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Income-Related Inequality in the Use of Medical Care in 21 OECD Countries

Eddy van Doorslaer, Cristina Masseria
and the OECD Health Equity Research Group
Members

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INCOME-RELATED INEQUALITY IN THE USE OF MEDICAL CARE IN 21 OECD COUNTRIES

Eddy van Doorslaer and Cristina Masseria
Department of Health Policy Management, Erasmus University, the Netherlands
and the OECD Health Equity Research Group Members

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Members of the OECD Health Equity Research Group are: Gaetan Lafortune (Health Policy Unit at the OECD); Philip Clarke (Health Economics Research Centre, University of Oxford and Economics Research School of Social Sciences, Australian National University); Ulf Gerdtham (Department of Community Medicine, Lund University, Sweden); Unto Häkkinen (Centre for Health Economics, STAKES, Helsinki, Finland); Agnès Couffinhal, Sandy Tubeuf and Paul Dourgnon (CREDES, France); Martin Schellhorn (IZA, Bonn, Germany); Agota Szende (MEDTAP, the Netherlands) and Renata Nemeth (National Center for Epidemiology, Budapest, Hungary); Gustavo Nigenda and Hector Arreola (FUNSALUD, Mexico); Astrid Grasdal (Health Economics Department, University of Bergen, Norway); Robert Leu (Economic Institute, University of Bern, Switzerland); Frank Puffer and Elizabeth Seidler (Department of Economics, Clark University, Boston, USA); and Xander Koolman (Erasmus University, Rotterdam, the Netherlands).

OECD Health Equity Research Group members

Country	Research partners	Affiliation
Australia	Philip Clarke	Health Economics Research Centre, University of Oxford and Economics Research School of Social Sciences, Australian National University
Finland	Unto Häkkinen	Centre for Health Economics at STAKES, Helsinki
France	Agnès Couffinhal Sandy Tubeuf Paul Dourgnon	Centre de Recherche, d'Etude et de Documentation en Economie de la Santé (CREDES)
Germany	Martin Schellhorn	IZA, Bonn
Hungary	Agota Szende Renata Nemeth	MEDTAP (Netherlands); National Center for Epidemiology, Budapest, Hungary
Mexico	Gustavo Nigenda Hector Arreola	FUNSALUD (Centre for Economic & Social Analysis, Mexican Health Foundation)
Norway	Astrid Grasdal	Health Economics (HEB), University of Bergen
Sweden	Ulf Gerdtham	Department of Community Medicine, Lund University
Switzerland	Robert Leu Martin Schellhorn	Economic Institute, University of Bern
USA	Frank Puffer Elizabeth Seidler	Department of Economics, Clark University
Coordination	Gaetan Lafortune	OECD, Paris
All other countries	Eddy van Doorslaer Cristina Masseria Xander Koolman	Erasmus University, Rotterdam

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SUMMARY

1. This study updates and extends a previous study on equity in physician utilisation for a subset of the countries analyzed here (Van Doorslaer, Koolman and Puffer, 2002). It updates results to 2000 for 13 countries and adds new results for eight countries: Australia, Finland, France, Hungary, Mexico, Norway, Switzerland and Sweden. Both simple quintile distributions and concentration indices were used to assess *horizontal equity, i.e.* the extent to which adults in equal need for physician care appear to have equal rates of medical care utilisation.

2. With respect to *physician utilisation*, need is more concentrated among the worse off, but after "standardizing out" these need differences, significant horizontal inequity favoring the better off is found in about half of the countries, both for the probability and the total number of visits. The degree of pro-rich inequity in doctor use is highest in the US, followed by Mexico, Finland, Portugal and Sweden.

3. In the majority of countries, the study finds no evidence of inequity in the distribution of GP visits across income groups and where significant horizontal inequity (HI) appears to exist, it is often negative, indicating a pro-poor distribution. The picture is very different with respect to consultations of a *medical specialist*. In all countries, controlling for need differences, the rich are significantly more likely to see a specialist than the poor, and in most countries also more frequently. Pro-rich inequity is especially large in Portugal, Finland and Ireland. The story emerging for *inpatient care utilisation* is more equivocal. No clear pattern for either pro-rich or pro-poor inequity emerges across countries, nor is it obvious how to account for the observed patterns in terms of different health system characteristics.

4. Finally, the study finds a pro-rich distribution of both the probability and the frequency of *dentist visits* in *all* OECD countries. There is, however, wide variation in the degree to which this occurs. Using a decomposition method, the study assessed the contribution of regional disparities in use and, for seven of the countries, of income-related disparities in (public and private) health insurance coverage.

RESUME

5. Cette étude actualise et étend le champ d'investigation d'une étude antérieure sur l'équité de l'utilisation des services des médecins effectuée pour un sous-ensemble de pays analysés ici (Van Doorslaer, Koolman et Puffer, 2002). Elle actualise les résultats jusqu'à l'année 2000 pour treize pays et incorpore de nouveaux résultats pour huit autres pays de l'OCDE : l'Australie, la Finlande, la France, la Hongrie, le Mexique, la Norvège, la Suisse et la Suède. Elle utilise à la fois les distributions par quintile et les indices de concentration pour évaluer l'*équité horizontale*, c'est-à-dire dans quelle mesure des adultes ayant un égal besoin de soins médicaux ont apparemment des taux identiques d'utilisation de soins médicaux.

6. Pour ce qui est de l'*utilisation des médecins*, les besoins en services médicaux ont tendance à être plus concentrés parmi les catégories défavorisées, mais après avoir pris en compte ces différences de besoins, on observe une iniquité horizontale positive dans près de la moitié des pays, tant pour la probabilité de consulter que pour le nombre total de visites. C'est aux Etats-Unis, suivis du Mexique, de la Finlande, du Portugal et de la Suède, que le degré d'iniquité en faveur des riches du recours aux services de médecins est le plus grand.

7. Dans la majorité des pays, cette étude n'observe aucune iniquité en ce qui concerne la distribution des *consultations de généralistes* selon le revenu et lorsqu'il existe une iniquité horizontale, elle est souvent négative, indiquant une distribution en faveur des pauvres. Pour les *consultations de spécialistes*, la situation est très différente. Dans *tous* les pays, une fois prises en compte les différences de besoins, les riches sont significativement plus susceptibles de consulter un spécialiste que les pauvres et, dans la plupart des pays, plus fréquemment aussi. L'iniquité en faveur des riches est particulièrement grande au Portugal, en Finlande et en Irlande. La situation est plus équivoque pour l'*utilisation des soins hospitaliers*. Aucun schéma clair d'iniquité en faveur des riches ou en faveur des pauvres ne se dégage entre les pays et il n'est pas non plus évident d'expliquer les distributions observées en fonction des caractéristiques des différents systèmes de santé.

8. Enfin, cette étude constate une distribution en faveur des riches de la probabilité et de la fréquence des *visites chez le dentiste* dans *tous* les pays. Toutefois, on observe des variations importantes entre les pays. En utilisant une méthode de décomposition, cette étude a aussi évalué l'effet des disparités régionales sur l'utilisation des services médicaux et, pour sept pays, la contribution des disparités selon le revenu de la couverture de l'assurance-maladie (publique et privée).

1. Introduction

9. Most OECD member countries have long achieved close to universal coverage of their population for a fairly comprehensive package of health services. There are exceptions, but in most of these countries, access to good quality physician services is ensured at relatively low and sometimes at zero financial cost. This is mainly the result of a variety of public insurance arrangements aimed at ensuring equitable access. Equity in access is also regarded as a key element of health system performance by the OECD (Hurst and Jee-Hughes, 2001). In the context of performance measurement, a question that arises is to what extent OECD countries have achieved the goal of equal access or utilisation for equal need, irrespective of other characteristics like income, place of residence, ethnicity, etc? As in our previous cross-country comparative work (Van Doorslaer, Wagstaff and Rutten, 1993; Van Doorslaer *et al.*, 1992; Van Doorslaer *et al.*, 2000; Van Doorslaer, Koolman and Puffer, 2002) we will focus on the principle of *horizontal* equity – *i.e.* that those in equal need ought to be treated equally – and test for the extent of any systematic deviations from this principle by income level. Van Doorslaer *et al.* (2000) and Van Doorslaer, Koolman and Puffer (2002) have concluded that both in the US and in several European countries some systematic deviations from the horizontal equity principle could be detected. In particular, we found that often the rich tend to be more intensive users of medical specialist services than one would expect on the basis of differences in need for care.

10. The earlier work was based on secondary analysis of existing national health interview surveys or general purpose surveys and hampered by cross-survey comparability problems of self-reported utilisation and health data. Van Doorslaer, Koolman and Puffer (2002) used the much more comparable information from the *European Community Household Panel* for 1996, the 1996 US *National Medical Expenditure Panel* and the Canadian 1996 *National Population Health Survey.* Here we use the 2000 wave of the ECHP, which provides comparable data for 10 of the EU member countries. For the 11 other countries, we rely on the use of country-specific household surveys[1] to obtain comparable information. However, such comparable information was not available for all countries and for all variables.

11. The paper starts by defining our equity measurement instruments in Section 2. Section 3 contains a very brief summary of some of the salient features of the health care systems in the 21 countries studied which may affect the degree to which systematic deviations of an equitable distribution can occur. Section 4 provides a summary description of the data and estimation methods used (the appendix provides more detail), and Section 5 presents the main results. We conclude and provide some further discussion in Section 6.

2. Horizontal inequity in health care delivery

2.1. Defining horizontal inequity

12. A key policy objective in all OECD countries is to achieve adequate access to health care by all people on the basis of need. Many OECD countries further endorse equality of access to health care explicitly as one of the main objectives in their policy documents (Van Doorslaer, Wagstaff and Rutten, 1993; Hurst and Jee-Hughes, 2001). In some countries, health policies have however only aimed to equalize access for the lower income parts of the population. And in almost all countries, options are being offered to varying degrees for topping up the general public cover with complementary or supplementary

1. For all countries, with the exception of the US (1999), data were for 2000 or a more recent year.

private cover. These options often relate to more comfort and convenience, but they may also health-care as in the case of dental care health-care be the sole source of cover for sizeable shares of the care package.

13. Usually, the horizontal version of the equity principle is interpreted to require that people in equal need of care are treated equally, irrespective of characteristics such as income, place of residence, race, etc.[2] It is this principle of horizontal equity that the present study uses as the yardstick for the international comparisons. This yardstick is obviously only useful for performance measurement to the extent that this principle is in accordance with a country's policy objectives. For countries not subscribing to this principle, the methods may still be useful for comparison with others but not for internal performance measurement.

2.2. Describing and measuring inequity

14. The method we use in this paper to describe and measure the degree of horizontal inequity in health care delivery is conceptually identical to the one used in Wagstaff and Van Doorslaer (2000a), Van Doorslaer *et al.* (2000) and Van Doorslaer, Koolman and Puffer (2002). It proceeds by comparing the actual observed distribution of medical care by income with the distribution of need. The study cannot address differences in overall provision between countries: it assumes that the average treatment rates for each country, and the average treatment differences between individuals in unequal need, reflect the accepted overall "norm" for that country. In order to statistically equalize needs for the groups or individuals to be compared, we use the average relationship between need and treatment for the population as a whole as the vertical equity "norm" and we investigate to what extent there are any systematic deviations from this norm by income level.

15. The concentration index (CI) of the actual medical care use measures the degree of inequality and the concentration index of the need-standardized use (which is our horizontal inequity index HI) measures the degree of horizontal inequity. When it equals zero, it indicates equality or equity. When it is positive, it indicates pro-rich inequality/inequity, and when it is negative, it indicates pro-poor inequality/inequity. The Appendix provides further detail on the statistical methods used for measuring and decomposing horizontal inequity.

3. Differences in equity-relevant health care delivery system characteristics in OECD countries

16. While all of the countries included in this analysis health-care except for Mexico and the US health-care had by 2000 achieved close to universal coverage of their population for the majority of health care services, important other cross-country differences remain with respect to potentially equity-relevant features of their financing and delivery systems. In Appendix Tables A1 and A2 we have summarized some of the salient system characteristics which may have an impact on any differential utilisation of doctors (general practitioners or specialists), hospital care and dental care by income level.

17. Two of the countries included in this study still have sizeable shares of their populations without insurance coverage. In Mexico, about half the population (or about 48 million people) does not have health insurance and has to rely on publicly provided health care of varying quality (Barraza-LLorens *et al.*,

2. There is some debate as to whether it is not treatment but access, or rather access costs, which ought to be equalized (Mooney *et al.*, 1991, 1992; Culyer *et al.*, 1992a, 1992b; Goddard and Smith, 2001). For the present exercise, the difference seems fairly innocuous and mainly related to the interpretation of any remaining differences in utilisation after standardising for need differences. To the extent that these are genuinely due to differences in preferences, and not due to differences in *e.g.* benefit perceptions resulting from differences in information costs, these would not be regarded as inequitable.

2002) while in the US, the uninsured group is now about 14% (or over 40 million people) of the population (Haley and Zuckerman, 2003). In a number of countries, certain population groups at different levels of income buy private health coverage because they are either not eligible to public coverage or choose to opt out of it. This is the case for rather small numbers of high income earners choosing to opt for private coverage in Germany, but it concerns sizeable portions of the population in the Netherlands (where about a third of the population is not eligible to any public health insurance coverage). In Ireland, about two thirds of the population is not entitled to public coverage (medical cards) for GPs and other outpatient services, although people buy private health insurance mainly to obtain a private alternative to public hospital coverage, to which the entire population is entitled. In Switzerland, mandatory health insurance is the sole source of cover for the entire population. Some countries' public insurance rules, like Australia, Belgium, Finland, France, Norway and Portugal require their insured to pay co-payments which vary depending on the type of services, while in many other countries (like Denmark, Canada, Germany, Spain, Portugal and the UK) visits to public sector doctors are free at the point of delivery. In yet other countries, like Hungary and Greece, care is officially free at the point of delivery but, in practice, unofficial payments to doctors are widespread.

18. Countries also vary in their access rules to secondary care. In some countries, notably Australia, Denmark, Canada, Ireland, Norway, Netherlands, Sweden and the UK, the primary care physician acts as a "gatekeeper" referring to secondary care provided by medical specialists, whereas in other countries, there is direct access to all physicians. Yet in some countries, like Finland, Greece, Italy, which officially do have GPs acting as gatekeepers, this principle is not strictly enforced. In others (Spain, Portugal), it can be bypassed through emergency units of hospitals. Some countries pay their general practitioners mainly by capitation [[like Denmark, Ireland (group I), Italy, Netherlands] or salary (Greece, Mexico, Portugal, Spain, Sweden) whereas others rely mainly on fee-for-service payment.

19. Some of the smaller European countries (Denmark, Belgium, and the Netherlands) have fewer regional differences than the larger countries where people might face distance to care problems and disparity in access might arise due to regional autonomy. A large number of the characteristics summarized in Tables A1 and A2 will be of relevance when attempting to interpret the findings from this study. Although this summary is by no means complete in the sense of providing a full picture of the diversity represented by these systems characteristics, it does serve to illustrate which factors may help to account for any irregularities found in the cross-country differences in horizontal equity.

4. Data and estimation methods

4.1. Survey data

20. The data for most European Union (EU) member countries are taken from the seventh wave (held in 2000) of the *European Community Household Panel* (ECHP) conducted by Eurostat, the European Statistical Office.[3] The ECHP is a survey based on a standardized questionnaire that involves annual interviewing of a representative panel of households and individuals of 16 years and older in each EU member state (Eurostat, 1999). It covers a wide range of topics including demographics, income, social transfers, health, housing, education, employment, etc. We use ECHP data for the following ten member states of the EU: Austria, Belgium, Denmark, Finland, Greece, Ireland, Italy, Netherlands, Portugal and Spain.

3. More detailed information on the design and contents of this survey can be found at *http://www-rcade.dur.ac.uk/echp/*

21. The datasets used for the other (*i.e*. non-ECHP based) countries are listed in Table 1, along with the years they refer to and the adult sample size. All surveys, except for the US (1999), refer to the year 2000 or a more recent year and all are nationally representative for the non-institutionalized adult population (*i.e.* individuals over the age of 16). They were mainly selected on the basis of their suitability for this analysis and their comparability to the ECHP information.

Table 1. Non- ECHP household surveys used for 11 countries

4.2. Health care utilisation

22. Measurement of the utilisation of general practitioner (GP), medical specialist services and dental services in the ECHP is based on the questions "During the past 12 months, about how many times have you consulted 1) a general practitioner? 2) a medical specialist? or 3) a dentist?" Hospital care utilisation was measured by the question "During the past 12 months, how many nights have you spent admitted to a hospital?". For Sweden, the hospital care data are from the Swedish patient register and therefore are based on actual stays. Similar questions referring to a 12 month reference period were used in the other countries, though not all surveys for all countries had all information. Appendix Table A3 provides an overview of the availability of utilisation variables.

23. Some countries' surveys (*i.e.* Australia, Germany, Mexico, Sweden and the US) do not distinguish between GP and specialist visits over the one year time frame adopted in this study. For Australia and Mexico, only whether or not a doctor was consulted in the last year was asked. Germany and Sweden only ask for visits in the last *three* months and the UK BHPS survey has a categorical answer category which does not allow the summation of GP and specialist visits. The Norwegian survey did not record hospital admissions and several had no (or limited) information on dentist visits.

4.3. Health status

24. The measurement of health as a proxy for care need was based on two types of questions. Respondents' categorical responses to a question on a self-assessment of their general health status in the ECHP for five categories: "Very good, good, fair, bad or very bad". Most surveys have similar response options although the response categories may vary, and the number of categories varies from three (in Sweden) to ten (in Germany and France).

25. A further health-related question in the ECHP is: "Do you have any chronic physical or mental health problem, illness or disability? (yes/no)" and, if so: "Are you hampered in your daily activities by this physical or mental health problem, illness or disability? (no; yes, to some extent; yes, severely)". We used two dummies to indicate the degree of limitation. Similar but not identical questions were used in the other surveys. Exact wordings and definitions are presented in Appendix Table A4.

26. It is well known that the inclusion of additional health information in the need standardization procedure tends to lead to less pro-poor (or more pro-rich) results (cf. *e.g*. Van Doorslaer, Wagstaff and Rutten, 1993). This appears to be due to the fact that not only the poor suffer from health problems more frequently but also from *more severe* health problems. Less extensive use of health information in the need standardization process (*e.g*. because of the selection of a common core set of indicators for cross-country comparisons) therefore may lead to an underestimation of pro-rich utilisation patterns and an overestimation of pro-poor patterns.

4.4. Income

27. Appendix Table A5 lists some relevant information on the questions used from these surveys. The ECHP income measure (*i.e.* our ranking variable) is disposable (*i.e.* after-tax) household income per equivalent adult, using the modified OECD equivalence scale.[4] Total household income includes all the net monetary income received by the household members during the reference year (which is 1999 for the 2000 wave). It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. No account has been taken of indirect social transfers (*e.g.* reimbursement of medical expenses), receipts in kind and imputed rent from owner-occupied accommodation. Income information was more limited in some of the other surveys. In the Canadian Community Health Survey, we could not use the actual income, but only a categorical variable which could not be equivalized using the "modified OECD scale". Instead we used four categorical income dummies. For the Australian National Health Survey, we used a categorical variable representing equivalent income deciles. The US before-tax household income measure recorded in the survey was adjusted to a net household income using estimates of the federal tax paid per household, which was obtained with the NBER TAXSIM model. Insufficient information was available to estimate state taxes. For some surveys (*e.g.* Sweden, Finland and Norway), the income data are more accurate than the ECHP income variable since they are not derived from the survey but from linking up with the national tax files.

4.5. Other explanatory variables

28. Other explanatory variables used in the analysis include education and activity status, two variables which affect an individual's general propensity to consume health care, but which cannot often directly be influenced by health policy makers. The survey information used on educational and activity status is described in Appendix Table A5. The two other variables used, insurance coverage for medical care expenditures and region of residence (as a proxy for availability of care), are described in Table A6.

29. The health insurance question was dropped from the ECHP questionnaire after the third wave (1996) and is therefore missing for all ECHP based analyses, except for Ireland, for which we obtained the insurance variables from the Economic and Social Research Institute (ESRI). In the non-ECHP surveys, relevant variables relating to (private) health insurance coverage were usually available. Also the information available in the ECHP regarding the region of residence of the respondents is very limited. Mostly for privacy reasons, either no information is provided (as in *e.g.* Denmark and Netherlands) or only at a very broad regional level (most other countries). Somewhat more extensive regional identifier information was available (and used) in most of the non-ECHP surveys. For five countries, it was possible to distinguish areas with different degrees of urbanization. The information we could use is presented in Table A6. We could not undertake to link up regional identification with availability of medical services (providers, hospital beds, etc.). As such, the estimated regional fixed effects using regional dummies can only control for the variation across some large regional units in the various countries. They cannot really be assumed to reflect local circumstances in supply of and demand for each type of care.

4.6. Estimation methods

30. Health care utilisation data like physician visits are known to have skewed distributions with typically a large majority of survey respondents reporting zero or very few visits and only a very small

4. The modified OECD scale gives a weight of 1.0 to the first adult, 0.5 to the second and each subsequent person aged 14 and over, and 0.3 to each child aged under four in the household.

proportion reporting frequent use. Because these features cause violations of the standard OLS model, various specifications of intrinsically non-linear two-part models (TPM) have been proposed in the literature, distinguishing between the probability of positive usage and the conditional amount of usage given positive use in the reference period (see Jones, 2000, for a review). While these models have certain advantages over OLS specifications, their intrinsic non-linearity makes the (linear) decomposition method described in the appendix impossible. In order to restore the mechanics of the decomposition, one has to revert to either decomposing inequality in the (latent variable) propensity to use (rather than *actual* use) or to a re-linearization of the models using approximations (see Van Doorslaer, Koolman and Jones, 2003, for an example). However, Van Doorslaer *et al.* (2000) have shown that the measurement of horizontal inequity hardly differs between OLS-based TPMs and non-linear TPM specifications such as the logistic model combined with a truncated negative binomial model.

31. For this paper we have therefore chosen a pragmatic approach. We use simple OLS estimation for the decomposition based measures and we check the sensitivity of the HI indices and quintile distributions by comparing these with the indices and distributions obtained using non-linear specifications. We obtained "needed" health care use based on a generalized negative binomial model for total consumption, a logistic specification for the probability of use, and a truncated negative binomial model for the conditional positive use. In comparing the HI indices obtained using linear versus non-linear models, we found that the estimates are extremely similar and that in only very few cases, the linearly and non-linearly estimated indices differ significantly (not shown). This provides some reassurance that our results are not conditional on the choice of the linear standardization model.

32. For all countries and surveys, cross-sectional sample weights were used in all computations in order to make the results more representative of the countries' populations. Robust standard errors were obtained using the Huber/White/sandwich estimator. This estimator was adjusted to allow for intra-cluster correlation for those countries with surveys which contained primary sampling unit information.

5. Results

33. We will discuss the results separately for each type of medical care. For this study, we did not attempt to aggregate the various types of care into one overall medical care utilisation measure. It would require adding "apples and oranges" by attributing relative weights or scores to the different types of medical care. Even this disaggregated approach is already very broad-brush since it does not make any distinction by type of specialty or diagnosis or hospital department.

5.1. Distributions and inequity indices

34. For all types of care, we show the distribution of need-standardized use by income quintiles. This is the distribution that one observes after need has been (statistically) "equalized" across income groups. In the standardization procedure, in general, need was proxied by a vector of nine age-sex dummies, four dummy variables for self-assessed health (SAH) and one or more dummies for the presence of a chronic condition or handicap and the extent to which it hampers the individual in his or her usual activities (see Table A4 for details). The reported indices and their t-values were generated using the OLS regression models described in the Appendix.

35. Any inequality remaining in need-standardized use is interpreted as inequitable. This can favor either the poor or the rich. If there is no inequity in use, the need-standardized distributions ought to be equal across income groups. To ease interpretation, we also present two index values for each quintile distribution. These summarize the degree to which there is inequality related to income. The concentration index (CI) for the *actual*, unstandardized distribution of care summarizes inequality in actual use. The

concentration index of the need-standardized distributions is used as our horizontal inequity index (HI): it summarizes the inequality in use that remains after need differences have been standardized out. Positive values of CI (HI) indicate inequality (inequity) favoring the rich. Negative values of CI (HI) have the opposite interpretation: they indicate inequality (inequity) favoring the poor. A zero or non-significant value of CI (HI) indicates that use is distributed equally (equitably) across income groups.

36. We present these distributions for two measures of utilisation: a) the total reported annual use (*i.e.* number of visits or nights) and b) the probability of any use in a year (a visit or a night in hospital). For reasons of space, we do not report the estimation results for the conditional use of positive users (*i.e.* given at least one visit or one hospital night) since these can be estimated from the comparison of (a) and (b). The distinction between the three types of use is important as it generates further insight as to how the utilisation patterns differ by income. Country indices, ranked by magnitude, along with 95% confidence intervals are presented in Figures 1 to 8.

5.1.1. All physician visits

37. As can be seen from Table A7, most OECD countries have annual mean doctor visit rates around five, but some countries have much higher average rates (*i.e*. more than six visits/person/year), including Germany, Hungary, France, Belgium, Austria and Italy. Countries with low average rates (*i.e*. less than four visits/person/year) include Finland, Denmark, the US, Switzerland, Norway, Ireland, and Greece. We have a nearly complete set of results for the probability of at least one doctor visit for all countries in this study, albeit for two countries (Germany and Sweden) these are not comparable, because they refer to a shorter recall period (three months only). We can see that in all countries except Mexico (21%), Greece (63%) and the US (68%), more than 70% of the adult population has visited a doctor in the last 12 months. In Belgium, this percentage is as high 90%. One would expect these cross-country differences in utilisation rates to be largely determined by doctor availability but neither the doctor visit rate nor the visit probability appear strongly correlated to available doctor/population ratios in *OECD Health Data 2003*. Possibly, differences in remuneration types and cultural differences in seeking medical advice or care also play some role here. It is also possible that in some countries, more simple treatments (or renewal of prescriptions) are delegated to other categories of health workers than physicians.

38. More interesting for the purpose of this study are the patterns by income. It is striking that in all countries (except Finland and Sweden) the concentration indices of actual (unstandardized) use are negative and mostly significant. This implies that in virtually every OECD country, low income groups are more intensive users of doctor visits than higher income groups. The utilisation differences vary by country but, on average, the bottom quintile reports about 50% more doctor visits or about 1.5 extra visits per year than the top quintile (not shown). But these utilisation differences by income group do not tell us anything about inequity since these inequalities may reflect differences in need for care.

Figure 1. HI indices for number of doctor visit, by country

Figure 2. HI indices for probability of a doctor visit, by country

39. That is why the need-standardized distributions are much more revealing. Strictly speaking, for horizontal equity to hold, the distributions ought to be equal across income groups. On average, all income groups ought to use equal amounts of care when need is equalized statistically. And indeed, all concentration indices of need-standardized doctor use (*i.e*. the HI indices) turn out to be much less negative than the CI indices, for all countries. They remain significantly negative only in Belgium and Ireland; they become insignificant (at 5% level) in Canada, Denmark, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Spain, and Switzerland; and they are positive and significant in Austria, Finland, Portugal, Sweden and the US (see Figure 1). This means that doctor visits appear distributed according to

the need for such visits in the majority of countries. The countries with significant pro-rich inequity are the same as those reported in Van Doorslaer, Koolman and Puffer (2002) health-care except Greece health-care, plus two added Scandinavian countries, Finland and Sweden.

40. But the total use can be broken down further into the probability of any use and the conditional use, given at least one visit. This is of interest if the decision of initiating use is more patient-driven and the decision about continued use more doctor-driven. The patterns are by no means identical for the two parts of the utilisation process. The probability of any use shows positive HI indices for most countries, and these are significant in nine of them: Canada, Finland, Italy, Mexico, Netherlands, Norway, Portugal, Sweden and the US (see Figure 2). But we find no violation of the horizontal equity principle in the other 12 countries: the HI is not significantly different from zero in Australia, Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Ireland, Spain, Switzerland and the UK. This means that in about half of these countries, given the same need, the rich are more likely to see a doctor than the poor. The fact that this does not translate into inequity in total visits for all of these countries has to do with what happens once they have contacted a doctor. It means that the conditional number of (positive) visits, given at least one, must favor the poor. In fact, we do find (not shown) that in several countries, notably Belgium, Canada, Ireland, and the Netherlands, HI indices for conditional number of visits are significantly *negative*, indicating inequity favoring the poor. But in another four countries, Austria, Finland, Portugal and the US, the index is significantly positive. This explains why these countries are all among those showing significant positive inequity in all visits in Table A7.

41. What does the decomposition *by parts* (into probability of use and conditional use) tell us? If the probability of at least one visit were mainly determined by patient consultation behavior, then one could say that in the majority of countries, richer patients exploit their ability to increase their likelihood of seeing a doctor. If, on the other hand, the conditional number of visits were mainly driven by doctor's decision making or advice, it would mean that only doctors in the above five countries somehow exploit their ability to see richer patients more often than poorer patients. However, in practice, the surveys do not allow for such a clear-cut distinction because the first visit in a year need not necessarily be a patient-initiated visit, and neither do we know that subsequent visits in the same year are necessarily doctor-initiated. This conclusion is therefore tentative.

42. The quintile distributions of all doctor visits do not, however, reveal the differences in the composition of these visits between primary care and secondary physicians. In the next section, we will turn to a different kind of decomposition, that by type of doctor visit. We will do this by distinguishing health-care where it is possible health-care between general practitioner (GP) and medical specialist visits.

5.1.2. General practitioner visits

43. Table 8 presents need-standardized quintile distributions for GP visits for the 17 countries for which we could distinguish these. On average, adults pay their GP a visit about three times a year, but the mean rate varies substantially, from about two contacts per person per year in Greece, Finland and Switzerland to more than five in Belgium. The poor see a GP more often than the rich. We can see that the unstandardized distributions are now pro-poor in *all* countries (*i.e*. negative CIs), and the need-standardized distributions remain significantly pro-poor (*i.e*. negative HIs) in ten of them (see Figure 3). In only one country, Finland, is the HI index significantly positive (see further discussion of this result below). Strictly speaking, it means that the poor use more GP services than the rich even once need differences are taken into account, but this finding should be interpreted with caution and in conjunction with the results for specialists (reported below).

Figure 3. HI Indices for number of GP visits, by country

Figure 4. HI Indices for probability of a GP visit, by country

44. The probability of contacting a GP, while distributed pro-poor when unstandardized, shows little evidence of horizontal inequity after need standardization. As can be seen from Figure 4, HI indices are generally small and insignificant, with a few pro-rich exceptions (Canada, Finland, and Portugal) and a few pro-poor (Greece, Spain and Germany). But, on the whole, the likelihood of seeing a GP is distributed fairly equally across income groups in all OECD countries. This must mean that most of the pro-poor distributional pattern is generated by a pro-poor conditional use. This is borne out by the results (not shown). In no less than 10 of the 16 countries, we find a significantly negative HI, indicating pro-poor inequity for conditional number of visits. For only three countries, Finland, Canada and Portugal, do we find significant pro-rich inequity, but the degrees are fairly small. This means that in almost every OECD country, the probability of seeing a GP is fairly equally distributed across income, but once they do go, the poor are more likely to consult more often. Again, we defer the interpretation of this result until after the discussion of the specialist visits results.

5.1.3. Medical specialist (outpatient) visits

45. The distributional patterns are completely different for visits to a medical specialist (see Table A9). While the mean rate of specialist visits per person per year is generally somewhat lower (about 1.5) than for GPs, there is no less variation. While Germans report an average of 3.3 visits per year, the mean visit rate in Ireland is only 0.6, a fivefold difference.[5] The unstandardized use is distributed more equally across income quintiles than for GP visits, with several CIs not significantly different from zero. But after standardization, virtually *all* distributions are significantly in favor of the higher income groups. The only exceptions are Norway, Netherlands and the UK, where the positive HI indices are not significantly different from zero (see Figure 5). This would suggest that in almost every OECD country, the rich are getting a higher share of specialist visits than expected on the basis of their need characteristics. The gradients seem particularly steep in Portugal, Finland, Ireland, and Italy, four countries where private insurance and direct private payments play some role in the access to specialist services. Surprisingly, this is not the case in countries like the UK. The UK BHPS results (based on a categorical measure of outpatient visits) are puzzling and in sharp contrast to earlier findings based on the ECHP 1996 (on medical specialist visits) for which strong pro-rich inequity was found (Van Doorslaer, Koolman and Puffer, 2002). Recent findings by Morris, Sutton and Gravelle (2003), who analyzed pooled data for 1998-2000 from the Health Survey of England, also suggest pro-rich inequity in outpatient visits.

Figure 5. HI Indices for number of specialist visits, by country

Figure 6. HI Indices for probability of a specialist visit, by country

46. Looking at the distributions and indices for the specialist visit probability, we see that most of the observed pro-rich inequity is already generated in this first stage of the utilisation process. In all countries (the exception being the UK again), we find significant pro-rich inequity in the likelihood of contacting a specialist (see Figure 6). While there are definitely important differences between countries in the degree to which this occurs, it is clear that access to specialist services is *not* equalized across income groups. The non-ECHP countries (Canada, France, Hungary, Norway and Switzerland) do not differ much from the average European pattern in this respect: everywhere, given need, the rich are more likely to seek specialist help than the poor. In most countries, the degree of inequity in total specialist visits is somewhat higher

5. This difference may be explained at least partly by the stronger gatekeeper role played by GPs in the Irish system and the higher density of medical specialists in Germany.

than in the probability of at least one visit, suggesting that conditional use generally reinforces the patterns induced by the inequitable probability distribution.

5.1.4. Hospital (inpatient) care utilisation

47. Distributional patterns are different again with respect to inpatient care utilisation. Table A10 shows that both the probability of being admitted to a hospital and the number of nights spent in hospital vary across countries, but that in all except one (Mexico) inpatient care use is more concentrated among the lower income groups. Annual admission probabilities range from as low as 3.7% in Mexico to as high as 15.2% in Hungary, and hospital beds are occupied more often by poor than by rich individuals. The picture is far more varied after standardizing for need. First of all, in many countries, no significant inequity indices emerge, neither for the total number of nights spent in hospital each year, nor for the admission probability. This is partly a result of the fact that the distribution of hospital care utilisation is far more skewed than for other types of care: only around 10% of adults end up in hospital, but some have very long stays. Lengths of stay are especially hard to explain with the very general kind of individual characteristics available in these general population surveys. As a result of lack of test power, confidence intervals are wider and far fewer determinants show up with a significant influence; this is also true for the income variable. Masserian, Van Doorslaer and Koolman (2003) have found that increasing the power by pooling several waves of the ECHP led to a substantial reduction in the width of the confidence intervals around HI indices, and consequently an increase in the number of countries showing up with significant pro-rich inequity in hospital admission rates.

48. It is not a coincidence, therefore, that the most significant HI indices are found for the countries with the largest sample sizes (Canada, Mexico, Australia, and US). Interestingly, three groups of countries emerge (see Figures 7 and 8): i) those with no inequity in hospital care use (and often with smaller sample sizes) like Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy Netherlands, Spain, Sweden, UK.; ii) for Mexico and Portugal we find significant pro-rich inequity in the admission probability (and in Mexico also for overall use); and iii) for a heterogeneous set (but all non-EU member) countries like Australia, Canada, Switzerland and the US, we find significant pro-poor "inequity". It is not immediately apparent what drives these very diverging patterns across countries in the way hospital care gets distributed across income groups. In any case, in general the degrees of inequity health-care as judged by the magnitudes of the HI indices health-care are much smaller than for specialist care.

Figure 7. HI Indices for number of hospital nights, by country

Figure 8. HI Indices for probability of a hospital admission, by country

5.1.5. Dental care visits

49. Finally, we present the distributions of dental care utilisation in Table A11. Again, the differences in mean rates of dentist visits are striking. The annual probability of an adult consulting a dentist, for instance, is only around one third in the southern European countries, and in France, Hungary and Ireland, but as high as 82% in Denmark and 78% in the Netherlands. Clearly, in all countries, and despite wide differences in degrees of public and private coverage and rules of reimbursement, dental care appears to have a very strong pro-rich distribution. By lack of other indicators for dental care needs, standardization in this case only concerns age standardization, and it does not make much difference. It only slightly reduces the high degree of pro-rich distribution. Both the total use and the probability health-care with or without age standardization health-care show a highly significant pro-rich distribution, and for *all* countries (see Figures 9 and 10). There is, however, substantial variation in its degree: it is particularly

high (HI > 0.15) in Portugal, and the US. It is also high in Spain and Ireland but also in Hungary, Italy, Finland and Canada. It is quite low (HI < 0.05) in Sweden and the Netherlands. The degree of pro-rich inequity appears negatively correlated with the average usage rate. In countries with low dental care use, the pro-rich gradient is much steeper than in those countries with more extensive dental care use.

Figure 9. HI Indices for number of dentist visits, by country

Figure 10. HI Indices for probability of a dentist visit, by country

5.2. Sources of horizontal inequity

50. Having described the differences *between* countries, it is worth turning to the potential sources of inequalities and inequities *within* countries using the methods described in the Appendix. Tables A12–A16 present the results of a decomposition analysis based on the OLS regressions. They summarize in a very condensed form what we can learn from the decompositions. In order to illustrate how the decomposition analysis works and how these numbers are derived, we present one full decomposition table for one type of care and one country (Spain) in greater detail in Table 2. This table shows how the contribution of each variable to total inequality in total specialist visits by income in this country's adult population depends on three factors: 1) the importance of this variable (as indicated by its mean), 2) the extent to which it is distributed across income (as indicated by its concentration index value), and 3) the (marginal) effect of this variable on the number of specialist visits (as indicated by the regression coefficient). The identity is defined by Equation 8 in the appendix.

51. To understand how the decomposition works, it is useful to discuss a few variables in turn. Consider the dummy variables indicating self-assessed health (SAH) to be less than "very good". The means show their respective proportions in the adult Spanish population: for instance, only 1.2% of Spanish adults report their health to be very poor. The concentration indices indicate how these health dummies are distributed across income: for instance, a more negative value indicates that especially the poorer health states are more prevalent among the lower income groups. Finally, the regression coefficient represents the estimated (marginal) effect on specialist visits from going from very good to a lower health state. It is clear that this effect increases with lowering health, going up to an additional 2.6 specialist visits for those who report very poor health. These three components can be combined into the estimated contribution to inequality in specialist visits using Equation 8. We see that most contributions are negative because most SAH dummies have a negative concentration index. A negative contribution means that the effect is to *lower* inequality in visits favouring the rich (a positive contribution has the opposite interpretation). This is because lower reported health *increases* specialist use. Because the linear decomposition model is additive, the contributions of all SAH dummy variables can be added to arrive at the total contribution of "not very good health" (which amounts to -0.06). Basically, this means that the inequality in specialist use is 0.06 lower than it would have been if SAH had been distributed equally (*i.e.* if all SAH dummies had a CI equal to zero) or if SAH did not have an effect on use.

Table 2. Detailed decomposition of inequality in total specialist visits in Spain, 2000

52. The contributions of all other variables can be explained and interpreted similarly. Generally, unequal need distributions serve to *reduce* inequality (*i.e.* to obtain a less positive or more negative CI) while positive contributions have the opposite effect. Clearly, income itself has a stronger *positive* contribution the more unequal is the income distribution [as measured by the CI of (log) income] and the greater the positive marginal effect of income on specialist use. A similar contribution is made by educational status: especially those with the lowest education, which is a large group (63%), tend to rank lower in the income distribution (CI = -0.16) and report fewer specialist visits than the higher educated (-0.137). This results in a positive contribution to horizontal inequity of 0.01.

53. Finally, it is worth having a closer look at the regional effects in Spain. Compared to the omitted region (which is Madrid), all (but two) other regions are poorer (negative CIs) and use fewer specialist services (negative use effects), resulting in a pro-rich contribution. Only the Northeast shows a negative contribution because it is relatively richer (positive CIs). But the total regional dummies contribution (compared to Madrid) is still positive. The two disadvantaged regions contributing most to total inequity are the Centre and the South. In other words: if there had not been either any income differences or any use differences across Spanish regions, pro-rich inequity in specialist use would have been 0.033 smaller. Regional use differences account for about half the total degree of pro-rich inequity in specialist use in Spain. For all other countries, we have condensed and summarized all decompositions in Tables A12–A16 and summarized some of these graphically in Figures 11-15. Rather than discussing these results once more by type of care, we will now go through them by type of "contributor". Some striking regularities emerge.

5.2.1. Contribution of need

54. First, the contribution of need (*i.e.* the aggregation of all morbidity and demographic variables used as proxies) is, with very few exceptions, invariably negative for *all* types of care (except dental care for which need-adjustment is basically a demographic standardization). This is very clear from the example in Figure 11 for total doctor visits, and it is "good news", as it implies that in all OECD countries, a needs-based allocation of health care ensures that income-related inequality in use of services is smaller than it would be if need were *not* a main driver of health care use. However, as we saw in the previous section, the extent to which the pro-poor distribution of health care use matches the pro-poor distribution of need for such care differs by type of care and by country. While the distribution of specialist care is rarely, if ever, distributed sufficiently pro-poor to match the pro-poor distribution of need, in many countries the actual distribution of GP care is *more* pro-poor than required on the basis of needs, and the same is true for hospital care. As argued above, however, it is unwise to draw too strong conclusions from the isolated consideration of one type of care, since there appear to be offsetting tendencies with respect to different types of care. A mismatch between the actual and need-expected distributions is precisely what we have defined here as an inequitable distribution if all equals are to be treated equally. It gives rise to non-zero HI indices which we can decompose further into other contributing factors. This is what is done below.

Figure 11. Decomposition of inequality in total number of doctor visits (i.e. including need contributions)

5.2.2. Contribution of income

55. In a large number of countries, and for a variety of care types, the unequal distribution of income contributes to a more pro-rich distribution of specialist and dental care and a more pro-poor distribution of GP and hospital care. This implies that income still matters for access to health care in many OECD countries. The main difference between income-related inequity in health care use (the HI index) and the marginal contribution to this of income itself, is that the latter is based on the marginal effect (*i.e.* keeping *all* else constant) while the former is based on the need-controlled association (*i.e.* keeping only need constant). As a result, any discrepancy between the HI and the income contribution to inequity must be due to the contributions of the other non-need variables included. If HI is larger than the income contribution, it is because other variables have higher contributions. An example is the use of total specialist visits in France: HI is large and significant while the (marginal) income contribution is very small. Apparently, the pro-rich inequity is generated there through health insurance, education and activity status and not through income *per se*.[6] A similar phenomenon occurs in the US: horizontal inequity for physician visits is fairly

6. Of course, in a fuller structural model, with e.g. insurance status endogenous, income could indirectly still be playing a more important role.

high (HI = 0.068), while the separate income contribution is only 0.017. Most of the pro-rich distribution appears associated with education (0.023) and health insurance (0.02). For many countries, the marginal income contribution to inequity is smaller than the HI. However, there are some exceptions like, for example in specialist use in the UK, where, despite the inclusion of private health insurance coverage, the contribution of income is larger than the HI index.

5.2.3. Contribution of education and activity status

56. Two other important socio-economic characteristics which are known to be related to both income and health are education and labour force participation status. Differences in medical care use by level of education often mirror the utilisation patterns by income. As in previous research, here too we find that the higher educated, *ceteris paribus*, are more inclined to seek care from a medical specialist and a dentist. Because the higher educated tend to be richer, this implies positive contributions to a distribution of care favouring the rich. The picture is less clear-cut with respect to GP visits, total doctor visits and hospital care use. Contributions are smaller, most often negative, but can be positive too. The contribution of education to pro-rich inequity in specialist and dental care is not unimportant, as it suggests that some of the apparent barriers to care still in operation may not be related so much to (lack of) income but to "taste" differences in the use of the medical care system.

57. Labour force participation in itself is not directly a determinant of health care use, although differences in employment status might imply differences in access to and time costs faced when using the health system. Generally, not being in paid employment does, all else equal, seem to exert some influence on the degree to which utilisation patterns vary by income. Its (aggregate) contribution appears to be predominantly negative. This could mean two things. It could mean that activity status, while holding health and a number of other things constant, acts as an additional indicator of need for care. Take the example of those receiving a retirement or a disability pension. Holding all else constant, in particular their self-reported health and age, then those who have retired from the work force may be less healthy, in greater need of care and have lower incomes than their working counterparts. This might explain why the contributions of these two variables are often negative. They then simply operate as (imperfect) need proxies and might be considered for inclusion in the vector of need indicators. In many instances, this would mean some reduction of the degree of pro-rich inequity. If, however, the non-labour force participation status has more to do with differences in time costs of using the health service, then it ought to be included under the factors driving the divergence between needed use and actual use distributions.

58. We have so far preferred to include this variable under the non-need variables on the grounds that ideally "true" need differences ought to be picked up by the demographic and health status variables directly, not by labour force status *per se*. Also, for other (non-) activity states, like housework, student, self-employed, etc, the need status is not obvious. The alternative choice will not, in general, change the very significant results (like the pro-rich inequity in specialist use) but it might, in various places, mean a substantial re-ranking of countries.

59. It is clear from the results in most tables that the meaning and impact of activity status varies tremendously across countries. A further breakdown of the decomposition into the respective categories shows that in some countries (notably Denmark and Hungary) it is particularly the retired status which has often a strong pro-poor contribution to inequity. This may mean that the (early) retired in these countries are worse off than working individuals in the same age category, and also receive more doctor attention. A remarkable result for Finland is that this is the only country where the higher utilisation rates of employed versus non-employed lead to a more pro-rich distribution of primary care visits. A closer investigation of primary care visits in Finland reveals that this may partly be due to the inclusion of occupation-based

health visits.[7] A proper understanding and interpretation of these findings requires a thorough understanding, not only of health care policies, but also of the operation of labour markets and social policies in each of the countries. This goes beyond the scope of this analysis. But from a country-specific perspective, such a further decomposition of contributions into its components may prove very fruitful in detecting sources of income-related differences in care use.

5.2.4. Contribution of regional disparities

60. One determinant which potentially has greater relevance for health policy making is regional disparities in use. Here also it is important to distinguish between the regional differences in utilisation *per se* health-care which are measured by the regression coefficients health-care and their contribution to inequalities in use by income. Regional use disparities will *not* contribute to income-related inequalities in use *unless* there are also regional differences in income level. In practice, regional differences in medical care utilisation often *do* mirror underlying socio-economic differences. While the decomposition method used in this study has the potential to detect the contributions quite precisely, the regional information available in most of the surveys used in this study is extremely limited. We have listed the regions that we could distinguish in Table A6. At best, it represents some broad regional division of the respective countries and for several countries, even such a broad regional identifier was not (made) available. For those countries for which region of residence of the survey respondent *was* available, it often constitutes a very large territory which includes both urban areas which are well-endowed with a supply of medical services as well as rural areas with a much lower availability of (especially secondary and tertiary) care services. Only for a few countries it was possible to differentiate (densely populated) urban areas from intermediate and thinly populated (rural) areas.

61. Nonetheless, the decomposition by region proved to be of interest for a number of countries. As for all other categorical variables, the estimated size of each separate regional dummy's contribution depends, in part, on the omitted category (here region 1) with which they are compared. While there are regional differences in use for every type of health care use, their contribution to income-related use differentials is, not surprisingly, greatest for those types of care with strong income-related inequity patterns. That is why we observe, for instance, substantial pro-rich regional contributions for specialist visits in Italy, Spain, Hungary, Greece and Norway and, to a lesser extent, in Portugal and in Ireland. For hospital care, some pro-rich regional contributions emerge for Italy, Spain, Finland, Greece and Hungary, and interestingly, negative (*i.e*. pro-poor) contributions for countries like Canada and Sweden. The *inter-regional differences* contributions have to be interpreted in conjunction with the urban-rural differences, which may be able to capture *intra-regional differences*. The contribution of the urban-rural differences is mostly pro-rich. It reflects that people living in urban areas tend to be wealthier and to have better access to secondary care services. In Greece and Portugal, the urban-rural contribution is sometimes larger than the regional contribution. The effect is particularly large in Mexico, where urban-rural differences account for more than half of the degree in pro-rich inequity in hospital care use.

62. In Spain, Italy, Hungary, Greece and Portugal, the regional differences reflect familiar geographical patterns. In Spain, the (disfavoured) regions South and Centre are responsible for most of the regional impact (as already mentioned above). In Hungary, most of the regional effect is due to the higher consumption of Middle Hungary (which includes the capital Budapest and is richer) versus the rest of the country. In Italy, the north-south differences account for most of the regional impact. A similar situation

7. A more meaningful disaggregation of doctor visits in Finland by sector reveals a high degree of pro-rich inequity for occupational care and private visits, a very low degree of pro-rich inequity in public outpatient care visits and a pro–poor distribution of public health centre contacts (Unto Häkkinen, personal communication).

emerges for hospital care in Greece, with the Athens region (Attica) contributing most to the pro-rich pattern. It is worth noting that the contribution of urban dummies is particularly important for this country.

63. Perhaps equally noteworthy is the fact that regional variation does *not* contribute a great deal to total income-related inequity in some countries with marked regional disparities. For example we did not detect substantial contributions of disparities among Canadian provinces, French regions, German Länder, Mexican, UK and US regions. As indicated above, this may be due to a large extent to the unsatisfactory regional classification used. In a number of cases (*e.g.* France) there are substantial differences in mean use across regions, but the income differences between the regions appear smaller than in, say, Italy or Spain. Hence, the use differences do not translate into income-related use inequalities.

Figure 12. Decomposition of inequity in probability of any doctor visit

Figure 13. Decomposition of inequity in number of GP visits

Figure 14. Decomposition of inequity in probability of specialist visit

Figure 15. Decomposition of inequity in number of hospital nights

5.2.5. Contribution of private health insurance coverage

64. Finally, last but not least, inequalities in the degree of private insurance coverage of the population may exert an influence on patterns of health care use by income. Like labour force status, the voluntary purchase of health insurance coverage cannot be considered as entirely exogenous in these utilisation models. As a result, any estimated "effects" or "contributions" have to be interpreted with caution since they may be as much a result of demand for insurance behaviour as of demand for care behaviour.

65. Unfortunately, information on insurance coverage was deleted from the ECHP survey after 1996 and the information was also lacking for a lot of the non-ECHP based countries. As a result, we have been able to include insurance among the explanatory variables for only seven countries: Australia, France, Germany (SOEP), Ireland, Switzerland, the UK and the US. The results are nonetheless interesting. It is worth emphasizing that private insurance has a different meaning in each of these countries (cf. Table A2). In Australia, the 43% of the population with private cover (52% in this sample) have additional benefits, like choice of doctor in public hospitals and treatment in private hospitals. In France, about 85% of the population buys (complementary) private health insurance (88% in this sample) to cover public sector co-payments. Certain groups with chronic illnesses are exempt from paying these (13.6% in the sample). Since the introduction of the *Couverture Médicale Universelle* (CMU) in 2000, for the least well off 10% of the population (4.6% in the sample) care is essentially free of charge. In Germany, most of the population is insured publicly through the sickness funds and private insurance can mean a number of things. In the SOEP, we could distinguish: i) private cover for those (self-employed or high income) who opt out of the public system (12% of sample), ii) whether deductible was taken out by these privately insured (4.2% of sample), iii) supplementary private cover bought by publicly insured for additional choice and upgraded hospital accommodation (8.8% of sample), iv) privately insured as civil servant (*Beihilfe*; 10.9% of sample).

66. In Ireland, those with incomes below a certain threshold (category I, nearly 30% of population) are eligible for a medical card which entitles them to free GP and other services. All others (category II)

have to pay fee-for-service for GP consultations and for some outpatient and inpatient care.[8] But more than 50% of the Irish population has private insurance to cover costs of inpatient and outpatient care. In Switzerland, basic cover is mandatory and people can choose among four different types of cover: a) ordinary policies; b) policies with a higher level of deductible; c) bonus insurance, where individuals receive a premium reduction if they did not use their cover in the previous year; d) HMO insurance, where individuals obtain premium discounts if they choose to restrict their choice of providers to those indicated by the insurer. Supplementary insurance for additional comfort or luxury treatment is purchased by about 30% of the population. In the UK, 15.6% of the sample purchased supplementary private health insurance which usually covers quicker access to certain hospital services (*e.g.* elective surgery). Finally, in the US, most people are covered through private insurance plans, usually tied to their employment, while Medicare (for the over 65) and Medicaid (for the poor) provide public cover. In the MEPS, we used the variables private *or* public cover to capture the effect of insurance coverage. In that way, it captures best the contribution of any cover (or lack of it).[9]

67. In general, the insurance effects are fairly small and in the expected direction, but some are worth a closer look. In particular the French, Irish and US results are revealing with respect to the contribution of "coverage gaps" to inequities in use. For France, we have included three dummy variables, one for private health insurance, one for people "exempted" from co-payments for medical reasons, and one for CMU cover, but we have summed the contributions of the latter two. Table A12 and Figures 11-12 for total visits show that they have the expected opposite effects: private cover increases and public cover decreases the pro-rich distribution of all doctor visits. On average, the CMU does not fully compensate the private insurance effect, mainly because it relates to a much smaller population group, but also because its consumption effect appears smaller than that of private insurance (not shown). Interestingly, the breakdown by GP and specialist visits (in Tables A13 and 3.A14) shows that the pro-rich contribution of private health insurance is far greater for specialist than for GP visits. The reason for this turns out to be that health-care while both private and public cover increase GP use to a similar degree health-care the effect of private cover on specialist use is much higher for private (*i.e.* 1.6 extra visits per year) than for public (only 0.3 extra visits) coverage. Since the CMU was only introduced in 2000 and the data relate to the same year for France, it remains to be seen whether this is just a transitory start-up effect or whether equalizing the financial access cost is not sufficient to equalize specialist use among those with public and private health insurance coverage.

68. For Ireland, people without private health insurance and without public (medical card) cover are the reference category (about 20% of the population). Private health insurance is complementary for an individual in category II. Its contribution to the overall level of inequality is pro-rich and particularly important for hospital, dental and specialist care. Unlike the French results, the contribution of public cover is on average small. Moreover, for specialist care the public cover effect even has a positive contribution and reinforces the pro-rich effect of private health insurance, because category I persons apparently tend to use less specialist care.

69. As explained above, the contribution of the variable "public or private coverage" for the US can best be interpreted as an effect of being "not insured". Table A12 quantifies and Figures 11 and 3.12 visualize the contribution of the unequal distribution of the uninsured to the degree of pro-rich inequity found both for total visits to a doctor and for the probability of any visit. In both cases, it appears that the insurance coverage gap in the US accounts for about 30% of the total degree of inequity found in doctor

8. While all individuals in Ireland are entitled to free care in public hospitals, the complex mix between private and public practice has meant that insurance is taken out primarily to ensure quicker access to hospital services and avoid large hospital bills (Harmon and Nolan, 2001).

9. In fact, we experimented with several combinations of public and private coverage variables available but settled for "any cover" for the purpose of this comparison.

utilisation. The impact of insurance appears to be large also for the number of nights spent in hospital (cf. Table A15a), but not for the admission probability (cf. Table A15b). The distribution of hospital care would be a lot more pro-poor (HI would be 0.05 units lower) than it is now if insurance coverage were more equally distributed across the US population.

70. As expected, the contributions of the insurance variables for the four other countries are much more modest. In Australia, private insurance mainly buys access to privately provided hospital care and choice of doctor. Its contribution appears to be indeed pro-rich for both doctor utilisation and hospital care utilisation, but more substantial for the latter, as expected. It does appear therefore to buy Australians with such cover somewhat better access to the hospital. However, it does not stop the distribution of hospital care in Australia (in terms of probability of utilization) from being pro-poor (Table A15).

71. The private insurance coverage purchased in Germany health-care while clearly income-related health-care does not appear to have a large impact on the distribution of care across income groups. The impact of private health insurance in Switzerland is peculiar: higher income groups are more likely to take out the larger deductibles and to use less of all medical care. As a result, the contribution of insurance coverage is negative (*i.e*. pro-poor) but small. In the UK, supplementary health insurance mainly buys access to private care, mainly to avoid NHS waiting lists (16% in the BHPS sample, mainly high incomes). The contribution to pro-rich inequity in specialist and hospital care is, however, not very great. For other countries where private insurance might play some role for some types of care health-care *e.g*. Canada, Denmark, Finland, Netherlands, and Spain health-care we cannot conclude anything because of lack of data in the surveys used for this study. It is conceivable that, in its absence, some of the contribution of the unequal private coverage distribution is now picked up by the income, education or activity status variables.

6. Conclusions

72. The present analysis updates and extends previous results obtained in Van Doorslaer, Koolman and Puffer (2002). It updates the analysis from 1996 to around 2000 for 13 of the 14 countries included in the earlier study (Luxembourg is excluded) and adds results for eight other OECD countries, *i.e*. Australia, Finland, France, Hungary, Mexico, Norway, Switzerland and Sweden. It also goes beyond the earlier study by using new methods for need standardization and inequity decomposition, by distinguishing explicitly between the probability of any use and total annual use, and by including hospital care and dental care utilisation.

73. However, the extension and update comes at a price in terms of comparability. First, the common core database health-care the *European Community Household Panel* survey health-care has stopped collecting information on health insurance coverage after 1996. For three countries (Germany, Luxembourg and UK), the ECHP panel was terminated altogether and the ECHP data replaced by similar (but not identical) country-specific surveys (like the *German Socio-economic Panel* and the *British Household Panel Survey*). Taking into account that the ECHP did not include Sweden and that it never collected comparable data for medical care utilisation in France, this meant that for 11 of the 21 countries included in this study, we had to rely on country-specific survey data. While virtually all of these are the best surveys currently available in the participating countries for this purpose, it does imply some decrease in the degree of data comparability compared with the results presented in Van Doorslaer, Koolman and Puffer (2002).[10] It means that we could not provide a sufficiently comparable analysis to provide complete

10. For nine of the countries included, the analysis was performed by local research teams – albeit using commonly-agreed guidelines and similar Stata syntax.

results for all types of care for all countries, though the great majority of countries are included in each of the comparisons.

74. We have used both simple quintile distributions and concentration indices estimated using regression models to assess the extent to which adults in equal need for physician care appear to have equal rates of medical care utilisation. The usefulness of the measurement method crucially hinges on the acceptance of the horizontal equity principle as a policy goal. To the extent that "equal treatment for equal need" is not an explicit policy objective health-care or only for public care, and not for private care health-care the measures have to be used with caution for equity performance assessment. The analysis for dental care differs from this general pattern because no indicators for dental care need (other than demographics) were available in most surveys. Some of the findings corroborate those obtained in Van Doorslaer, Koolman and Puffer (2002) and the extensions shed further light on the mechanisms underlying the patterns of care utilisation by income that we observe in OECD countries.

75. With respect to *physician utilisation*, it is clear that OECD countries still differ tremendously in mean doctor visit rates. The observed relative distributions around these means tend to favor the lower income groups. This is mainly because the need for physician services is likewise concentrated among the worse off. After having "standardized out" these need differences, positive and significant horizontal inequity is found in about half of the countries, both for the contact probability and for the total number of visits, but the degree of this measured inequity is fairly small. Higher income adults do have slightly better chances of seeing a doctor than lower income individuals, but the differences are not very large. The degree of pro-rich inequity in doctor use is highest in the US, followed by Mexico, Finland, Portugal and Sweden.

76. However, breaking down total physician utilisation into *primary care* (GP) and *secondary care (specialist)* physician visits reveals very divergent patterns. In the majority of countries, GP visits are equitably distributed across income groups and where significant HI indices emerge, they are often negative, indicating a pro-poor distribution. This is the case for Ireland, Belgium, Spain, the UK, the Netherlands, Greece and Italy. Pro-poor co-payment exemptions (as in Ireland) or reductions (as in Belgium) seem to induce more pro-poor distributions. The only country with a significant pro-rich GP visit distribution is Finland. But as indicated above, primary care visits to doctors in public health centres are also found to be pro-poor in Finland (Unto Häkkinen, personal communication). The more pro-rich distribution is probably partly due to some of the occupational health and private doctor visits being reported as GP visits.

77. The findings suggest little or no inequity in the probability of seeing a GP across countries: in the great majority of OECD countries, rich and poor have very similar probabilities of contacting a GP when they need one. This corroborates the earlier finding of Van Doorslaer, Koolman and Puffer (2002).

78. The picture is very different with respect to consultations with a medical specialist. In every country for which there are the necessary data, without exception, after controlling for need differences, the rich are significantly more likely to see a specialist than the poor, and in most countries also more frequently. Pro–rich inequity is large here, with most indices exceeding 0.05. Pro-rich inequity is especially large in Portugal, Finland and Ireland. The income-based public/private split in Ireland, the large out-of-pocket costs and unequal distribution of specialist services in Portugal, and the high co-payments and private sector options offered in Finland appear to be the main factors driving this situation.[11] The large number of countries with a fairly modest degree of pro-rich specialist care distribution (with HI

11. The quite different results for the UK based on the BHPS 2001 compared to the ECHP 1996 results reported in Van Doorslaer, Koolman and Puffer (2002) suggest that the different income measurement and the use of the words "outpatient visits" (rather than "specialist visits") may play a role here.

indices between 0.03 and 0.06) suggests that there appears to be some "natural" tendency of the better-off to use more specialist care, irrespective of system characteristics.

79. The story emerging for *inpatient care utilisation* is more equivocal. While infrequent hospital care utilisation with a very skewed distribution is more difficult to analyze reliably with general household surveys and leads to larger standard errors, no clear pattern emerges. Significant indices are only found for countries with very large sample sizes. In Mexico and Portugal, significant pro-rich inequity is found in hospital admission probability, and in Mexico also for overall use. On the other hand, it is not immediately obvious why inpatient care would be distributed pro-poor in countries with very diverse systems such as Switzerland, Canada, Australia, and the US, but not in many other countries. A major limitation in this context is probably that we were only able to capture hospital overnight admissions, thereby missing out on day cases. It is well known that the proportion of elective admissions is much lower in overnight admissions than it is in day cases. It is conceivable that any inequities in hospital care use are more likely to manifest themselves in elective than in acute or emergency admissions. The hospital utilisation patterns analyzed here may reflect disproportionately more acute/emergency cases, for which equitable treatment patterns are more likely.

80. Finally, *dental care* is quite different from the other types of care because it has more of a luxury investment good character. Public opinion on the applicability of the principle of equal treatment for equal need to adult dental care is far less unanimous, as can be gathered from the exclusion of large sections (or the entirety) of adult dental care from public care insurance packages in a large number of countries. Allocation of (certain types of) adult dental care on the basis of ability to pay rather than need seems to meet far less opposition.

81. It is no surprise, therefore, to find a pro-rich distribution of both the probability and the frequency of dentist visits in *all* OECD countries. There is, however, wide variation in the degree to which this occurs. It is smallest in some of the countries with the highest visit rates like Belgium, the Netherlands, and Denmark. It is highest in countries where dental insurance is not provided publicly and has to be paid for either out-of-pocket or through private insurance coverage. This appears least affordable to the worse off in countries like Portugal, the US, Spain, Ireland, Canada, Greece, Hungary, Italy and Finland where pro-rich inequity is very large (*i.e*. HI is 0.10 or larger).

82. The decomposition analyses helped to track down the sources of inequity per country for each type of medical care utilisation. They revealed that income itself is not the only factor leading to income-related patterns of use. We found that, in many instances, education turned out to be an important contributor to a pro-rich distribution, while work activity status often contributes to a more pro-poor distribution. These findings, are, however, not universal and often require a more detailed knowledge of a country's health system or social policy features for a proper interpretation.

83. Utilisation determinants which are of greater direct interest to health policy analysts are regional discrepancies and health insurance coverage. Unfortunately, neither of these two variables was available for many countries in great detail in our datasets. We found that differences in health care utilisation between richer and poorer regions did make some contribution to overall income-related inequalities in secondary care use in some countries. We observed pro-rich contributions of regional differences for specialist visits in Italy, Spain, Hungary, Norway, Portugal and Ireland, and for hospital care in Italy, Portugal, Spain, Hungary, and Greece. Very often, this reflected familiar discrepancies between better endowed (often the capital) regions and more peripheral regions. In Mexico, urban-rural differences account for more than half of the degree in pro-rich inequity in hospital care use.

84. Unfortunately, we could only quantify the contributions of disparities in (public and private) health insurance for seven countries. The decomposition analysis showed clearly that in France, for

instance, the voluntary purchase of private complementary insurance for public sector co-payments has a substantial pro-rich contribution to specialist use. But the introduction of similar public cover for the poorest through the *Couverture Médicale Universelle* (CMU) in 2000 has induced a significant pro-poor shift which compensates this a great deal. For the US, the analysis shows that the lower utilisation of the uninsured (or incompletely insured) accounts for about 30% of the measured pro-rich inequity in physician utilisation. For Ireland, the contribution of private insurance is pro-rich and particularly important for hospital, dental and specialist care. The contribution of public cover (Medical Card) is more equivocal: it is pro-poor for GP visits and hospital care, but strongly pro-rich for specialist care. This suggests that the medical card coverage of GP care may have the unintended effect of lowering the lower income individuals' use of specialist care. For Germany, the existence of some voluntary private schemes, mainly covering additional comfort and luxury, has only a small pro-rich contribution to otherwise fairly equitable distributions of care.

85. While we think that this study adds considerably to the body of comparative knowledge on the equity achievements of OECD health care systems, it is not without important limitations. The available survey data do not permit to go beyond comparisons of reported *quantities* of use, with little or no possibilities to account for potential differentials in *quality*. Inequities in quality may be just as relevant health-care or perhaps even more so health-care than inequities in quantity. It is well known that in many countries health-care especially those with private health services offered alongside public services health-care not all doctor visits or hospital stays can be assumed, on average, to be of the same quality. While the distinction between general practitioner and specialist visits is one small step in the direction of allowing for such quality differences, more is needed. One obvious next step (data permitting) would be to distinguish between public and private care utilisation.[12] A third dimension to consider is the timeliness of care provided. Increasingly, OECD health systems are experiencing strains through shortages of supply which lead to rapidly increasing waiting times for various types of care. Private insurance and private care offers the possibility not only to buy more or better care, but also quicker care. A largely under-researched question is to what extent income-related inequities exist with respect to the time spent waiting for proper care.

86. The other obvious area to look into to improve current estimates of inequity is the "needs" adjustment. Clearly, some of the surveys we have used offer far greater potential to measure the care needs of respondents than just the simple (though powerful) self-assessed health indicators used in this study. Sensitivity analyses have shown that inclusion of a much larger battery of health measures into the need adjustment does not change the main thrust of these findings very much, but if it does, it is likely to *increase* the measured degrees of pro-rich inequity (or *decrease* the degrees of pro-poor inequity). Undoubtedly, greater need comparability could be obtained by focusing attention on specific treatments for specific subpopulations (*e.g*. the pregnant, the chronically ill, etc), but this would come at the price of losing the system-wide perspective taken in this study.

87. Finally, the most important question is whether and to what extent any inequities in health care usage also translate into inequities in health outcomes. Some of the evidence that is available to answer this question suggests they often do. For example, one Canadian disease-specific study (Alter *et al*., 1999) looked at differences in access to invasive cardiac procedures after acute myocardial infarction by neighborhood income in the province of Ontario. Whereas the rates of coronary angiography and revascularization were found to be significantly positively related to income, waiting times and one-year mortality rates were significantly negatively related to income. Each US$ 10 000 increase in the neighborhood median income was associated with a 10 % reduction in the risk of death within one year. Similar evidence on socio-economic inequities in coronary operations has been reported for other

12. A few studies have been able to do this. Such studies (*e.g.* Atella, 2003 for Italy, Rodriguez *et al*., 2004 for Spain) have shown that income-related distributions can differ enormously between public and private services.

countries, such as Finland (Hetemaa *et al.*, 2003; Keskimäki, 2003) and the UK (Payne and Saul, 1997; Ben-Shlomo and Chaturvedi, 1995). This suggests that differences in diagnostic and therapeutic utilisation across income groups are not trivial and *do* appear to translate into differential outcomes by income as well, even in a country like Canada, that, at least by the standards of this study, does seem to achieve a fairly equitable distribution of its care. It seems therefore warranted not to underestimate the potential impact of the income-related patterns of health care use described in this study on health outcomes.

APPENDIX

MEASURING AND DECOMPOSING HORIZONTAL INEQUITY

Measuring inequity

88. This study measures distributions of actual and needed use of care by income quintiles. These are groups of equal size, each representing 20% of the total (adult) population, but ranked by their household income from poorest to richest. The "needed" health care use is computed by running a regression on all individuals in the sample, explaining medical care use (*e.g.* doctor visits or hospital nights) with a set of explanatory variables. This means running a linear OLS regression[13] equation like

[1] $$y_i = \alpha + \beta \ln inc_i + \sum_k \gamma_k x_{k,i} + \sum_p \delta_p z_{p,i} + \varepsilon_i$$

where y_i denotes the dependent variable (medical care use of individual *i* in a given period) and we distinguish between three types of explanatory variables: the (logarithm of) the household income of individual *i* ($\ln inc_i$), a set of *k* need indicator variables (x_k) including demographic and morbidity variables, and *p* other, non-need variables (z_p). α, β, γ_k and δ_p are parameters and ε_i is an error term.

89. Equation 1 can be used to generate need-predicted values of *y*, *i.e.* the expected use of medical care of individual i on the basis of his/her need characteristics. It indicates the amount of medical care s/he would have received if s/he had been treated as others with the same need characteristics, on average.[14] Combining OLS estimates of the coefficients in Equation (1) with *actual* values of the x_k variables and *sample mean* values of the $\ln inc_i$ and z_p variables, we can obtain the need-predicted, or "x-expected" values of utilisation, $\hat{y}_i^X$ as:

[2] $$\hat{y}_i^X = \hat{\alpha} + \hat{\beta} \ln inc^m + \sum_k \hat{\gamma}_k x_{k,i} + \sum_p \hat{\delta}_p z_p^m$$

90. Estimates of the (indirectly) need-standardized utilisation, $\hat{y}_i^{IS}$, are then obtained as the difference between actual and x-expected utilisation, plus the sample mean $\left(y^m\right)$

13. We discuss the alternative of using intrinsically non-linear regression models in the section on estimation methods.

14. The average relationship between need indicators and utilisation, as expressed by the regression coefficients, is the implied norm for assessing equity in this health care system. But this approach to measuring need is not intrinsic to the method of measuring equity. If need estimates could be obtained alternatively (*e.g.* from professional judgement), the equity measures could still be computed in the same way.

[3] $$\hat{y}_i^{IS} = y_i - \hat{y}_i^{X} + y^m$$

91. The quintile means of these indirectly standardized values give our need-standardized distributions of medical care. They are to be interpreted as the distributions to be *expected if need were equally distributed across quintiles*.

92. But these quintile distributions are difficult to compare across a large number of countries and types of care use. It is therefore useful to summarize the degree of inequality observed using a *concentration index*. It is defined as (twice) the area between a concentration curve and a line of perfect equality. A medical care *concentration curve* plots the cumulative proportion of medical care against the cumulative proportion *R* of the sample, ranked by income (Wagstaff and Van Doorslaer, 2000a and b).

93. A concentration index of a variable *y* can be computed using a simple "convenient covariance" formula, which looks as follows for weighted data:

[4] $$C = \frac{2}{y^m}\sum_{i=1}^{n} w_i \left(y_i - y^m\right)\left(R_i - R^m\right) = \frac{2}{\mu}\ \mathrm{cov}_w(y_i, R_i)$$

where y^m is the weighted sample mean of *y*, cov_w denotes the weighted covariance and R_i is the (representatively positioned) relative fractional rank of the *i*th individual, defined as :

[5] $$R_i = \tfrac{1}{n}\sum_{j=1}^{i-1} w_j + \tfrac{1}{2} w_i$$

where w_i denotes the sampling weight of the *i*th individual and the sum of w_i equals the sample size (n).

94. Testing for differences between concentration indices requires confidence intervals. Robust estimates for C and its standard error can be obtained by running the following convenient (weighted least squares) regression of (transformed) *y* on relative rank:

[6] $$\frac{2\sigma_R^2}{y^m} y_i = \alpha_1 + \beta_1 R_i + \varepsilon_{1,i},$$

where σ_R^2 is the variance of R_i and $\hat{\beta}_1$ is equal to C, and the estimated standard error of $\hat{\beta}_1$ provides the estimated standard error of C.

95. The concentration index of the actual medical care use measures the degree of inequality and the concentration index of the need-standardized use (which is our horizontal inequity index HI) measures the degree of horizontal inequity. When it equals zero, it indicates equality or equity. When it is positive, it indicates pro-rich inequality/inequity, and when it is negative, it indicates pro-poor inequality/inequity.

96. It is worth emphasizing that coinciding concentration curves for need and actual use provide a sufficient but not a necessary condition for no inequity. Even with crossing curves, one could have zero inequity if, for example, inequity favoring the poor in one part of the distribution exactly offsets inequity favoring the rich in another.[15]

15. Cf. also notes 7 and 8 in Wagstaff and Van Doorslaer (2000a).

Decomposing and explaining horizontal inequity

97. It is possible to estimate the separate "contributions" of the various determinants and their relative importance. Using the regression coefficients γ_k, (partial) elasticities of medical care use with respect to each determinant *k* can then be defined as:

[7] $$\eta_k = \gamma_k x_k^m / y^m$$

where y^m is the (population weighted mean) of *y* and x_k^m is the (population weighted) mean of x_k. These elasticities denote the percentage change in *y* result from a percentage change in x_k.

98. It has been shown (Wagstaff, Van Doorslaer and Watanabe, 2003) that the total concentration index can then be written as:

[8] $$C = \eta_r C_{\ln inc} + \sum_k \eta_k C_{x,k} + \sum_p \eta_p C_{z,p} + GC_\varepsilon$$

where the first term denotes the partial contribution of income inequality, the second the (partial) contribution of the need variables, and the third the (partial) contribution of the other variables. The last term is the generalized concentration index of the error term ε.

99. In other words, estimated inequality in predicted medical care use is a weighted sum of the inequality in each of its determinants, with the weights equal to the medical care use elasticities of the determinants. The decomposition also makes clear how each determinant *k*'s separate contribution to total income-related inequality in health care demand can be decomposed into two meaningful parts: i) its impact on use, as measured by the use elasticity (η_k), and ii) its degree of unequal distribution across income, as measured by the (income) concentration index (C_k). This decomposition method therefore not only allows us to separate the contributions of the various determinants, but also to identify the importance of each of these two components within each factor's total contribution. This property makes it a powerful tool for unpacking the mechanisms contributing to a country's degree of inequality and inequity in use of health care.

TABLES AND CHARTS

Table 1. Non-ECHP household surveys used for 11 countries

	Survey	Year	Sample size	Sampling unit	Age limits used
Australia	National Health Survey (ABS)	2001	15 516	Individual	16+
Canada	Canadian Community Health Survey (CCHS)	2001	107 613	Household	16+
France	National health survey linked to social insurance utilisation (EPAS-ESPS)	2000	4 381	Members of the three main health insurance funds	16+
Germany	Socio-Economic Panel (SOEP)	2001	12 961	Household	16+
Hungary	National Health Monitoring Survey (OLEF 2000)	2000	4 404	Household	18+
Mexico	National Health Survey (ENSA)	2001	153 865	Household	16+
Norway	Norwegian level of living survey - panel	2000	3 709	Individual	16-80
Sweden	Survey of living conditions (ULF)	2001	5 054	Household	16-80
Switzerland	Swiss Health Survey	2002	13 692	Household, then random indiv in households	18+
United Kingdom	British Household Panel Survey (BHPS)	2001	13 712	Household	16+
United States	Medical Expenditure Panel Survey (MEPS)	1999	16 541	Household	16+

Source: Van Doorslaer et al. for OECD.

Table 2. Detailed decomposition of inequality in total specialist visits in Spain, 2000

	Mean	Concentration index	Margin effect	Contribution to inequality	Sum of contributions
HI index				0.066	0.066
Ln(income)	14.121	0.025	0.098	0.022	0.022
SAH Good	0.522	0.061	0.348	0.007	
SAH Fair	0.194	-0.101	1.342	-0.017	
SAH Poor	0.089	-0.244	3.208	-0.045	
SAH Very Poor	0.012	-0.283	2.599	-0.006	-0.060
Health limit	0.059	-0.270	2.293	-0.023	
Health limit severe	0.092	-0.140	1.134	-0.009	-0.033
Male 35-44	0.086	-0.006	-0.098	0.000	
Male 45-64	0.129	0.045	0.042	0.000	
Male 65-74	0.054	-0.065	0.020	0.000	
Male 75+	0.033	-0.141	0.162	0.000	0.000
Female 16-34	0.175	-0.002	0.456	0.000	
Female 35-44	0.086	-0.022	0.504	-0.001	
Female 45-64	0.137	0.031	0.507	0.001	
Female 65-74	0.063	-0.125	0.116	-0.001	
Female 75+	0.054	-0.199	-0.252	0.002	0.002
Education medium	0.171	0.139	0.002	0.000	
Education low	0.630	-0.159	-0.137	0.009	0.009
Other inactive	0.056	-0.175	0.015	0.000	
Housework	0.204	-0.171	0.105	-0.002	
Retired	0.131	-0.080	0.194	-0.001	
Unemployed	0.065	-0.277	0.245	-0.003	
Student	0.105	0.042	-0.229	-0.001	
Self-employed	0.097	0.122	-0.154	-0.001	-0.008
Noroeste	0.131	-0.044	-0.587	0.002	
Noreste	0.107	0.113	-0.424	-0.003	
Centro	0.137	-0.177	-0.733	0.011	
Este	0.258	0.128	0.174	0.004	
Sur	0.203	-0.211	-0.582	0.016	
Canarias	0.039	-0.256	-0.408	0.003	0.033
Error				0.011	0.011

Source: Van Doorslaer *et al*. for OECD.

Table A1. Equity-relevant delivery system characteristics and provider incentives

Country	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilisation	Dentist consultations
Australia	GPs charge FFS. Most (around 70%) "bulk bill" Medicare, some charge patient who is reimbursed 85% of agreed fee schedule. Some over-billing.	yes	As for GPs, where the provider is formally recognized as a specialist and the patient has been referred by another doctor. In other cases, a lower or no Medicare benefit is paid.	Free accommodation and treatment for Medicare eligible patients in public hospitals. Private insurance can cover most of the cost of private patients in public and private hospitals (can nominate their physician).	Free for school age children and people on low incomes. Otherwise self funded with private health insurance cover available.
Austria	Ambulatory care free at point of delivery, except for farmers and self-employed who pay 20%; mix of capitation and FFS payment.	no	Ambulatory care is free at the point of delivery, except for farmers and self-employed who pay 20%	About € 4 per day, for up to 28 days per year.	Co-payment of about 20% for most of the population, with payments of up to 50% for special services, such as fitting crowns.
Belgium	Universal public coverage, except for self-employed but most have voluntary private cover. 30% co-payment rate (but 100 % for self employed without private cover). Reduced co-payment rate of about 8% for lower socio-economic groups. FFS, agreed fee schedule.	no	Universal public coverage, except for self-employed, but most have voluntary private cover. 40% co-payment rate (reduced rate of 8% for lower income groups. FFS, agreed fee schedule, but some specialties engage in over-billing.	Co-payments I: not uniform, depending on type of intervention, but typically very low (around 5%) Co-payment II: charge for "hotel costs" of hospitalization (fixed for multiple person rooms, an upper limit for two-person rooms; and no upper limit for private rooms)	Co-payments: 20% for consultations (if covered) Higher co-payments for fillings, prostheses, etc., FFS.
Canada	GPs paid fee-for-service. No co-payments. Canada is moving to set up primary health care teams.	Most referrals to specialists are through GPs/family physicians	Fee-for-service remuneration. No co-payments.	Free of charge for all medically necessary services provided by a public (non-for-profit) hospital.	Outside the Canada health Act. Most employed people would have some employer-based insurance. People over 65 years have access to some dental coverage.

Table A1. Equity-relevant delivery system characteristics and provider incentives *(continued)*

Country	GP consultations	GP gatekeeper	Specialist consultations	Hospital utilization	Dentist consultations
Denmark	Choice between group I and group II. GP care free for group I (98% of population) but has to accept same GP as gatekeeper for at least six months. Group II (2%) has co-payment for GP, but can choose GP freely.	Yes for group I; No for group II	People in group II have to pay a co-payment for specialist care, but do not need a referral.	Free of charges.	Co-payment ranging from 35% to 100%. Cost-sharing accounted for about 75% of total cost in 1994.
Finland	GP consultations in municipal health centres available to all with some co-payments (€ 10 per visit) for first three visits. GP visits free for those employees for whom employers organise occupational care. In private sector, substantial co-payments.	Yes, in principle, but not strictly enforced and no referral required for private specialist consultations	About 65 % of specialist consultations occur in outpatient departments of public (municipal) hospitals (co-payment is € 17). The remainder is consultations in private sector (partly reimbursed by NHI but with substantially higher co-payments).	Most of hospital care delivered in municipal hospitals with some co-payment (€ 23 per day). Doctors paid on a salary basis.	Until 2000, dental care publicly subsidized only for young adults (born in or after 1956). During 2000-2002, reimbursement gradually extended to whole population. Dental care is charged FFS both in public health centres and private practice, but fees are higher in private sector.
France	GPs work FFS in private practices. Free choice of provider. Patients (or their complementary insurance) pay a coinsurance rate (30% of official tariff) + some balance billing. Some people with long-term illnesses exempt.	No	Specialists work in private practices and are paid FFS. Patients (or supplemental insurance) pay a coinsurance rate (30% of the official tariff) + some balance billing (for 35% of specialist visits).	€ 11 per day, plus a complex system of co-payments (and exemptions). Close to 93% of hospital expenditure is covered by social health insurance.	A 30% co-payment rate applies to "simple" consultations but prostheses are poorly reimbursed. As a result, private insurance plays an important role in access to dental care.

Table A1. Equity-relevant delivery system characteristics and provider incentives *(continued)*

Country	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilization	Dentist consultations
Greece	Public sector: primary care centers in rural areas only. In urban areas, public primary care from primary care physicians, hospital OP and SI polyclinics, who charge on an ATP basis. Free of charge in theory (but informal payments are common)	No (in practice)	Private financing is very high, most is out-of-pocket (informal payments also common). Public sector: combination of salaried doctors FFS. Private sector: physicians (incl. many doctors working in public sector) charge on a FFS basis.	Public sector: Official payments through social insurance but informal payments still prevalent. Private sector: Large co-payments, with most finance from out-of-pocket.	Public: Payments through social insurance. Private: For those without adequate social insurance cover.
Germany	Free at point of delivery; FFS	No	Substantially higher fees for privately insured; some co-payments; FFS	€ 8.7 per day to a maximum of 14 days per year. Supplement for private rooms. Full or partial exemption for children (under 18), unemployed people, those on income support and students receiving grants.	Basic and preventive care free of charge. Co-insurance rates of between 35% and 50% for operative treatments.
Hungary	Free at point of delivery, with no patient co-payments. But extensive informal payments. Due to capitation based finance, GPs have incentives to over-refer.	Yes. In practice, gate keeper role limited for some types of specialist care.	Free at point of delivery. No patient co-payments, except for some specific services. Extensive informal payments. Outpatient specialist services are paid on a FFS basis, which provides incentives to treat everyone, irrespective of whether informal payments are made.	Free at point of delivery. Extensive informal payments. Hospitals financed in DRG type system for acute services, which provides incentives to treat everyone. Informal payment system may have more influence on quality than on quantity of care received by individuals with different income levels.	Some dental care services included among the publicly provided services, others not. Dentists allowed to over-bill the fee they receive from the insurance fund. Extensive private dental care market exists, without a private dental health insurance market.

Table A1. Equity-relevant delivery system characteristics and provider incentives *(continued)*

Country	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilization	Dentist consultations
Ireland	The 30% Irish with the lowest income are in group I and get free GP care at point of delivery and GP is paid by capitation. Higher income group II has to pay for GP services in full.	Yes (group I) but can be bypassed by emergency unit; No, for group II	Free at point of delivery for group I, and group II only has to pay for routine ophthalmologic and aural services; specialists receive higher fee for private care patients.	Persons with full eligibility (group I): No charge Persons with limited eligibility (group II): Charge in 2000 of € 33 per night in a public ward, up to a maximum of € 330 in any 12-months period.	Free dental service to all children up to 16 years of age and to all adults with low incomes. The rest of the population mostly covered by Social Insurance for basic dental care, with balance billing. Cosmetic dentistry not covered. No private dental health insurance market. Private expenditure accounts for an estimated two-third of overall dental expenditure.
Italy	Free at point of delivery. GPs paid on capitation basis;	Yes, but there are exceptions such as for psychiatric, obstetricians, gynecologic, and preventive visits	For public consultations and outpatient visits, flat rate payment required.	Free at point of delivery. Hospital care mainly delivered by public hospitals. But local health authorities can choose to contract out services to private hospitals. Authorized organizations are reimbursed by NHS funds.	It is mainly private.
Mexico	Public sector General Medical Doctors (GMDs employed by Social Security Institutions) salaried. Private sector GMDs can charge directly to the patient (most are self employed) or they can receive a salary from a private institution.	yes	Most consultations (about 65%) provided in the public sector.		

Table A1. Equity-relevant delivery system characteristics and provider incentives *(continued)*

Country	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilization	Dentist consultations
Netherlands	Free for public patients, private patients obtain reimbursement of fee if covered; GPs paid capitation for public and FFS for private patients.	Yes	Most specialists receive a salary from their partnerships, which themselves are paid FFS; other specialists get FFS; academic specialists receive a salary and get FFS for private patients only.	Little or no distinction between public-private patients. Privately insured can buy "first class" comfort policies.	Most dental care covered by sickness funds, either in basic cover or in supplement cover. Cover for privately insured depends on choice of insurance policy.
Norway	Majority of GPs paid FFS, some are salaried. Out of pocket co-payments amount to approximately 18% of consultation costs.	Yes	FFS remuneration. Out of pocket co-payment covering approximately 18% of consultation costs.	Co-payments, not uniform, depending on type of intervention, typically very low.	Public provision, free of charge for persons aged below 18.Usually private provision for adults.
Portugal	Flat rate co-payments for GP consultations (€ 1.5) and diagnostic tests . "Low income" individuals exempted, as well as those with special medical needs, pregnant women, and children under 12. GP's mainly salaried. In 1999, new experimental mixed system of GP reimbursement introduced (participation is voluntary). Mixed = salary + capitation. FFS for target services.	Yes, but hospital emergency departments often used to bypass.	Co-payments income-related. Half of NHS salaried doctors also work in private practice. Co-payment 100% for consultations in private sector (unless covered by private insurance). Private doctors free to set fees according to reputation. Privately insured individuals tend to go to private specialists, to avoid GP referral and waiting list for same service in the NHS.	- Inpatient treatment is free. - Co-payments for outpatient visits (€ 3) and emergency visits (€ 5). Exemption of this co-payment for the same groups as in GP consultations.	Very few NHS dentists, so people normally use the private sector. In this case, patients pay 100% of the fees that might be reimbursed by the professional insurance scheme or by the private insurance scheme (if it covers dental care).

Table A1. Equity-relevant delivery system characteristics and provider incentives *(continued)*

Country	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilisation	Dentist consultations
Spain	Free at point of delivery; GPs mainly salaried; private sector physicians are usually paid FFS.	Yes, but emergency often used to bypass waiting lists. No referral needed for obstetricians, dentists and ophthalmologists	Free at point of delivery; Specialists in the public sector paid salaries.	Free at point of delivery. *Double* referral needed (GP *and* specialist) for admissions in large provincial hospital that provides complete range of services. "Public beds" (for NHS patients) in many private hospitals.	Public provision only for teeth extractions and diagnostic tests during pregnancy. (Note: Public provision of all type of dental services for children under 18 in Basque Country and Navarra.)
Sweden	Co-payments low but differ across county councils. GPs salaried in public, and FFS in private sector	Yes, in practice, most referrals to specialist and hospital care are through GPs (although in most county councils, there is no gatekeeper function for Pediatrics, Obstetrics and Gynecology).	Co-payments low but differ across county councils. Specialists salaried in public, and FFS in private sector	Reimbursement systems for hospitals and co-payments differ across county councils.	Preventive care provided free to everyone under 20 years. Co-insurance for rest of the population. User charges represented about 50% of total expenditure in 1995.
Switzerland	Deductible of CHF 230 per year, then co-payment of 10% up to max of CHF 600 . Optional higher deductibles (CHF 300, 600, 1 200 & 1 500) for lower insurance premium	No, except in managed care organizations like HMQs	Free choice of physician	Free choice among public hospitals in the cantons; supplementary insurance provides access to all public and private hospitals	Not covered by insurance

Table A1. Equity-relevant delivery system characteristics and provider incentives *(continued)*

Country	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilisation	Dentist consultations
United Kingdom	Free at point of delivery. GPs paid by mixed reimbursement, mostly capitation with some FFS and salary. Fundholding replaced by decentralised commissioning of secondary care through primary care trusts.	Yes (unless patients access care through hospital emergency units)	Free at point of delivery (in the public sector)	Free at point of delivery. Doctors paid by salary and through private practice. Admissions require referral from GP, except for A&E. Resources allocated geographically through weighted capitation formula.	User charges in NHS (with exemptions) and private. FFS. Growing share of private compared to NHS
United States	Cost varies widely depending on insurance plan. For Medicare beneficiaries (13% of population, elderly and disabled), co-payments of 20% in excess of the US$100 deductible (lower deductibles if in HMOs).	Yes, for 46-50% of population with public/private managed care plans.	Depends on the insurance plan.	Primarily covered by private and public insurance plans. Co pays vary with plan and length of stay. Charges and payments based on Prospective Payment System upon diagnosis by attending physician. Uninsured pay full cost, though provisions are made for charity cases.	Some private dental insurance; typically not employer subsidized.

Table A2. Regional differences and private insurance characteristics

Country	Regional differences	Private insurance
Australia	Universal entitlement to Medicare subsidized services, though access may be affected by supply considerations in rural and more remote areas.	40% of the population has private health insurance. Provides added benefits, such as choice of doctor in public hospitals and treatment and accommodation in private hospitals. Provides assistance with the costs of dental and allied health services.
Austria	Some variation in the distribution of physicians at the state levels and at the regional level; variations also in the distribution of hospitals.	1% is uninsured; 38% has supplementary private health insurance that mostly covers sick leave benefits, more comfortable accommodation in hospital and free choice of physician.
Belgium	Regional differences in utilisation between Flanders, Wallonia and Brussels. Higher consumption in Wallonia and Brussels. Supply of services (mainly hospitals) generally higher in Wallonia and Brussels. Private insurance for over-billing and co-payments (mainly hospital care)	Many employers offer supplemental insurance to cover public insurance co-payments and extra-billing.
Canada	13 different plans, for ten provinces and three territories, but conform to federal Canada Health Act. Shortage of health professionals in rural and remote areas, particularly in the northern regions and on Aboriginal reserves.	Many employers offer supplemental health insurance as benefit to cover services not covered by provincial plans such as prescribed medicines, dental care, etc.
Denmark	The responsibility for primary and secondary care is decentralized. The 14 counties own and run hospitals and prenatal care centres. They also finance GP and other physicians. Only few hospitals, mainly located in the Copenhagen area and private for-profit hospitals, are regulated by the central government	30% of population; but coverage limited to dental and other services.
Finland	Municipalities (local government) responsible for providing municipal health service, which can create regional differences in access. In addition, substantial regional variation in supply of private doctor services.	Role of private insurance is, in general, modest for the adult population. For children, it has a more important effect, which is reflected also in income-related differences in utilisation patterns

Table A2. Regional differences and private insurance characteristics *(continued)*

Country	Regional differences	Private insurance
France	No regional variation in the system's regulation. The density of physicians varies across and within regions.	The public health insurance system covers about 75% of total health expenditures. Half of the other 25% is covered by out of pocket payments and the other half is paid by private health insurance companies offering supplementary health insurance policies to individuals or groups. About 85% of population has such cover. In January 2000 a means-tested public supplementary insurance (CMU, *Couverture Médicale Universelle*) was implemented to ensure access to health care for poor (about 10% of pop is eligible). This covers all public co-payments and provides reimbursements for glasses and dental prostheses (for CMU beneficiaries, care is essentially free).
Greece	Very wide urban-rural disparities; primary care provided by salaried physicians in health centres for rural areas, by FFS physicians in hospital outpatient departments in urban areas. 2000 reform aims to create regional health authorities and to extend primary care centres to urban areas. In theory one NHS, but in practice, entitlements, access and finance vary substantially across occupation-based sickness funds (SI).	40% of health expenditure private, and 95% of that is financed through out-of-pocket payments. Private insurance market varies; it is generally underdeveloped and confined to major cities.
Germany	Regional negotiations on fee levels.	<0.5% uninsured, civil servants different insurance, small percentage private insurance
Hungary	Regional differences in access to health care, due to a concentration of specialist and hospital capacity in the capital. Insurance fund pays for cost of travel to provider.	<1% uninsured; very small percentage private supplementary insurance
Ireland	Planning of health services done by regional health boards	44% of population has voluntary health insurance; VHI pays co-payments and for private care; private care available in public hospitals;

Table A2. Regional differences and private insurance characteristics *(continued)*

Country	Regional differences	Private insurance
Italy	The NHS is highly decentralised It is responsibility of the regional government to achieve the objectives posed by the National Health plane. Regions are the ones who deliver the benefit package to the population through a network of population based health care organizations (local health units) and public and private accredited hospitals. Each region plans health care activities and organizes the supply according to population needs. Moreover, they have the responsibility to guarantee the quality, appropriateness and efficiency of the services provided. The NHS is financed through national and region taxes, but the general taxation has only a complementary role. The main tax is a regional tax on productive activities.	5-10% of the population had a private insurance. It is supplementary and includes coverage for services not included in the NHS benefit package.
Mexico	Mexico suffers from enormous regional socioeconomic gaps. The Ministry of Health is fostering and financially sustaining compensatory programs for the poorest regions of the countries, especially those located in the south and with high proportions of indigenous populations.	Less than 3% of total population has private insurance. Almost all firms that give this type of health and social benefit are national. The costs of private medical care insurance are in general much higher.
Netherlands	Health care facilities regionally allocated according to need	<1% is uninsured; about 1/3 of the population privately insured (no double coverage)
Norway	The proportion of GPs per thousand in the population is higher in small municipalities – rural areas. Specialists are to a larger extent located in urban areas.	Some employers offer supplemental private health insurance.
Portugal	Around 2000 extensions of health centres seem to ensure a fair distribution of GP-care (however, human resources not evenly distributed, and rural areas tend to lack health care personnel, mainly doctors and nurses). Geographical inequities in distribution of specialists (some areas do not provide certain specialist services). Large hospitals unequally distributed; level of autonomy in the five regions is high. Health centres financed by RHA's. Allocation of funds to the RHA's is mainly based on historical data and on capitation (weighted by sex/age and need). Hospital budgets based mainly on historical values. Since 1998, partly based on DRG's.	Private practitioners to be paid by the patients directly. 10% of the population has some private insurance coverage (mostly group insurance provided by employer); Private insurance means double coverage since NHS is universal

Table A2. Regional differences and private insurance characteristics *(continued)*

Country	Regional differences	Private insurance
Spain	Regional variations exist as some regions organize most of the public health care (Catalonia, Valencia, Andalusia, Galicia, Basque Country, Navarra, Canary Islands), whereas others don't. Catalonia and the Basque Country took steps to increase competition among providers. Regional differences in private health care facilities. Regional differences in purchase of PHI. More than 20% of the inhabitants in Balearic Islands, Catalonia and Madrid buy PHI.	About 10% of population contracts private health insurance (PHI). Most of PHI is duplicate coverage in order to bypass waiting lists and to obtain direct access to specialist care. For 0.5% of pop not coved by the public sector, PHI acts as substitute. The dental policies complementary. In 1999 tax deductibility of individually purchased health insurance (15% of total premium) was abolished, and employer-provided PHI now fiscally favored. Civil servants have special regime with choice of health care provider – public or private.
Sweden	Variation across 25 county councils.	Private insurance coverage exists but has relatively little significance (about 1%). Employees may also be reimbursed by employer for health care spending, but all fringe benefits are subject to taxation.
Switzerland	Substantial differences in physician (especially specialist) density and hospital bed density across cantons; this is also reflected in large premium differences for basic health insurance between cantons	Private supplementary insurance provides free choice of senior physicians in public hospitals, access to private hospitals and more comfortable accommodation (one or two bed room)
United Kingdom	Resources distributed according to capitation formula to ensure equity; geographical variation in private care considerable. national differences in unit of resource (*i.e.* between England, Scotland, Wales and NI)	Around 10% of population has (duplicate) private coverage; growth also result of employment benefits packages.
United States	Large variations by state in all types of private health insurance. Some state variation in Medicaid. Less variation in Medicare.	Private insurance provided through an employer plan is the most common form of coverage for those under 65. For those 65 and over, private supplemental insurance for Medicare is extremely common.

Table A3. Availability of utilisation variables in ECHP and non-ECHP surveys

Countries	GP visits		Specialist visits		Doctor visits		Hospital nights		Dentist visits	
	Tot	Prob	Tot	Prob	Tot	Prob	Tot	Prob	Tot	Prob
Australia	No	No	No	No	No	Yes	No	Yes	No	Yes
Austria	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Belgium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canada	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Denmark	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Finland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
France	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Germany (SOEP)	No	No	No	No	Yes*	Yes*	Yes	Yes	No	No
Germany (ECHP) §	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Greece	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hungary	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ireland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Italy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mexico	No	No	No	No	No	Yes	Yes	Yes	No	No
Netherlands	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Norway	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Portugal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sweden*	No	No	No	No	Yes*	Yes*	Yes	Yes	No	Yes
Switzerland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
United Kingdom (BHPS)	Yes**	Yes	Yes**	Yes	Yes	Yes	Yes	Yes	No	Yes
United Kingdom (ECHP) §	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
United States	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

* For Germany and Sweden, the reference period of total doctor visits is 3 months.
** For the UK BHPS, the GP and specialist total visits are reported as categorical variables.
§ For comparison, some analyses were done using 1996 ECHP data for Germany and UK.

Table A4. Health questions (ECHP and non-ECHP)

Survey	Self-assessed health	Question on health limitations
European ECHP	How is your current health? (Very good, good, fair, bad, very bad)	Are you hampered in your daily activities by any physical or mental health problem, illness or disability? (Yes, severely; yes, to some extent; no)
Australian National Health Survey	In general, would you say your health is: Excellent, very good, good, fair, poor, not stated	
Canadian CCHS	In general, would you say your health is: (Excellent, very good, good, fair, poor)	Impact of health problems on three main domains: home, work or school, and other activities (sometimes, often, never)
France EPAS-ESPS	Could you rate your health on a 0 to 10 scale (0=very bad, 10= excellent)? Five categories derived.	Is your mobility limited? (No, I feel hampered but don't need help, I can walk with a cane or another apparatus, I can move with someone's help, I cannot get out of bed) ; Do you usually have difficulties to wash (Yes, if not: I can do it alone or not) ; Do you frequently experience pain (no, yes: minor, strong, or very strong)
Germany GSOEP	How satisfied are you with your health on scale from 0 (compl. unsatisfied) to 10 (compl. satisfied). Five categories were derived.	none
Hungary OLEF	How is your health in general? (Very good, good, fair, bad, very bad)	Are you hampered in your daily activities (such as work, shopping, sports) by any problems, injuries, or diseases? (Yes; No; unable to answer; not willing to answer)
Mexican national health survey	How is your health in general? (Very good, good, fair, bad, very bad)	Are you hampered in your daily activities by any physical or mental health problem, illness or disability? (Yes, no)
Norwegian level of living standard	How is your health in general? (Very good; good; neither good nor bad; bad; very bad)	Five questions regarding depression, anxiety, feeling of hopelessness and nervousness. Alternative answers were: very hampered, quite hampered, a little hampered and not hampered at all. Variable health limit sever =1 if responding very hampered on at least two of the five questions, 0 otherwise. Variable health limit = 1 if responding a little or quite hampered on at least two of the five questions, 0 otherwise.

Table A4. Health questions (ECHP and non-ECHP) *(continued)*

Survey	Self-assessed health	Question on health limitations
Sweden ULF Survey	How is your current health? (Very good, good, fair, bad, very bad)	The respondents were asked two questions about functional ability. In the first question the respondents were asked if they could run a short distance (*e.g.* 100 metres) if they were in a hurry, and in the second question the respondents were asked if they could climb stairs without difficulty. These two questions divide the respondents into three classes of functional ability: 1) Persons who are able to run a short distance and climb stairs without difficulty (no limitations in functional ability); 2) Persons who are unable to run a short distance but are able to climb stairs without difficulty (some limitations in functional ability); 3) Persons who are unable to run a short distance and are unable to climb stairs without difficulty (severe limitations in functional ability).
Swiss Health survey	How is your health at the moment? (Very good, good, fair, bad, very bad) Is your health better, the same or worse than usually?	Are you hampered in your daily activities by any physical or mental health problem, which has been going on longer than for one year? (yes, no). A second dummy-variable which is one if an individual received treatment for one of several chronic conditions over the last twelve months.
UK BHPS	Health status over the last 12 months (excellent, good, fair, poor, very poor)	Does your health in any way limit your daily activities compared to most people of your age? (yes, no)
US Medical Expenditure Panel Survey	In general, compared to other people of (one's) age, would you say your health is excellent/very good/good/fair/poor?	Combination of a question asking whether respondent is limited in any way in the ability to work at job, do housework or go to school because of an impairment or a physical or mental health problem (yes/no).

Table A5. Information used regarding income, activity status and education

Survey	Income	Activity status	Education
European ECHP	Disposable (*i.e.* after-tax) household income per equivalent adult (modified OECD scale). It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. No account has been taken of indirect social transfers (*e.g.* reimbursement of medical expenses), receipts in kind and imputed rent from owner-occupied accommodation.	Main activity status – self defined. Seven categories: • Employed • Inactive • Housework • Retired • Unemployed • Student • Self-employed	Three categories: • third level of education; • second stage of second level education; • less than second stage of secondary education
Australian national health survey	Total gross annual personal cash income (+18); Equivalent income deciles (equivalent income – OECD scale – of the income unit to which the person belongs)	Status in Employment, Four categories: employed; own account worker or contributing family worker; Unemployed; Out of labor force	Three categories: post school qualification; second level of education; and less than second level of education
Canadian CCHS	Only categorical variables. We classified income into five categories based on total household income and number of people living in the household. 1) <CAD 10 000 if one to four people; <CAD 15 000 if five+ people; 2) CAD 10 000 to 14 999 if one or two; CAD 10 000 to 19 999 if three or four; CAD 15 000 to 29 999 if five+ ; 3) CAD 15 000 to 29 999 if one or two; CAD 20 000 to 39 999 if three or four; CAD 30 000 to 59 999 if five+; 4) CAD 30 000 to 59 999 if one or two; CAD 40 000 to 79 999 if three or four; CAD 60 000 to 79 999 if five+; 5) >CAD 60 000 if one or two; >CAD 80 000 if three+	There are different variables that describe the activity status of the respondents. Six categories are derived: • Employed • Self-employed • Inactive • Retired • Student • Unemployed	Three categories: • third level of education; • second stage of second level education; • less than second stage of secondary education

Table A5. Information used regarding income, activity status and education *(continued)*

Survey	Income	Activity status	Education
France EPAS-ESPS	Income typically net of most social contributions but not of personal income tax as it is not collected at source. Per equivalent adult income computed.	Six categories: • Employed • Inactive • Housework • Retired • Unemployed • Student	• third level of education • secondary level of education • less than secondary • unknown
Germany GSOEP		Generated from the monthly calendar in the SOEP for main activity: full time; part time; apprentice; unemployed; retired; maternity leave – student; milit. or civ. service; house work; other	a) school - *Abitur* the highest school degree (13 years) - *Realschule* (ten years), - *Hauptschule* or less (nine years) b) highest finished educational degree/professional training: - vocational training - university
Hungary OLEF	Disposable (*i.e.* after-tax) household income per equivalent adult. No details about income composition.	Main activity status: Employed; Inactive; Housework; Retired; Unemployed; Student; Self-employed	Six response categories re-grouped into three categories: primary; secondary; university
Mexican national health survey	Disposable (*i.e.* after-tax) household income per adult. It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. The reference period is last week.	Main activity status – self defined: paid employment; paid apprenticeship; training under special schemes; self-employment; unpaid work in family enterprise; education or training; unemployed; retired; doing housework; community or military service; other economically inactive; working less than 15 hours	Highest level of general or higher education completed (Recognized third level of education; second stage of second level education; less than second stage of secondary education; still at school).

Table A5. Information used regarding income, activity status and education *(continued)*

Survey	Income	Activity status	Education
Norwegian level of living standard	Before and after-tax individual and household income (per equivalent adult). It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. No account taken of imputed rent from owner-occupied accommodation.	Main activity status – self defined • Employed • Inactive • Retired • Unemployed • Student • Self-employed	Three categories: • Higher education; • Secondary education; • Primary education
Sweden ULF Survey	Disposable (*i.e.* after-tax) household income per equivalent adult (modified OECD scale). It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. No account has been taken of indirect social transfers (*e.g.* reimbursement of medical expenses), receipts in kind and imputed rent from owner-occupied accommodation.	Main activity status – self defined. Seven categories: • Employed • Inactive • Housework • Retired • Unemployed • Student • Self-employed	Four categories: • University education; • Secondary education (>2 years); • Short secondary education (<=2 years) • Primary education
Swiss Health survey	Net (*i.e.* before tax and health insurance contributions, after social insurance and mandatory pension fund contributions) household income and equivalent net household income per month. It includes income from work, pensions and other direct social transfers received. Capital income (from investments and property) not available.	Seven categories: • Employed • Inactive • Housework • Retired • Unemployed • Student • Self-employed	Highest level of general or higher education completed (categorical variable)

Table A5. Information used regarding income, activity status and education *(continued)*

Survey	Income	Activity status	Education
United Kingdom (BHPS)	Annual household gross income. Monthly net gross and net labor income Annual non-labor income	Current economic activity: Self-employed; employed; unemployed; retired; maternity leave; family care; still at school; disabled; training scheme; other	Highest academic qualification: Higher degree; 1st degree; HND, HNC, Teaching; A level; O level; CSE; None of these
United States Medical Expenditure Panel Survey	Household income before tax was adjusted to a net household income using the NBER TAXSIM model. Per equivalent adult using OECD scale.	Main activity status – self defined (paid employment; paid apprenticeship; training under special schemes to employment; self-employment; unpaid work in family enterprise; education or training; unemployed; retired; doing housework, looking after children or other persons; community or military service; other economically inactive)	Highest level of general or higher education completed (Recognized third level of education; second stage of second level education; less than second stage of secondary education; still at school)

Table A6. Survey information on region of residence and health insurance

Survey	Regional information	Health insurance
European ECHP	Region in which the household is presently situated (NUTS aggregates) Austria: Westosterreich, Ostosterreich, Sudosterreich. Belgium: Brussels, Walloon, Flemish region. Finland: Uusimaa, Etela-Suomi, Ita-Suomi, Vali-suomi, Pohjois-Suomi Greece: Voreia Ellada, Krentriki Ellada, Attiki, Nisia Aigaiou-Kriti. Ireland: Dublin, rest of Ireland. Italy: Northeast, Northwest, Lombardia, Emilia Romagna, Centre, Lazio, Abruzzo-Molise, Campania, South, Sicilia, Sardegna. Portugal: Norte, Centro, Lisboa e Vale do Tejo, Alentejo, Algave, Acores, Madeira. Spain: Madrid, Northwest, Northeast, Centre, East, South, canaries Islands. For Finland, Greece, Ireland, and Portugal it was possible to differentiate areas with different degree of urbanization (densely populated areas, intermediate areas, and thinly-populated areas). For Denmark, villages were differentiated from small or middle size towns and from larger towns.	None. The only exception is Ireland, for which we obtained additional data on private insurance and medical card status. For 27% of respondents who did not answer we created a dummy for the missing value (ins1 and mcard1).
Australian national health survey	Major cities are differentiated from the rest of Australia.	Whether currently covered by private health insurance.
Canadian CCHS	11 provinces and territories: Newfoundland and Labrador; Prince Edward Island; Nova Scotia; New Brunswick; Quebec; Ontario; Manitoba; Saskatchewan; Alberta; British Columbia; Yukon/Northwest/Nunavut territories	none
France EPAS-ESPS	There are 22 regions in France, but "supra" regional grouping in eight categories used here. The capital region is the reference: Ile de France (Paris area). Others : north of Paris; north; west; south west; centre east; Mediterranean region	Private complementary insurance; Public complementary coverage (CMU); None Individuals declare whether they are exempted from public co-payments because of high cost chronic conditions.
Germany GSOEP	16 regions: Berlin; Schleswig – Holstein; Hamburg; Niedersachsen; Bremen; Nordrhein-Westfalen; Hessen; Rheinl.-Pfalz, Saarl.; Baden-Wuerttemberg; Bayern; Berlin (Ost); Mecklenburg-Vorpommern; Brandenburg; Sachsen-Anhalt; Thueringen; Sachsen	- privately insured (not in the public system) either because individual is self-employed or above the opting-out income ceiling or is civil servant (Beamter) - a publicly insured can buy additional insurance for access to private unite in hospital and treatment by senior physicians - German civil servants and their non-working dependants are privately insured but only have to insure 50% , the other half of any bill is paid by the state

Table A6. Survey information on region of residence and health insurance *(continued)*

Survey	Regional information	Health insurance
Hungary OLEF	Seven main regions: Region 1 "Ny-Dun", West-Dunantul; Region 2 "Del-Dun" South-Dunantul; Region 3 "Koz-Dun" Middle-Dunantul; Region 4 "Koz-Mo" Middle-Hungary; Region 5 "Esz-Mo" North Hungary; Region 6 "Esz-Alf" North-Alfold; Region 7 "Del-Alf" South-Alfold. "Dunantul" is whole area west of the river Danube. "Alfold" is large area in east and southeast plain of Hungary.	None
Mexican national health survey	Six categories: 1) Federal district (Mexico City Metropolitan Area); 2) North; 3) West; 4) Centre; 5) South; 6) East. Also includes a dummy of urban zone (15 000 inhabitants or more).	Whether person has right to medical service at: 1) Mexican Institute of Social Security (IMSS); 2) Social security and services institute of the workers of the state (ISSSTE); 3) Other institution of social security?; 4) Private medical insurance?
Norwegian level of living standard	Six regions: North; Middle; West; Southwest; Southeast ; capital + surrounding area	none
Sweden ULF survey	21 counties: Stockholm, Uppsala , Södermanland, Östergötland, Jönköping, Kronoberg, Kalmar , Gotland, Blekinge, Skåne, Halland, Västra Götaland, Värmland, Örebro, Västmanland, Dalarnas, Gävleborgs, Västernorrland, Jämtland, Västerbotten, Norrbotten.	none
Swiss Health survey	Seven regions: lake Geneva (cantons Vaud, Valais and Geneva); Espace Mittelland (cantons Bern, Fribourg, Solothurn, Neuchatel, Jura); Northwest CH (cantons Basel-City, Basel-country, Aargau) ; Zurich (canton Zurich) ; East CH (cantons Glarus, Schaffhausen, Appenzell-Ausserrhoden, Appenzell-Innerrhoden, St. Gallen, Graubünden, Thurgau) ; central CH (cantons Luzern, Uri, Schwyz, Obwalden, Nidwalden, Zug) ; canton Tessin	Type of mandatory basic insurance chosen (insurance with deductible to a minimum of CHF 230, HMO, bonus insurance plan, etc.). Any supplementary voluntary insurance (called semi-private and private)? Government subsidies for mandatory health insurance payments? (yes, no)
United Kingdom (BHPS)	Ten regions: Southeast; Southwest; East Anglia; East Midlands; West Midlands; Northwest; Yorkshire; North; Wales; Scotland	Are you covered by private medical insurance, whether in your own name or through another family member? (Yes in own name; yes in another person's name; no)
United States Medical Expenditure Panel Survey	Four large census regions: Northeast, Midwest, South and West. (and SMA)	Constructed from a series of detailed questions about insurance status. Indicates whether or not individual had any private or public insurance during the year.

Table A7. Quintile distributions (after need standardisation), inequality and inequity indices for total physician utilisation

Country Sample size		Poorest	2	3	4	Richest	Total	CI	HI
Australia	total								
15 516	prob	0.849	0.846	0.835	0.846	0.858	0.847	**-0.014**	0.003
Austria	total	6.620	6.077	6.407	6.586	7.350	6.608	**-0.043**	**0.026**
5 610	prob	0.877	0.877	0.895	0.886	0.910	0.889	-0.002	*0.006*
Belgium	total	7.458	7.208	6.841	6.313	6.539	6.872	**-0.114**	**-0.031**
4 483	prob	0.894	0.869	0.908	0.883	0.902	0.891	-0.006	0.002
Canada	total	4.342	4.470	4.252	4.342	4.417	4.355	**-0.064**	*0.005*
107 613	prob	0.834	0.835	0.841	0.864	0.897	0.866	**0.004**	**0.015**
Denmark	total	3.331	4.074	3.388	3.944	3.459	3.639	**-0.073**	0.005
3 787	prob	0.784	0.748	0.755	0.777	0.771	0.767	**-0.026**	0.000
Finland	total	2.501	2.914	3.307	3.265	3.724	3.142	**0.029**	**0.073**
5 587	prob	0.727	0.781	0.824	0.822	0.870	0.805	**0.026**	**0.036**
France	total	6.567	6.994	7.186	7.086	7.318	7.030	-0.007	*0.017*
4 381	prob	0.841	0.870	0.891	0.882	0.873	0.871	0.005	*0.007*
Germany	total (3m)	2.921	2.876	2.689	3.060	3.064	2.922	-0.017	0.010
12 961	prob	0.688	0.707	0.693	0.718	0.718	0.705	-0.005	0.008
Greece	total	3.753	3.880	4.014	4.056	3.868	3.914	**-0.114**	0.007
8 983	prob	0.627	0.615	0.633	0.646	0.629	0.630	**-0.035**	0.006
Hungary	total	6.925	7.534	8.587	7.899	6.684	7.525	**-0.073**	0.003
4 404	prob	0.750	0.765	0.781	0.803	0.750	0.770	-0.007	0.006
Ireland	total	4.343	4.018	3.903	3.767	3.521	3.911	**-0.137**	**-0.032**
4 601	prob	0.715	0.718	0.693	0.703	0.770	0.720	**-0.020**	0.010
Italy	total	6.116	6.361	6.204	6.158	6.303	6.228	**-0.030**	0.004
14 155	prob	0.810	0.814	0.837	0.835	0.852	0.830	**0.008**	**0.010**
Mexico	total								
153 865	prob	0.189	0.191	0.206	0.218	0.227	0.206	**0.029**	**0.042**
Netherlands	total	4.737	5.002	4.402	4.604	4.449	4.639	**-0.080**	-0.017
8 706	prob	0.739	0.749	0.738	0.759	0.773	0.751	-0.003	**0.009**
Norway	total	3.655	4.136	3.781	3.763	4.073	3.882	**-0.048**	0.009
3 709	prob	0.736	0.782	0.761	0.782	0.788	0.770	-0.003	**0.011**
Portugal	total	3.976	4.307	4.720	5.002	5.431	4.687	-0.011	**0.068**
10 276	prob	0.714	0.763	0.793	0.805	0.856	0.786	**0.011**	**0.033**
Spain	total	5.117	5.011	4.929	5.124	4.756	4.988	**-0.086**	-0.012
12 182	prob	0.779	0.774	0.757	0.783	0.796	0.778	-0.008	0.006
Sweden	Total (3m)	0.812	0.738	0.902	0.867	0.982	0.860	0.012	**0.042**
5 054	prob	0.388	0.366	0.417	0.411	0.418	0.400	-0.003	**0.026**
Switzerland	total	3.441	3.304	3.367	3.309	3.269	3.338	**-0.044**	-0.008
13 692	prob	0.753	0.757	0.766	0.768	0.758	0.760	-0.005	0.002
United Kingdom	total	*5.788*	*5.684*	*5.340*	*5.149*	*5.126*	*5.417*		
13 712	prob	0.787	0.791	0.787	0.786	0.801	0.790	**-0.019**	0.003
United States	total	2.982	3.412	3.671	3.836	4.223	3.655	**-0.020**	**0.068**
16 557	prob	0.618	0.629	0.690	0.703	0.757	0.683	**0.023**	**0.044**

Note: Significant CI and HI indices in bold (P<0.05). Total = mean number in last 12 months.
Prob = proportion with positive use in last 12 months.
* UK figures obtained as sum of estimated GP and specialist visit rates.

Table A8. Quintile distributions (after need standardisation), inequality and inequity indices for GP care utilisation

Country Sample size									
		Poorest	**2**	**3**	**4**	**Richest**	**Total**	**CI**	**HI**
Australia	total								
15 516	prob								
Austria	total	4.884	4.159	4.294	4.358	4.805	4.501	**-0.073**	0.001
5 610	prob	0.843	0.830	0.826	0.800	0.841	0.828	**-0.014**	-0.005
Belgium	total	5.745	5.469	4.964	4.528	4.468	5.035	**-0.144**	**-0.057**
4 483	prob	0.861	0.845	0.887	0.848	0.843	0.857	**-0.013**	-0.004
Canada	total	3.469	3.605	3.304	3.237	3.162	3.265	**-0.089**	**-0.016**
107 613	prob	0.738	0.757	0.764	0.786	0.813	0.786	0.001	**0.016**
Denmark	total	2.579	3.113	2.548	2.572	2.411	2.645	**-0.104**	**-0.028**
3 787	prob	0.762	0.727	0.715	0.743	0.751	0.739	**-0.031**	-0.002
Finland	total	1.928	2.018	2.264	2.206	2.381	2.159	*-0.008*	**0.045**
5 587	prob	0.651	0.672	0.739	0.745	0.754	0.712	*0.013*	**0.034**
France	total	4.597	4.884	5.020	4.651	4.665	4.764	**-0.027**	-0.005
4 381	prob	0.777	0.816	0.829	0.824	0.808	0.811	0.003	0.006
Germany (96)	total	4.978	5.564	5.377	5.252	4.491	5.131	**-0.075**	*-0.021*
8 392	prob	0.781	0.788	0.797	0.769	0.737	0.774	**-0.018**	**-0.011**
Greece	total	2.375	2.046	2.142	2.067	1.932	2.113	**-0.148**	**-0.033**
8 983	prob	0.565	0.532	0.539	0.538	0.488	0.532	**-0.066**	**-0.023**
Hungary	total	4.849	4.950	5.934	5.191	3.992	4.987	**-0.101**	*-0.024*
4 404	prob	0.677	0.703	0.712	0.735	0.659	0.697	**-0.018**	0.002
Ireland	total	3.985	3.419	3.402	3.057	2.776	3.329	**-0.161**	**-0.061**
4 601	prob	0.708	0.711	0.686	0.685	0.750	0.708	**-0.025**	0.006
Italy	total	5.102	5.079	4.891	4.609	4.573	4.851	**-0.059**	**-0.026**
14 155	prob	0.796	0.793	0.816	0.804	0.816	0.805	0.003	*0.005*
Mexico	total								
153 865	prob								
Netherlands	total	3.180	3.196	2.680	2.817	2.710	2.917	**-0.098**	**-0.038**
8 706	prob	0.700	0.710	0.696	0.723	0.717	0.709	-0.007	0.006
Norway	total	2.871	3.284	2.999	3.022	2.906	3.016	**-0.066**	-0.006
3 709	prob	0.702	0.753	0.731	0.746	0.738	0.734	-0.009	0.007
Portugal	total	3.120	3.361	3.334	3.355	3.274	3.289	**-0.074**	0.008
10 276	prob	0.671	0.730	0.745	0.758	0.758	0.732	-0.003	**0.021**
Spain	total	3.760	3.569	3.508	3.406	2.915	3.432	**-0.114**	**-0.047**
12 182	prob	0.740	0.726	0.710	0.722	0.679	0.716	**-0.027**	**-0.014**
Sweden	total								
5 054	prob								
Switzerland	total	2.208	2.184	2.187	2.165	1.956	2.140	**-0.062**	*-0.024*
13 692	prob	0.562	0.586	0.588	0.591	.,581	0.582	-0.005	0.008
United Kingdom	total	4.351	4.196	3.859	3.678	3.564	3.930	**-0.119**	**-0.042**
13 712	prob	0.754	0.763	0.753	0.747	0.763	0.756	**-0.023**	0.001
United States	total								
16 557	prob								

Note: Significant CI and HI indices in bold (P<0.05).
Total = mean number in last 12 months.
Prob = proportion with positive use in last 12 months.

Table A9. Quintile distributions (after need standardisation), inequality and inequity indices for specialist care utilisation

Country									
Sample size		**Poorest**	**2**	**3**	**4**	**Richest**	**Total**	**CI**	**HI**
Australia	total								
15 516	prob								
Austria	total	1.736	1.918	2.113	2.228	2.545	2.108	0.021	**0.078**
5 610	prob	0.591	0.590	0.641	0.645	0.707	0.635	**0.023**	**0.039**
Belgium	total	1.713	1.739	1.876	1.785	2.072	1.837	-0.031	**0.038**
4 483	prob	0.454	0.466	0.514	0.517	0.586	0.507	*0.017*	**0.052**
Canada	total	1.098	1.088	1.160	1.309	1.450	1.295	**-0.015**	**0.054**
107 613	prob	0.494	0.474	0.494	0.541	0.598	0.541	**0.013**	**0.044**
Denmark	total	0.752	0.961	0.840	1.372	1.049	0.994	0.009	**0.093**
3 787	prob	0.279	0.292	0.288	0.335	0.330	0.305	-0.030	**0.041**
Finland	total	0.574	0.896	1.043	1.059	1.344	0.983	**0.110**	**0.136**
5 587	prob	0.263	0.365	0.427	0.396	0.531	0.396	**0.105**	**0.118**
France	total	1.969	2.110	2.166	2.435	2.653	2.266	**0.037**	**0.063**
4 381	prob	0.527	0.575	0.617	0.641	0.654	0.603	**0.034**	**0.045**
Germany (96)	total	2.599	3.481	3.632	3.254	3.719	3.335	-0.003	**0.045**
8 392	prob	0.536	0.584	0.598	0.607	0.648	0.595	**0.019**	**0.034**
Greece	total	1.379	1.835	1.872	1.989	1.935	1.802	**-0.074**	**0.055**
8 983	prob	0.367	0.416	0.435	0.465	0.464	0.429	**-0.018**	**0.049**
Hungary	total	2.077	2.584	2.654	2.707	2.692	2.538	-0.019	**0.055**
4 404	prob	0.452	0.448	0.492	0.522	0.535	0.490	0.014	**0.044**
Ireland	total	0.358	0.600	0.501	0.710	0.744	0.582	0.005	**0.129**
4 601	prob	0.153	0.212	0.202	0.247	0.263	0.215	0.014	**0.102**
Italy	total	1.015	1.282	1.313	1.549	1.730	1.378	**0.072**	**0.112**
14 155	prob	0.338	0.406	0.438	0.467	0.537	0.437	**0.071**	**0.087**
Mexico	total								
153 865	prob								
Netherlands	total	1.558	1.806	1.723	1.787	1.739	1.722	**-0.051**	0.019
8 706	prob	0.369	0.379	0.383	0.388	0.407	0.385	-0.011	**0.018**
Norway	total	0.784	0.852	0.783	0.741	1.1668	0.865	0.015	0.063
3 709	prob	0.267	0.295	0.296	0.324	0.348	0.306	0.019	**0.055**
Portugal	total	0.856	0.945	1.386	1.647	2.156	1.398	**0.140**	**0.208**
10 276	prob	0.291	0.372	0.404	0.463	0.576	0.421	**0.086**	**0.130**
Spain	total	1.357	1.442	1.420	1.718	1.842	1.556	-0.026	**0.066**
12 182	prob	0.400	0.430	0.430	0.473	0.534	0.453	**0.022**	**0.061**
Sweden	total								
5 054	prob								
Switzerland	total	1.174	1.396	1.440	1.497	1.724	1.446	**0.051**	**0.074**
13 692	prob	0.397	0.434	0.437	0.497	0.489	0.450	**0.034**	**0.047**
United Kingdom	total	1.437	1.488	1.481	1.470	1.562	1.487	**-0.062**	*0.017*
13 712	prob	0.399	0.395	0.399	0.414	0.410	0.403	**-0.038**	*0.011*
United States	total								
16 557	prob								

Note: Significant CI and HI indices in bold (P<0.05).
Total = mean number in last 12 months.
Prob = proportion with positive use in last 12 months.

Table A10. Quintile distributions (after need standardisation), inequality and inequity indices for hospital care (inpatient) utilisation

Country									
Sample size		**Poorest**	**2**	**3**	**4**	**Richest**	**Total**	**CI**	**HI**
Australia	total								
15 516	prob	0.147	0.156	0.138	0.116	0.125	0.136	**-0.113**	**-0.049**
Austria	total	2.047	1.800	1.805	2.284	2.304	2.048	**-0.097**	0.041
5 610	prob	0.142	0.134	0.137	0.123	0.164	0.140	**-0.055**	0.019
Belgium	total	1.369	1.280	1.141	1.207	1.079	1.215	**-0.222**	-0.048
4 483	prob	0.111	0.105	0.127	0.095	0.095	0.107	**-0.141**	-0.034
Canada	total	0.704	0.740	0.603	0.475	0.480	0.533	**-0.256**	**-0.078**
107 613	prob	0.100	0.101	0.087	0.080	0.075	0.082	**-0.150**	**-0.051**
Denmark	total	1.636	0.633	0.676	0.717	1.054	0.943	**-0.205**	-0.093
3 787	prob	0.100	0.097	0.080	0.096	0.095	0.094	**-0.081**	-0.011
Finland	total	0.791	1.649	1.266	0.896	0.827	1.086	**-0.170**	-0.047
5 587	prob	0.112	0.142	0.129	0.104	0.118	0.121	**-0.053**	-0.016
France	total	0.794	0.933	1.398	0.867	1.039	1.006	-0.019	0.035
4 381	prob	0.090	0.099	0.092	0.091	0.096	0.094	-0.037	0.000
Germany	total	2.053	1.878	2.522	2.333	1.376	2.032	**-0.059**	-0.029
12 961	prob	0.132	0.129	0.130	0.120	0.113	0.125	**-0.064**	-0.033
Greece	total	0.733	0.646	0.544	0.665	0.692	0.656	**-0.230**	0.003
8 983	prob	0.056	0.046	0.041	0.056	0.062	0.052	**-0.137**	0.040
Hungary	total	2.817	2.568	2.750	2.147	2.138	2.485	**-0.160**	-0.052
4 404	prob	0.139	0.146	0.166	0.154	0.158	0.152	**-0.047**	0.025
Ireland	total	1.477	1.180	1.313	1.528	1.059	1.311	**-0.261**	-0.033
4 601	prob	0.075	0.103	0.097	0.122	0.097	0.099	**-0.081**	*0.053*
Italy	total	0.777	1.097	1.184	1.214	0.881	1.031	-0.036	0.033
14 155	prob	0.061	0.074	0.079	0.078	0.071	0.073	-0.024	0.028
Mexico	total	0.125	0.138	0.181	0.164	0.187	0.159	0.036	**0.078**
153 865	prob	0.031	0.032	0.041	0.039	0.039	0.037	**0.039**	**0.052**
Netherlands	total	0.825	1.037	0.596	0.888	0.690	0.807	**-0.158**	-0.040
8 706	prob	0.079	0.073	0.074	0.073	0.065	0.073	**-0.085**	-0.021
Norway	total								
3 709	prob								
Portugal	total	0.732	0.540	0.582	0.592	0.749	0.639	**-0.192**	0.004
10 276	prob	0.045	0.050	0.063	0.056	0.085	0.060	-0.016	**0.113**
Spain	total	1.118	0.668	0.745	1.043	1.024	0.920	**-0.168**	0.025
12 182	prob	0.073	0.062	0.076	0.084	0.076	0.074	**-0.076**	0.033
Sweden	total	0.714	1.201	0.915	0.946	0.906	0.932	**-0.122**	-0.006
5 054	prob	0.079	0.105	0.103	0.095	0.102	0.096	**-0.045**	0.035
Switzerland	total	1.158	1.309	1.185	0.974	0.880	1.101	**-0.128**	*-0.063*
13 692	prob	0.142	0.129	0.134	0.112	0.099	0.123	**-0.093**	**-0.065**
United Kingdom	total	0.907	0.930	1.156	0.992	0.893	0.975	**-0.181**	0.013
13 712	prob	0.095	0.119	0.109	0.111	0.102	0.107	**-0.093**	0.013
United States	total	0.510	0.616	0.583	0.545	0.482	0.546	**-0.252**	-0.017
16 557	prob	0.088	0.079	0.087	0.075	0.072	0.080	**-0.167**	**-0.038**

Note: Significant CI and HI indices in bold (P<0.05).
Total = mean number of nights in last 12 months.
Prob = proportion with at least one hospital night in last 12 months.

Table A11. Quintile distributions (after need standardisation), inequality and inequity indices for dental care utilisation

Country									
Sample size		**Poorest**	**2**	**3**	**4**	**Richest**	**Total**	**CI**	**HI**
Australia	total								
15 516	prob	0.361	0.409	0.428	0.493	0.533	0.446	**0.087**	**0.079**
Austria	total	1.161	1.414	1.269	1.568	1.612	1.404	**0.079**	**0.063**
5 610	prob	0.545	0.616	0.655	0.633	0.727	0.635	**0.064**	**0.050**
Belgium	total	1.153	1.385	1.459	1.476	1.381	1.371	**0.048**	*0.030*
4 483	prob	0.456	0.570	0.605	0.667	0.651	0.590	**0.084**	**0.068**
Canada	total	0.820	0.756	0.912	1.214	1.540	1.200	**0.131**	**0.126**
107 613	prob	0.434	0.386	0.467	0.612	0.746	0.598	**0.119**	**0.113**
Denmark	total	1.408	1.849	1.865	1.916	1.945	1.796	**0.072**	**0.049**
3 787	prob	0.705	0.797	0.832	0.884	0.898	0.823	**0.063**	**0.046**
Finland	total	0.927	1.188	1.351	1.442	1.638	1.309	**0.121**	**0.103**
5 587	prob	0.366	0.469	0.583	0.598	0.674	0.538	**0.127**	**0.114**
France	total	1.519	1.588	1.771	1.796	2.036	1.742	**0.075**	**0.062**
4 381	prob	0.332	0.371	0.372	0.392	0.428	0.379	**0.066**	**0.053**
Germany	total								
12 961	prob								
Greece	total	0.509	0.630	0.680	0.705	0.857	0.676	**0.104**	**0.095**
8 983	prob	0.181	0.230	0.260	0.287	0.307	0.253	**0.118**	**0.100**
Hungary	total	0.738	0.992	0.980	1.072	1.395	1.032	**0.139**	**0.122**
4 404	prob	0.274	0.333	0.333	0.398	0.485	0.364	**0.142**	**0.118**
Ireland	total	0.509	0.685	0.625	0.807	0.987	0.722	**0.161**	**0.130**
4 601	prob	0.266	0.335	0.322	0.401	0.532	0.371	**0.163**	**0.140**
Italy	total	0.835	1.063	1.143	1.247	1.463	1.150	**0.108**	**0.105**
14 155	prob	0.279	0.335	0.364	0.431	0.499	0.382	**0.121**	**0.118**
Mexico	total								
153 865	prob								
Netherlands	total	1.536	1.646	1.677	1.901	1.854	1.723	**0.044**	**0.042**
8 706	prob	0.712	0.758	0.777	0.816	0.844	0.781	**0.033**	**0.034**
Norway	total								
3 709	prob								
Portugal	total	0.580	0.705	0.795	0.888	1.530	0.899	**0.216**	**0.196**
10 276	prob	0.220	0.244	0.292	0.355	0.569	0.336	**0.216**	**0.200**
Spain	total	0.522	0.678	0.632	0.811	1.046	0.738	**0.149**	**0.137**
12 182	prob	0.228	0.282	0.275	0.373	0.453	0.322	**0.152**	**0.143**
Sweden	total								
5 054	prob	0.679	0.591	0.697	0.690	0.754	0.683	**0.054**	**0.028**
Switzerland	total	1.363	1.580	1.721	1.745	1.875	1.657	**0.059**	**0.062**
11 265	prob	0.587	0.655	0.713	0.740	0.778	0.695	**0.055**	**0.056**
United Kingdom	total								
13 712	prob	0.540	0.548	0.635	0.666	0.715	0.621	**0.080**	**0.063**
United States	total	0.643	0.791	1.077	1.239	1.554	1.084	**0.181**	**0.173**
16 557	prob	0.274	0.341	0.436	0.510	0.616	0.444	**0.167**	**0.160**

Note: Significant CI and HI indices in bold (P<0.05).
Total = mean number in last 12 months.
Prob = proportion with positive use in last 12 months.

Table A12a. Contributions to inequality in total doctor visits (total number)

12a: Total number

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		-0.0434	-0.1138	-0.0636	-0.0728	0.0286	-0.0067	-0.0170	-0.1141	-0.0734
Need		-0.0690	-0.0079	-0.0685	-0.0777	-0.0446	-0.0239	-0.0269	-0.1212	-0.0767
HI		0.0256	-0.0313	0.0049	0.0049	0.0733	0.0173	0.0099	0.0072	0.0033
Income		0.0262	0.0017	0.0044	0.0390	0.0473	0.0002	0.0086	0.0039	0.0117
Education		0.0061	-0.0023	0.0048	0.0018	-0.0073	-0.0007	0.0016	-0.0085	0.0257
Activity status		-0.0051	0.0012	-0.0092	-0.0314	0.0174	0.0102	-0.0262	-0.0162	-0.0531
Region		-0.0005	-0.0003	0.0044		0.0039	-0.0037	0.0045	0.0182	0.0125
Insurance							0.0232	0.0087		
CMU/mcard							-0.0179			
Urban					0.0003	0.0099			0.0132	

12a: Total number

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	-0.1367	-0.0304		-0.0803	-0.0477	-0.0106	-0.0863	0.0124	-0.0439		-0.0205
Need	-0.1045	-0.0345		-0.0631	-0.0573	-0.0785	-0.0746	-0.0297	-0.0357		-0.0882
HI	-0.0323	0.0041		-0.0172	0.0092	0.0679	-0.0118	0.0422	-0.0082		0.0677
Income	0.0086	0.0057		-0.0130	0.0046	0.0586	-0.0100	-0.0010	0.0112		0.0174
Education	0.0039	-0.0028		-0.0001	0.0257	0.0015	-0.0032	0.0022	0.0048		0.0226
Activity status	-0.0322	-0.0019		-0.0036	-0.0531	-0.0064	-0.0149	0.0062	-0.0099		-0.0114
Region	-0.0049	0.0040		0.0000	0.0125	0.0093	0.0171	0.0034	-0.0009		0.0037
Insurance	0.0063								-0.0131		0.0200
CMU/mcard	-0.0077										
Urban	-0.0016					-0.0005					

Table A12b. Contributions to inequality in total doctor visits (probability)

12b: Probability

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI	-0.0136	-0.0019	-0.0058	0.0044	-0.0257	0.0261	0.0045	-0.0045	-0.0347	-0.0070
Need	-0.0167	-0.0081	-0.0079	-0.0108	-0.0257	-0.0102	-0.0025	-0.0122	-0.0406	-0.0132
HI	0.0030	0.0062	0.0021	0.0151	-0.0001	0.0363	0.0070	0.0077	0.0058	0.0062
Income	-0.0025	0.0045	0.0017	0.0190	0.0026	0.0318	0.0004	0.0084	0.0110	0.0008
Education	0.0010	-0.0003	-0.0023	0.0018	0.0036	-0.0007	-0.0014	0.0038	-0.0011	0.0107
Activity status	-0.0005	0.0014	0.0012	-0.0009	-0.0048	-0.0035	0.0022	-0.0094	-0.0046	-0.0099
Region	0.0015	-0.0009	-0.0003	0.0000		0.0024	0.0005	-0.0001	-0.0014	0.0023
Insurance	0.0030						0.093	-0.0017		
CMU/mcard							-0.063			
Urban					-0.0001	0.0026			0.0015	

12b: Probability

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	-0.0199	0.0085	0.0292	-0.0029	-0.0030	0.0110	-0.0079	-0.0030	-0.0054	-0.0190	0.0233
Need	-0.0296	-0.0020	-0.0129	-0.0117	-0.0087	-0.0224	-0.0181	-0.0292	-0.0076	-0.0217	-0.0204
HI	0.0098	0.0104	0.0421	0.0089	0.0109	0.0333	0.0055	0.0263	0.0023	0.0028	0.0438
Income	0.0119	0.0027	0.0049	0.0051	0.0063	0.0231	0.0000	0.0121	0.0063	0.0033	0.0111
Education	0.0010	0.0012	0.0185	-0.0001	0.0107	0.0065	0.0005	0.0046	0.0010	0.0021	0.0108
Activity status	-0.0098	0.0021	0.0064	0.0012	-0.0099	-0.0006	-0.0042	0.0006	0.0001	-0.0051	-0.0038
Region	-0.0017	0.0033	0.0029	0.0000	0.0023	0.0021	-0.0042	0.0032	-0.0007	-0.0003	0.0002
Insurance	0.0048								-0.0035	0.0007	0.0148
CMU/mcard	0.0014										
Urban	0.0004		0.0053			0.0029					

Table A13a. Contributions to inequality in GP visits (total number)

13a: Total number

Total	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		-0.0734	-0.1439	-0.0895	-0.1037	-0.0082	-0.0275		-0.1484	-0.1007
Need		-0.0744	-0.0873	-0.0732	-0.0754	-0.0530	-0.0227		-0.1150	-0.0775
HI		0.0010	-0.0566	-0.0162	-0.0283	0.0448	-0.0047		-0.0335	-0.0236
Income		0.0137	-0.0147	-0.0161	0.0246	0.0241	-0.0031		-0.0278	0.0022
Education		-0.0003	-0.0169	0.0009	-0.0038	-0.0129	-0.0077		-0.0132	0.0120
Activity status		-0.0054	-0.0197	-0.0083	-0.0392	0.0256	0.0087		-0.0166	-0.0474
Region		-0.0014	0.0011	0.0063		0.0068	-0.0073		0.0206	0.0042
Insurance							0.0181			
CMU/mcard							-0.0185			
Urban					-0.0009	0.0025			0.0088	

13a: Total number

Total	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	-0.1615	-0.0594		-0.0977	-0.0656	-0.0745	-0.1139		-0.0625	-0.1194	
Need	-0.1012	-0.0329		-0.0594	-0.0594	-0.0828	-0.0668		-0.0382	-0.0766	
HI	-0.0606	-0.0265		-0.0383	-0.0061	0.0083	-0.0470		-0.0243	-0.0424	
Income	-0.0051	-0.0099		-0.0303	-0.0100	0.0187	-0.0245		0.0070	-0.0055	
Education	-0.0010	-0.0070		-0.0005	-0.0076	-0.0097	-0.0087		0.0023	-0.0008	
Activity status	-0.0304	-0.0018		-0.0018	0.0035	-0.0047	-0.0178		-0.0262	-0.0339	
Region	-0.0083	-0.0051			0.0020	0.0077	0.0101		0.0045	-0.0051	
Insurance	0.0023								0.0087	0.0004	
CMU/mcard	-0.0107										
Urban	-0.0013					-0.0030					

Table A13b. Contributions to inequality in GP visits (probability)

13b: Probability

Dummy	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		-0.0140	-0.0128	0.0011	-0.0307	0.0126	0.0029		-0.0664	-0.0177
Need		-0.0090	-0.0873	-0.0148	-0.0292	-0.0218	-0.0030		-0.0436	-0.0199
HI		-0.0050	-0.0039	0.0159	-0.0015	0.0344	0.0059		-0.0227	0.0020
Income		-0.0003	-0.0147	0.0133	0.0002	0.0227	0.0012		-0.0066	0.0044
Education		-0.0028	0.0045	0.0017	0.0030	-0.0037	-0.0050		-0.0081	0.0087
Activity status		0.0011	0.0065	-0.0016	-0.0032	0.0069	0.0027		-0.0069	-0.0136
Region		-0.0011	0.0026	0.0020		0.0022	-0.0010		0.0023	0.0010
Insurance							0.0120			
CMU/mcard							-0.0082			
Urban					-0.0002	0.0019			-0.0017	

13b: Probability

Dummy	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	-0.0252	0.0030		-0.0070	-0.0087	-0.0033	-0.0274		-0.0052	-0.0231	
Need	-0.0310	-0.0021		-0.0127	-0.0156	-0.0244	-0.0137		-0.0129	-0.0236	
HI	0.0058	0.0051		0.0057	0.0068	0.0210	-0.0137		0.0077	0.0006	
Income	0.0104	0.0002		0.0026	0.0029	0.0147	-0.0041		0.0133	-0.0004	
Education	-0.0001	0.0001		-0.0003	-0.0012	-0.0004	-0.0041		0.0028	0.0036	
Activity status	-0.0076	0.0025		0.0015	-0.0009	0.0006	-0.0034		0.0026	-0.0051	
Region	-0.0018	0.0014			0.0007	0.0049	0.0010		-0.0029	-0.0001	
Insurance	0.0024								-0.0034	0.0006	
CMU/mcard	0.0007										
Urban	0.0005					0.0030					

Table A14a. Contributions to inequality in specialist visits (total number)

14a: Total number

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		0.0206	-0.0313	-0.0150	0.0093	0.1096	0.0369		-0.0737	-0.0194
Need		-0.0575	-0.0693	-0.0687	-0.0838	-0.0262	-0.0263		-0.1285	-0.0752
HI		0.0781	0.0381	0.0537	0.0931	0.1358	0.0633		0.0548	0.0555
Income		0.0529	0.0292	0.0528	0.0774	0.0981	0.0072		0.0411	0.0305
Education		0.0198	0.0214	0.0157	0.0169	0.0048	0.0140		-0.0031	0.0527
Activity status		-0.0045	-0.0105	-0.0145	-0.0105	-0.0007	0.0134		-0.0157	-0.0643
Region		0.0046	-0.0010	0.0003		-0.0025	0.0038		0.0154	0.0287
Insurance							0.0337			
CMU/mcard							-0.0166			
Urban					0.0034	0.0261			0.0184	

14a: Total number

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	0.0050	0.0716		-0.0508	0.0147	0.1398	-0.0256		0.0514	-0.0623	
Need	-0.1235	-0.0403		-0.0693	-0.0481	-0.0683	-0.0917		-0.0226	-0.0792	
HI	0.1293	0.1118		0.0186	0.0628	0.2081	0.0661		0.0741	0.0171	
Income	0.0867	0.0608		0.0164	0.0556	0.1525	0.0221		0.0584	0.0322	
Education	0.0317	0.0119		0.0007	0.0145	0.0278	0.0089		0.0268	-0.0001	
Activity status	-0.0425	-0.0023		-0.0067	-0.0327	-0.0103	-0.0084		-0.0036	-0.0333	
Region	0.0146	0.0362			0.0157	0.0129	0.0327		-0.0004	0.0006	
Insurance	0.0296								-0.0029	0.0067	
CMU/mcard	0.0096										
Urban	-0.0031					0.0055					

Table A14b. Contributions to inequality in specialist visits (probability)

14b: Probability

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		0.0227	0.0175	0.0134	-0.0298	0.1053	0.0336		-0.0184	0.0136
Need		-0.0165	-0.0342	-0.0307	-0.0706	-0.0130	-0.0116		-0.0672	-0.0303
HI		0.0392	0.0517	0.0441	0.0409	0.1183	0.0454		0.0488	0.0437
Income		0.0271	0.0135	0.0427	0.0337	0.0827	0.0175		0.0456	0.0109
Education		0.0104	0.0234	0.0062	0.0154	0.0130	0.0043		0.0036	0.0332
Activity status		-0.0048	0.0038	-0.0029	-0.0099	0.0011	0.0073		-0.0059	-0.0159
Region		0.0000	-0.0025	-0.0018		0.0067	0.0047		-0.0027	0.0097
Insurance							0.0150			
CMU/mcard							-0.0126			
Urban					0.0003	0.0105			0.0050	

14b: Probability

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	0.0140	0.0712		-0.0113	0.0192	0.0858	0.0221		0.0340	-0.0381	
Need	-0.0874	-0.0160		-0.0290	-0.0359	-0.0442	-0.0387		-0.0135	-0.0492	
HI	0.1022	0.0872		0.0176	0.0551	0.1299	0.0608		0.0475	0.0112	
Income	0.0498	0.0502		0.0172	0.0302	0.0844	0.0360		0.0315	0.0153	
Education	0.0306	0.0096		0.0002	0.0141	0.0257	0.0092		0.0124	0.0050	
Activity status	-0.0291	0.0001		-0.0035	0.0036	-0.0026	-0.0043		0.0006	-0.0173	
Region	0.0012	0.0210			0.0036	0.0020	0.0136		0.0003	0.0010	
Insurance	0.0277								0.0037	0.0038	
CMU/mcard	0.0218										
Urban	0.0033					0.0110					

Table A15a. Contributions to inequality in hospital care utilisation (total number)

15a: Total number

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		-0.0971	-0.2215	-0.2563	-0.2046	-0.1704	-0.0193	-0.0587	-0.2303	-0.1596
Need		-0.1377	-0.1740	-0.1784	-0.1121	-0.1231	-0.0541	-0.0297	-0.2331	-0.1081
HI		0.0406	-0.0475	-0.0779	-0.0925	-0.0473	0.0348	-0.0290	0.0028	-0.0518
Income		0.0297	0.0709	-0.0341	0.0328	-0.0165	0.0697	0.0348	-0.0048	-0.0084
Education		0.0209	-0.0467	0.0024	0.0321	-0.0043	-0.0196	-0.0225	-0.0018	0.0215
Activity status		-0.0129	-0.0654	-0.0326	-0.1878	-0.0097	-0.0212	-0.0455	-0.0009	-0.0977
Region		-0.0084	0.0047	-0.0107		0.0182	-0.0094	-0.0059	0.0118	0.0239
Insurance							-0.0195	-0.0078		
CMU/mcard							0.0262			
Urban					0.0018	-0.0011			0.0131	

15a: Total number

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	-0.2606	-0.0362	0.0359	-0.1577		-0.1923	-0.1680	-0.1224	-0.1277	-0.1813	-0.2519
Need	-0.2278	-0.0687	-0.0417	-0.1175		-0.1967	-0.1932	-0.1168	-0.0647	-0.1937	-0.2347
HI	-0.0330	0.0326	0.0776	-0.0401		0.0044	0.0252	-0.0056	-0.0630	0.0133	-0.0172
Income	0.0486	-0.0003	0.0277	-0.0368		-0.0403	-0.0403	-0.0062	0.0305	0.0338	-0.0541
Education	-0.0096	-0.0109	0.0076	-0.0008		0.0000	-0.0003	-0.0199	0.0005	0.0019	0.0127
Activity status	-0.0941	-0.0138	-0.0105	-0.0235		0.0053	-0.0099	0.0254	-0.0524	-0.0221	-0.0330
Region	0.0008	0.0659	0.0025			0.0154	0.0449	-0.0305	-0.0081	-0.0046	-0.0005
Insurance	0.0305								-0.0150	-0.0033	0.0514
CMU/mcard	0.0018										
Urban	-0.0149		0.0455			0.0125					

Table A15b. Contributions to inequality in hospital care utilisation (probability)

15b: Probability

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI	-0.1130	-0.0552	-0.1414	-0.1502	-0.0805	-0.0528	-0.0372	-0.0639	-0.1374	-0.0469
Need	-0.0644	-0.0740	-0.1070	-0.0997	-0.0695	-0.0373	-0.0370	-0.0307	-0.1768	-0.0727
HI	-0.0486	0.0188	-0.0343	-0.0506	-0.0110	-0.0156	-0.0001	-0.0332	0.0395	0.0255
Income	-0.0027	0.0272	-0.0124	-0.0216	0.0344	0.0212	-0.0228	-0.0108	0.0383	0.0379
Education	0.0047	0.0113	-0.0025	0.0034	-0.0026	0.0132	-0.0034	-0.0057	0.0087	0.0251
Activity status	-0.0675	-0.0183	-0.0170	-0.0233	-0.0556	-0.0338	0.0081	-0.0298	-0.0024	-0.0480
Region	-0.0060	-0.0023	0.0023	-0.0076		-0.0080	-0.0023	-0.0019	-0.0131	0.0095
Insurance	0.0252						0.0056	0.0067		
CMU/mcard							0.0037			
Urban					0.0036	0.0016			-0.0031	

15b: Probability

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	-0.0805	-0.0235	0.0391	-0.0854		-0.0164	-0.0757	-0.0454	-0.0928	-0.0933	-0.1674
Need	-0.1329	-0.0519	-0.0131	-0.0642		-0.1296	-0.1088	-0.0803	-0.0282	-0.1061	-0.1291
HI	0.0530	0.0284	0.0522	-0.0212		0.1133	0.0331	0.0350	-0.0646	0.0133	-0.0383
Income	0.0301	0.0055	0.0139	-0.0109		0.0538	0.0164	0.0043	-0.0342	0.0229	-0.0182
Education	0.0174	-0.0112	0.0111	-0.0003		0.0077	-0.0012	-0.0039	0.0074	0.0008	0.0078
Activity status	-0.0263	0.0017	-0.0154	-0.0074		0.0021	-0.0001	0.0156	-0.0189	-0.0149	-0.0127
Region	0.0440	0.0440	0.0116			0.0211	0.0170	-0.0076	0.0003	-0.0056	-0.0054
Insurance	0.0409								-0.0058	0.0075	-0.0053
CMU/mcard	0.0006		0.0317								
Urban	-0.0011					0.0092					

Table A16a. Contributions to inequality in dentist visits (total number)

16a: Total number

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		0.0793	0.0480	0.1314	0.0719	0.1209	0.0750		0.1044	0.1391
Need		0.0159	0.0153	0.0057	0.0226	0.0183	0.0129		0.0089	0.0168
HI		0.0634	0.0302	0.1256	0.0492	0.1025	0.0621		0.0955	0.1222
Income		0.0412	0.0262	0.1083	0.0346	0.0613	0.0473		0.0299	0.0637
Male		-0.0048	-0.0017	-0.0044	-0.0021	-0.0040	-0.0014		-0.0025	0.0139
Education		0.0123	0.0246	0.0081	0.0059	0.0269	0.0025		0.0467	0.0445
Activity status		0.0067	0.0120	0.0041	0.0051	0.0022	0.0029		0.0074	0.0004
Region		0.0003	0.0009	0.0093	0.0000	0.0064	0.0072		0.0199	0.0130
Insurance							0.0224			
CMU/mcard							-0.0181			
Urban					-0.0001	0.0029			-0.0086	

16a Total number

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	0.1608	0.1075		0.0443		0.2156	0.1494		0.0591		0.1812
Need	0.0312	0.0023		0.0020		0.0194	0.0127		-0.0006		0.0079
HI	0.1300	0.1052		0.0423		0.1962	0.1368		0.0622		0.1733
Income	0.0977	0.0455		0.0297		0.1198	0.0844		0.0459		0.0553
Male	-0.0038	-0.0034		-0.0034		-0.0018	-0.0066		-0.0025		-0.0043
Education	0.0292	0.0143		-0.0001		0.0494	0.0227		0.0116		0.0609
Activity status	-0.0023	0.0105		0.0034		0.0047	-0.0038		-0.0015		-0.0024
Region	0.0057	0.0384				0.0087	0.0104		0.0029		0.0047
Insurance	0.0249										
CMU/mcard	-0.0089										
Urban	-0.0104					0.0076					

Table A16b. Contributions to inequality in dentist visits (probability)

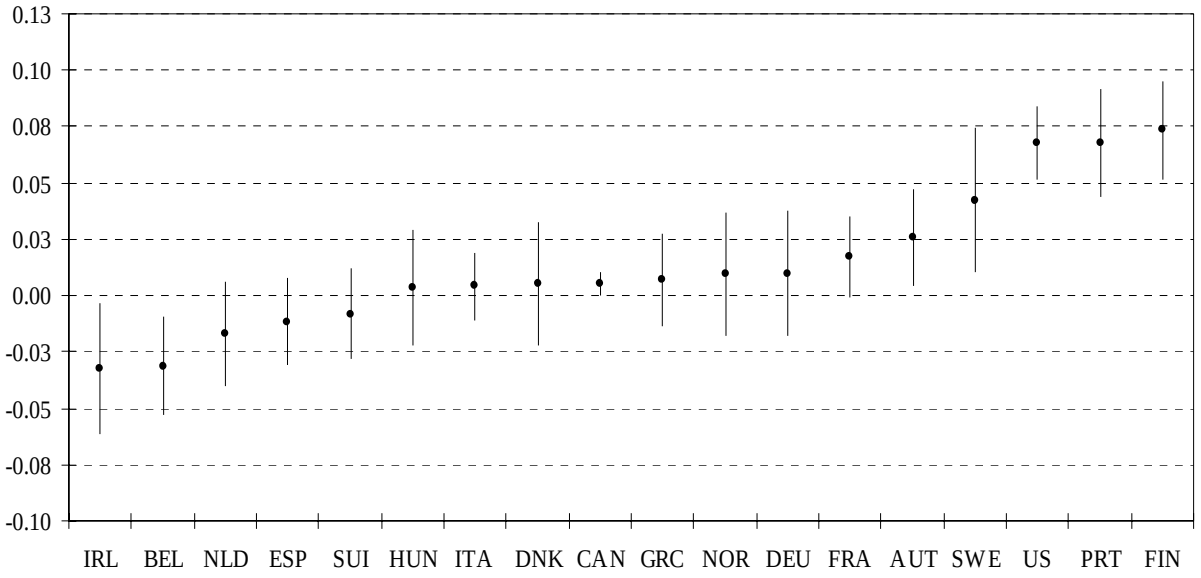
16b: Probability

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI	0.0874	0.0645	0.0835	0.1188	0.0630	0.1270	0.0655		0.1177	0.1420
Need	0.0085	0.0149	0.0011	0.0061	0.0168	0.0135	0.0129		0.0179	0.0239
HI	0.0780	0.0496	0.0682	0.1127	0.0462	0.1136	0.0526		0.0998	0.1181
Income	0.0367	0.0293	-0.0105	0.0929	0.0236	0.0688	0.0077		0.0372	0.0542
Male	-0.0028	-0.0027	-0.0009	-0.0033	-0.0014	-0.0037	-0.0007		-0.0016	0.0225
Education	0.0155	0.0138	-0.0064	0.0129	0.0100	0.0164	0.0012		0.0462	0.0442
Activity status	-0.0141	0.0040	-0.0152	0.0041	0.0085	0.0130	0.0016		0.0067	0.0024
Region	0.0039	0.0002	-0.0006	0.0062		0.0034	0.0006		0.0029	0.0108
Insurance	0.0365						0.0038			
CMU/mcard							-0.0026			
Urban					0.0005	0.0039			0.0023	

16b: Probability

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	SUI	UK	US
CI	0.1629	0.1209		0.0326		0.2158	0.1518	0.0544	0.0547	0.0797	0.1670
Need	0.0235	0.0028		-0.0016		0.0154	0.0083	0.0264	-0.0006	0.0180	0.0074
HI	0.1398	0.1181		0.0342		0.2005	0.1434	0.0280	0.0564	0.0629	0.1597
Income	0.0824	0.0617		0.0270		0.1099	0.0671	0.0033	0.0459	0.0401	0.0529
Male	-0.0021	-0.0017		-0.0015		-0.0017	-0.0048	-0.0009	-0.0025	-0.0034	-0.0039
Education	0.0385	0.0167		0.0005		0.0515	0.0433	0.0060	0.0116	0.0192	0.0556
Activity status	-0.0034	0.0051		0.0025		0.0072	0.0049	-0.0089	-0.0015	-0.0011	-0.0006
Region	0.0054	0.0265				0.0046	0.0144	0.0020	0.0029	0.0003	0.0033
Insurance	0.0154									0.0078	
CMU/mcard	-0.0006										
Urban	0.0013					0.0169					

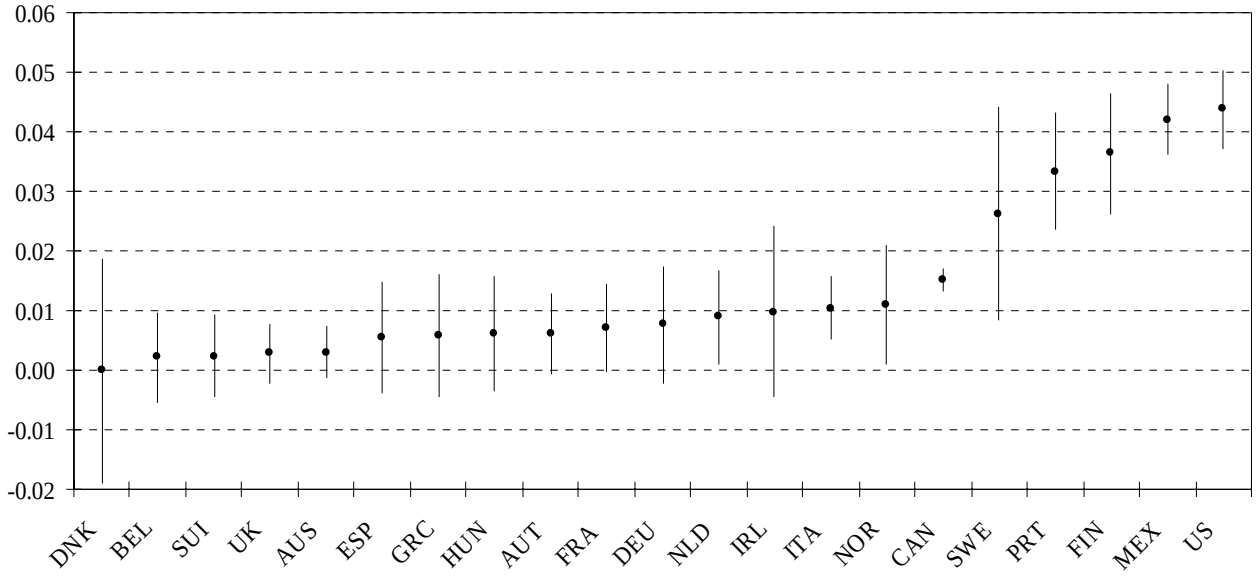
Figure 1. HI indices for number of doctor visits, by country



Source: Van Doorslaer *et al.* for OECD.

Figure 2. HI indices for probability of a doctor visit, by country

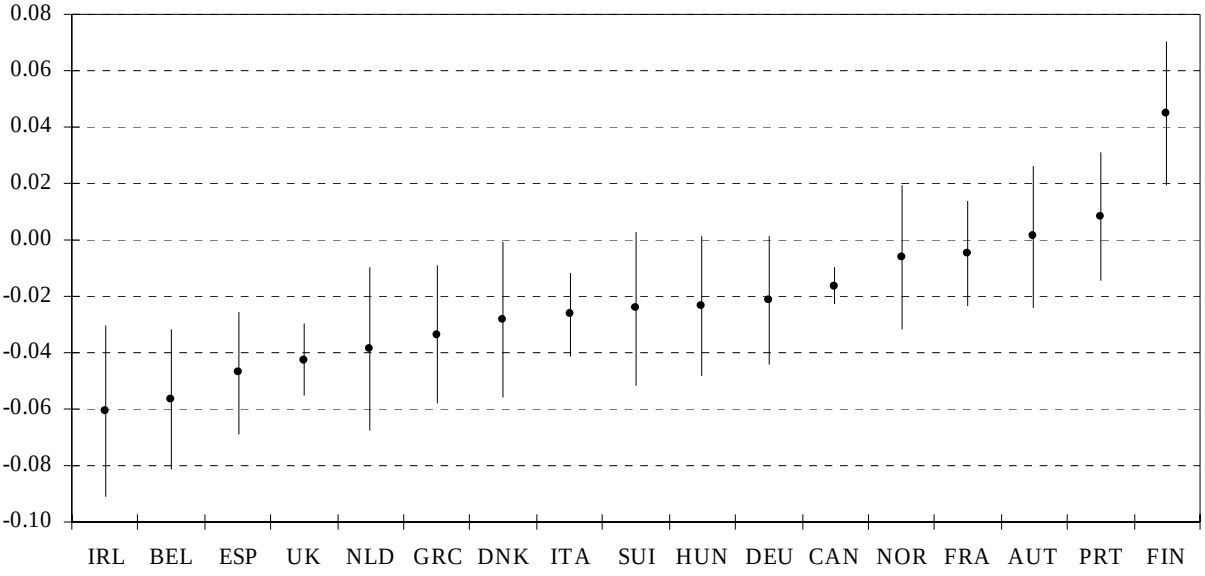
(with 95% confidence interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 3. HI indices for number of GP visits, by country

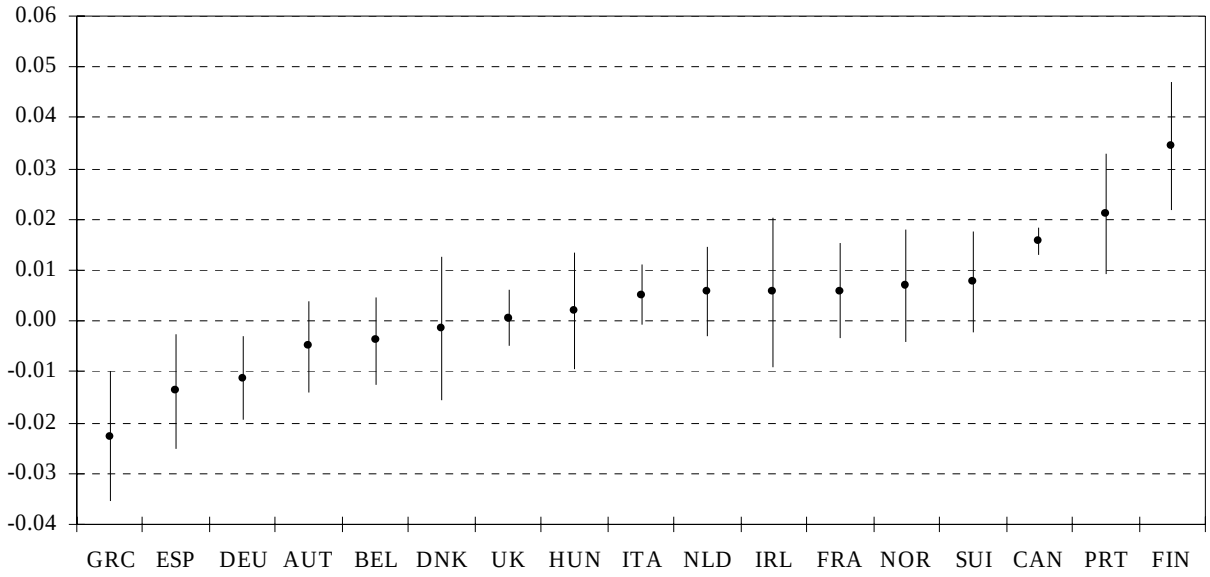
(with 95% confidence. interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 4. HI indices for probability of a GP visit, by country

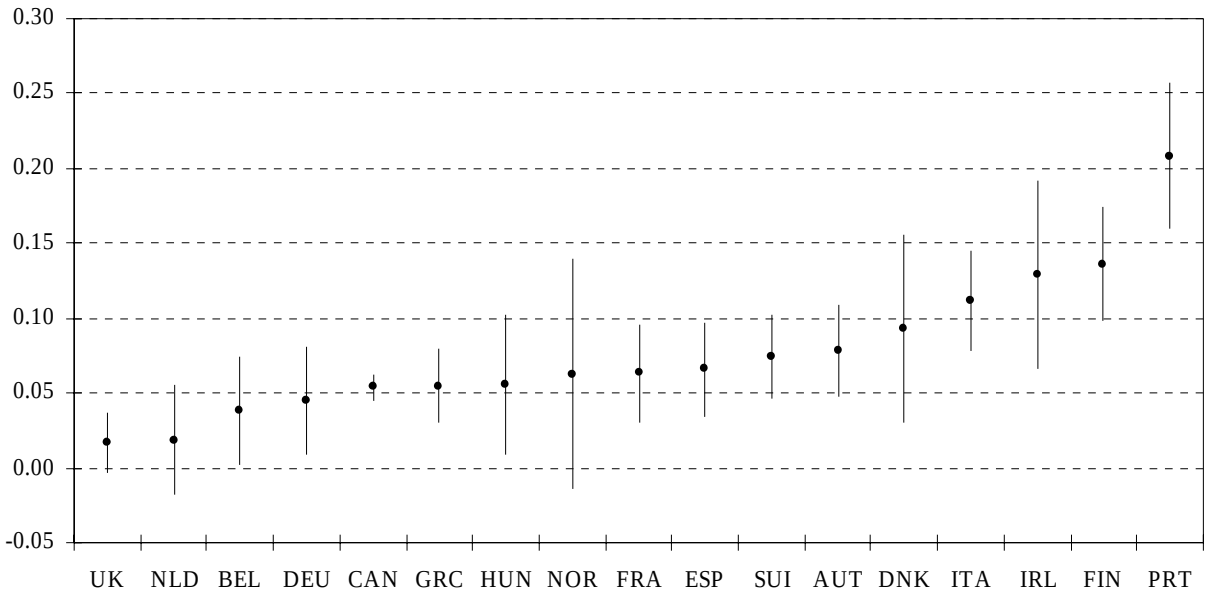
(with 95% confidence interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 5. HI indices for number of specialist visits, by country

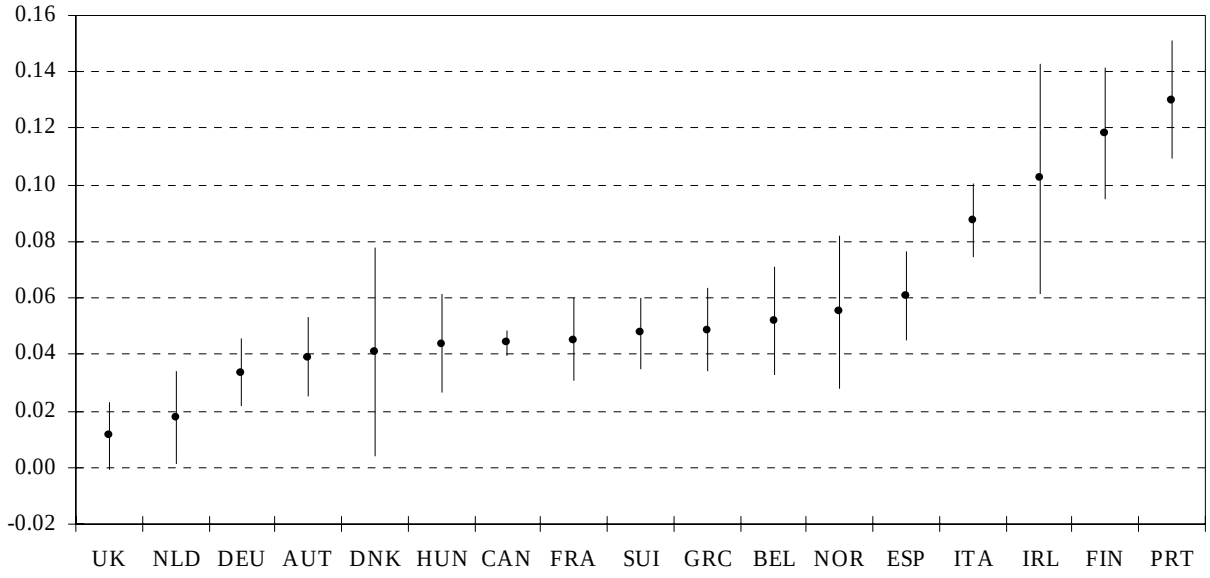
(with 95% confidence interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 6. HI indices for probability of a specialist visit, by country

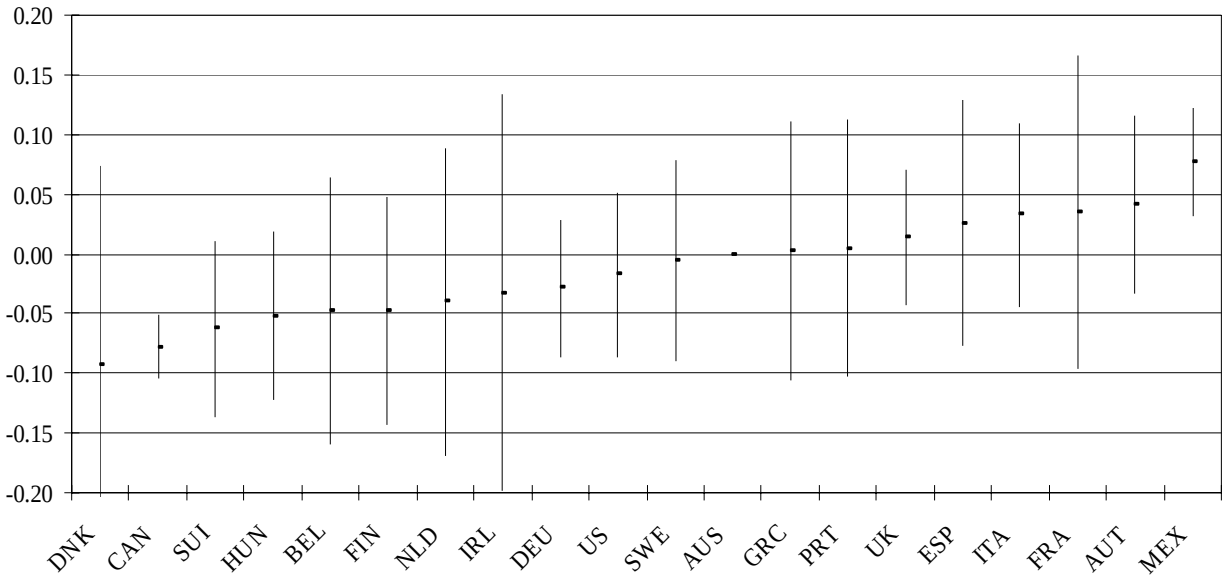
(with 95% confidence interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 7. HI indices for number of hospital nights, by country

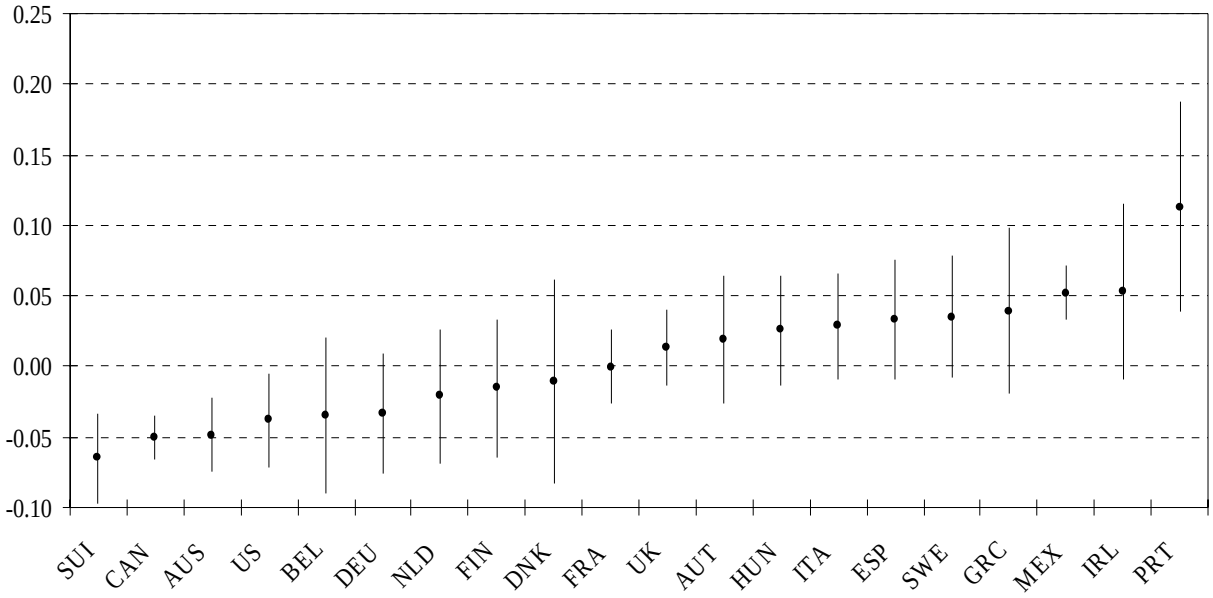
(with 95% confidence interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 8. HI indices for probability of a hospital admission, by country

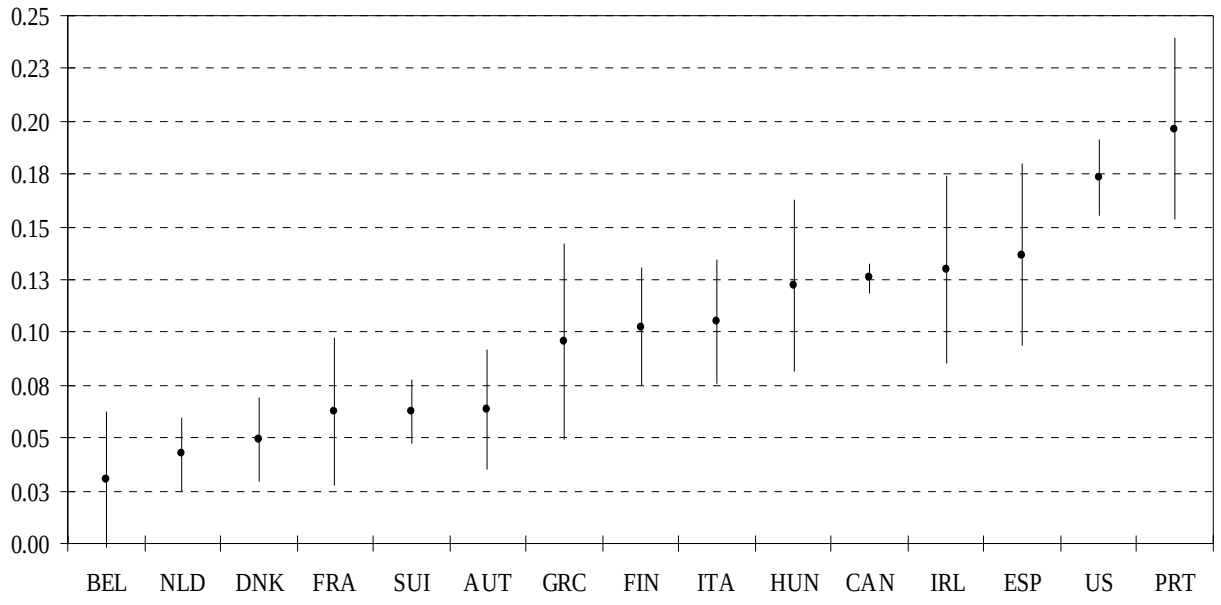
(with 95% confidence interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 9. HI indices for number of dentist visits, by country

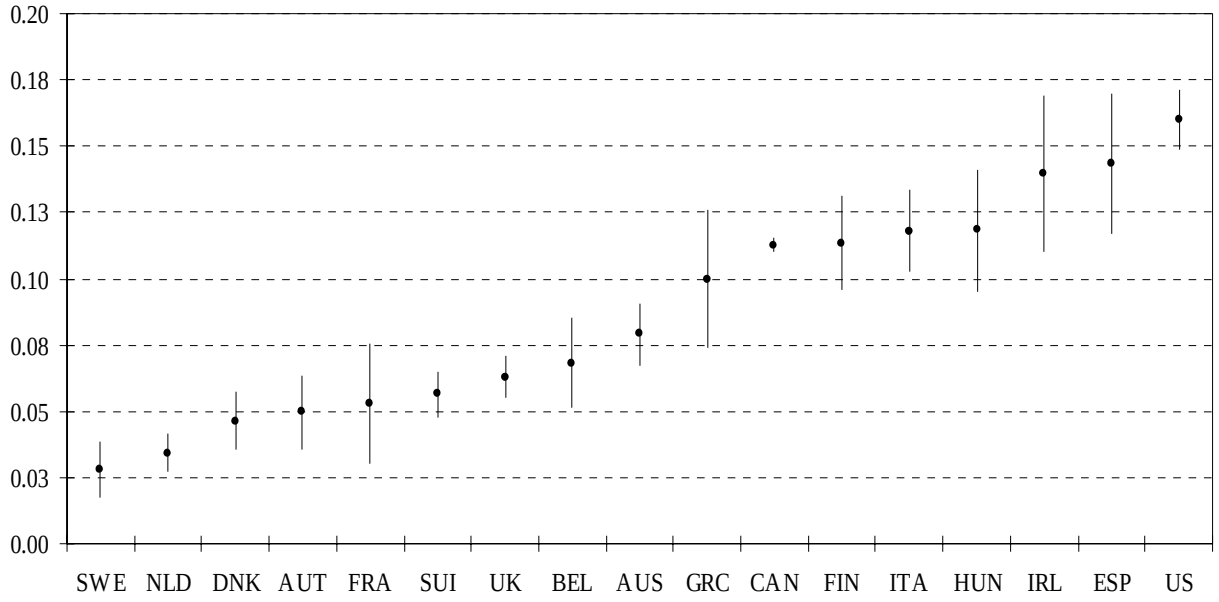
(with 95% confidence interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 10. HI indices for probability of a dentist visit, by country

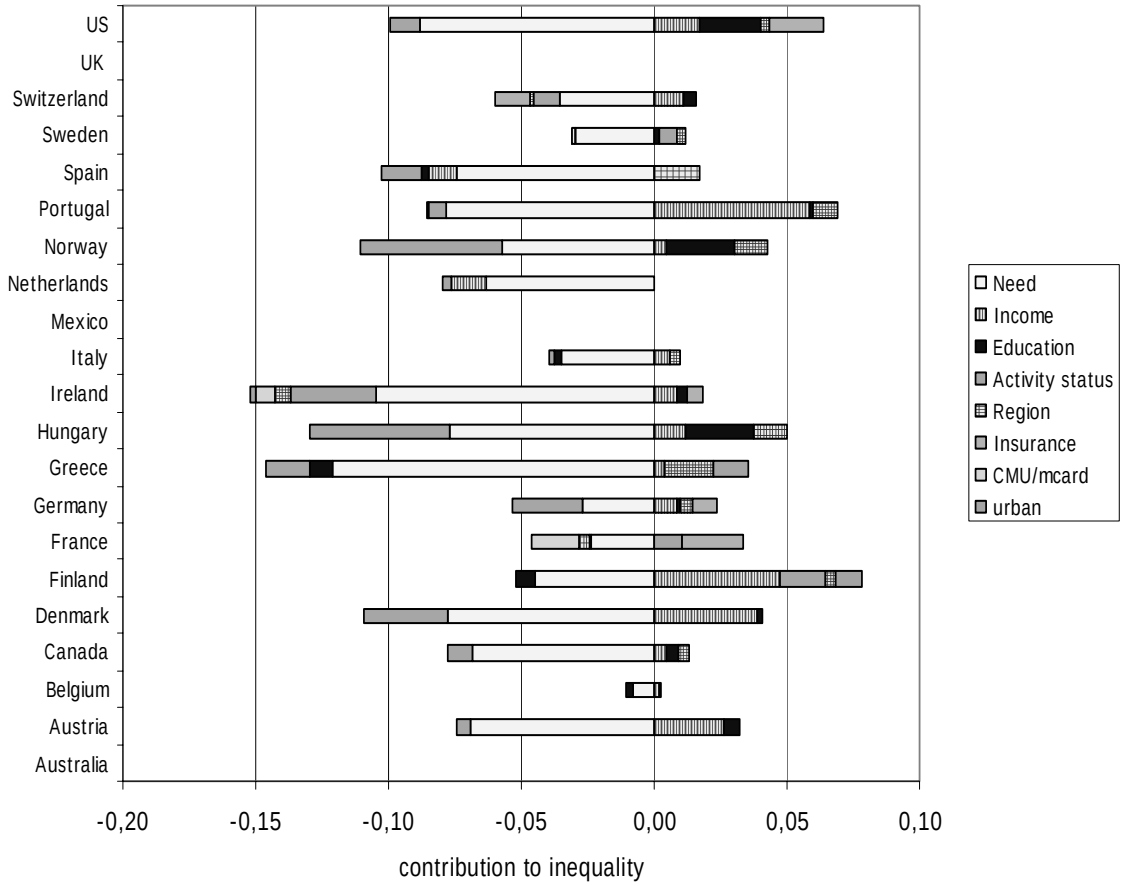
(with 95% confidence interval)



Source: Van Doorslaer *et al.* for OECD.

Figure 11. Decomposition of inequality in total number of doctor visits

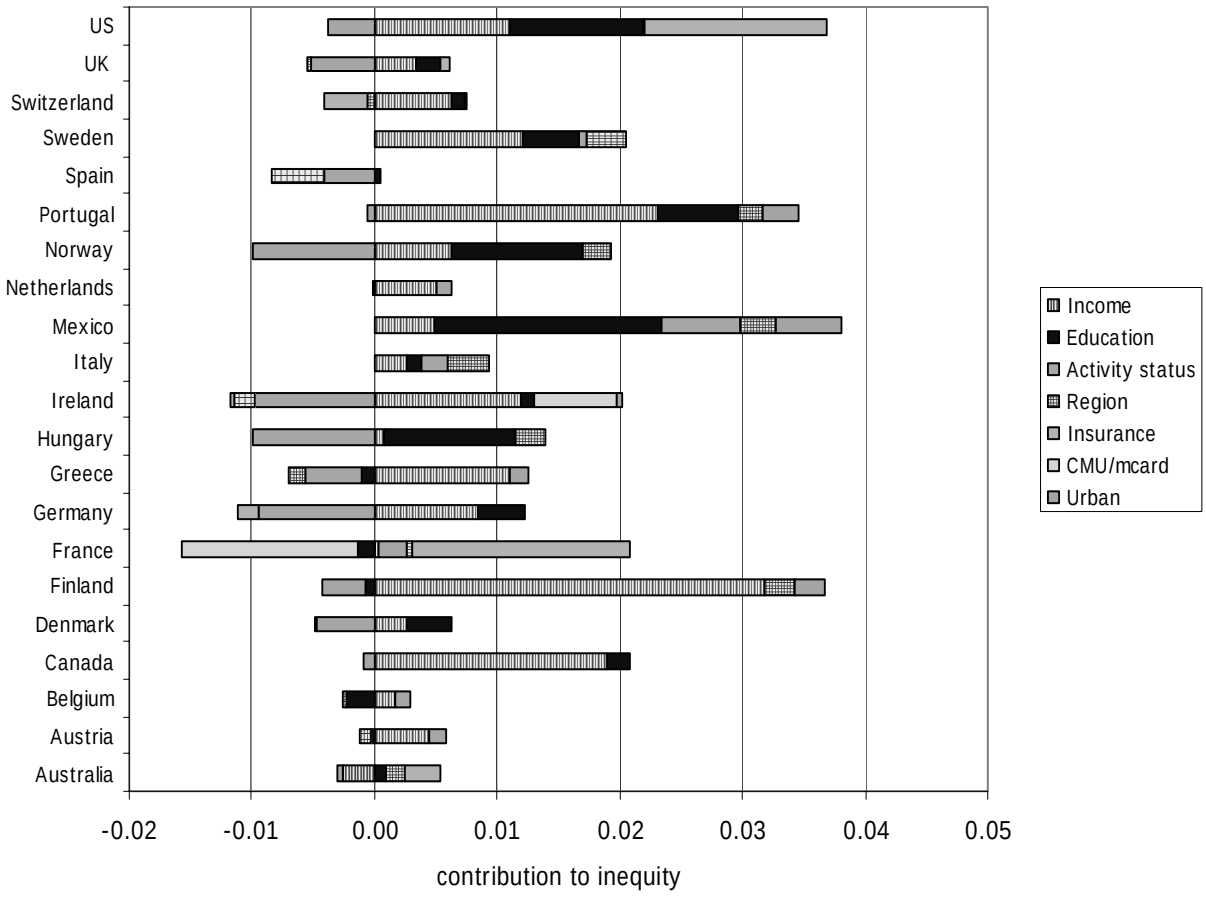
(*i.e*. including need contributions)



Source: Van Doorslaer *et al.* for OECD.

Figure 12. Decomposition of inequity in probability of any doctor visit

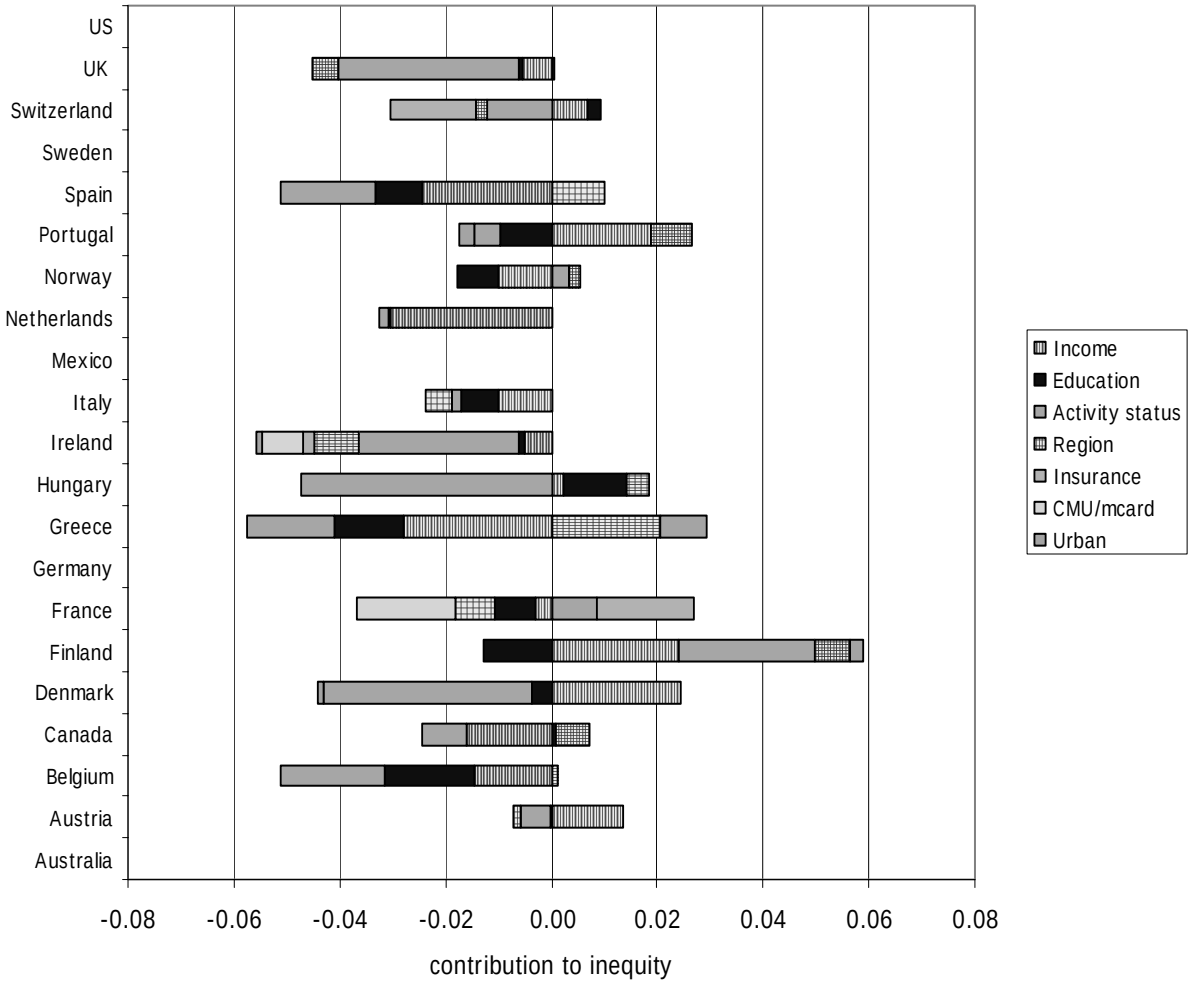
(*i.e.* excluding need contributions)



Source: Van Doorslaer *et al.* for OECD.

Figure 13. Decomposition of inequity in number of GP visits

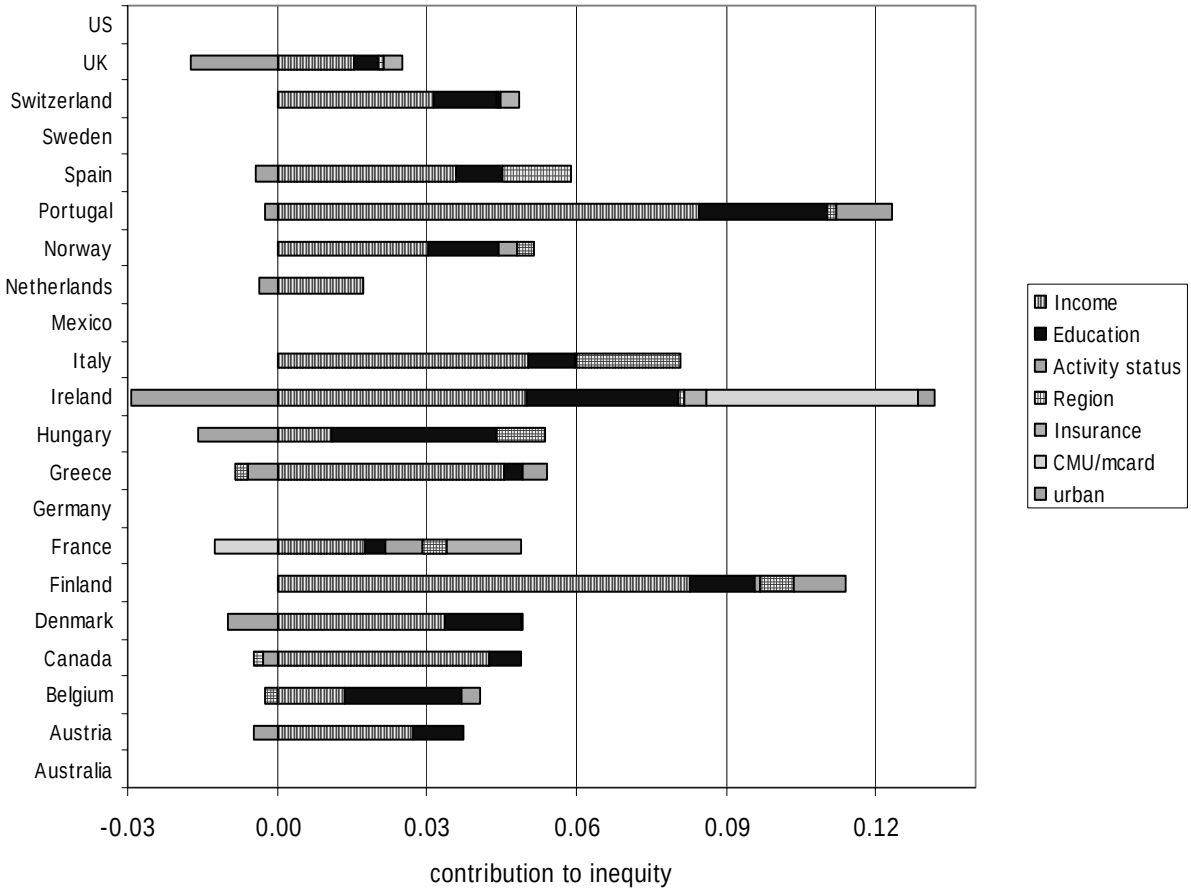
(*i.e.* excluding need contributions)



Source: Van Doorslaer *et al.* for OECD.

Figure 14. Decomposition of inequity in probability of specialist visit

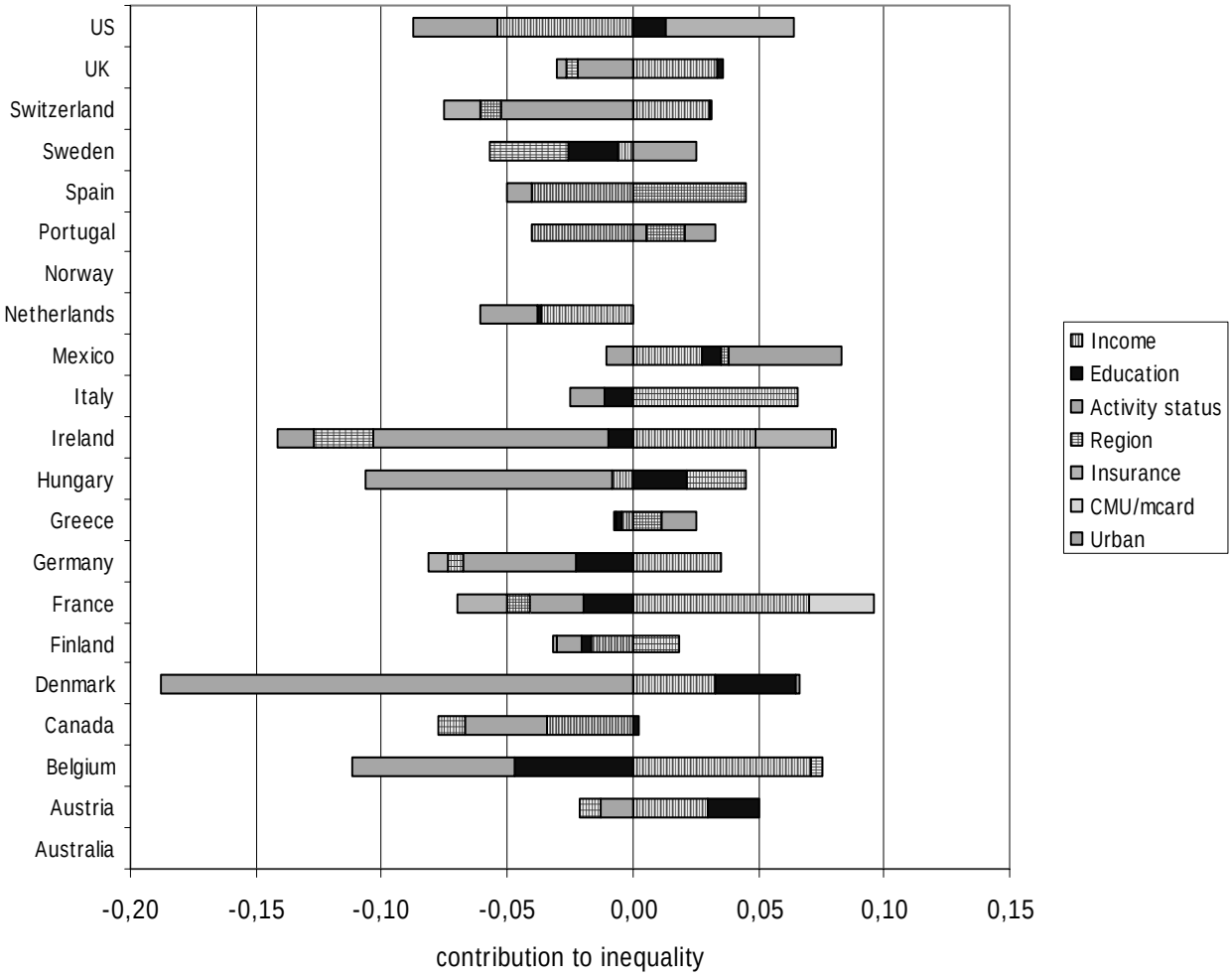
(*i.e.* excluding need contributions)



Source: Van Doorslaer *et al.* for OECD.

Figure 15. Decomposition of inequity in number of hospital nights

(*i.e.* excluding need contributions)



Source: Van Doorslaer *et al.* for OECD.

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