable is non significant and that is especially true for females.

The variables reflecting the individual's stock of health are one of the most important determinants of the demand for *GP* services. As expected self-perceived good health reduces the number of visits to the *GP* while suffering a chronic illness or being in-patient at a hospital during previous year increases the number of visits to the *GP*. As a measure of incapacity, the dummy that reflects whether the individual is hampered in her daily activities has a positive effect on the demand for *GP* services. Among all these variables relating the individual's health endowment, the most important turns out to be the dummy for a chronic illness.

With respect to the effect of the variables that approximate the time opportunity cost, first the size of the household has a negative effect on the number of visits to the *GP* for females, i.e. the larger the household, the more they benefit from economics of scale in the production of health, thus requiring fewer inputs to achieve similar health effects. For males this effect does not exist in most of the countries. Single females are in general less likely to visit the *GP*. Again this effect is less important (in terms of significance) for males. Finally, the job status tend to have the expected sing: either employed and self-employed individuals are less likely to visit the *GP* or non-working individuals (unemployed, retired or inactive) are more likely to visit the *GP*.

The effect of education in the frequency of the visits to the *GP* is not well defined for most countries, but when significant it shows a negative sign. This effect is also found for the occupational variables: non-manual female workers (professionals, clerical workers or service workers) visit less often the *GP*; the effect of a non-manual occupation for males shows a less clear pattern across countries. To work for the public sector and to have a job self-perceived as risky has no effect or a positive one in the number of visits to the *GP*.

We turn now to the discussion of the Tables 5.a and 5.b that content the TPM estimation for the visits to the *SP* for males and females respectively.

Under the maintained assumptions of the model, the first stage represents the individual's decision to contact the *SP*, while the second stage models the frequency decision or duration of the treatment. According to the specification test that compares NB versus Probit plus truncated NB, the hurdle estimation points to important differences between the two decision making stages. In general, the estimates for the first stage are more precisely determined. This result is not surprising since most of the variables used in the analysis refer to characteristics of the individual seeking health care. Variables relating the supply of health services that could explain the frequency of the visits are unfortunately not available in this study.

The effect of the age variable is, as in the case of the visits to the *GP*, not well defined (for both males and females and in both stages) and its sign varies across countries. However, the effect of the income variable is more interesting in this case than in the case of the visits to the *GP*. Income has a clear inverted U-shape effect in the decision to contact the *SP* for both males and females. This concave effect disappears for males in the second stage and it remains for females though not in all countries.

The health stock variables are again a major determinant of the demand for *SP* services, both for males and females, and both for the contact and frequency stages of the decision process. Their effect is similar to the effect on the visits to the *GP*: good self-perceived health has a negative effect on the probability of contacting the *SP* and on the frequency of the visits to it, and the rest of dummy variables, which act as indicators of a low health endowment, have a positive effect on both the probability of contacting a *SP* and the frequency of the visits to it. Among all health related variables, the dummy for individuals hampered in their activities is the one less significant across countries. The results for females in the contact stage and for males and females in the contact and frequency stages are slightly less precise (bigger standard errors) but go in the same direction.

The effect of the size of the household is strong and significant for females: the household size has a negative effect on both the smaller the probability of contacting a *SP* and the number of visits to it. This effect is much less important for males, and it does not exist for them in most countries on the frequency decision. Something similar occurs with the marital status: single females are less likely to contact and visit a *SP* while this effect is not present in the frequency decision for males. The job status variables show that inactive individuals (the omitted category) are in general more likely to contact a *SP*. The effect of the self-employment variable deserves an especial mention: it has a strong and negative effect on the probability of contacting a *SP* for both males and females. However the effect almost disappears for the frequency decision.

The education variable has a positive effect for a small group of countries on the probability of contacting a *SP*. It has virtually no effect on the frequency of the visits to the *SP*. The occupational variables have a better defined effect: in general non-manual workers are more likely to visit the *SP* although the effect of this occupation on the length of the treatment does not show any specific pattern across countries.

To understand better the demand for health decision process is worth to interpret and comment the previous results relating some variables, namely, age, income, the family variables, and education. First, a convex effect of age on the demand for health has been found previously in the literature by Pohlmeier and Ulrich (1995) or Cameron *et al*. (1988) using German and Australian data respectively. We obtain the same convex effect for Germany with the sample for males in both the *GP* and *SP* specifications. However the previous results show that this effect is not consistent across countries or across sexes.

Second, the income variable is of special importance. On the one side this variable can be correlated with medical knowledge (as education, for example), so that the higher the income the more favourable the individual to get *SP* services over *GP* services. In that case we will expect a negative effect of income on the number of visits to the *GP* and a positive effect on the probability of contacting a *SP*. On the other side it can also reflect the willingness to pay for health services privately. In that case we will expect a positive effect on the probability of contacting the *SP*, that could be accessed via private consultation and payment. Although we do not find any effect of income on the number of visits to the *GP*, we find that income affects the decision of contacting a *SP* in a concave way coherently with the theory stated above. Santos Silva and Windmeijer (1997) found a similar concave effect for the UK. On the other hand, Propper (2000) found this same relationship in demanding any kind of private health services using UK data and probit models with random effects. Moreover the positive effect that we find for the frequency of the visits to the *SP* for females could be explained as a form of induced demand: the higher is the willingness to pay of the patient the longer is the treatment.

Third, with respect to other family related variables (marital status and size of the household) they have a bigger effect for females, especially for visits to the *SP*. This effect is coherent with fertility decisions (not explicitly introduced in this study) that affect the female demand for health care. The negative effect of the household size on the frequency of the visits to the *SP* could be related to economies of scale in the household production of health: in bigger households, fewer health inputs (here, visits to the *SP*) are required to obtain the same level of health than in smaller households.

Fourth, education as mentioned above can be correlated with medical knowledge, so that a higher educated person tends to favour *SPs* over *GPs*. On the other hand, people with higher education can improve their health more efficiently and therefore contact a *GP* or a SP less often (see Pohlmeier and Ulrich (1995) and Wagstaff (1986) for a discussion on the effect of education). We find a negative effect of education on the number of visits to the *GP* for a group of countries (Germany, Belgium, Spain, and Austria). Note that these countries, with the exception of Spain have a fee-for-service type of payment. At the same time, for these countries the decision of contacting a *SP* is positively affected by education. This finding supports, for this group of countries, a combination of both theories. Although there is some substitution going on between *GPs* and specialists, it seems that highly educated individuals are more efficient in the production of health. Propper (2000) finds a positive effect of higher education on the probability of visiting any type of physician (public or private use) with a multinomial logit model; we find the same effect in the first stage decision of visiting *SPs* for the UK. Occupational dummies reinforce the effect of education: the more skilled the individual is the higher the probability that he contacts a *SP*.

4.3 Pooled estimates

This section presents the results from the estimation of the models selected in Section 4.1. when we pool data for all countries in the sample. The tests that we present in Section 4.1 suggest that imposing a common set of parameters (slopes) is a too restrictive assumption to be accepted. This fact is corroborated by the results presented in the previous section, from which it is clear that the effect of most variables varies across countries. However the results from the estimation of a model with common slopes for all countries can still seed some light on the effect of the different health system's characteristics across the twelve European countries analysed. In this section we discuss these homogeneous results in Table 6 for the estimation of the same models that were presented in the previous section.

Table 6 shows two different specifications of the estimated models which allow for country specific effects through the constant term. One specification includes a set of country dummies and the other specification includes the set of dummies reflecting characteristics of the country's health systems that we discussed in Section 3. From Table 3 it can be seen that in general the country dummies tend to perform better that the group of health system dummies.

The results from both specifications are similar and not surprisingly they are an average of the country results and show the regularities mentioned in the previous section. The effect of age is always convex for males (*GP* visits, decision to contact the *SP* and *SP* visits). For females the effect of age is convex on the number of visits to the *GP* or to the *SP*, but concave in the probability of contacting the *SP*. Income has for males a convex effect on the number of visits to the *GP* and a concave effect on the decision to contact a *SP*. For females, the effect of income is the same, but additionally we found a concave effect of income in the frequency of the visits to the *SP*. The health stock variables are again a major determinant of the demand of health and their effect is the same as in the country specifications: good health reduces the demand for health and bad health increases it. The household size and being single reduce the demand for health and the effect of these variables is stronger for females. The effect of the job status variables indicate that occupied individuals (employees or self-employed) demand less health care than individuals which do not work. Education has a negative effect on the visits to the *GP* and a positive effect on the decision to contact a *SP* for both males and females. It has a negative effect on the frequency of the visits to the *SP* for males and a positive effect for females. The occupational variables work in the same direction, with the dummies for non-manual occupations having the same effect as education. Finally, the variable which accounts for risk in the job has an ambiguous effect, although in general tend to increase the demand for health.

The discussion of the variables referring to the different health systems is of more interest. First, we find that the number of visits to the *GP* is smaller in countries in which the practitioners are paid through a fee-for-service. However in countries with fee-for-service payments individuals are more likely to contact the *SP* and visit it more frequently. Second, the number of physicians increases the number of visits to the *GP* but decreases the probability of contacting and visiting a *SP* for both males and females. Third, the total expenditure and its government participation have no clear effect on the frequency of the visits to the *GP*, although they increase the probability of contacting and the number of visits made to the *SP*. Finally, in countries were the *GP* act as gatekeepers of the system the frequency of the visits to the *GP* increases while the contact probability to the *SP* and the frequency of the visits to it decrease. Therefore it seems that they actually perform efficiently as gatekeepers.

The first of these results is of especial interest. The fact that the frequency of the visits to the *SP* (or the duration of the treatment under the maintained assumptions of the model) is bigger in countries with a fee-for-service payment scheme for doctors is coherent with the theoretical model of induced demand proposed: doctors that are paid fees-for-service tend to lengthen the duration of the treatments.

5. CONCLUDING REMARKS

In this work we analyse both the decision to visit a *GP* and an specialist for a sample of EU countries using data from the ECHP. The major novelty of this paper is that it uses a homogeneous and comparable data set to estimate a common model of demand for physician services for a group of European countries. It contributes to the literature on demand for health in several directions. First it sheds some light about the empirical determinants of demand for health in Europe. The data source provides a unique opportunity to carry out comparative analyses across EU countries. Second, it permits to explore the ability of pooled models in order to account for differences across countries. In particular, it permits to evaluate the explanatory power of those variables characterizing the differences across specific health systems. Finally, it provides economic and statistical evidence on the more appropriate econometric specification for *GPs* and *SPs* health demand equations, based both on intuition and using a battery of tests.

We find behavioural differences across countries. Several tests show that homogeneous models are not supported by the data. However we find some regularities across countries, e.g. the effect of the individual health stock, the income, and the family structure on the demand for health. We also find some differences in the behaviour of men and women, as expected, mainly in the decisions to visit and the number of visits to *SPs*. Even more importantly, we have obtained indirect evidence that the multi-spell problem, which is present in the ECHP, may crucially influence the validity of TPM and LCM. In particular, our results suggest that LCM are more appropriate than TPM in the *GPs* equations, more likely to suffer from the multi-spell problem in our data set, while evidence of the opposite is found as regards *SPs* equations, since visits to *SPs* are less likely to suffer from the multi-spell problem.

The results obtained from heterogeneous models show important differences in the demand for health across the European Union. First, we find a convex effect of age on the demand for health although this result is not consistent across countries or across sexes. Second, we do not find any effect of income on the number of visits to the *GP*, although income affects the decision of contacting a *SP* in a concave way. The positive effect of income on the frequency of visits to the *SP* for females could be explained as a form of induced demand. Household size affects negatively the demand for health thus indicating economies of scale. Education and some occupation variables show a mixed effect of income (positive) and efficiency (negative) in the production of health.

Despite pooled results are rejected by out data set, they still permit to extract some interesting lessons: we found that the variables that capture the differences among the respective health systems show the correct sign and are significant in a vast majority of cases. For example, we confirm that in those countries in which the practitioners are paid through a fee-for-service system the number of visits to *GP* is smaller than in the rest while the frequency of the visits to the *SP* is bigger in countries with this payment scheme. This is coherent with the theoretical model of induced demand proposed.

APPENDIX

Table 1. Some characteristics of National Health Systems of EU countries

Country	Doctors type of payment (a)(c)	GP gate-keepers (a)	Physicians/1000 (b)		Total Health Expenditure (as %GDP) (b)		Public participation in Total Health Expenditure (b)	
			1995	1996	1995	1996	1995	1996
Germany	F	NO	3.4	3.4	10.2	10.6	78.1	78.3
Denmark	F	YES	2.9	2.9	8.2	8.3	82.6	82.4
Netherland	C	YES	2.6	2.6	8.9	8.8	72.5	67.7
Belgium	F	NO	3.4	3.4	8.2	8.6	88.7	88.8
Luxemburg	F	NO	2.8	2.9	6.3	6.4	92.4	92.8
UK	C	YES	1.6	1.6	7.0	7.0	84.9	83.7
Ireland	C	YES	2.1	2.1	7.4	7.2	72.7	72.5
Italy	C	YES	5.4	5.5	8.0	8.1	67.7	67.8
Greece	S	NO	3.9	4	8.3	8.3	58.7	58.7
Spain	S	YES	4.1	4.2	7.0	7.1	78.3	78.5
Portugal	S	YES	3	3	7.7	7.7	65.3	66.7
Austria	F	NO	2.7	2.8	8.9	8.9	71.9	70.5

Notes

(a) Source: WHO (1997)
(b) Source: Health Data OECD (2000)
(c) F denotes Fee for Service; C denotes Capitation; S denotes Salary.

Table 2. Descriptive statistics of visits counts by sex and country

Country		PRACTICIONER female	PRACTICIONER male	SPECIALIST female	SPECIALIST male
	%	0.784	0.737	0.706	0.460
Germany	mean	4.457	3.644	3.618	2.269
	st-dev	7.586	7.190	6.972	5.827
	%	0.793	0.632	0.308	0.236
Denmark	mean	3.287	1.936	1.040	0.679
	st-dev	5.139	3.772	2.978	2.299
	%	0.756	0.626	0.385	0.300
Nether.	mean	3.149	1.897	1.903	1.170
	st-dev	4.657	3.633	5.054	3.460
	%	0.839	0.786	0.604	0.371
Belgium	mean	4.368	3.314	2.282	1.301
	st-dev	6.311	5.483	4.295	3.446
	%	0.807	0.757	0.769	0.436
Luxem.	mean	3.155	2.539	2.712	1.496
	st-dev	3.610	3.752	4.137	3.370
	%	0.831	0.697	0.358	0.299
U.K.	mean	4.217	2.554	1.146	0.934
	st-dev	5.534	4.326	3.169	2.756
	%	0.737	0.575	0.230	0.170
Ireland	mean	3.617	2.259	0.771	0.460
	st-dev	5.985	4.898	2.331	1.897
	%	0.757	0.639	0.412	0.255
Italy	mean	3.851	2.648	1.296	0.777
	st-dev	5.915	4.940	3.084	2.672
	%	0.470	0.382	0.380	0.240
Greece	mean	1.676	1.195	1.501	1.023
	st-dev	3.311	2.554	3.342	3.499
	%	0.661	0.551	0.461	0.305
Spain	mean	3.681	2.354	1.792	1.141
	st-dev	6.804	5.306	4.081	3.635
	%	0.667	0.518	0.393	0.223
Portugal	mean	3.172	1.888	1.349	0.714
	st-dev	4.784	3.201	3.117	2.234
	%	0.887	0.846	0.836	0.584
Austria	mean	4.611	3.707	2.911	2.060
	st-dev	7.299	5.965	5.532	4.919

Table 3. Model selection and specification testing

	Log-L: Male				Log-L: Female				Akaike Information Criteria: Male				Akaike Information Criteria: Female			
GP	**TPM**	**LCM0**	**LMC1**	**LCM2**	**TPM**	**LCM0**	**LMC1**	**LCM2**	**TPM**	**LCM0**	**LMC1**	**LCM2**	**TPM**	**LCM0**	**LMC1**	**LCM2**
Germany	15509.32	15418.87	15383.25	15365.05	17408.72	17299.79	17234.68	17212.45	31120.65	30893.74	30824.49	30836.1	34919.43	34655.58	34527.37	34530.9
Denmark	6776.382	6756.838	6754.25	6737.44	8882.01	8842.81	8840.956	8816.929	13654.76	13569.68	13566.5	13580.88	17866.02	17741.62	17739.91	17739.86
Netherlands	11616.83	11545.87	11540.34	11517.37	15884.59	15811.64	15802.19	15781.16	23335.65	23147.74	23138.69	23140.74	31871.18	31679.28	31662.38	31668.32
Belgium	9690.668	9683.07	9674.34	9641.132	11828.39	11762.88	11734.36	11722.26	19483.34	19422.14	19406.68	19388.26	23758.78	23581.76	23526.72	23550.52
Luxembourg	3105.134	3103.75	3098.999	3068.428	3530.205	3534.45	3520.406	3504.675	6312.269	6263.5	6255.998	6242.856	7162.41	7124.9	7098.813	7115.351
U.K.	9129.753	9114.71	9112.209	9091.48	13111.01	13224.9	13220.48	13193.45	18361.51	18285.42	18282.42	18288.96	26324.01	26505.79	26498.97	26492.9
Ireland	11104.38	11055.4	11051.03	11040.6	13842.94	13800.98	13795.27	13776.57	22310.76	22166.8	22160.07	22187.2	27787.89	27657.96	27648.54	27659.14
Italy	26910.96	26796.05	26747.16	26733.21	32188.7	32121.78	32046.73	32023.89	53923.92	53648.1	53552.33	53572.42	64479.4	64299.56	64151.45	64153.79
Greece	10591.94	10726.58	10684.45	10623.10	13814.71	13946.45	13868.29	13844.21	21285.87	21509.16	21426.9	21352.21	27731.43	27948.9	27794.59	27794.42
Spain	20531.2	20424.26	20403.10	20386.96	25943.59	25876.52	25834.91	25816.3	41164.4	40904.52	40864.21	40879.93	51989.17	51809.04	51727.81	51738.61
Portugal	13380.59	13542.08	13477.83	13458.38	18078.64	18238.7	18110.00	18087.9	26863.19	27140.16	27013.66	27022.76	36259.28	36533.39	36278	36281.8
Austria	5200.213	5168.81	5165.451	5149.338	5909.753	5834.01	5847.937	5836.512	10502.43	10393.62	10388.9	10386.68	11921.51	11724.02	11753.87	11779.87
Sum het mod.	***143547.4***	***143336.3***	***143092.4***	***142812.5***	***180423.3***	***180294.9***	***179856.2***	***179616.3***	***288318.8***	***287344.6***	***286880.8***	***286897***	***362070.5***	***361261.8***	***360408.4***	***360504.6***
All countries	***144750.7***	***144680.0***	***144546.6***	***144511.4***	***182546.7***	***181958.1***	***181699.2***	***181669.3***	***289603.4***	***289460***	***289195.3***	***289172.8***	***365195.4***	***364016.3***	***363500.4***	***363488.7***
+ interactions	144321.2	--	144107.9	143958.9	181425.7	--	180928.9	180783.1	288964.4	--	288405.8	288243.7	363173.4	--	362047.7	361892.3
+ varying ln α	--	--	143845.6	--	--	--	180878.9	--	--	--	287859.2	--	--	--	361925.8	--
With agg. Vars	145407	--	145085.6	145054.6	182750.2	--	182199.8	182166.1	290939.9	--	290301.3	290239.1	365626.3	--	364529.6	364462.3
North	61434.8	61077.95	61019	60978.10	77259.81	76696.98	76596.07	76569.12	122995.6	122235.9	122120.0	122086.2	154645.6	153474.0	153274.1	153268.2
South	83050.23	83128.52	82837.35	82822.16	104528.0	104600.7	104365	104333.7	166218.5	166329.0	165748.7	165766.3	209174.0	209273.3	208803.9	208789.4
North + South	***144485***	***144206.5.***	***143856.4***	***143800.3***	***181787.8***	***181297.7***	***180961***	***180920.8***	***289214.0***	***288564.9***	***287868.7***	***287852.5***	***363819.6***	***362747.3***	***362078.1***	***362057.6***
SPECIALIST	**TPM**	**LCM0**	**LMC1**	**LCM2**	**TPM**	**LCM0**	**LMC1**	**LCM2**	**TPM**	**LCM0**	**LMC1**	**LCM2**	**TPM**	**LCM0**	**LMC1**	**LCM2**
Germany	11654.88	11654.25	11653.08	11616.76	15867.92	15813	15805	15793.36	23411.77	23364.5	23364.17	23339.51	31837.84	31681.99	31668	31692.71
Denmark	3568.955	3581.185	3580.542	3569.196	4769.909	4806.712	4806.596	4775.523	7239.909	7218.37	7219.083	7244.392	9641.818	9669.425	9671.192	9657.047
Netherlands	7742.829	7825.518	7824.498	7758.996	10999.51	11082.2	11080.41	10999.74	15587.66	15707.04	15707	15623.99	22101.02	22220.4	22218.82	22105.48
Belgium	5805.509	5807.305	5806.56	5766.917	8985.694	9001.43	8999.97	8966.915	11713.02	11670.61	11671.12	11639.83	18073.39	18058.86	18057.94	18039.83
Luxembourg	2291.633	2304.59	2300.437	2268.542	3287.04	3306.47	3305.249	3277.868	4685.265	4665.18	4658.874	4643.085	6676.08	6668.94	6668.498	6661.737
U.K.	5116.85	5152.53	5150.161	5108.83	6952.288	6984.69	6978.133	6932.71	10335.7	10361.06	10358.32	10323.66	14006.58	14025.38	14014.27	13971.42
Ireland	4237.657	4286.841	4286.834	4259.97	5736.805	5843.7	5843.668	5774.681	8577.314	8629.682	8631.669	8625.94	11575.61	11743.4	11745.34	11655.36
Italy	13249.31	13257.99	13256.7	13216.62	19328.78	19355.3	19353.4	19302.30	26600.14	26571.98	26571.41	26539.23	38759.56	38766.6	38764.81	38710.59
Greece	7926.225	8126.02	8124.3	7990.46	12433.84	12641.16	12634.95	12468.06	15954.45	16308.04	16306.6	16086.92	24969.67	25338.32	25327.9	25042.12
Spain	13160.99	13215.79	13213.93	13167.09	18781.98	18820.8	18816.05	18746.06	26423.97	26487.58	26485.86	26440.19	37665.96	37697.6	37690.09	37598.11
Portugal	7091.107	7213.46	7207.316	7134.228	11906.61	12025.13	12008.1	11985.52	14284.21	14482.92	14472.63	14374.46	23915.22	24106.25	24074.2	24077.04
Austria	3262.886	3254.36	3253.72	3242.745	4718.412	4779.89	4762.72	4729.305	6627.772	6564.72	6565.44	6591.49	9538.824	9615.78	9583.439	9564.61
Sum het. Mod.	***85108.83***	***85679.84***	***85658.09***	***85100.35***	***123778.8***	***124460.5***	***124394.2***	***123752.2***	***171441.2***	***172031.7***	***172012.2***	***171472.7***	***248761.6***	***249593***	***249484.5***	***248776.1***
All countries	***85985.31***	***86415.75***	***86408.33***	***86208.52***	***124831.4***	***125869.3***	***126129***	***125557.8***	***172072.6***	***172931.5***	***172918.7***	***172567***	***249764.8***	***251838.6***	***252360***	***251265.7***
+ interactions	85759.12	--	86570.42	85951.75	124537.8	--	125603.3	125189.6	171840.2	--	173330.8	172229.5	249397.7	--	251396.5	250705.1
+ varying ln α	--	--	86176.9	--	--	--	125107.8	--	--	--	172521.8	--	--	--	250383.5	--
With agg. Vars	86401.99	--	86683.29	86472.63	126549.2	--	126955.8	126716.1	172930.0	--	173496.6	173075.3	253224.4	--	254041.5	253562.1
North	39793.22	40273.88	39880.23	39769.73	56056.12	56545.39	56370.96	56329.53	79712.44	86627.76	79842.45	79669.46	112238.2	113370.8	112823.9	112789.1
South	46064	46655.25	46655.16	46231.83	68626.09	69164.22	68987.91	68820.21	92246.00	93382.50	93384.33	92585.66	137370.2	138400.4	138049.8	137762.4
North + South	***85857.22***	***86929.22***	***86535.39***	***86001.56***	***124682.2***	***125809.6***	***125358.9***	***125149.7***	***171958.4***	***174010.3***	***173226.8***	***172225.1***	***249608.4***	***251771.2***	***250873.7***	***250551.5***

Notes: North: Germany, Denmark, The Netherlands, Belgium, Luxembourg, UK and Austria; South: Ireland, Italy, Greece, Spain and Portugal.
Pooled model with interactions: age and household income and their squares have been interacted with country specific dummies.
Pooled model with varying ln alpha: ln α has been interacted with country specific dummies.

Table 4.a.- Visits to the GP: LCM (Males)

	Germany	Denmark	Netherlands	Belgium	Luxembourg	UK	Ireland	Italy	Greece	Spain	Portugal	Austria
Age	-0.043	-0.050	-0.067*	0.006	-0.082	0.020	0.080*	-0.016	0.029	-0.072+	0.024	-0.045
Age Squared/100	0.060*	0.063	0.074*	-0.013	0.107	-0.015	-0.090*	0.041*	-0.027	0.100+	-0.014	0.051
Head of Household	0.071	-0.082	0.262	0.098	-0.124	-0.119	-0.166	0.038	0.224+	0.033	-0.046	-0.043
Married	-0.020	-0.398	0.202	-0.008	0.715+	-0.289*	0.098	-0.048	-0.099	-0.104	0.327+	0.089
Divorced	-0.192	0.003	0.416	0.208	0.481	0.097	1.144*	-0.390	-0.003	0.088	0.051	0.116
Household Size	-0.002	0.020	-0.015	-0.073+	0.084	0.078	-0.054	0.017	0.002	0.000	-0.042+	0.038
High Education	-0.131	-0.273	-0.335+	-0.235+	-0.440	0.182	0.058	-0.151	0.006	0.012	-0.088	0.482
Employed	0.228	-0.091	-0.268	0.047	-0.848+	-0.245	0.398	-0.026	-0.067	0.006	0.146	0.084
Self-employed	0.159	-0.418	0.300	0.062	-0.687*	-0.246	-0.121	-0.027	0.081	0.024	0.075	-0.365
Unemployed	0.552+	0.675*	0.106	0.718+	-0.951+	-0.091	0.132	0.143	0.165	-0.058	-0.244*	0.846*
Retired	0.445*	0.088	0.706+	0.502+	-1.370+	-0.392	-0.369	0.287*	0.428+	0.206*	0.171*	0.552+
Part time job	-0.284	-0.484	-0.394	0.239	1.836	-6.134	-0.445	0.015	-0.374	0.107	0.136	-0.193
Professional	-0.040	0.119	-0.061	-0.264+	-0.068	-0.505+	-0.127	-0.096	0.169+	-0.169+	-0.184+	0.295*
Clerical	-0.399+	-1.362	0.192	0.112	0.272	-0.248	-0.108	0.047	0.015	0.105	0.128	-0.512*
Services	-0.275	0.272	-0.269	0.334*	-0.169	-0.466	-0.273	0.096	0.034	0.047	0.002	0.259
No supervisory job	0.201+	0.284	0.093	0.021	0.050	0.228	-0.019	0.202+	0.156	0.055	-0.206+	-0.178
Household Income	0.171+	0.797	0.057	-0.012	-0.158*	-0.058	-0.004	-0.068	-0.051	-0.016	0.015	0.229+
H. Income Squared/100	-1.739+	-15.70	-0.264	0.407	0.565	0.442	-0.021	0.143	0.450	-0.395	0.526*	-2.711+
Public Sector	-0.108+	-0.323	-0.025	0.219+	0.451*	-0.048	-0.386*	0.069	0.051	0.202+	0.044	0.268*
Good Health	-0.465+	-0.493+	-0.445+	-0.765+	-0.561+	-0.254*	-0.252	-0.218+	-0.260+	-0.426+	-0.360+	0.318+
Chronic illness	0.630+	0.608+	0.818+	0.675+	0.693+	0.657+	1.339+	0.789+	0.824+	0.644+	0.769+	0.798+
Hampered	0.287+	0.395	0.222	0.055	0.239	0.626	0.391	0.397+	0.208+	0.320+	0.243+	0.500+
In Hospital	0.286+	0.350	0.477+	0.400+	0.326	0.144	0.326	0.480+	0.063	0.413+	0.432+	0.253*
Risk at job	0.240*	-0.268	-0.069	0.159	0.374	0.120	-0.284	-0.087	0.117*	0.007	-0.075+	0.158
Constant 1	0.961+	0.715+	0.969+	1.832+	0.180	1.288*	-0.488	0.791+	-1.748+	-0.934+	-1.502+	-2.371+
Ln alpha 1	1.539+	1.543	2.026+	0.298+	2.950+	-0.328	1.178+	1.198+	-0.146	1.811+	-0.198	2.361+
Age	-0.038+	-0.068+	-0.012	-0.019	-0.039	-0.039+	-0.011	0.024+	0.278+	-0.011	0.007	-0.033+
Age Squared/100	0.057+	0.071+	0.022	0.040*	0.064+	0.049+	0.021	-0.006	-0.212+	0.030	0.012	0.047+
Head of Household	-0.015	0.087	-0.136	-0.083	0.122	0.050	0.252+	-0.065	-0.285*	0.075	0.147	-0.019
Married	0.130*	0.110	0.283+	0.040	-0.093	0.020	0.086	0.036	0.939+	0.036	-0.034	0.167+
Divorced	0.123	0.320*	0.189	-0.011	-0.224	0.116	0.143	0.149	0.417	0.169	-0.100	0.014
Household Size	0.023	0.031	0.012	0.013	-0.048	0.024	-0.016	-0.027+	-0.083+	0.025	-0.066	-0.042+
High Education	0.018	-0.068	-0.031	0.103	0.156	-0.105*	0.090	-0.132+	-0.674+	-0.196*	-0.235+	-0.185+
Employed	-0.184+	0.187	-0.016	-0.131	-0.080	-0.160*	-0.270+	-0.136*	-0.247	-0.007	-0.077	0.118
Self-employed	-0.507+	-0.240	-0.473+	-0.725+	-0.737+	-0.389+	-0.341+	-0.264+	-0.240	-0.137	-0.221	-0.070
Unemployed	-0.194	0.497+	-0.046	-0.397+	-0.338	-0.127	0.096	-0.093	-0.547*	0.114	0.350	0.369
Retired	-0.172	0.408+	0.086	-0.146	0.080	0.008	-0.014	-0.069	-0.196	0.250	-0.154	0.172
Part time job	-0.305	0.259	-0.088	0.160	-0.684+	0.260+	0.080	-0.136	0.802+	-0.385	-0.052	-0.005
Professional	-0.143+	0.062	0.073	-0.163+	-0.120	0.134+	0.009	-0.022	-0.343+	0.064	0.340+	0.050
Clerical	0.092	0.167	-0.008	-0.055	-0.066	0.141	0.094	-0.036	-0.192	-0.101	0.159	0.007
Services	0.014	-0.081	0.251+	0.033	0.144	0.144	0.076	-0.146+	-0.159	-0.329+	0.041	-0.192+
No supervisory job	0.053	-0.090	-0.003	-0.032	-0.095	-0.104*	0.002	0.029	0.089	0.028	0.157	0.014
Household Income	-0.083+	0.010	-0.082+	-0.045	0.081	-0.006	0.021	0.016	0.154	-0.066	0.326+	0.088+
H. Income Squared/100	0.376+	0.040	0.118	0.170	-0.645	-0.054	-0.046	-0.397	-1.930	0.118	-7.939+	-0.998+
Public Sector	0.088*	0.059	0.010	0.042	0.043	0.075	-0.015	0.041	0.527+	0.157	-0.068	0.126+
Good Health	-0.522+	-0.523+	-0.201+	-0.531+	-0.338+	-0.491+	-0.451+	-0.327+	-0.352+	-0.335+	-0.360+	-0.333+
Chronic illness	0.489+	0.509+	0.656+	0.355+	0.206*	0.926+	1.245+	0.944+	0.965+	0.872+	1.053+	0.551+
Hampered	0.175+	0.338+	0.217+	0.231+	0.125	0.102	0.231+	0.171+	-0.121	0.509+	0.180	0.285+
In Hospital	0.293+	0.259+	0.226+	0.332+	0.070	0.259+	0.445+	0.170+	0.215	0.387+	0.566+	0.231+
Risk at job	-0.057	0.209+	0.093	-0.098	0.080	-0.076	0.125	0.117+	-0.342+	-0.025	0.084	-0.009
Ln alpha 2	1.856+	1.592+	0.472*	-1.629+	1.467+	-0.740+	-0.381+	-1.128+	-8.633+	0.571	-0.355	1.237+
Constant 2	-1.253+	-0.781+	-1.109+	1.526+	-2.370+	1.314+	0.562+	0.201	1.186+	1.375+	1.370+	-1.120+
Prob group 1	0.388+	0.209+	0.299+	0.382+	0.368+	0.132+	0.210+	0.401+	0.285+	0.498	0.473	0.052+
Log-L	15365.05	6737.44	11517.37	9641.132	3068.428	9091.48	11040.6	26733.21	10623.10	20386.96	13458.38	5149.338
LR test (b1=b2; d.f.=24)	36.39	33.62	45.95	66.42	61.14	41.46	20.87	27.91	122.69	32.28	38.89	32.23

Notes. level of significance: + and * denote significance at the 5% and 10% levels

Table 4.b.- Visits to the GP: LCM (Females)

	Germany	Denmark	Netherlands	Belgium	Luxembourg	UK	Ireland	Italy	Greece	Spain	Portugal	Austria
Age	0.010	-0.044	0.002	-0.053+	-0.038	-0.075+	-0.058+	0.009	0.040+	-0.049+	0.048+	-0.004
Age Squared/100	-0.011	0.032	-0.018	0.061+	0.056	0.063+	0.047+	0.003	-0.018	0.070+	-0.042+	0.006
Head of Household	-0.141	0.239+	-0.081	0.013	0.010	0.101	0.035	-0.009	0.017	0.154*	0.008	0.081
Married	-0.062	-0.207	0.328+	0.496+	0.126	0.298+	0.569+	0.248+	0.374+	0.196+	0.203+	0.123
Divorced	-0.051	-0.217	0.543+	0.689+	0.356	0.282+	1.025+	0.221+	0.395+	-0.057	0.170+	0.236
Household Size	-0.084+	0.013	0.015	0.030	0.014	0.018	-0.045+	-0.030+	-0.031*	0.007	-0.033+	-0.082+
High Education	-0.383+	-0.106	-0.112	-0.153*	-0.407	-0.230+	-0.074	-0.096	-0.175*	-0.099	-0.254+	-0.364
Employed	-0.406+	-0.165	-0.106	-0.333*	0.013	-0.032	0.091	-0.096	-0.014	-0.227	0.045	-0.274
Self-employed	-0.409	-0.175	-0.311	-2.011+	-0.325	-0.044	-0.263	0.017	-0.096	-0.094	-0.033	-0.200
Unemployed	-0.095	0.142	-0.049	0.094	-0.671	0.088	0.040	0.078	0.196+	-0.078	0.016	0.165
Retired	-0.007	0.042	-0.645	-0.010	-0.284	0.143	0.168	0.145+	0.141*	0.745+	0.039	0.202
Part time job	0.064	-0.227	-0.206+	-0.153	0.012	-0.173+	-0.158	0.024	-0.111	0.064	-0.060	-0.078
Professional	-0.007	0.111	0.053	0.052	-0.320	0.084	-0.030	-0.139+	0.088	-0.346+	-0.256+	0.328*
Clerical	0.112	0.008	0.089	0.201	0.154	-0.017	-0.169	-0.048	0.024	-0.311+	-0.164+	0.270
Services	0.005	0.030	0.025	0.254	0.423	0.188	0.238	0.063	0.099	-0.158	-0.108*	-0.095
No supervisory job	0.148	-0.002	0.095	0.249+	-0.462+	-0.068	0.005	0.137+	0.034	0.137	0.010	0.334
Household Income	-0.020	0.057	-0.016	0.023	0.026	-0.048	-0.144+	-0.026	0.019	-0.021	0.012	0.115
H. Income Squared/100	0.403	-0.259	-0.032	-0.299	-0.365	0.179	1.010+	-0.066	-0.108	-0.342	0.058	-1.124
Public Sector	0.085	0.041	-0.114	-0.075	0.636+	0.074	0.154	0.156+	0.232*	0.291+	-0.164+	-0.223
Good Health	-0.658+	-0.756+	-0.449+	-0.482+	0.009	-0.409+	-0.276+	-0.287+	-0.243+	-0.368+	-0.433+	-0.721+
Chronic illness	0.478+	0.226+	0.736+	0.584+	0.551+	0.542+	1.022+	0.776+	0.779+	0.674+	0.601+	0.355+
Hampered	0.199*	0.454+	0.123	0.218+	-0.045	0.067	0.274+	0.040	-0.079	0.272+	0.145+	0.180
In Hospital	0.263+	0.279+	0.147	0.173	-0.207	0.481+	0.436+	0.172+	0.123	0.185+	0.234+	0.130
Risk at job	-0.046	0.276	0.194	-0.206	-0.244	0.098	-0.067	0.028	0.173*	-0.032	0.000	0.180
Constant group 1	2.139+	3.015+	0.457+	2.361+	0.153	-0.061	0.319+	-1.977+	-0.939+	1.733+	-0.062	-0.093
Ln alpha 1	0.869+	0.208*	1.415+	0.284+	1.528*	3.480+	2.888+	0.714+	-2.012+	-1.134+	-1.488+	2.324+
Age	-0.042+	-0.053+	-0.029+	-0.039+	-0.035*	-0.052+	-0.025	-0.011	0.028	-0.035+	-0.068+	-0.010
Age Squared/100	0.059+	0.045+	0.032*	0.050+	0.043*	0.051+	0.022	0.024*	0.004	0.051+	0.082+	0.021
Head of Household	0.060	-0.111*	-0.099	0.008	-0.042	-0.011	0.086	0.059	0.270*	-0.170*	0.001	0.064
Married	0.076	0.185+	-0.005	-0.059	-0.147	0.198+	0.496+	0.235+	0.140	0.242+	0.758+	0.153*
Divorced	0.083	0.159	0.001	-0.074	-0.259*	0.220+	0.633+	0.140	0.074	0.388+	0.707+	0.256+
Household Size	0.056+	-0.133+	-0.066+	-0.056+	0.008	-0.066+	-0.031*	-0.011	0.025	-0.001	-0.062+	0.010
High Education	-0.140+	0.047	-0.093	0.001	0.115	-0.055	0.104	-0.120	0.158	-0.330+	-0.136	-0.076
Employed	0.177+	0.285+	-0.207+	0.240+	-0.039	0.069	-0.187	-0.007	0.080	0.109	0.168	0.086
Self-employed	-0.004	-0.074	-0.251	0.380+	0.139	-0.174	0.007	-0.128	0.248	0.032	0.040	-0.142
Unemployed	0.174+	0.084	0.059	-0.022	0.346*	-0.004	0.022	0.016	-0.054	0.144*	0.006	0.337+
Retired	0.232+	0.007	0.182	0.115	-0.052	-0.212+	0.326	0.036	-0.074	-1.411+	0.317*	0.102
Part time job	-0.060	0.058	0.156+	-0.034	-0.161	-0.013	-0.102	-0.167+	0.107	0.039	0.163	-0.082
Professional	-0.208+	-0.258+	-0.067	-0.251+	-0.028	0.006	-0.013	-0.039	-0.882+	-0.172	0.206	-0.255+
Clerical	-0.228+	-0.259+	-0.068	-0.352+	-0.186	-0.122	0.087	0.066	-0.312	-0.073	0.150	-0.021
Services	-0.134	-0.199*	0.038	-0.085	-0.308	0.015	-0.030	-0.001	-0.526*	-0.278+	0.160	-0.115
No supervisory job	0.100*	-0.047	0.033	-0.032	0.197	0.104*	0.259+	0.032	0.005	0.082	-0.128	0.109
Household Income	-0.029	0.051	-0.012	-0.005	-0.004	0.018	0.004	-0.168+	0.054	-0.113+	0.010	0.070*
H. Income Squared/100	0.103	-0.061	0.009	0.009	-0.169	-0.260	0.003	1.323+	-2.101	0.062	-1.711	-0.884+
Public Sector	0.044	-0.037	0.178+	0.019	-0.041	-0.064	-0.123	0.025	-0.025	0.057	-0.204	0.025
Good Health	-0.399+	-0.424+	-0.513+	-0.577+	-0.555+	-0.484+	-0.549+	-0.375+	-0.622+	-0.607+	-0.229+	-0.295+
Chronic illness	0.580+	0.639+	0.574+	0.414+	0.482+	0.740+	1.037+	0.809+	0.822+	0.654+	0.878+	0.614+
Hampered	0.125+	0.068	0.061	0.205+	0.269+	0.194+	0.107	0.317+	0.170	0.349+	0.148	0.193+
In Hospital	0.199+	0.249+	0.317+	0.424+	0.414+	0.302+	0.342+	0.259+	0.364+	0.282+	0.408+	0.344+
Risk at job	0.111	-0.141	0.117	0.075	0.230	-0.108	0.071	0.194+	-0.251	0.089	0.403+	0.003
Ln alpha 2	-1.500+	-1.366+	1.921+	-1.728+	2.020+	2.234+	1.402+	1.566+	1.605+	0.969+	1.318+	0.765+
Constant group 2	1.677+	2.390+	-1.457+	2.414+	-2.195+	-1.494+	-1.068+	0.522+	-1.042*	1.912+	1.584+	-1.795+
prob group 1	0.430+	0.340+	0.430+	0.406+	0.398	0.392+	0.424	0.443+	0.410+	0.427*	0.403+	0.286+
Log-L	17212.45	8816.929	15781.16	11722.26	3504.675	13193.45	13776.57	32023.89	13844.21	25816.3	18087.9	5836.512
LR test (β1=β2; d.f.=24)	44.47	48.05	42.06	24.20	31.46	54.06	37.39	45.66	48.17	37.21	44.19	22.84

Notes. level of significance: + and * denote significance at the 5% and 10% levels

Table 5.a.- Visits to the Specialist: TPM (Males)

	Germany	Denmark	Netherlands	Belgium	Luxembourg	UK	Ireland	Italy	Greece	Spain	Portugal	Austria
First Stage												
Age	-0.027+	-0.020	-0.044+	0.006	-0.014	-0.034+	-0.001	-0.001	0.013	-0.032+	-0.017	-0.010
Age Squared/100	0.033+	0.024	0.056+	0.027	0.038	0.038+	0.001	0.002	0.001	0.041+	0.019	0.023
Head of Household	0.067	0.082	0.042	-0.177+	0.033	0.048	0.022	0.064	0.065	0.036	0.037	-0.022
Married	0.159+	0.119*	0.143+	0.014	0.028	0.111*	0.200+	0.117+	0.068	0.099+	0.259+	0.114
Divorced	0.084	0.043	0.181*	-0.101	0.008	0.016	-0.118	0.184*	0.212*	0.075	0.027	-0.243
Household Size	-0.046+	-0.033	-0.037+	-0.036+	-0.037	-0.032*	-0.034+	-0.052+	-0.011	-0.017*	-0.042+	-0.073+
High Education	0.127+	-0.021	-0.039	0.127+	0.034	0.077	0.108	-0.033	-0.056	0.079+	-0.019	0.496+
Employed	-0.207+	-0.116	0.035	-0.170*	-0.087	-0.161*	-0.039	-0.041	0.007	-0.025	-0.074	-0.255+
Self-employed	-0.364+	-0.278+	-0.111	-0.167	-0.289	-0.213+	-0.225+	-0.141+	-0.081	-0.123+	-0.083	-0.484+
Unemployed	-0.145	-0.025	-0.091	-0.341+	-0.091	-0.082	-0.254+	-0.087	-0.063	-0.074	-0.075	-0.109
Retired	-0.147	-0.365+	0.105	-0.057	-0.183	0.044	0.020	0.010	0.233+	-0.093	0.019	-0.438+
Part time job	0.056	0.072	-0.036	0.070	-0.553	-0.164	0.041	-0.188+	-0.178*	0.032	0.135	0.071
Professional	0.161+	0.076	0.115+	-0.016	0.088	0.094	0.059	0.123+	0.056	0.086+	0.170+	0.216+
Clerical	0.111	-0.059	0.035	0.231+	0.031	-0.110	0.089	0.137+	-0.025	0.093	0.252+	0.309+
Services	0.182+	-0.205+	0.308+	0.012	-0.260	0.122	-0.035	0.008	0.035	-0.057	0.170+	0.142
No supervisory job	0.052	-0.057	0.012	-0.071	-0.100	-0.117+	-0.049	-0.084+	0.013 +	-0.021	-0.093	-0.029
Household Income	0.057+	0.075+	-0.017	0.026	0.075+	0.068+	0.095+	0.117+	0.103+	0.046+	0.230+	0.007
H. Income Squared	-0.290+	-0.064+	0.064	-0.363	-0.372*	-0.372*	-0.292+	-0.612+	-1.560+	-0.003	-1.421+	0.108
Public Sector	0.122+	0.023	0.008	0.104*	0.070	0.024	-0.030	-0.014	0.165+	0.175+	0.185+	0.059
Good Health	-0.270+	-0.367+	-0.308+	-0.422+	-0.245+	-0.187+	-0.273+	-0.205+	-0.312+	-0.238+	-0.233+	-0.081
Chronic illness	0.478+	0.392+	0.752+	0.470+	0.495+	0.792+	0.847+	0.924+	1.215+	0.714+	0.943+	0.457+
Hampered	0.120+	0.152*	0.081	0.188+	0.281+	0.217+	0.057	0.150+	0.050	0.205+	0.077	0.236+
In Hospital	0.316+	0.298+	0.741+	0.631+	0.298+	0.497+	0.481+	0.436+	0.318+	0.584+	0.347+	0.278+
Risk at job	0.015	-0.009	0.024	-0.015	0.167	0.004	0.021	-0.008	0.021	-0.083+	0.086	-0.221*
Constant	0.317	-0.275	0.187	-0.142	-0.134	-0.091	-1.061+	-0.784+	-1.439+	-0.103	-0.874+	0.432
Second Stage												
Age	-0.004	-0.096+	0.015	-0.073*	-0.035	0.055*	0.051	0.012	-0.028	0.010	-0.010	0.025
Age Squared/100	0.023	0.114+	-0.024	0.082	0.064	-0.077+	-0.077*	-0.010	0.026	-0.020	0.010	-0.031
Head of Household	0.083	0.070	-0.095	-0.105	-0.199	-0.105	0.425+	0.066	-0.248+	0.055	-0.088	-0.027
Married	-0.064	-0.094	0.062	0.044	0.057	0.088	-0.254	-0.235	0.102	0.093	0.123	-0.235
Divorced	-0.124	0.475	0.104	0.106	0.220	0.284	-0.829+	-0.234	0.160	0.512	0.210	-0.034
Household Size	0.060*	0.115	0.032	0.004	-0.036	-0.074+	-0.137+	0.043	0.008	-0.049+	-0.009	-0.150+
High Education	-0.130	-0.365+	-0.058	-0.284+	0.145	0.111	-0.069	0.024	0.118	-0.032	0.271	0.143
Employed	0.186	0.807+	-0.085	0.216	-0.075	0.353*	-0.716+	-0.359*	-0.575+	-0.007	0.389+	0.156
Self-employed	0.267	0.543	-0.295	0.259	-0.432	0.180	-0.473+	-0.398*	-0.228	-0.084	0.002	-0.330
Unemployed	-0.142	0.841+	0.053	-0.035	0.176	0.237	-0.247	-0.074	-0.315	0.113	0.033	0.011
Retired	0.144	0.432	0.514*	-0.018	-0.324	0.229	-0.706+	-0.090	0.013	-0.129	0.090	-0.325
Part time job	-0.340	-0.529	0.008	-0.152	1.527*	0.222	-0.197	0.340	-0.040	-0.379	0.225	-0.666
Professional	-0.117	-0.088	0.087	-0.234	-0.137	-0.213	-0.265	-0.085	0.087	-0.118	-0.085	0.047
Clerical	-0.011	-0.724+	-0.026	0.342	0.025	-0.106	0.262	-0.242	-0.118	-0.284	0.121	0.536*
Services	0.320*	-0.355	-0.271	-0.054	0.109	-0.238	-0.377	-0.048	0.111	-0.111	0.062	-0.008
No supervisory job	0.042	0.144	0.151	-0.168	0.317+	-0.272*	0.255	0.266+	0.507+	-0.053	-0.439+	-0.567+
Household Income	0.003	0.044	0.036	-0.130	0.034	-0.045	0.098	-0.114*	0.080	-0.012	0.034	0.147
H. Income Squared	-0.039	-0.775	-0.455	1.390	-0.017	0.776*	-0.315	0.966	-0.561	-0.302	-0.292	-1.556
Public Sector	0.029	-0.129	0.028	0.280*	-0.403+	0.110	0.037	0.024	-0.127	-0.030	-0.154	-0.045
Good Health	-0.290+	-0.321	-0.191*	-0.545+	-0.536+	-0.254+	-0.247	-0.200*	-0.288+	-0.281+	-0.320+	-0.611+
Chronic illness	0.693+	0.621+	0.828+	0.682+	0.621+	0.954+	1.065+	0.604+	1.072+	0.703+	0.804+	1.089+
Hampered	0.308+	0.376+	0.214+	-0.001	-0.056	0.096	-0.139	0.220*	0.033	0.314+	0.161*	0.223
In Hospital	0.564+	0.246	0.056	0.568+	0.597+	0.321+	0.361+	0.449+	0.546+	0.571+	0.307+	0.324*
Risk at job	-0.037	-0.474	0.330+	-0.052	0.531*	-0.277*	0.153	-0.079	0.028	0.305+	0.284*	-0.322
Constant	-0.585	-1.426	-0.425	1.663+	0.861	-1.054*	-0.557	-8.753+	1.363+	-0.327	0.370	-2.968
Ln(alpha)	1.875+	3.723	1.541+	1.650+	0.624+	1.124+	1.341+	10.338+	0.427+	2.011+	0.402+	4.877
Log-L	11654.88	3568.955	7742.829	5805.509	2291.633	5116.85	4237.657	13249.31	7926.225	13160.99	7091.107	3262.886
LR test (β1=β2; df=25)	198.35	72.92	339.16	165.59	49.64	193.13	188.79	692.33	801.17	486.52	325.47	150.69

Notes. level of significance: + and * denote significance at the 5% and 10% levels

Table 5.b.- Visits to the SP: TPM (Females)

	Germany	Denmark	Netherlands	Belgium	Luxembourg	UK	Ireland	Italy	Greece	Spain	Portugal	Austria
First Stage												
Age	-0.017	0.005	-0.038+	0.019	-0.022	-0.001	-0.017	0.001	-0.008	0.005	0.020+	0.037*
Age Squared	0.002	-0.007	0.041+	-0.031	0.013	-0.034	0.009	-0.010	-0.004	-0.010	-0.031+	-0.062+
Head of Household	0.068	0.050	0.035	-0.054	0.059	-0.081	0.063	0.053	0.068	0.030	0.013	0.086
Married	0.411+	-0.059	0.317+	0.266+	0.474+	0.084	0.529+	0.411+	0.627+	0.327+	0.321+	0.386+
Divorced	0.203+	0.022	0.196+	0.388+	0.222	0.128	0.436+	0.361+	0.540+	0.156+	0.176+	0.133
Household Size	-0.089+	-0.087+	-0.048+	-0.100+	-0.077+	-0.059+	-0.067+	-0.106+	-0.079+	-0.074+	-0.075+	-0.099+
High Education	0.245+	0.058	0.053	0.134+	0.374+	0.057	0.064	0.072	0.036	0.075*	0.284*	0.198
Employed	-0.034	-0.009	-0.031	-0.308+	0.119	-0.032	0.078	-0.118+	-0.071	0.005	-0.112	0.026
Self-employed	-0.178	-0.366+	-0.287+	-0.295+	0.119	-0.229` +	0.172	-0.097*	-0.024	-0.113*	-0.172+	-0.156
Unemployed	0.093	-0.122	0.054	-0.099	0.071	-0.123	0.055	-0.038	0.023	-0.027	-0.009	0.092
Retired	0.211+	-0.171	0.346	-0.010	0.036	0.035	-0.196	0.021	0.105	-0.001	0.156+	0.050
Part time job	-0.017	0.015	0.080	-0.029	-0.028	-0.032	-0.006	0.028	-0.050	0.008	0.057	0.079
Professional	0.183+	0.082	0.042	0.429+	-0.036	0.192+	0.085	0.185+	0.023	0.086	0.235+	-0.024
Clerical	0.068	0.030	0.001	0.325+	0.089	0.176+	0.075	0.180+	0.117	0.008	0.350+	0.378+
Services	0.075	-0.047	-0.036	-0.095	0.174	0.136*	0.068	0.103*	-0.042	-0.050	0.201+	-0.014
No supervisory job	0.042	-0.188+	-0.043	0.137+	-0.200	-0.007	-0.058	0.039	0.161+	-0.017	-0.013	-0.041
Household Income	0.064+	0.115+	0.051*	0.116+	0.075+	0.048+	0.126+	0.141+	0.121+	0.123+	0.255+	0.097+
H. Income Squared	-0.278+	-0.22'+	-0.363	-0.547+	-0.315	-0.139	-0.642+	-0.632+	-1.290+	-0.462+	-1.819+	-0.215+
Public Sector	0.067	0.046	0.097*	-0.068	0.027	0.012	-0.004	-0.003	0.113*	0.023	0.135+	0.142
Good Health	-0.064	-0.180+	-0.289+	-0.280+	-0.153	-0.254+	-0.232+	-0.166+	-0.259+	-0.220+	-0.085+	-0.063
Chronic illness	0.403+	0.434+	0.684+	0.389+	0.233+	0.686+	0.851+	0.787+	1.066+	0.669+	0.623+	0.300+
Hampered	0.178+	0.123*	0.168+	0.133*	-0.057	0.199+	0.063	0.107+	0.125+	0.173+	0.047	0.009
In Hospital	0.075	0.170+	0.513+	0.417+	0.332+	0.478+	0.518+	0.373+	0.158+	0.368+	0.398+	0.225+
Risk at job	-0.005	-0.120	0.052	-0.019	0.038	-0.052	0.160*	0.009	-0.065	0.064	0.171+	0.188
Constant	0.841+	-0.516+	0.237	-0.064	1.027+	-0.413*	-0.717+	-0.260*	-0.412+	-0.299+	-0.984+	0.303
Second Stage												
Age	-0.059+	0.025	0.006	-0.026	-0.012	0.035	-0.013	-0.087+	-0.058+	-0.069+	-0.007	-0.034
Age Squared	0.041+	-0.032	-0.026	0.001	-0.013	-0.066+	-0.013	0.076+	0.049+	0.058+	-0.005	0.021
Head of Household	0.051	0.248+	-0.150	0.036	0.632+	0.012	-0.135	0.265+	0.132	0.118	0.054	0.028
Married	0.550+	-0.156	0.177	0.366+	0.405+	0.185	0.265	0.688+	0.543+	0.537+	0.234+	0.496+
Divorced	0.293+	-0.597+	0.146	0.159	0.485*	0.148	0.237	0.491+	0.596+	0.390+	-0.048	0.616+
Household Size	-0.181+	0.046	-0.082+	-0.106+	-0.099+	-0.138+	-0.092+	-0.078+	-0.107+	-0.095+	-0.031*	-0.105+
High Education	-0.054	-0.204	0.063	0.207+	0.392+	0.166	0.035	-0.014	0.191+	-0.171*	0.082	0.126
Employed	-0.076	0.013	-0.375+	0.100	0.135	-0.089	-0.157	0.143	-0.125	-0.122	0.077	-0.002
Self-employed	-0.485+	0.513	0.150	0.326*	-0.358	-0.409	-0.172	0.403+	-0.106	-0.127	-0.093	-0.352+
Unemployed	-0.018	0.288	-0.218+	-0.114	-0.022	0.590*	-0.012	0.175*	-0.052	-0.065	0.195	0.395
Retired	-0.120	0.221	0.174	0.135	-0.429*	0.124	0.483	-0.036	0.259+	0.655	0.232+	0.175
Part time job	0.047	-0.187	-0.241+	-0.139	-0.263	0.108	-0.067	0.012	-0.044	0.356+	0.123	-0.291+
Professional	-0.026	0.069	0.145	-0.193	-0.345*	0.236	0.284	-0.022	-0.032	0.086	0.320+	0.408+
Clerical	-0.013	-0.376*	0.234	-0.264*	-0.645+	-0.110	0.150	-0.258+	-0.037	0.216	0.250+	0.479+
Services	0.021	0.218	0.074	-0.415+	-0.182	0.223	0.090	-0.194	0.134	-0.030	0.294+	0.022
No supervisory job	-0.037	0.275*	0.355+	0.174	-0.015	0.175	-0.074	0.000	0.109	0.052	-0.214+	-0.097
Household Income	0.105+	-0.183+	0.003	0.010	0.099+	0.037	0.107*	-0.007	0.207+	0.102+	0.069	0.037
H. Income Squared	-0.583+	0.429+	-0.264	-0.156	-0.676+	-0.005	-0.552	-0.078	-1.920+	-1.070+	-0.508	-0.348
Public Sector	0.062	0.205	-0.070	0.047	0.034	-0.137	0.229	0.085	-0.034	0.247*	-0.078	0.113
Good Health	-0.363+	-0.437+	-0.331+	-0.411+	-0.509+	-0.337+	-0.424+	-0.309+	-0.415+	-0.458+	-0.259+	-0.474+
Chronic illness	0.753+	0.445+	0.755+	0.490+	0.474+	0.674+	0.491+	0.863+	0.813+	0.579+	1.011+	0.934+
Hampered	0.444+	0.145	0.158	0.389+	0.124	0.147	-0.047	0.240+	-0.004	0.288+	-0.017	0.337+
In Hospital	0.308+	0.353+	0.404+	0.586+	0.635+	0.363+	0.489+	0.356+	0.266+	0.415+	0.336+	0.423+
Risk at job	-0.038	-0.225	-0.187	-0.240*	0.153	-0.002	-0.332*	0.067	-0.119	-0.231*	0.177*	0.091
Constant	2.392+	-0.689	0.942+	1.497+	0.957	-0.089	1.219+	1.843+	2.074+	1.685+	0.626*	1.045+
Ln(alpha)	1.008+	2.206+	1.242+	1.012+	0.854+	0.918+	0.811+	1.224+	0.135	1.676+	0.304+	1.092+
Log-L	15867.92	4769.909	10999.51	8985.694	3287.04	6952.288	5736.805	19328.78	12433.84	18781.98	11906.61	4718.41
LR test (b1=b2; df=25)	213.01	118.14	325.04	161.22	130.16	179.86	273.21	392.80	476.29	433.12	290.36	416.54

Notes. level of significance: + and * denote significance at the 5% and 10% levels

Table 6. Pooled Models

	VISITS TO GP. POOLED RESULTS. LCM2 SPECIFICATION								VISITS TO SPECIALIST. POOLED RESULTS. TPM SPECIFICATION							
	Male		Male		Female		Female		Male		Male		Female		Female	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	1st stage	2nd stage	1st stage	2nd stage	1st stage	2nd stage	1st stage	2nd stage
Age	-0.007	-0.019+	-0.004	-0.015+	-0.027+	-0.020+	-0.024+	-0.022+	-0.014+	0.009	-0.012+	0.010	$0.4x10^{-4}$	-0.041+	0.006+	-0.043+
Age Squared/100	0.021+	0.037+	0.020*	0.033+	0.035+	0.033+	0.033+	0.033+	0.021+	-0.013	0.019+	0.014	-0.007+	0.027+	-0.014+	0.029+
Head of Household	0.055	0.006	0.046	-0.021	0.018	0.020	0.025	0.017	0.016	-0.031	0.008	-0.005	0.036+	0.097+	0.010	0.093+
Married	0.059	0.137+	0.013	0.117+	0.314+	0.212+	0.282+	0.190+	0.136+	-0.030	0.117+	-0.048	0.353+	0.425+	0.277+	0.422+
Divorced	0.112	0.070+	0.042	0.046	0.326+	0.178+	0.297+	0.163+	0.066+	0.130*	0.035	0.105	0.266+	0.292+	0.190+	0.285+
Household Size	-0.001	-0.012+	0.016	-0.002	-0.019+	-0.022+	-0.007	-0.014+	-0.036+	-0.016*	-0.028+	-0.010	-0.077+	-0.096+	-0.065+	-0.095+
High Education	-0.192+	-0.074+	-0.225+	-0.117+	-0.196+	-0.110+	-0.224+	-0.153+	0.027*	-0.055	-0.006	-0.064*	0.072+	0.063+	-0.024	0.054+
Employed	-0.084	0.000+	-0.092	-0.050+	0.006	0.037	-0.029	0.041	-0.096+	0.010	-0.100+	-0.030	-0.066+	-0.030	-0.107+	-0.086+
Self-employed	-0.055+	-0.243+	-0.074	-0.219+	-0.085*	-0.020	-0.102+	0.018	-0.188+	-0.079	-0.199+	-0.114+	-0.145+	-0.016	-0.110+	-0.052
Unemployed	0.175+	-0.097+	0.179+	-0.081+	0.034	-0.015	0.019	-0.041*	-0.130+	0.077	-0.137+	0.067	-0.031*	0.032	-0.069+	0.031
Retired	0.149+	0.052	0.158+	0.092+	0.050	0.026	0.030	0.048*	-0.031	0.094*	-0.011	0.085	0.006	0.082+	0.017	0.020
Part time job	-0.031	-0.012	-0.035	-0.035	-0.077+	-0.037*	-0.086+	-0.053+	-0.051	0.015	-0.060*	0.015	-0.019	-0.017	-0.045+	-0.013
Professional	-0.044	-0.040*	-0.069*	-0.052+	-0.057	-0.136+	-0.060	-0.143+	0.106+	-0.061*	0.095+	-0.061*	0.174+	0.052	0.156+	0.056
Clerical	-0.032	0.038	-0.027	0.061+	-0.012	-0.131+	-0.006	-0.133+	0.109+	-0.043	0.132+	-0.038	0.152+	-0.009	0.130+	-0.010
Services	-0.090	0.009	-0.096	0.021	-0.015	-0.070+	-0.030	-0.086+	0.056+	-0.063	0.068+	-0.059	0.058+	0.042	0.021	0.029
No supervisory job	0.133+	-0.018	0.110+	-0.020	0.022	0.043*	0.047	0.045+	-0.032+	0.006	-0.039+	0.030	0.009	0.000	0.052+	0.082+
Household Income	-0.008	-0.023+	0.001	-0.025+	-0.060+	-0.025+	-0.070+	-0.021+	0.064+	-0.005	0.067+	-0.003	0.092+	0.029+	0.101+	0.038+
H. inc. squared/100	0.054	0.023	-0.03	0.071*	0.376+	0.071+	0.378+	0.054*	-0.274+	0.095	-0.280+	0.071	-0.336+	-0.115+	-0.359+	-0.146+
Public Sector	0.014	0.084+	0.053	0.080+	-0.015	0.050+	-0.028	0.040+	0.081+	-0.003	0.087+	-0.003	0.054+	0.053*	0.035+	0.046
Good Health	-0.300+	-0.439+	-0.350+	-0.489+	-0.468+	-0.460+	-0.487+	-0.504+	-0.246+	-0.298+	-0.290+	-0.309+	-0.185+	-0.378+	-0.290+	-0.380+
Chronic illness	0.844+	0.725+	0.817+	0.705+	0.675+	0.674+	0.664+	0.650+	0.731+	0.795+	0.695+	0.761+	0.650+	0.730+	0.561+	0.710+
Hampered	0.293+	0.200+	0.270+	0.190+	0.247+	0.106+	0.241+	0.083+	0.130+	0.184+	0.110+	0.179+	0.120+	0.211+	0.076+	0.219+
In Hospital	0.397+	0.280+	0.410+	0.286+	0.288+	0.269+	0.301+	0.263+	0.451+	0.442+	0.453+	0.449+	0.352+	0.397+	0.332+	0.404+
Risk at job	-0.029+	0.033+	-0.013	0.022	0.074+	0.033	0.081+	0.015	-0.010	0.076*	-0.010	0.080+	0.015	-0.066*	0.001	-0.070*
Lnalpha	1.040+	-0.890+	1.150+	-0.804+	0.680+	-1.450+	0.740+	-1.400+		1.810+		1.850+		1.090+		1.120+
Denmark	-0.522+	-0.473+	--	--	-0.177+	-0.259+	--	--	-0.623+	-0.789+	--	--	-1.180+	-0.660+	--	--
Netherlands	-0.570+	-0.480+	--	--	-0.298+	-0.259+	--	--	-0.395+	-0.304+	--	--	-0.860+	-0.146+	--	--
Belgium	0.003	0.191+	--	--	0.079*	0.235+	--	--	-0.147+	-0.383+	--	--	-0.238+	-0.324+	--	--
Luxembourg	-0.541+	-0.028	--	--	-0.312+	-0.048	--	--	-0.091+	-0.562+	--	--	0.141+	-0.460+	--	--
U.K.	-0.544+	-0.271+	--	--	0.015	-0.072+	--	--	-0.498+	-0.877+	--	--	-1.010+	-0.868+	--	--
Ireland	-0.391+	-0.314+	--	--	-0.019	-0.065+	--	--	-0.711+	-0.950+	--	--	-1.130+	-0.460+	--	--
Italy	-0.266+	-0.130+	--	--	-0.126+	0.020	--	--	-0.380+	-0.622+	--	--	-0.557+	-0.518+	--	--
Greece	-0.910+	-1.010+	--	--	-0.844+	-0.948+	--	--	-0.403+	-0.216+	--	--	-0.628+	-0.167+	--	--
Spain	-0.287+	-0.518+	--	--	-0.152+	-0.311+	--	--	-0.268+	-0.381+	--	--	-0.453+	-0.219+	--	--
Portugal	-0.882+	-0.495+	--	--	-0.659+	-0.249+	--	--	-0.538+	-0.723+	--	--	-0.654+	-0.512+	--	--
Austria	0.090	0.091+	--	--	0.157+	0.052	--	--	0.351+	-0.502+	--	--	0.524+	-0.471+	--	--
Capitation	--	--	0.735*	2.150+	--	--	0.215	2.540+	--	--	-1.710+	-0.895+	--	--	-0.650+	-0.241
Salary	--	--	0.584	1.730+	--	--	-0.077	2.170+	--	--	-1.600+	-0.592	--	--	-0.470+	0.026
Fphy	--	--	0.300*	0.828+	--	--	0.090	0.948+	--	--	-0.638+	-0.483+	--	--	-0.183+	-0.222+
Health Expenditure	--	--	0.063*	-0.122+	--	--	0.010	-0.138+	--	--	0.190+	0.341+	--	--	0.109+	0.255+
Public % of HE	--	--	0.010+	-0.006+	--	--	0.019+	-0.007+	--	--	0.021+	0.027+	--	--	0.011+	0.019+
Gatekeeping	--	--	0.184+	0.040*	--	--	0.209+	0.205+	--	--	-0.309+	-0.380+	--	--	-0.362+	-0.231+
Constant	1.170+	1.190+	-1.800+	0.176	2.080+	1.550+	-0.119	0.442+	-0.059	0.045	-1.580+	-4.060+	0.310+	1.810+	-1.110+	-1.630+
Prob group 1	0.362+		0.340+		0.477*		0.470									
Log-Likelihood	144511.4		145054.6		181669.3		182166.1		85108.31		86401.99		124831.4		126549.2	
LR test ($\beta_1=\beta_2$) (df)	70.4(35)		62.0(30)		59.8(35)		67.4(30)		542.4(35)		398.2(30)		1938.7(35)		1103.4(30)	

Notes: level of significance: + and * denote significance at the 5% and 10% levels

Table A.1. Mean of the variables by sex and country

	male														female													
	all	st-d	G	DK	NL	B	L	UK	IRL	I	GK	SP	P	A	All	st-d	G	DK	NL	B	L	UK	IRL	I	GK	SP	P	A
observations.	79959	--	7109	3877	6599	4562	1577	5599	6265	13564	8384	11492	8083	2648	82974	--	7192	4032	7281	4924	1624	5969	6182	13776	8882	11844	8569	2699
visits to GP: observ.	77648	--	6906	3872	6597	4458	1571	4737	6251	13554	8110	11242	8029	2320	81705	--	7056	4026	7277	4836	1613	5514	6169	13764	8812	11684	8826	2428
visits to GP: frequency	0.610	0.488	0.737	0.632	0.626	0.787	0.757	0.697	0.575	0.640	0.383	0.552	0.517	0.846	0.719	0.449	0.784	0.793	0.755	0.840	0.807	0.831	0.736	0.757	0.470	0.660	0.667	0.888
visits to GP: uncond. mean	2.394	4.805	3.645	1.936	1.898	3.314	2.540	2.556	2.258	2.644	1.199	2.358	1.869	3.711	3.526	5.807	4.456	3.285	3.139	4.372	3.156	4.214	3.613	3.848	1.676	3.683	3.151	4.603
visits to SP: observ.	77114	--	6883	3871	6595	4376	1570	4740	6244	13552	8109	11240	8031	1903	81558	--	7049	4028	7277	4781	1613	5514	6164	13759	8812	11684	8533	2344
visits to SP: frequency	0.293	0.455	0.460	0.236	0.300	0.370	0.435	0.300	0.170	0.257	0.241	0.304	0.223	0.584	0.445	0.497	0.706	0.308	0.386	0.604	0.768	0.358	0.230	0.414	0.380	0.462	0.394	0.835
visits to SP: uncond. mean	1.072	3.433	2.263	0.676	1.170	1.300	1.483	0.935	0.459	0.781	1.027	1.143	0.714	2.061	1.720	4.113	3.592	1.040	1.908	2.286	2.709	1.147	0.770	1.302	1.502	1.797	1.357	2.902
Age	40.23	13.23	41.6	40.5	40.8	40.19	40.90	41.20	38.80	39.70	41.39	39.19	39.77	40.22	40.449	13.12	41.77	40.51	40.18	40.14	39.88	40.89	39.43	39.9	40.93	39.82	41.38	40.75
age-squared	1793	1095	1906	1795	1807	1766	1825	1858	1696	1756	1897	1722	1774	1803	1808	1092	1905	1800	1758	1767	1741	1829	1730	1769	1858	1773	1900	1835.
head of the house	0.675	0.468	0.719	0.702	0.869	0.568	0.778	0.776	0.629	0.630	0.715	0.648	0.596	0.506	0.191	0.393	0.285	0.427	0.197	0.146	0.195	0.255	0.140	0.123	0.142	0.143	0.176	0.384
Married	0.682	0.466	0.741	0.719	0.783	0.737	0.744	0.697	0.598	0.628	0.708	0.631	0.673	0.697	0.705	0.456	0.764	0.739	0.777	0.722	0.749	0.714	0.655	0.668	0.730	0.656	0.690	0.712
sep.-divorced.-widowed	0.030	0.171	0.041	0.061	0.034	0.051	0.046	0.065	0.015	0.016	0.018	0.021	0.023	0.030	0.081	0.273	0.088	0.110	0.077	0.113	0.080	0.123	0.065	0.053	0.075	0.071	0.091	0.099
size of the household	3.645	1.507	3.073	2.790	3.153	3.320	3.380	3.094	4.485	3.806	3.716	4.054	3.983	3.698	3.561	1.493	2.986	2.809	3.052	3.266	3.344	3.058	4.476	3.739	3.616	3.965	3.818	3.588
educated (college)	0.171	0.377	0.283	0.320	0.210	0.284	0.201	0.261	0.137	0.075	0.183	0.179	0.036	0.062	0.141	0.348	0.123	0.323	0.155	0.298	0.110	0.211	0.118	0.060	0.172	0.156	0.041	0.065
Employed	0.580	0.494	0.717	0.729	0.718	0.627	0.682	0.633	0.514	0.508	0.433	0.508	0.589	0.662	0.392	0.488	0.503	0.643	0.424	0.474	0.442	0.524	0.345	0.319	0.308	0.254	0.413	0.443
self-employed	0.157	0.364	0.064	0.075	0.055	0.113	0.087	0.147	0.201	0.180	0.324	0.149	0.189	0.108	0.054	0.227	0.026	0.030	0.021	0.054	0.030	0.050	0.026	0.061	0.081	0.053	0.104	0.076
retired	0.081	0.272	0.049	0.068	0.049	0.059	0.028	0.084	0.119	0.101	0.069	0.131	0.053	0.033	0.084	0.277	0.062	0.107	0.145	0.104	0.017	0.027	0.041	0.089	0.104	0.110	0.064	0.030
Unemployed	0.064	0.245	0.082	0.056	0.023	0.070	0.134	0.047	0.033	0.096	0.083	0.032	0.061	0.118	0.046	0.209	0.067	0.084	0.003	0.068	0.046	0.058	0.006	0.070	0.045	0.004	0.063	0.083
part-time	0.021	0.145	0.010	0.023	0.028	0.014	0.013	0.028	0.031	0.022	0.033	0.020	0.013	0.010	0.094	0.292	0.144	0.124	0.185	0.121	0.122	0.177	0.083	0.060	0.051	0.047	0.054	0.099
professional	0.231	0.421	0.320	0.334	0.413	0.284	0.266	0.313	0.220	0.141	0.209	0.164	0.136	0.220	0.153	0.360	0.244	0.269	0.215	0.237	0.145	0.214	0.131	0.098	0.108	0.098	0.113	0.123
Clerk	0.064	0.245	0.053	0.045	0.057	0.125	0.075	0.070	0.039	0.103	0.049	0.042	0.048	0.056	0.092	0.289	0.111	0.146	0.098	0.140	0.130	0.158	0.085	0.096	0.056	0.045	0.060	0.117
services employee	0.056	0.230	0.030	0.046	0.042	0.036	0.056	0.051	0.052	0.060	0.060	0.070	0.078	0.066	0.079	0.270	0.084	0.145	0.079	0.057	0.068	0.103	0.078	0.056	0.060	0.067	0.106	0.113
not supervisory job	0.361	0.480	0.387	0.448	0.430	0.357	0.390	0.243	0.337	0.332	0.313	0.331	0.484	0.355	0.283	0.451	0.378	0.480	0.328	0.361	0.321	0.238	0.248	0.243	0.191	0.197	0.351	0.310
household income	2.410	1.641	2.698	2.666	2.486	3.090	4.532	2.771	2.865	2.190	1.870	2.093	1.640	3.350	2.299	1.607	2.541	2.529	2.400	2.949	4.447	2.585	2.751	2.117	1.773	2.017	1.552	3.155
household income sq	8.498	24.139	9.958	11.04	7.983	12.74	27.00	10.78	11.96	6.512	5.116	6.226	4.154	14.79	7.867	20.885	9.022	9.049	7.685	11.96	26.80	9.701	11.00	6.197	4.648	5.944	3.952	13.37
pub.	0.169	0.374	0.215	0.212	0.183	0.211	0.199	0.161	0.173	0.171	0.159	0.119	0.137	0.186	0.145	0.352	0.198	0.360	0.155	0.206	0.150	0.198	0.120	0.124	0.083	0.078	0.130	0.140
Good Health	0.764	0.425	0.747	0.859	0.821	0.819	0.763	0.742	0.872	0.697	0.836	0.739	0.655	0.783	0.719	0.449	0.729	0.828	0.769	0.760	0.711	0.743	0.850	0.639	0.812	0.689	0.544	0.775
Chronic illness	0.164	0.370	0.224	0.241	0.200	0.133	0.190	0.249	0.142	0.096	0.103	0.173	0.170	0.191	0.172	0.378	0.217	0.281	0.222	0.126	0.179	0.276	0.150	0.090	0.109	0.178	0.203	0.165
Hampered	0.137	0.344	0.185	0.135	0.173	0.124	0.181	0.162	0.115	0.114	0.104	0.108	0.164	0.173	0.153	0.360	0.176	0.179	0.202	0.148	0.172	0.184	0.125	0.124	0.115	0.130	0.200	0.146
At Hospital	0.069	0.254	0.105	0.067	0.054	0.091	0.115	0.074	0.069	0.067	0.056	0.061	0.041	0.105	0.086	0.280	0.123	0.109	0.089	0.107	0.139	0.112	0.101	0.075	0.056	0.067	0.045	0.140
risk at job	0.106	0.307	0.088	0.087	0.071	0.085	0.056	0.147	0.088	0.119	0.162	0.122	0.073	0.061	0.064	0.245	0.068	0.072	0.053	0.061	0.020	0.088	0.048	0.067	0.092	0.058	0.054	0.039

DATA APPENDIX

The variables included in the analysis are grouped in the following five categories:

1) *personal and household characteristics*:

- marital status: two dummies, one taking value 1 if the individual is married, and the other equalling 1 if the individual is separated/divorced/widowed
- a dummy for the individual being head of the household, dated in wave -1.
- age and its square.
- education: a dummy for the individual having a third level of education recognised.
- household size.

2) *labour force status characteristics*:

- Dummies controlling for self-employment, unemployment, retired part-time job and, working in the public sector, dated in wave -1.
- Occupational dummies: professionals, clerks, services workers, dated in wave -1
- risk at job, dated in wave -1

3) *health related variables*:

- a dummy if the individual reports himself as having good health, dated in wave -1.
- a dummy for individuals having a chronic physical or mental health problem, current (since it was not asked for in the first wave of the survey).
- a dummy if the individual is hampered in daily activities by any physical or mental health problem, illness or disability, dated in wave -1.
- a dummy for individual was admitted as in-patient in a hospital during the previous year, dated in wave -1

4) *income variables*:

- Household income and its squared (in 10 ^ 5 PPP units), dated in wave -1.

5) *country variables*: See Table 1.

In Table A1 we present summary statistics by sex and by sex and country.

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***Junto al original del Papel de Trabajo se entregará también un resumen de un máximo de dos folios que contenga las principales implicaciones de política económica que se deriven de la investigación realizada*.**

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