Socioeconomic inequalities in health: a comparative longitudinal analysis using the European Community Household Panel

Cristina Hernández Quevedo[1], Andrew M Jones[1], Ángel López Nicolás[2] and Nigel Rice[3]

September, 2005

Abstract

This paper contributes to the literature on income-related inequalities in health across European Union Member States. The analysis is based on the European Community Household Panel Users' Database (ECHP-UDB) and uses two binary measures of health limitations for the full 8 waves of available data. Short-run and long-run concentration indices together with mobility indices are derived for indicators of severe health limitation and any health limitation. Results suggest the existence of "pro-rich" inequality in health across Member States in both the short-term and the long-term, with health limitations concentrated among those individuals with lower incomes. For many countries, long-run indices suggest income-related inequalities in health are widening, in the sense that the longer the period over which health and income are measured, the greater is the degree of income-related health inequality.

JEL codes: D63 I12

Keywords: health limitations, concentration index, mobility index, panel data

---

The *European Community Household Panel Users' Database*, version of December 2003, was supplied by Eurostat. This paper derives from the project "The dynamics of income, health and inequality over the lifecycle" (known as ECuity III Project), which is funded in part by the European Commission's Quality of Life and Management of Living Resources programme (contract QLK6-CT-2002-02297).

[1] Department of Economics and Related Studies, University of York, United Kingdom
[2] Departament d'Economia I Empresa and CRES, Universitat Pompeu Fabra & Departamento de Economía, Universidad Politécnica de Cartagena, Spain
[3] Centre for Health Economics, University of York, United Kingdom

1. Introduction

Persistent differences in health by socioeconomic status (SES) are one of the key policy issues facing many European countries (van Doorslaer and Koolman, 2004). There is increasing concern that equity in health and health care in Europe may suffer as a result of the expansion of the European Union and the ageing of its populations. This is reflected, for instance, in the recent commitment at EU level of Member States to set up national action plans to combat poverty and social exclusion. While this challenge is not unique to European countries, what is unique in the European setting is that the process of economic and monetary unification places pressure on countries to harmonize their social policies. At the special European summit in Lisbon in March 2000, for the first time, social policy was explicitly introduced as a distinct focus of attention for European cooperation. It was agreed that common objectives for eradication of poverty and social exclusion would be adopted, that national policies would be designed to meet these, and that progress would be monitored. One tangible outcome of this process was a book on indicators of social inclusion in the EU edited by Atkinson *et al* (2002) which, among other things, set out a number of recommendations for the development of quantitative indicators to be used for monitoring trends in the multidimensional concepts of poverty and social exclusion.

This paper contributes to the literature on income-related inequalities in health and its distribution across European Union Member States, by exploiting data contained within the *European Community Household Panel Users' Database* (ECHP-UDB). The ECHP-UDB is a standardised annual longitudinal survey, which provides 8 waves (1994-2001) of comparable micro-data about living conditions in the pre-enlargement European Union Member States (EU-15). This multipurpose survey covers a wide range of topics including demographics, income, social transfers, health, housing, education and employment. Interest focuses on two binary measures of health limitations, constructed from the answers to the question: "Are you hampered in your daily activities by any physical or mental health problem, illness or disability?". The first measure concentrates on the reporting of any limitations and the second on severe limitations. The construction of these measures is described in detail in section 3.

The focus of this paper is to investigate the degree of socioeconomic inequality in health within and between the Member States of the European Union. We do this by exploiting the longitudinal nature of the ECHP-UDB. We are interested in whether and to what extent poorer members of society face greater health problems than richer members of the society, and how this varies across time and member countries included in the ECHP-UDB. To this end, income plays a central role in our analysis. The panel nature of the dataset allows us to compute both short-run and long-run indices of inequality based on the familiar concentration index of health inequality (CI).

2. Methods

In the field of health economics, methods based on concentration curves and indices have become the standard for measuring inequalities and inequities in health (Wagstaff and van Doorslaer, 2000). Although developed in the context of comparing inequalities across EU Member States, they have also had a strong impact on the methods proposed and/or used in health policy statements on this matter by other international organisations, for example the OECD's Health System Performance Framework (Hurst and Jee-Hughes, 2001), the World Bank's Poverty Reduction Strategy (Claeson *et al*, 2001) and the WHO's World Health Report (Murray and Frenk, 2001).

The concentration index (CI) provides a measure of relative income-related health inequality (Wagstaff, Van Doorslaer and Paci, 1989). The CI can be defined as a bivariate measure of inequality, measuring inequality in our health variable of interest, in terms of the ranking of a measure of income. Wagstaff, Paci and van Doorslaer (1991) review and compare the properties of the CI with alternative measures of health inequality. They argue that the main advantages of the CI are the possibility of both visual representation through the concentration curve and checks of dominance relationships.

The health CI is derived from the health concentration curve; this is illustrated in Figure 1. The sample of interest is ranked by socioeconomic status, so if income is used as the relevant ranking variable, the horizontal axis begins with the poorest individual in society

and progresses through the income distribution up to the very richest individual in society. This relative income rank is then plotted against the cumulative proportion of health on the vertical axis. This assumes that a cardinal measure of health is available, that can be compared and aggregated across individuals. The 45-degree line shows the line of perfect equality, in which case shares of population health are proportional to income, such that the poorest 20% of individuals receive 20% of the available health in the population and so on. In reality, it is unlikely that perfect equality exists in the distribution of health. Pro-rich inequality is illustrated by the convex curve on the figure - the concentration curve. In the example shown, the poorest 20% of income earners receive less than 20% of available health. The fact that the concentration curve lies below the line of perfect equality indicates that there is pro-rich inequality in health. The size of inequality can be summarised by the health concentration index (CI), which is given by twice the area between the concentration curve and the 45-degree line.

[Insert Figure 1 around here]

The CI was designed for use on cross-sectional data and it is possible to analyse how inequalities evolve over time using a series of cross sections. However, this approach does not offer any information about the dynamics of individuals' health and income and their impact on inequality over periods stretching longer than the typical one year cross-sectional survey. Recently, by drawing on the literature on income inequality, Jones and López Nicolás (2004) have explored the additional information that can be obtained by using panel data. Work on income mobility has focused on comparing the distribution of income using two perspectives: firstly, a cross-sectional or short-run perspective and secondly, a long-run perspective where income is aggregated over a series of periods. If an individual's income rank differs between the short-run and the long-run, there is evidence of income mobility. One way of measuring this phenomenon is through the index of income mobility proposed by Shorrocks (1978).

The paper by Jones and López Nicolás (2004) applies the principles used by Shorrocks (1978) to income-related health inequality. They show that income-related health inequality can be either greater or smaller in the long-run than the short-run and that, once again, these changes can be measured through an index of health-related income mobility which

is based on the CI. Jones and López Nicolás (2004) show that the long-term CI for mean health across T periods (denoted as CI^T below) is the sum of two terms. The first term is a weighted sum of the short-term CI's (that is, the CI for each of the waves denoted as CI^t below), while the second term reflects the covariance between levels of health and fluctuations in income rank over time, such that:

$$CI^T = \sum_t w_t CI^t - \frac{2}{NT\bar{y}^T}\sum_i\sum_t \left(y_{it} - \bar{y}^t\right)(R_i^t - R_i^T), \text{ where } w_t = \frac{\bar{y}^t}{T\bar{y}^{=T}}$$

where

$$(i)\ \bar{y}^t = \frac{\sum_i y_{it}}{N} \qquad i = 1,\ldots,N; \quad t = 1,\ldots,T \tag{1}$$

$$(ii)\ \bar{y}^{=T} = \frac{\sum_t\sum_i y_{it}}{NT} = \frac{\sum_t \bar{y}^t}{T}$$

and y, R denote a measure of health and the relative income rank respectively.

This is a key result. The first term is a weighted sum of the concentration indices (CI^t) for each of the sub-periods (with weights equal to the share of "total" health in each period). If the income ranking remains constant over time, a standard decomposition result for concentration indices implies that the concentration index for the average over time is equal to the (weighted) average of the concentration indices. However income ranks may change over time and it could be the case that downwardly income mobile individuals have poor health, or vice versa. The effect of such potential systematic relationships cannot be detected with cross-sectional data. With panel data, however, they are captured by the second term in the expression above. If people switch ranks over the T periods and these changes are systematically related to health, then the second term will be either positive or negative. If it is positive, then upwardly income mobile individuals – in the sense that their rank in long-run income is greater than their rank when income is measured over a short period - tend to enjoy a better than average level of health contemporaneously. Of course, this means that downwardly mobile individuals would tend to have a worse than average level of health. In these circumstances, long-run income-related health inequality would be greater than the average measure of income-related heath inequality at each of the sub-

periods. Note that the opposite argument would hold if the second term was positive, that is, upwardly mobile individuals would have worse than average levels of health whereas downwardly mobile individuals would be healthier than average, and this would result in a lower level of long-run income-related health inequalities than would be suggested from the average of cross-sectional measures. If health policy – and social policy in general - is concerned with lifetime histories (see e.g. the "fair innings" argument described by Williams and Cookson, 2000) then the measure just discussed can provide useful information.

It should be noted that while the analysis is presented here in terms of the concentration index for socioeconomic inequalities in health, the same idea also applies to the Gini coefficient for overall inequality in health or to the extended Gini or concentration indices (see Wagstaff, 2002).

It is useful to measure how much the longitudinal perspective alters the picture that would emerge from a series of cross-sections. Jones and López Nicolás (2004) define an index of *health-related income mobility* to measure the difference between long-run and short-run inequality:

$$M^T = 1 - \frac{CI^T}{\sum_t w_t CI^t} = \frac{2}{N\sum_t \bar{y}^t CI^t}\left(\sum_i \sum_t (y_{it} - \bar{y}_t)(R_i^t - R_i^T)\right) \qquad (2)$$

This definition shows that the index of health-related income mobility is "one minus the ratio by which the CI for the joint distribution of longitudinal averages differs from the weighted average of the cross-sectional concentration indices, due to the systematic association between health and changes in the income rank of an individual" (Jones and López Nicolás, 2004). The larger the discrepancy between the short-run and long-run inequality measures the larger the value of M^T. No discrepancy implies M^T equals zero. The sign of the index is given by the covariance in the second term of expression (1). That is, a negative value for the index implies that long-run inequalities are greater than the average of sub-period inequalities and vice versa. An important feature of M^T is that it is invariant to linear transformations of the measure of health.

3. The data

The *European Community Household Panel Users Database* (ECHP-UDB) is a standardised annual longitudinal survey, designed and coordinated by the European Commission's Statistical Office (EUROSTAT). It provides 8 waves (1994 - 2001) of comparable micro-data about living conditions in the European Union Member States. The survey is based on a standardised questionnaire that involves annual interviewing of a representative panel of households and individuals of 16 years and older in each of the participating EU Member States (Peracchi, 2002). National Data Collection Units implemented the survey in each of the member countries. Approximately, 60,000 households and 130,000 adults across the European Union were interviewed at each wave. The survey covers a wide range of topics including demographics, income, social transfers, individual health, housing, education and employment. The information provided by the ECHP-UDB can be compared across countries and over time, becoming an attractive dataset for the purpose of our study.

The first wave covered all EU-15 Member States with the exception of Austria and Finland. Austria joined in 1995 and Finland in 1996. In the periods covering the first three waves, the ECHP ran parallel to existing national panel surveys in Germany, Luxembourg and the United Kingdom. From the fourth wave onwards, the ECHP samples were substituted by data harmonized ex-post from these three surveys. Hence, there were two versions of the ECHP database for Germany, Luxembourg and United Kingdom. Although Sweden did not take part in the ECHP, the Living Conditions Survey[1] is included in the UDB, together with comparable versions of the British Household Panel Survey (BHPS), the German Socioeconomic Panel (GSOEP) and the Panel Survey for Luxembourg (PSELL)[2].

We use data for the following fourteen Member States of the EU, for the full number of available waves: Austria (waves 2 – 8), Belgium (1 – 8), Denmark (1 – 8), Finland (3 – 8),

[1] Note however that the included data for Sweden is not longitudinal, but it has been derived from repeated cross-sections. We drop Sweden, as it doesn't share the panel data format.
[2] Data considered in this study for Germany, Luxembourg and United Kingdom correspond to the original ECHP survey.

France (1 – 8), Germany (1 – 3), Greece (1 – 8), Ireland (1 – 8), Italy (1 – 8), Luxembourg (1 – 3), The Netherlands (1 – 8), Portugal (1 – 8), Spain (1 – 8) and United Kingdom (1 – 3).

Sample and variables

We use a balanced sample of respondents, which implies that only individuals from the first wave who were interviewed in each subsequent wave are included in the analysis. Table 1 shows the sample size for each country, for the whole sample and split by gender. For most countries, the sample size is between 20,000 and 50,000 adults. Exceptions are Spain and Italy with both having notably larger samples and Luxembourg and the UK with notably smaller samples.

[Insert Table 1 around here]

Health limitations

The ECHP dataset contains information on a wide range of health and health related variables, from health outcomes to health care utilisation. In our study, we are interested in the information on health limitations, in particular responses provided to the question[3]: "Are you hampered in your daily activities by any physical or mental health problem, illness or disability?". Three possible answers are available for the respondent: "Yes, severely", "Yes, to some extent" and "No". In the ECHP-UDB, this information is provided for all countries and waves that we consider for our analysis. Although the question was asked similarly in all the countries where the data was available, the French case is an exception as the question was reworded for the full panel (1994 – 2001) from "… hampered by any chronic, physical or mental health problem, illness or disability?" to "Gêné par une maladie chronique, un handicap?".

All countries included in the analysis follow a similar pattern in their distribution of responses to the health limitation question; that is, the majority of individuals report not being hampered (see Figure 2). The proportions range from 72% in Finland to 87% in

[3] The question is coded PH003A in the ECHP-UDB.

Italy. Portugal shows the greatest proportion of respondents considering themselves as severely hampered (10.31%), while Ireland shows the lowest (3.38%). Finland has the greatest proportion of individuals reporting to be limited to some extent (20.55%) and Italy presents the lowest (8.31%).

[Insert Figure 2 around here]

Our study focuses on two binary measures of health problems that have been derived from the responses to the health limitations question. From these responses, two dummy variables are constructed. The first, labelled HAMP1, represents an indicator of any limitations (severe or to some extent) versus no limitations; the second (HAMP2) represents an indicator of severe limitations versus no limitations or limited to some extent.

Descriptive Analysis

Figures 3 and 4 show the distribution of HAMP1 and HAMP2 respectively, for each country and tabulated in percentage form. For the variable HAMP1, the country with the highest percentage of responses stating any limitation corresponds to Finland at 28.2%, followed by Portugal (25.6%) and the UK (25.2%). The country with the lowest percentage of responses is Italy (12.6%), followed by Belgium (14.8%) and Ireland (16.2%).

[Insert Figure 3 around here]

[Insert Figure 4 around here]

Results similar to HAMP1 are found for the variable HAMP2. Portugal has the highest percentage of individuals reporting being severely hampered (10.3%), followed by France (9.5%) and Finland (7.6%), while Ireland, Italy and Belgium have the lowest percentages at 3.4%, 4.3% and 4.6%, respectively.

Table 2 shows the percentage of responses to each of the two response variables for each country and broken down by income quintile. Minimum and maximum percentages have been highlighted and range from 6.3% of respondents in the fifth income quintile in Italy

reporting some health limitations to 26% in the first income quintile in the UK. The corresponding range for severe health limitations is 1.4% in the fifth quintile for Ireland to 15.4% in the second income quintile in Portugal.

Country-specific results show a clear association between income and health. In general, there exists a gradient across income quintiles in the reporting of both severe and any health limitations such that a higher proportion of respondents in lower income quintiles report limitations compared to respondents from higher quintiles of the income distribution. Further, there is variation across countries in the observed income gradients. For example, for Portugal the gradient ranges from 15.4% of respondents reporting severe limitations in the second quintile to 5.5% in the fifth quintile. For Italy, the range is 5.2% in the first quintile to 2.7% in the fifth quintile. Similarly there is variation across income quintiles in the proportion of respondents reporting health limitations to some extent. For Luxembourg, the proportion ranges from 20.7% in the lowest quintile of the income distribution to 11.5% in the highest quintile. This is in contrast to Italy where the corresponding figures are much lower at 9.2% and 6.3%, respectively.

[Insert Table 2 around here]

4. Inequality and mobility

To calculate the short-run and long-run concentration indices together with the mobility indices, we use the maximum number of waves available for each country as contained in the ECHP-UDB. To ensure comparability across countries, our measure of income is equivalised real household income. This represents household income adjusted using country-specific Purchasing Power Parities (PPP), the Consumer Price Index (CPI) and the modified-OECD scale, to control for household size and composition. Total household income includes all net monetary income received by household members during the reference year. All analyses are weighted using the personal weights provided in the ECHP-UDB.

Table 3 presents the short-run CI together with the long-run CI and the M^T for HAMP1 and HAMP2 for each country and for all available waves of the ECHP-UDB. If we focus on the short-term inequalities, it can be seen that CI's are negative for all waves and all countries. This implies pro-rich inequality in health in all periods – in general, richer people have more than an equal share of good health compared to poorer people.

Further, for some countries (for example, Luxembourg, France, UK, Austria) the CI for the variable HAMP1 increases over consecutive waves indicating that inequalities are widening over time. Few countries display CI's that are lower in absolute value at the end of the panel compared to the beginning. While some countries appear to have a relatively stable degree of inequality - for example, while the figures for the UK are increasing over the three available waves, the increases are modest – for other countries the increases are more dramatic. For example, in Luxembourg the degree of measured inequality more than doubles over the three waves of observation. For Finland, Austria and Ireland the CI for HAMP1 in the last wave of observation is one and half times the value of the CI in the first wave. We also observe variation in measured inequality across countries so while Germany exhibits relatively low values for the CI, Greece and Ireland exhibit relatively large values. The CI's for HAMP2 are in general increasing over time with all but Germany and Italy exhibiting a larger (in absolute value) CI at the end of the panel compared to the beginning.

[Insert Table 3 around here]

Figure 5 shows the long-run CI and M^T (in absolute values) for HAMP1 for each country. Recall that the long-run CI's are informing us about the degree of income-related health inequality when both income and health are averaged over the whole period for which individuals are observed. Long-term concentration indices are negative for all the countries; hence, there are long-term income-related inequalities in health, with health limitations concentrated among those with lower incomes in the European Union.

[Insert Figure 5 around here]

[Insert Figure 6 around here]

Consideration of the length of the period over which individuals are observed is important before comparing the long-run figures across countries. If there is mobility over time (in the terms discussed in the previous section) then its effect accumulates over time, so long-run CI's and the corresponding mobility measures must be compared over equal periods of time for different countries.

Among the countries for which a full 8 year period is available, the estimates reveal that Ireland has the highest level of long-term "pro-rich" inequality in health (0.279), followed by Greece (0.223) and Denmark (0.201), while Italy (0.108) has the lowest level. For HAMP2 (Figure 6), the results are similar with Ireland (0.409) followed by Denmark (0.373) and Belgium (0.325) again exhibiting the highest levels of pro-rich inequality in health. For each country, the long-term CI is greater for severe limitations than it is for limitations to some extent, indicating that inequalities become more pronounced when considering more severe health problems.

In terms of the mobility estimates, the mobility index for each country is negative, which suggests that there is greater long-run income related inequality in both HAMP1 and HAMP2, than would be inferred by the average of short-run indices, for all countries. In other words, downwardly income mobile individuals are more likely to suffer health limitations in all countries analysed.

If the absolute size of the overall mobility index is compared across countries with the same number of waves available, it can be seen that Belgium (0.243), followed by Ireland (0.160) and Spain (0.143), has the highest mobility indices in absolute terms for HAMP1, while the minimum level corresponds to France (0.074), followed by Italy (0.092) and Netherlands (0.116). For HAMP2, Belgium (0.186), followed by Portugal (0.170) and Ireland (0.167), present the highest mobility indices, while Italy (0.024), followed by Denmark (0.029) and France (0.065), has the lowest estimates.

To allow for differences in the number of waves available for each country, we report the average per year M^T. In Figure 7, we can see that Austria (0.007) has the lowest level of

average M^T per year for our indicator of any limitation, followed by Luxembourg (0.008) and France (0.009), while the highest levels in absolute terms correspond to Belgium (0.030), Ireland and United Kingdom (0.020, respectively). Figure 8 shows the results for our indicator of severe limitation. In this case, Italy (0.003) has the lowest level of average M^T per year, while Luxembourg presents the highest (0.043), followed by Belgium (0.023) and United Kingdom (0.021). Therefore these results also illustrate how the strength of the relationship between downward income mobility and health limitations varies across countries, suggesting the research hypothesis of whether they could be associated to differing policies and institutional arrangements.

[Insert Figure 7 around here]

[Insert Figure 8 around here]

5. Conclusions

The study of socio-economic inequalities in health has an important role in the context of informing the social and health policy agenda of many European Union countries. This study has considered two indicators of health limitations in order to calculate income-related inequalities. We apply the approach of Jones and López Nicolás (2004), which allows us to distinguish between short-term and long-term socioeconomic inequalities for our health variables of interest. The difference between these two measures is summarised using the mobility index (M^T). Further, average per year M^T have been presented, to allow for comparisons across countries with differences in the number of waves available.

Several conclusions can be inferred from this analysis. First, there is evidence that income-related inequalities in health limitations exist among all Member States included in our analysis, both in the short-term and long-term. These socioeconomic inequalities favour the rich over the poor in each society. Secondly, there is evidence that inequalities in health are increasing in almost all the countries studied. Thirdly, there is an important difference between long-term and short-term measures of inequality, even over the relatively short span of 8 years covered by the ECHP-UDB, in the sense that the longer the period over which health and income are measured, the greater is the degree of income-related health

inequality. This highlights the importance of utilising a longitudinal perspective where feasible when measuring and interpreting socioeconomic inequalities in health.

References

Atkinson A, Cantillon B, Marlier E and Nolan B (2002). *Social Indicators: The EU and Social Inclusion*. Oxford University Press: Oxford.

Claeson, M., C. G. Griffin, et al. (2001). Health, Nutrition and Population. Poverty Reduction Strategy Paper Sourcebook. World Bank. Washington DC, The World Bank.

Hurst J and M Jee-Hughes (2001). *Measuring up: Improving Health Systems Performance in OECD Countries*. OECD, Paris.

Jones AM and A López Nicolás (2004). "Measurement and explanation of socioeconomic inequality in health with longitudinal data". *Health Economics* 13: 1015 – 1030

Murray C and J Frenk (2001). "World Health Report 2000: a step towards evidence-based health policy". *Lancet*, 357: 1698 - 1700

Peracchi, F (2002). "The European Community Household Panel: A Review", *Empirical Economics*, 27: 63-90

Shorrocks A (1978). "Income inequality and income mobility". *Journal of Economic Theory*, 19: 376 - 393

Van Doorslaer, E and X Koolman (2004). "Explaining the differences in income-related health inequalities across European countries". *Health Economics*, 13: 609-628

Wagstaff, A. (2002). Inequality aversion, health inequalities and health achievement. *Journal of Health Economics,* 21: 627-641.

Wagstaff A and E van Doorslaer (2000). "Meauring and testing for inequity in the delivery of health care". *Journal of Human Resources* 35: 716 - 733

Wagstaff A, E van Doorslaer and P Paci (1989). "Equity in the finance and delivery of health care: some tentative cross-country comparisons". *Oxford Review of Economic Policy* 5(1): 89 – 112

Wagstaff A, P Paci and E van Doorslaer (1991). "On the measurement of inequalities in health". *Social Science and Medicine*, 33 (5): 545-557

Williams A and R Cookson (2000). "Equity in Health" in AJ Culyer and JP Newhouse (Eds.), *Handbook of Health Economics*. Volume 1b. , Elsevier.

Table 1 : Sample size for each country considered in the analysis

Wave	D	DK	NL	B	L	F	UK	Irl	I	EL	E	P	A	Fin
1	8,036	2,536	4,656	3,008	1,779	7,226	5,382	2,748	9,539	6,384	7,549	7,348	-	-
2	8,036	2,536	4,656	3,008	1,779	7,226	5,382	2,748	9,539	6,384	7,549	7,348	4,001	-
3	8,036	2,536	4,656	3,008	1,779	7,226	5,382	2,748	9,539	6,384	7,549	7,348	4,001	3,893
4	-	2,536	4,656	3,008	-	7,226	-	2,748	9,539	6,384	7,549	7,348	4,001	3,893
5	-	2,536	4,656	3,008	-	7,226	-	2,748	9,539	6,384	7,549	7,348	4,001	3,893
6	-	2,536	4,656	3,008	-	7,226	-	2,748	9,539	6,384	7,549	7,348	4,001	3,893
7	-	2,536	4,656	3,008	-	7,226	-	2,748	9,539	6,384	7,549	7,348	4,001	3,893
8	-	2,536	4,656	3,008	-	7,226	-	2,748	9,539	6,384	7,549	7,348	4,001	3,893
Men	11,640	9,776	16,928	10,808	2,571	26,936	7,119	10,512	36,840	23,224	27,712	26,960	13,370	11,484
Women	12,468	10,512	20,320	13,256	2,766	30,872	9,027	11,472	39,472	27,848	32,680	31,824	14,637	11,874
Total	24,108	20,288	37,248	24,064	5,337	57,808	16,146	21,984	76,312	51,072	60,392	58,784	28,007	23,358

Table 2: Percentage of responses to HAMP by income quintiles

Country	Limitations to some extent Income quintiles					Severe limitations Income quintiles				
	1	2	3	4	5	1	2	3	4	5
Germany	17.72	17.15	15.67	14.33	14.90	9.63	7.34	5.72	5.53	4.72
Denmark	20.38	17.54	16.64	13.81	11.23	10.75	7.12	3.43	2.67	2.08
Netherlands	18.61	17.36	15.53	14.86	13.66	10.25	9.08	6.73	5.55	5.09
Belgium	14.46	10.70	8.94	8.79	8.71	9.53	5.57	3.17	2.18	2.55
Luxembourg	20.65	18.36	18.91	12.91	11.53	7.14	5.16	4.58	4.16	2.34
France	16.69	15.01	12.98	10.18	10.18	14.11	11.90	10.52	5.65	5.65
UK	25.76	21.77	17.10	13.66	14.54	9.76	10.48	7.06	4.22	2.13
Ireland	17.24	20.35	13.09	10.62	7.98	6.82	6.26	3.26	1.85	1.44
Italy	9.18	9.94	9.09	7.91	6.26	5.22	5.22	4.98	3.97	2.72
Greece	14.39	11.81	9.73	9.50	6.43	12.26	9.44	7.55	6.51	3.49
Spain	14.71	15.51	13.44	10.49	7.01	7.23	7.36	7.08	5.38	2.59
Portugal	19.35	18.53	15.93	14.25	11.14	14.30	15.36	11.34	8.43	5.50
Austria	18.30	14.44	12.23	11.40	11.25	8.18	5.33	4.97	3.90	3.32
Finland	22.21	22.09	19.87	20.46	18.63	10.09	9.78	6.80	6.38	5.61

* Both the highest and lowest percentages of responses by income quintiles across countries have been highlighted in this table

Table 3: Inequality and mobility indices across EU Member States

	D	DK	NL	B	L	F	UK	Irl	I	EL	E	P	A	Fin
HAMP1														
1994	-.090	-.149	-.064	-.133	-.083	-.129	-.167	-.153	-.090	-.202	-.188	-.112	-	-
1995	-.076	-.187	-.112	-.160	-.138	-.139	-.173	-.193	-.106	-.218	-.182	-.163	-.116	-
1996	-.089	-.165	-.108	-.118	-.200	-.146	-.182	-.237	-.107	-.162	-.141	-.194	-.129	-.067
1997	-	-.183	-.103	-.167	-	-.146	-	-.250	-.098	-.206	-.131	-.188	-.136	-.093
1998	-	-.155	-.104	-.110	-	-.141	-	-.278	-.075	-.197	-.144	-.187	-.146	-.114
1999	-	-.189	-.125	-.163	-	-.159	-	-.273	-.087	-.220	-.178	-.172	-.160	-.108
2000	-	-.224	-.113	-.179	-	-.155	-	-.275	-.119	-.217	-.174	-.161	-.163	-.108
2001	-	-.175	-.092	-.152	-	-.168	-	-.269	-.117	-.167	-.178	-.182	-.181	-.114
Average	-.085	-.178	-.103	-.148	-.140	-.148	-.174	-.241	-.100	-.199	-.165	-.170	-.147	-.101
CI^T	-.090	-.201	-.114	-.182	-.141	-.160	-.184	-.279	-.108	-.223	-.189	-.192	-.154	-.108
MI^T	-.054	-.123	-.116	-.243	-.024	-.074	-.059	-.160	-.092	-.119	-.143	-.136	-.046	-.061
HAMP2														
1994	-.163	-.295	-.146	-.232	-.111	-.180	-.297	-.293	-.153	-.232	-.208	-.163	-	-
1995	-.132	-.371	-.215	-.264	-.178	-.173	-.271	-.309	-.145	-.294	-.211	-.206	-.136	-
1996	-.153	-.325	-.169	-.265	-.241	-.195	-.306	-.268	-.124	-.210	-.150	-.231	-.047	-.144
1997	-	-.318	-.189	-.277	-	-.184	-	-.399	-.166	-.254	-.165	-.256	-.168	-.110
1998	-	-.338	-.128	-.293	-	-.217	-	-.467	-.145	-.248	-.159	-.240	-.188	-.174
1999	-	-.355	-.188	-.241	-	-.220	-	-.348	-.104	-.253	-.145	-.259	-.237	-.165
2000	-	-.433	-.202	-.292	-	-.206	-	-.384	-.131	-.300	-.250	-.274	-.266	-.189
2001	-	-.421	-.212	-.318	-	-.225	-	-.351	-.139	-.254	-.244	-.213	-.223	-.254
Average	-.149	-.357	-.181	-.273	-.177	-.200	-.291	-.352	-.138	-.256	-.192	-.230	-.181	-.173
CI^T	-.155	-.373	-.206	-.325	-.209	-.215	-.310	-.409	-.142	-.286	-.216	-.273	-.197	-.195
MI^T	-.045	-.029	-.125	-.186	-.130	-.065	-.064	-.167	-.024	-.112	-.115	-.170	-.076	-.097

Figure 1: Health Concentration Curve

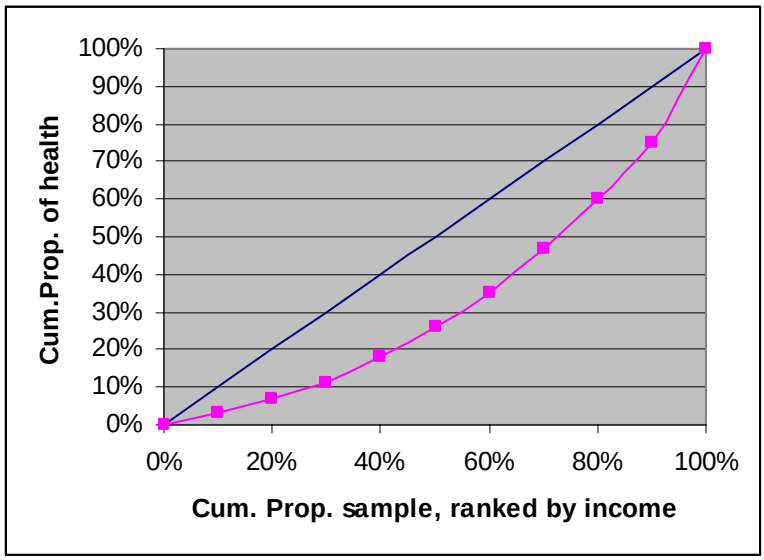


Figure 2: Distribution of health limitations (HAMP) for each country

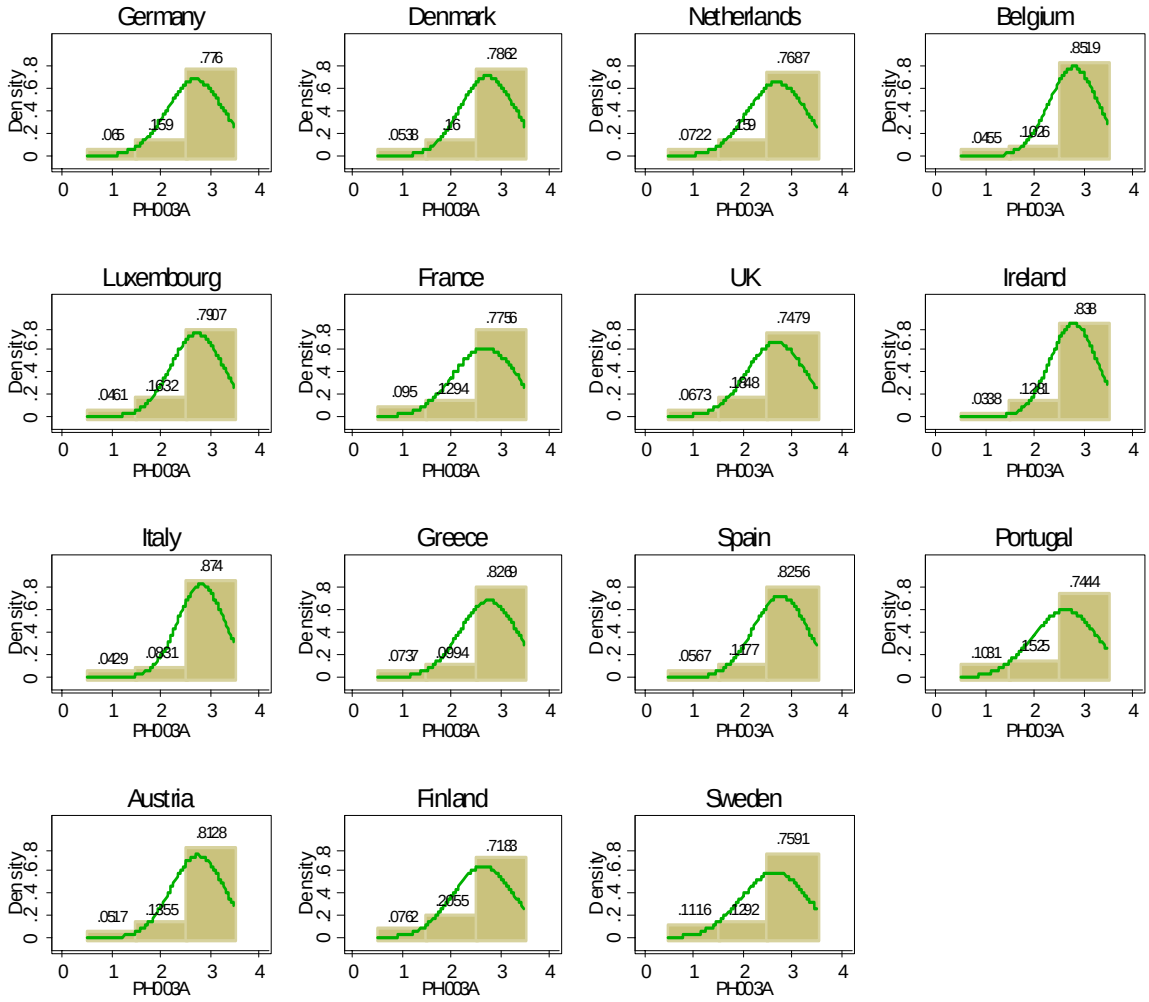


Figure 3: **Percentage of individuals hampered (HAMP1), across Member States**

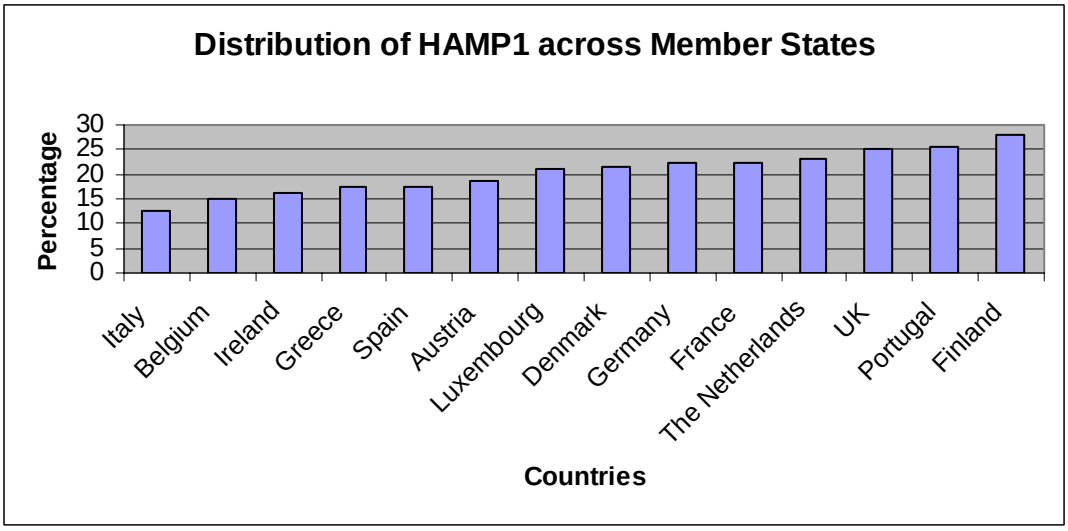


Figure 4: Percentage of individuals severely hampered (HAMP2) across Member States

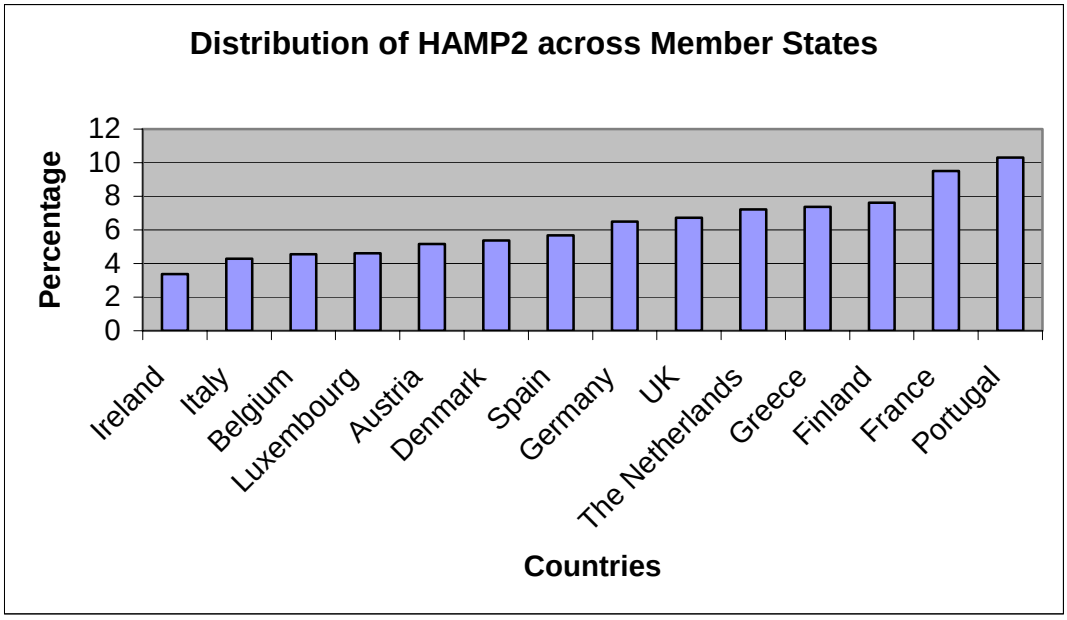
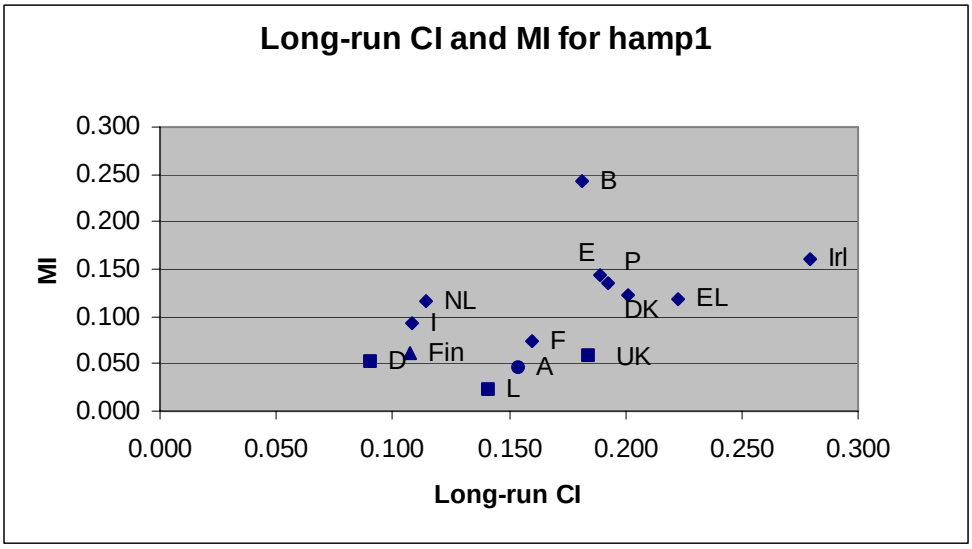
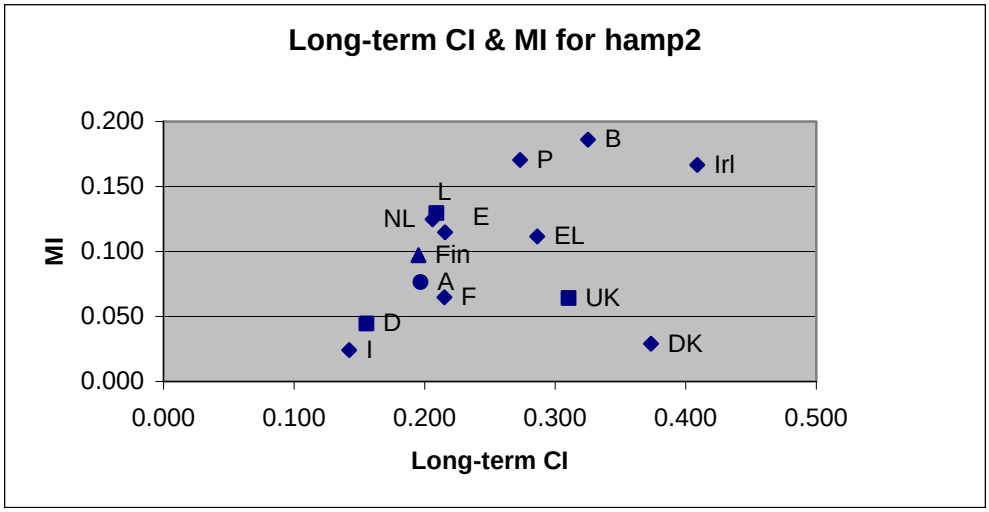


Figure 5: Long-run inequality and mobility index for any limitation (HAMP1)



* Different symbols have been used to distinguish the number of waves available for each of the countries: 1 – 3 waves (square), 1-8 waves (diamond), 2 – 8 waves (circle) and 3 – 8 waves (triangle).

Figure 6: Long-run inequality and mobility index for severe limitations (HAMP2)



* Different symbols have been used to distinguish the number of waves available for each of the countries: 1 – 3 waves (square), 1-8 waves (diamond), 2 – 8 waves (circle) and 3 – 8 waves (triangle).

Figure 7: **Average mobility index per year for any limitation (HAMP1)**

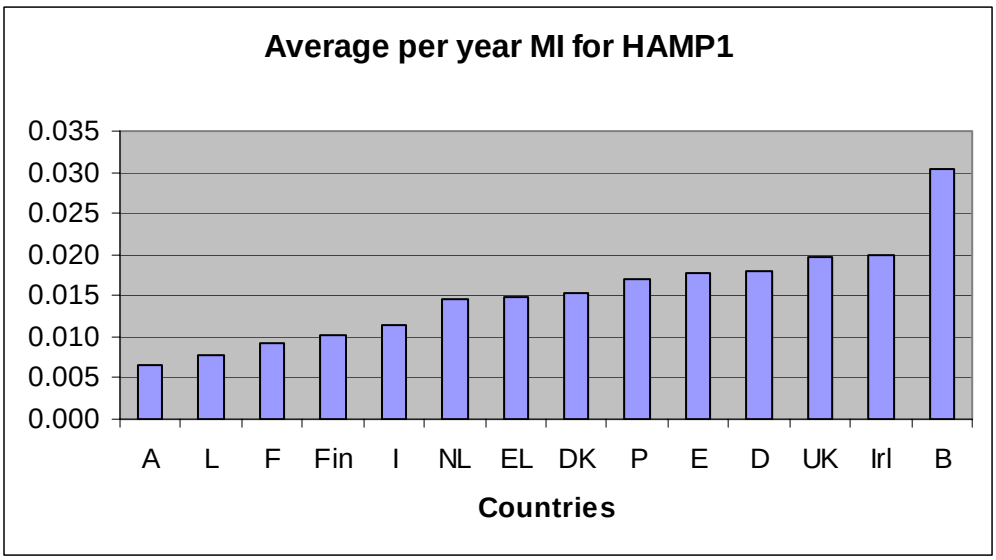


Figure 8: **Average mobility index per year for severe limitations (HAMP2)**