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Income-Related Inequalities in Health Service Utilisation in 19 OECD Countries, 2008-2009

Marion Devaux,

Michael de Looper

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INCOME-RELATED INEQUALITIES IN HEALTH SERVICE UTILISATION IN 19 OECD COUNTRIES, 2008-09

Marion Devaux and Michael de Looper

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ABSTRACT

4. This Working Paper examines income-related inequalities in health care service utilisation in OECD countries. It extends a previous analysis (Van Doorslaer and Masseria, 2004) to 2008-2009 for 13 countries, and adds new results for 6 countries, for doctor and dentist visits, and cancer screening. Quintile distributions and concentration indices were used to assess inequalities. For doctor visits, *horizontal equity* was assessed, i.e. the extent to which adults in equal need of physician care appear to have equal rates of utilisation. The paper considers the evolution of inequalities over time by comparing results with the previous study, as data permit. Health system financing arrangements are examined to see how these might affect inequalities in health service use.

5. Findings show that, for doctor visits, horizontal inequities in health care utilisation persist across OECD countries. After adjustment for needs for health care, the better-off are more likely to visit doctors, especially specialists. With GP contacts, the scenario is different. In most countries, for the same level of need for health care, the worse-off are as likely as the better-off to contact a GP, and they visit more often. Inequalities in dental visits and breast and cervical cancer screening appear in numerous countries, with the better-off making more use of services. The relative position of countries has remained stable for doctor and GP visits over the two studies. Some discrepancies are found in country ranks for specialist and dentist visits, but these are attributed to methodological differences.

6. Findings highlight the important effect that the financing of health care services can have on equity (public and private health insurance coverage, and the share of out-of-pocket payments for different services), although some of the inequalities in health service use cannot be explained by financial barriers.

RESUME

7. Ce document de travail examine les inégalités liées aux revenus dans l'utilisation des services de santé dans les pays de l'OCDE. Il met à jour une étude précédente (Van Doorslaer and Masseria, 2004) pour 13 pays, et inclut 6 nouveaux pays, utilisant des données de 2008-2009, portant sur les consultations de médecins et dentistes, et le dépistage du cancer. Les inégalités sont mesurées à l'aide de distributions par quintile et d'indices de concentration. Cette étude s'intéresse à l'*équité horizontale* pour les consultations de médecins, i.e. dans quelle mesure des adultes ayant un besoin égal de soins médicaux ont apparemment des taux identiques d'utilisation de soins. Elle examine l'évolution des inégalités en comparant les résultats avec l'étude précédente lorsque les données le permettent. Le cadre d'analyse s'intéresse aux caractéristiques de financement des systèmes de santé et à leurs possibles influences sur les inégalités d'utilisation des services de santé.

8. Les résultats montrent que pour les consultations de médecins, les iniquités horizontales dans l'utilisation des soins de santé persistent dans les pays de l'OCDE. Après ajustement par les besoins en soins de santé, les personnes à hauts revenus ont plus de chances de consulter un médecin et notamment un spécialiste. Le scénario est différent pour les visites de généralistes. Dans la plupart des pays, pour un même niveau de besoins de soins de santé, les plus démunis ont autant de chances que les riches de consulter un généraliste, et ils consultent plus fréquemment. Des inégalités dans les consultations de dentistes et le dépistage des cancers du sein et du col de l'utérus sont apparentes dans plusieurs pays, favorisant les personnes à hauts revenus. La comparaison avec l'étude précédente montre que la position relative des pays est restée stable pour les consultations de docteurs et de généralistes. On trouve des différences dans la position des pays pour les consultations de spécialistes et dentistes, notamment dues à aux différences de méthodologies d'enquêtes et de questions.

9. Les résultats soulignent l'importance des effets du financement des services des soins de santé sur l'équité (assurance santé publique et privée, et part des paiements directs à la charge des patients pour divers services), bien que certaines des inégalités dans l'utilisation des services de santé ne puissent pas être expliquées par des barrières financières.

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1. INTRODUCTION

10. The economic crisis has led to increased concerns about access to health care. Several OECD countries have introduced cuts or slow-downs in public health spending, and to contain costs, increased co-payments or adjustments to the goods and services available through health care coverage have been made. The October 2011 WHO-sponsored World Conference on Social Determinants of Health, however, saw heads of government renew their determination to achieve health equity, through promotion of accessibility and affordability through universal health care coverage, and health financing that prevents impoverishment (WHO, 2012).

11. Effective health care coverage provides financial security against expenses due to unexpected or serious illness, and promotes access to medical goods and services. Most OECD countries have achieved universal or near-universal coverage of their populations for a core set of health care services. Access to physician services is ensured at relatively low or no cost for patients. Other services such as dental care and pharmaceutical drugs are often partially covered, although there are a number of countries where coverage for these services must be purchased separately (OECD, 2011a). Preventive screening services for certain cancers such as breast and cervical cancer are generally also available at little or no cost.

12. This coverage results from a variety of public insurance arrangements which aim at providing equitable access to care. Equity of access is a key element of health system performance in OECD countries (Hurst and Jee-Hughes, 2001; Kelley and Hurst, 2006). Determining the extent to which OECD countries have achieved the goal of providing equal access for equal need – or equal utilisation, as an indicator of access –regardless of individual characteristics such as income, place of residence, occupation or educational level, has been a focus of previous cross-country comparative work (Van Doorslaer *et al.*, 2002; Van Doorslaer and Masseria, 2004). This previous work, as well as the current paper, focuses on equity of access as stated in the principle of horizontal equity, i.e. that people in equal need of health care should be treated equally, and tests whether there are any deviations from this principle, based on the income level of the family in which the individual lives.

13. There is already a substantial body of evidence that inequities exist in the use of certain health care services in many countries. Analysing national health interview surveys, Van Doorslaer and Masseria (2004) established that, based on individual's need for care, deviations from the principle of horizontal inequity existed in a number of OECD countries around the year 2000, with the better-off more likely to see a medical specialist, and often visiting these specialists more frequently. Dental care was also used more intensively by the better-off. Other studies using European data also find inequities in health care use. Or *et al.*, (2008), also using data from around the year 2000, found education-related inequities for specialist visits in almost all countries studied, whereas the picture was less clear-cut for general practitioner (GP) visits. Research on European panel data found pro-poor inequity in GP visits in most EU countries (7 out of 10 countries studied) and pro-rich inequity in specialists in all countries studied (Bago d'Uva *et al.*, 2008).

14. This paper seeks to update and extend these findings, using the same methodology as earlier work by Van Doorslaer and colleagues. It analyses inequities in access to health care through measuring the utilisation of health care services by income level, adjusted for need. This paper extends the analysis to

new countries and examines the evolution of inequities over time by comparing results with previous findings as data permit.

15. The set of countries studied represents a relatively wide geographical spread, as well as a varied selection of health care systems. The current study covers 19 OECD countries: Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, New Zealand, Poland, Slovak Republic, Slovenia, Spain, Switzerland, the United Kingdom and the United States. Results for 13 countries are updated to 2008-2009 or the nearest available year, and new results are added for six countries (Czech Republic, Estonia, New Zealand, Poland, Slovak Republic and Slovenia).

16. The analysis also broadens the selection of health care services covered in previous studies, by examining whether differences exist in preventive screening for female breast and cervical cancers.

17. A second objective of the paper is to analyse any findings of inequities in health care use by using selected characteristics of health systems, and to investigate whether these inequities might result from the ways in which health care services are financed. To do this, a number of other data collections are utilised, including the *OECD Health Data* database, and the 2008 OECD Survey of Health System Characteristics (Paris *et al*., 2010).

2. DEFINING, MEASURING AND INTERPRETING HORIZONTAL INEQUITY

18. All OECD countries aspire to achieve adequate access to health care for all people on the basis of need. Many countries explicitly endorse equality of access to health care for all people as an objective in their policy documents (Hurst and Jee-Hughes, 2001; Huber *et al*., 2008). Most OECD countries offer options to add to the general public coverage of health costs through complementary or supplementary private coverage, as is often the case for dental health care, with this additional cover being the sole source for sizeable shares of the care package.

19. Studies of health care equity examine whether certain population groups systematically receive different levels of care. Inequality and inequity of care are two key concepts. Here, *inequality* in health care utilisation refers to the differences in use that can be observed between individuals or population groups, whereas *inequity* refers to those differences remaining after adjustment for need for health care. In this study, adjustment for need has been made for doctor visits only, with equal need assumed for dental visits and cancer screening.

20. *Horizontal equity* is the principle that requires that people in equal need of health care are treated equally, irrespective of individual characteristics such as income, place of residence or race. A second principle, vertical equity, means appropriately treating those people who have differing needs for care. It is this first principle of horizontal equity that the present study uses as a basis for international comparisons.

21. The method used in this paper to describe and measure the degree of horizontal inequity in health care delivery is identical to that used in Van Doorslaer *et al.* (2002), and Van Doorslaer and Masseria (2004). It compares the observed distribution of health care by income with the distribution of need. To statistically equalize needs for the groups or individuals to be compared, this study uses the average relationship between need and treatment for the population as a whole as the vertical equity "norm" and investigates the extent of systematic deviations from this norm by income level.

22. The *inequality* measure adopted in this paper is the concentration index (CI). The CI quantifies the degree of socioeconomic-related inequality of actual medical care use, taking full advantage of the information on all individuals. Unlike studies which only examine lowest and highest quintiles, the CI reflects the experiences of the entire population, and it is sensitive to changes in distribution of the population across socioeconomic groups (Wagstaff *et al.*, 1991). The CI is bounded between -1 and 1, with the sign indicating the direction of inequality - a positive index indicates pro-rich inequality (i.e. a distribution that favours the rich), a zero value indicates equality, and a negative index indicates pro-poor inequality (i.e. that favours the poor).

23. The degree of *horizontal inequity* is measured by the concentration index of the needs-standardised use, and this is here termed the horizontal inequity index, or HI. When the HI is not significantly different from zero, it indicates equity. When it is positive, it indicates pro-rich inequity, and when it is negative, it indicates pro-poor inequity. Horizontal inequity indexes were calculated for doctor visits only.

24. Interpreting values of the HI is not intuitive. Koolman and van Doorslaer (2004) have shown that multiplying the value of the HI by 75 gives the proportion of the health variable that would need to be (linearly) redistributed from the richer half to the poorer half of the population (assuming that health

inequity favours the rich) to arrive at equity, i.e. a distribution with an index value of zero. For example, if pro-rich inequity in doctor visits existed with a HI = 0.05, equalizing doctor visits across the income distribution requires redistributing 3.75% of all visits made by richer people, increasing visits by poorer people by the same amount.

3. METHODS

3.1 Surveys used

25. Data on health care use were taken from national health interview surveys (see Table 1). For most European countries, these came from questions proposed in the European Health Interview Survey (EHIS), which was implemented across countries between 2006 and 2009. EHIS consists of four modules of questions on health status, health care use, health determinants, and background variables. These modules may be implemented at a national level either as one specific survey or as elements of existing surveys (i.e. national health interview surveys or other household surveys). Eight countries have adopted the same question modules on health care use (Austria, Belgium, Czech Republic, Estonia, Hungary, Poland, Slovak Republic and Slovenia, called hereafter the EHIS countries).

26. For non-EHIS countries, results from the most recent national health surveys gathering information on health care visits and socio-economic characteristics were used, as listed in Table 1. A detailed list of available information in each survey can be consulted in Annex 1.

Table 1. Data sources

Country	Survey data
Austria	Österreichische Gesundheitsbefragung 2006/07 (EHIS 2006/07)
Belgium	Belgium Health Survey 2008 (EHIS 2008)
Canada	Canadian Community Health Survey 2007/08
Czech Republic	European Health Interview Survey in the Czech Republic 2008 (EHIS 2008)
Denmark	National Health Interview Survey 2005
Estonia	Estonian Health Interview Survey 2006/07 (EHIS 2006/07)
Finland	Welfare and services Survey (HYPA -survey) 2009
France	Enquête Santé Protection Sociale 2008
Germany	German Telephone Health Interview Survey (GEDA) 2009
Hungary	European Health Interview Survey 2009 (EHIS 2009)
Ireland	Survey of Lifestyle, Attitudes and Nutrition in Ireland (SLAN 2007)
New Zealand	National Health Survey 2006-07
Poland	Europejskie Ankietowe Badanie Zdrowia 2009 (EHIS 2009)
Slovak Republic	Európsky prieskum zdravia 2009 (EHIS 2009)
Slovenia	Anketa o zdravju in zdravstvenem varstvu 2007 (EHIS 2007)
Spain	Encuesta Europea de Salud 2009
Switzerland	Swiss Health Survey 2007
United Kingdom	British Household Panel Survey 2009
United States	Medical Expenditure Panel Survey 2008

3.2 Estimating health care utilisation

27. Three types of health care services were measured, these being the utilisation of (i) physicians (and in most countries further information on separate GP and specialist utilisation are also available); (ii) dentists; and (iii) breast and cervical cancer screening services for women.

28. Both the probability and the frequency of services were measured using sampling weights. Typically, a first survey question measures the probability of a visit, and is of the form: "In the past 12 months have you visited a GP?". A second question measures the frequency of visits in the past 12 months.

29. Denmark is an exception since doctor visits were recorded over the past 3 months. Dentist consultations were measured over the past 12 months with the exception of France (past 2 years) and Denmark (past 3 months). For the number of visits to doctors and dentists, the recall period was also generally the past 12 months. However, in EHIS countries, individuals were asked how many visits they had made in the past 4 weeks[1]. This difference in time scales does not allow for cross-country comparison of the frequency of visits, but inequalities in the probability of a visit can be still measured.

30. Some caution is needed in comparing the magnitude of inequalities across countries and over time because of these discrepancies in recall periods. Based on previous findings, it is likely that the probability of the well-off seeing a GP in the past three months is lower than the probability that the worse-off had seen a GP, since the worse-off visit GPs more often. Thus, measuring inequities in visits over the past 3 months in Denmark would likely over-estimate pro-poor inequities.

31. National guidelines relating to cancer screening may also differ across countries (OECD, 2011b), affecting the inclusion age and frequency. To perform international comparisons, the same age range and frequency was adopted as that used for the *OECD Health Data* collection. For breast cancer screening, the focus was on women aged 50-69 years who reported having a mammogram in the past 2 years, and for cervical cancer screening, women aged 20-69 years who had a Pap smear in the past 3 years. However, the recall period refers to the past 12 months in Denmark (for breast cancer screening) and in Ireland (for both indicators).

32. Free nationwide population-based screening mammography programmes operate in many countries, including (among the 19 studied countries) Belgium, Finland, France, Germany, Ireland, New Zealand, Spain and the UK[2]. Pap smear tests are available through free nationwide population-based programmes in Denmark, Finland, Hungary, Ireland, New Zealand, Slovenia and the United Kingdom (but only England, Scotland and Wales) (OECD, 2011b).

3.3 Adjusting for health care need

33. Since persons in lower socioeconomic groups have higher rates of morbidity, they have greater needs for health care services (Mackenbach, 2006; Mackenbach *et al.*, 2008; de Looper and Lafortune, 2009; OECD, 2011c). GP and specialist visits thus need to be standardised to remove the effect of differing needs for care among persons with different income levels, so that the horizontal equity principle can be tested.

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1 It is not possible to extrapolate because of the different time scales (number of visits in the past 4 weeks versus probability of visiting in the past 12 months).

2 These are the countries offering nationwide population-based free-access screening. There are also other countries which have national population-based free-access screening but rollout is not nationwide yet. They include Denmark and Switzerland.

34. In this study, the need for doctor visits is proxied by age, gender, and health status variables. Health status was measured by two variables: self-assessed health and activity limitation. Self-assessed health is most often based on a five-response variable in which individuals rate their own general health status as "Very good, Good, Fair, Bad, or Very bad". In Canada, Ireland, New Zealand, the United Kingdom and the United States the response options differ slightly: "Excellent, Very Good, Good, Fair, Poor". The activity limitation indicator identifies whether individuals are "Limited, Severely limited or Not limited" in their daily activities. Again, some countries differ in their response scales (see Annex 1). Although the appropriateness of the measure of health care needs may be questioned, it is worth noting that self-assessed health is widely regarded as a good predictor of both health care utilisation (DeSalvo *et al*., 2005) and mortality (Idler and Benyamini, 1997). Chronic conditions as reported in national health surveys was not used, since there is high heterogeneity in individual responses, and this may bias the measurement of socio-economic inequalities in health (Tubeuf *et al*., 2008).

35. To perform the adjustment for health care needs, an indirect standardisation method was applied (see Annex 2). Linear regression models were used first, followed by a two-stage model with logistic regressions for binary outcomes (the probability of a consultation) and 0-truncated negative binomial models for count variables (the frequency of consultations). However, the estimated rates by income level and the concentration indexes change only slightly, if at all, between the two methods. Van Doorslaer and Masseria's (2004) results from linear and non-linear methods also differ little. Further, Wagstaff and Van Doorslaer (2000) showed that HI indices are insensitive to the use of non-linear methods rather than least squares. To simplify comparison with the previous study, only the linear regression estimates are displayed.

36. Needs standardisation was not performed for dental consultations. In most countries, an annual dental visit is recommended for all persons. Also, most data sources do not provide information on dental care needs among OECD countries, this being only available for Canada and France.

37. Neither is needs standardisation performed for breast and cervical cancer screening, with equal need across all income levels assumed. Again, health authorities recommend periodic screening for all women in the target age groups. In practice, many countries make these services available for free.

38. In this paper, equity is determined for doctor visits, using the *horizontal inequity index* HI, which is adjusted for need. Equality is determined for dentist visits and cancer screening using the concentration index CI, which is not adjusted for need.

3.4 Estimating income

39. Socio-economic status was measured by household income, equivalised using the OECD-modified equivalence scale (Hagenaars *et al*., 1994). For the purpose of the analysis, income was divided into quintiles. In Canada, only a categorical variable of equivalised income was available. For some countries, it was not possible to calculate the equivalised income using the OECD modified equivalence scale, and so household income categories were used for Denmark, New Zealand, and the EHIS countries.

3.5 Other explanatory variables

40. The need-standardisation procedure also uses other explanatory variables, consistent with the previous study, and for which we do not want to standardise, but to control for, in order to estimate partial correlations with the need variables. Demographic and socio-economic characteristics are included, such as ethnicity (available for a few countries only), the size of the household, and marital status. Education level was categorised into three groups: Low / Medium / High. The categorical variable for activity status distinguishes Employee / Self-employed / Student / Unemployed / Retired / Homemakers / Others

(disabled, military). An indicator to identify whether people have public or private health insurance coverage is used when available. The region variable is based on NUTS-2 for most countries. The level of urbanisation of the living area distinguishes between three degrees: Dense / Intermediate / Thin. The availability of these variables is described in Annex 1.

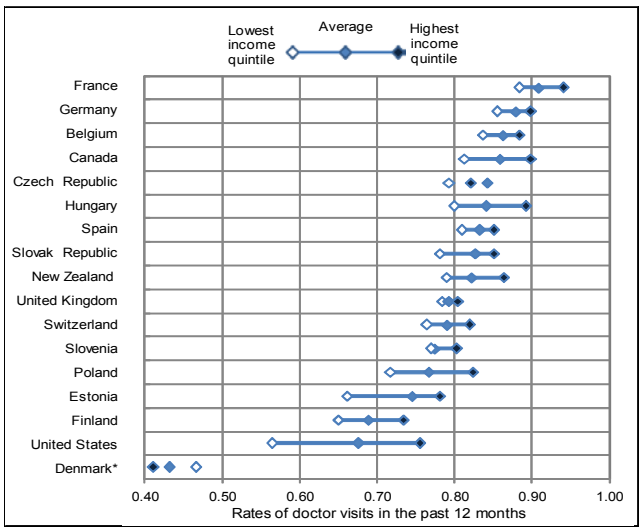
4. MEASURING INEQUALITIES IN HEALTH CARE UTILISATION: RESULTS

41. Inequities in doctor visits (GP and specialists together) are presented first, and then for GP and specialist visits for countries where the data permit this distinction. Inequalities in dental visits and cancer screening follow. The first chart summarises the distribution of health care use by lowest and highest income quintiles, and the average across the population. In the case of doctor visits, the distribution is need-adjusted. A second chart shows the horizontal inequity index (HI) for both the probability and frequency of visits. Detailed results on the need-standardised distribution of doctor visits (and the split by GP and specialist) across all income quintiles is available in Annex 3.

4.1 Doctor visits

42. The distribution of visits to doctors in the last 12 months across income quintiles, adjusted for need, is shown in Figure 1. The average rates among the total adult population of visiting a doctor in the past 12 months vary across countries, from 68% in the United States to 91% in France (rates in Denmark relate to the past three months). Rates of doctor visits also vary by income level. In most countries, for the same level of need, high-income people are more likely to visit a doctor than low-income people. However, in the Czech Republic and the United Kingdom, the gradient is not clear-cut, and it appears to be reversed in Denmark. The surveys in Austria and Ireland do not include a question on doctor visits (only on GP visits), and so these countries are not presented in Figure 1[3].

Figure 1: Needs-adjusted probability of a doctor visit in last 12 months, by income quintile, 2009 (or latest year)

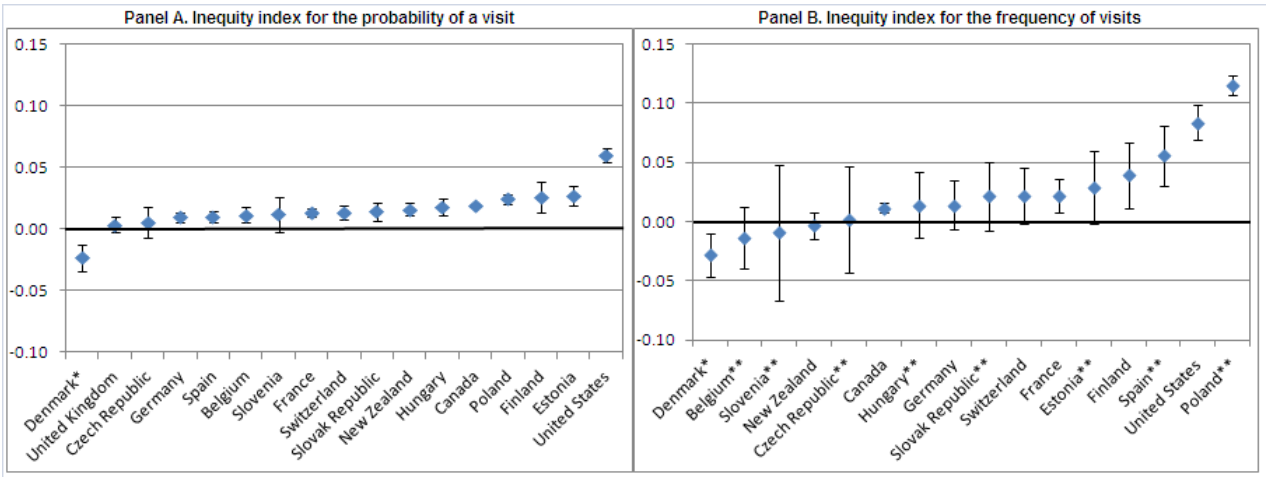


Note: (*) in the past 3 months in Denmark.

[3] In addition to these selected OECD countries, similar studies on Asian countries were undertaken although methodology and data comparability differ. Results show income-related equity for doctor visits in Korea with HI=-0.009 (Lu *et al.,* 2007), and pro-rich inequity in Japan with HI=0.0135 (Ikegami *et al.,* 2011).

43. Pro-rich inequities in the probability of a doctor visit are observed in most countries, but not at a high level (Figure 2). Only in the United States was a higher level of inequity apparent; for the same level of need for health care, people with higher incomes are more likely to visit a doctor than those with lower incomes.

Figure 2: Inequity index for doctor visits in the past 12 months, adjusted for need, 2009 (or latest year)



Note: (*) visits in the past 3 months in Denmark. (**) counts in the past 4 weeks in EHIS countries.

44. In Figure 2 Panel A, the confidence intervals of the horizontal inequity index for the United Kingdom, the Czech Republic and Slovenia cross the zero line, meaning that the HI is not statistically significantly different from 0. In these three OECD countries, given the same need, people with a lower income were as likely to see a doctor as higher income people. Denmark (for which the recall period may over-estimate inequities in favour of the worst-off) displays significant pro-poor inequities.

45. The pattern for the frequency of visits is less clear, since most of the inequity indices are not significantly different from zero. Nonetheless, four OECD countries – Poland, the United States, Spain and Finland – display a high level of pro-rich inequity in the frequency of doctor's visits.

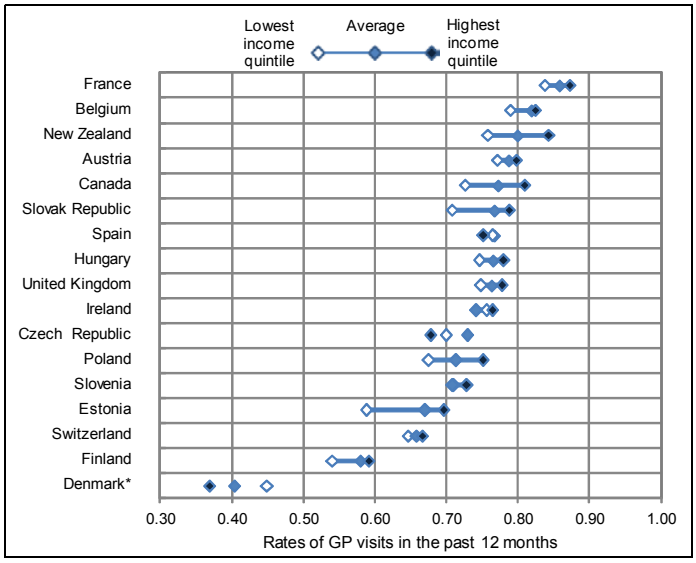
46. According to the redistribution interpretation offered by Koolman and van Doorslaer (2004), equalizing doctor visits across income quintiles would require redistributing less than 3% of all visits from the richer to the poorer in Finland, and up to 9% in Poland. Since the average number of doctor visits in the past 4 weeks is about 0.85 in Poland (see Table A3.1 in Annex 3), i.e. 850 visits per 1000 population, this would require a redistribution of 74 visits per 1000 population from the richest to the poorest half of the population to achieve equity. The number of visits to be redistributed is related to the average number of visits. In France, where HI= 0.02 and the average number of doctor visits per person in the past 12 months was 5.3, i.e. 5300 visits per 1000 population, 87 doctor visits per 1000 population should be redistributed from the richer to the poorer to achieve equity. In Finland, whereas the inequity index is higher (HI= 0.04), the average number of doctor visits in the past 12 months is about 3 per person, and thus, the same number of doctor visits (87) should be redistributed to arrive at equity.

4.2 GP visits

47. The distribution of visits to GPs in the last 12 months across income quintiles, adjusted for need, is shown in Figure 3. The share of the total adult population seeing a GP in the past 12 months varies across countries, from 58% in Finland to 86% in France. Variations by income level favouring high-income groups are apparent in six countries (New Zealand, Canada, Slovak Republic, Poland, Estonia, and Finland). The gradient appears to favour low-income people in Denmark, Czech Republic and Spain. The

surveys in the United States and Germany do not separately identify GP and specialist visits, and so these countries are excluded.

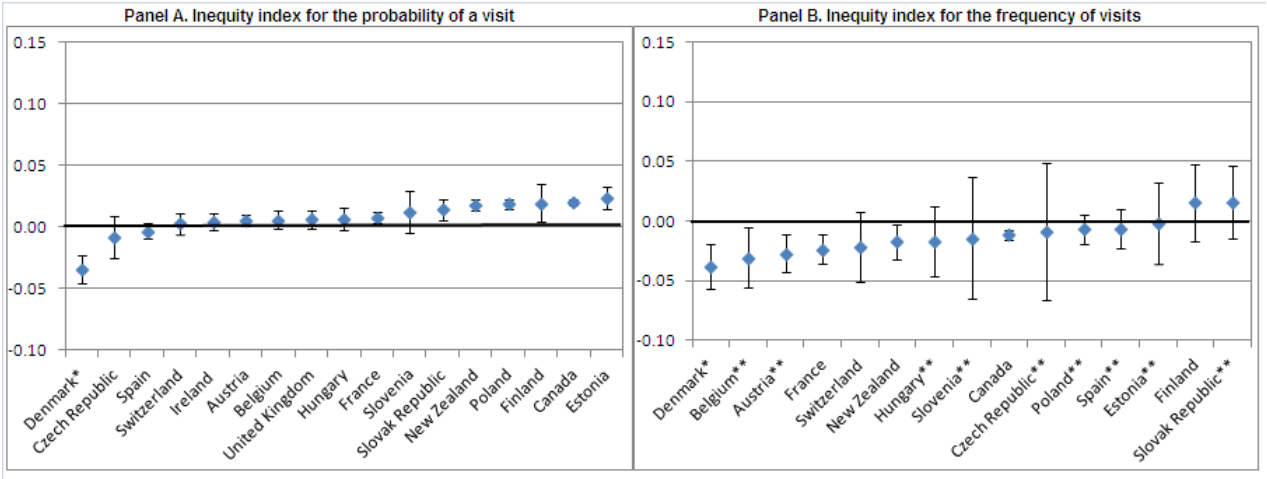
Figure 3: Needs-adjusted probability of a GP visit in last 12 months, by income quintile, 2009 (or latest year)



Note: (*) visits in the past 3 months in Denmark.

48. Figure 4 shows the inequity indexes for GP consultations. Nine countries show no significant inequities in the probability of seeing a GP (Czech Republic, Spain, Switzerland, Ireland, Austria, Belgium, United Kingdom, Hungary, and Slovenia). Seven countries display significant pro-rich inequity (Estonia, Canada, Finland, Poland, New Zealand, the Slovak Republic, and France) but the degree is quite small. Only Denmark presents significant pro-poor inequities.

Figure 4: Inequity index for GP visits in the past 12 months, adjusted for need, 2009 (or latest year)



Note: (*) visits in the past 3 months in Denmark. (**) counts in the past 4 weeks in EHIS countries.

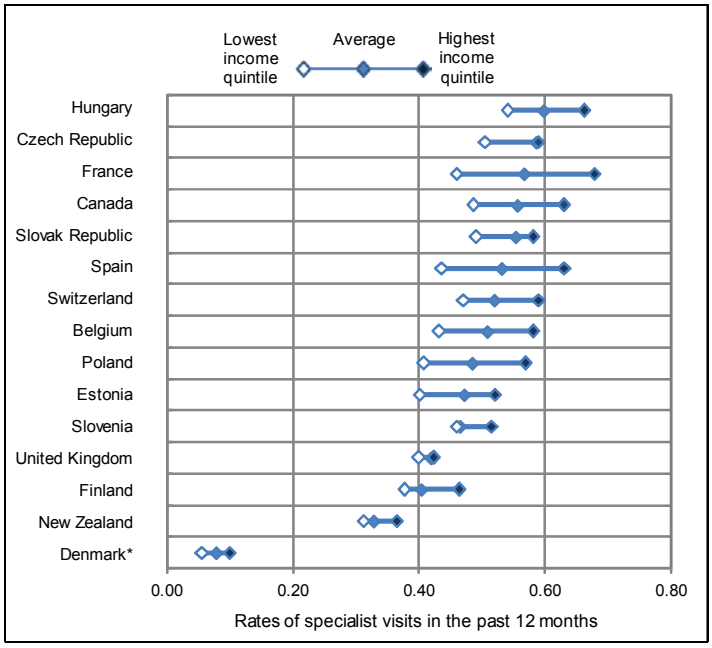
49. With respect to the number of visits, the results are quite different, and six countries display significant pro-poor inequities (Denmark, Belgium, Austria, France, New Zealand, and Canada). For the same level of health care needs, the poor see a GP more often than the rich. The other nine countries display no significant inequity.

50. Summarising these findings, the most deprived are generally as likely to see a GP in the past 12 months as the rich, but once they engage with a GP, they consult more often.

4.3 Specialist visits

51. The distribution of visits to specialists in the last 12 months across income quintiles, adjusted for need, is shown in Figure 5. The average share of the total adult population seeing a specialist in the past 12 months varies from 33% in New Zealand to 60% in Hungary. Most countries present large variations in specialist visit rates across income quintiles, after need-standardisation. In all countries, high-income people display higher rates of specialist care utilisation. Data from Austria, Germany, Ireland and the United States do not permit to analyse specialist visits.

Figure 5: Needs-adjusted probability of a specialist visit in last 12 months, by income quintile, 2009 (or latest year)



Note: (*) visits in the past 3 months in Denmark.

52. Figure 6 shows pro-rich inequities in both the probability and frequency of specialist visits in almost all countries. The degrees of inequity are much larger than those displayed for GP visits. However, they are not significant for the probability of visits in the United Kingdom, the Czech Republic and Slovenia. For the frequency of visits, they are not significant in Slovenia, the Czech Republic, Denmark, New Zealand, Slovak Republic and Belgium.

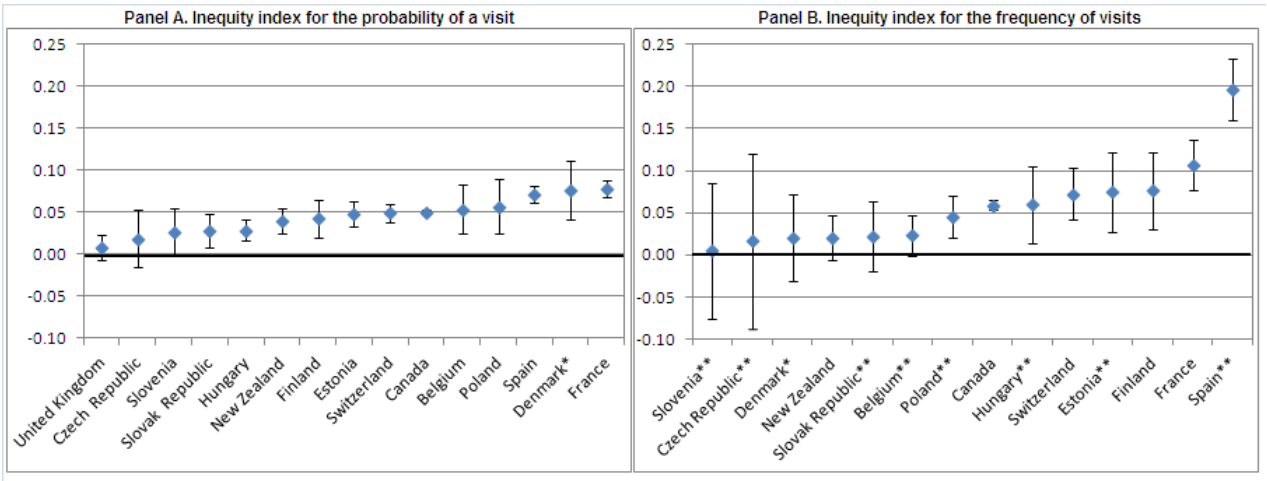
53. Hence, after adjusting for need, the well-off are generally more likely to visit a specialist than the poor (Panel A), and they also do so more often (Panel B).

54. Among the studied countries, France and Spain are the most inequitable in specialist visits for both probability and frequency concurring with previous findings (Or *et al.* 2008; Palència *et al.* 2011). In Spain, other research has found that inequity in specialist visits are largely related to the private sector, with the public health system being more equitable (Regidor *et al.* 2008).

55. Concerning frequency of visits, HIs are significant for eight countries (Poland, Canada, Hungary, Switzerland, Estonia, Finland, France, and Spain), and they vary substantially (Figure 6 Panel B). The

percentage of specialist visits to be linearly redistributed from the richer to the poorer to achieve equity varies from 3.4% in Poland to 14.7% in Spain. For France, where this percentage is equal to 8%, the average number of specialist visits in the past 12 months is about 1.76 (see Table A3.3 in Annex 3), i.e. 1760 visits per 1000 population. For every 1000 population, it would be necessary to redistribute 140 visits from the richest to the poorest half of the population to achieve equity. The quantity to be redistributed to achieve equality would be 66 specialist visits in Finland, and 106 in Switzerland.

Figure 6: Inequity index for specialist visits in the past 12 months, 2009 (or latest year)

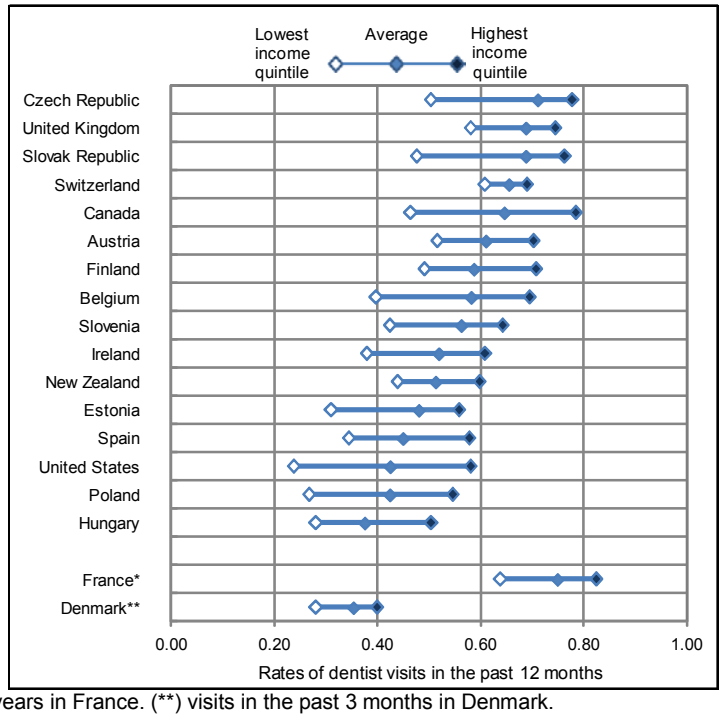


Note: (*) visits in the past 3 months in Denmark. (**) counts in the past 4 weeks in EHIS countries.

4.4 Dentist visits

56. The distribution of visits to dentists in the last 12 months across income quintiles is shown in Figure 7. The average rates among the total adult population of seeing a dentist in the past 12 months vary across countries, from 37% in Hungary to 71% in Czech Republic. All countries display large variations in dentist visit rates across income quintiles, with systematically higher rates among high-income people.

Figure 7: Probability of a dentist visit in last 12 months, by income quintile, 2009 (or latest year)

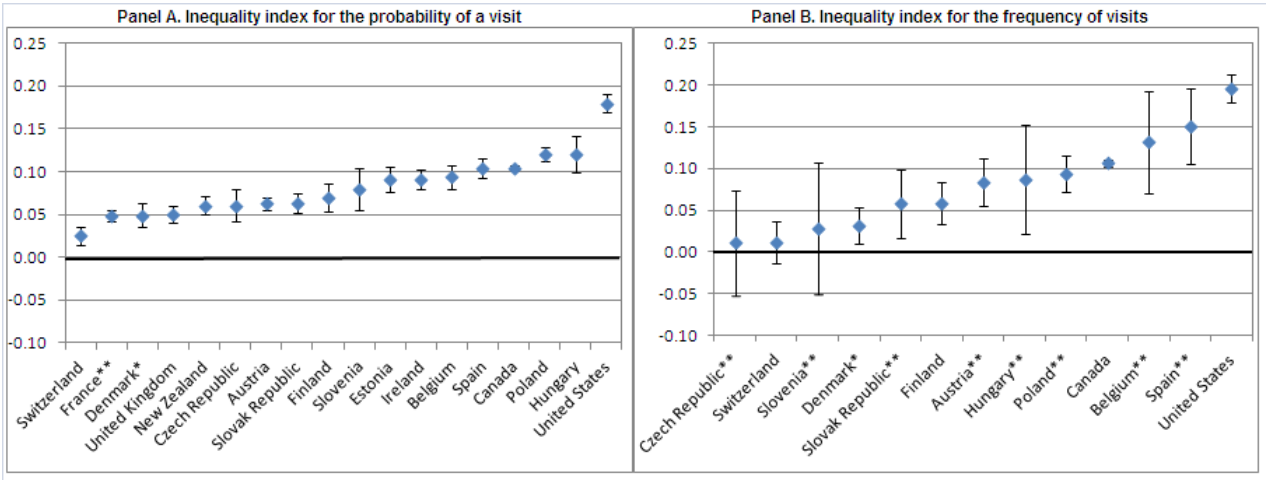


Note: (*) visits in the past 2 years in France. (**) visits in the past 3 months in Denmark.

57. Figure 8 shows large inequalities in the probability of a dentist consultation in favour of the well-off. Similarly, large inequalities in the number of dentist visits are apparent, with the exceptions of the Czech Republic, Switzerland, and Slovenia where the index is not significantly different from zero.

58. The percentage of dentist visits to be linearly redistributed from the richer to the poorer to achieve equality is 14.7% in the United States and 11.3% in Spain. Equalizing dentist visits across income quintiles requires redistributing fewer than 10% of all visits in the other countries. In Canada, where the CI equals 0.106, the average number of dentist visits in the past 12 months is 1.35 (see Table A3.4 in Annex 3). In the United States, where the CI equals 0.196, the average number of dentist visits in the past 12 months is 0.99. Thus, the number of dentist visits to be redistributed for each 1000 population to achieve equality would be 107 in Canada and 145 in the United States.

Figure 8: Inequality index for dentist visits in the past 12 months, 2009 (or latest year)



Note: (*) visits in the past 3 months in Denmark. In panel A: (**) visits in the past 24 months in France. In panel B: (**) counts in the past 4 weeks in EHIS countries.

59. High-income persons were more likely to visit a dentist within the last 12 months in all countries. There is, however, wide variation across countries in the concentration index. Inequalities are larger in countries with a lower probability of a dental visit such as Hungary, Poland, Spain and the United States. Denmark and France have different recall periods, which impacts on the average probability of dentist visits, and may also have an effect on the level of inequalities in cross-country comparison, as mentioned in section 3.2.

60. These results confirm findings from a recent study among Europeans aged 50 years and over which identifies significant pro-rich inequalities in access to dental treatment. Among 14 European countries, Poland and Spain display the largest inequality index, followed by Austria and Belgium (Listl, 2011).

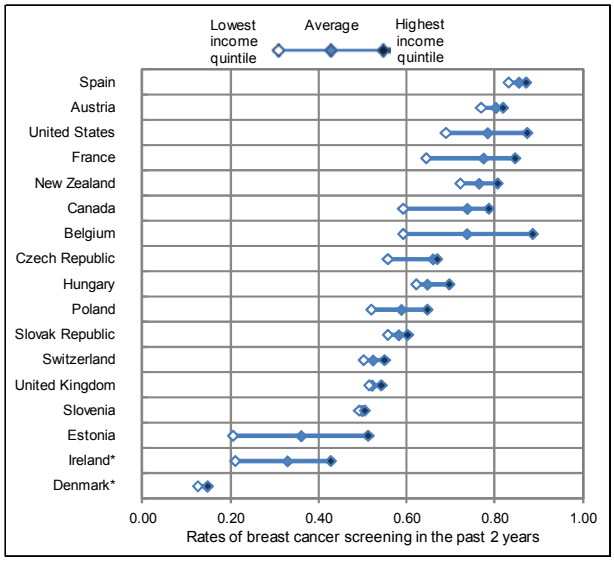
61. The distinction between preventive and curative care in dental visits is also relevant. Listl (2011) finds considerable income-related inequalities in dental service utilisation and attributes these to inequalities in preventive dental visits, either alone or in combination with operative treatment. Similarly, a recent study in Canada shows that access to preventive care is the most pro-rich type of dental care utilisation (Grignon *et al.*, 2010).

62. In several countries, recent policy reforms related to the extension of coverage or organisation of dental care have affected access. The Finnish government introduced on 1 December 2002 a new policy offering publicly-funded dental care for the whole population. Before that date, publicly-funded dental care was limited according to age, and the majority of adult population had to use private dental care. The main goals were to offer publicly-funded dental care for the whole population and to equalise access to dental care by socioeconomic groups and by municipalities. Assessments of this policy implementation show that equity and fairness of the oral health care provision system improved (Niiranen *et al.*, 2008).

4.5 Cancer Screening

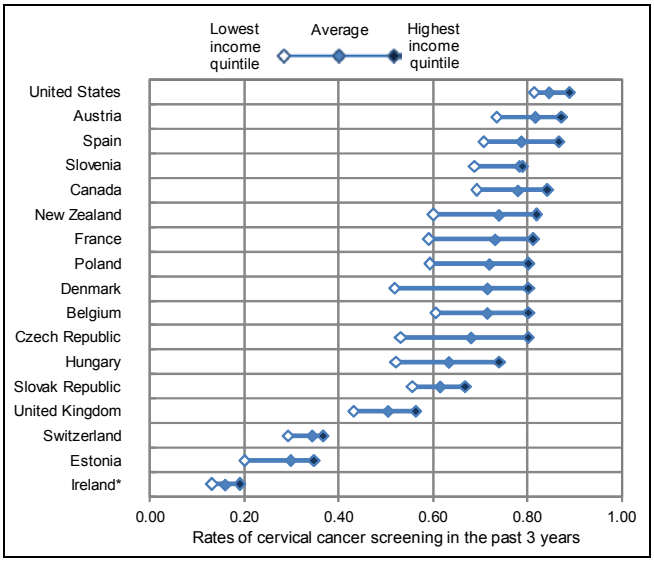
63. The probabilities of screening for breast cancer in the last two years, and cervical cancer in the last three years are shown in Figures 9 and 10. Rates of cancer screening participation among women within the target age group vary widely across countries. Breast cancer screening participation in the past two years varies from 36% in Estonia to 85% in Spain, and from 30% in Estonia to 85% in the United States for cervical cancer screening. Some countries present large inequalities in screening rates across income quintiles.

Figure 9: Probability of breast cancer screening in the last two years, women aged 50-69 years, by income quintile, 2009 (or latest year)



Note: (*) visits in the past 12 months in Denmark and Ireland.

Figure 10: Probability of cervical cancer screening in the last three years, women aged 20-69 years, by income quintile, 2009 (or latest year)

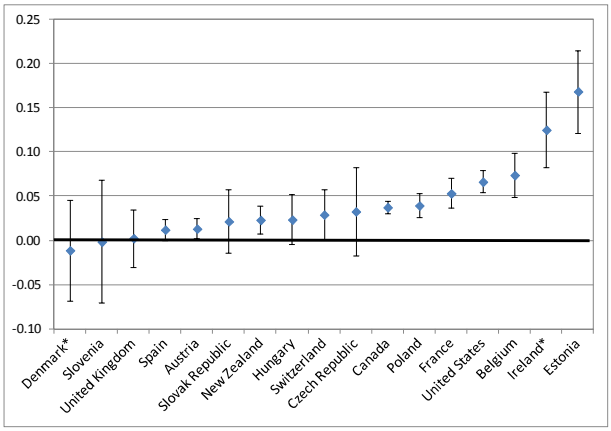


Note: (*) visits in the past 12 months in Ireland.

64. In the United States, low-income women, women who are uninsured or receiving Medicaid (health insurance coverage for the poor, disabled or impoverished elderly), or women with lower educational levels report much lower use of mammography and pap smears (NCHS, 2011). Other studies in European countries confirm significant social inequalities in the utilisation of early detection and prevention health care services (Von Wagner *et al*., 2011). In particular, women from higher socioeconomic groups are more likely to have mammograms (Sirven and Or, 2010).

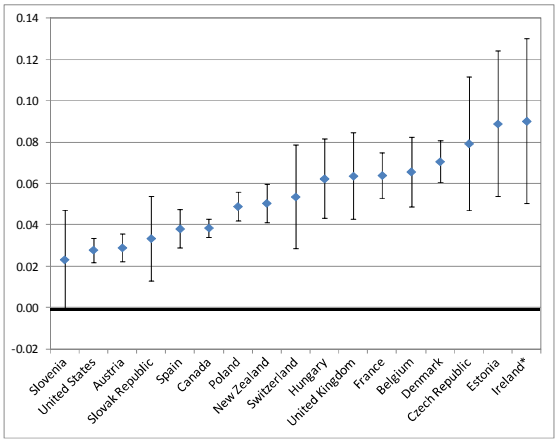
65. Figure 11 shows that pro-rich inequalities in breast cancer screening exist in almost all countries, and are significant in eight countries (Belgium, Canada, Estonia, France, Ireland, New Zealand, Poland, and the United States). Likewise, income-related inequalities in cervical cancer screening favour the well-off (Figure 12), and are significant in all countries, except Slovenia. Caution is needed for all above analyses for the Czech Republic and Slovenia which have large confidence intervals due to small sample sizes.

Figure 11: Inequality index for breast cancer screening in the past 2 years, 2009 (or latest year)



Note: (*) visits in the past 12 months in Denmark and Ireland.

Figure 12: Inequality index for cervical cancer screening in the past 3 years, 2009 (or latest year)



Note: (*) visits in the past 12 months in Ireland.

66. Analysis of possible links between inequalities in cancer screening and health system features, such as free screening access and nationwide population-based programmes was undertaken, but no clear relationship emerged. In another study, Palència *et al* (2010), examined 22 European countries, and found that inequalities in use of breast and cervical cancer screening are higher in countries without a population-based screening programme.

67. Other individual characteristics, such as ethnicity, younger age, higher level of education, employment status, residential area, marital status, having health insurance, good health status, having a usual source of care and use of other preventative services, are all recognized as important additional predictors of participation in screening (Sirven and Or, 2010).

4.6 Comparison with earlier results

68. Comparing the absolute values of indexes obtained in Van Doorslaer and Masseria's 2004 study and in this paper should be done with caution. The values of the inequity and inequality indices between the two studies often result from surveys which differ slightly in their methodology. Indeed, for many countries, a different data source is used.

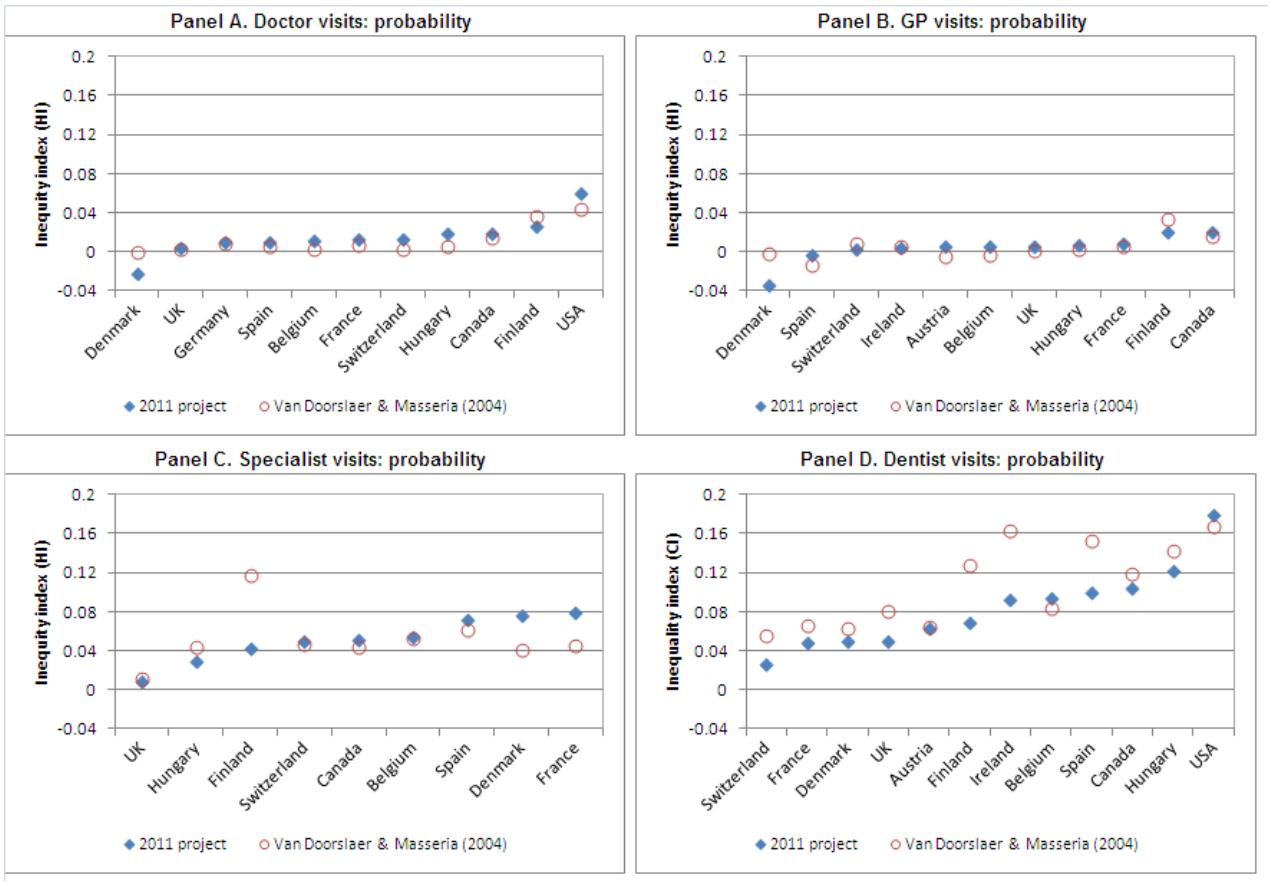
69. There are four countries (Canada, Switzerland, the United Kingdom and the United States) where data come from the same source in both studies. However, in Switzerland questions on health status and limitations have changed and so it is difficult to use similar information for the "need for care" standardisation procedure. This matters since the quantity of health information in the need standardisation procedure may lead to under- or over-estimation of pro-rich utilisation patterns (Van Doorslaer *et al*. 1993; Van Doorslaer and Masseria, 2004).

70. In France, the data source is slightly different since the 2004 study used actual medical visits from sickness fund records whereas the current study examines visits reported by individuals. In Denmark, doctor visits were assessed for the past 12 months in the 2004 study versus the past three months in the current study, which may lead to an over-estimation of pro-poor inequity. In Finland, many people do not make a distinction between GPs and specialists, and so the general question in the 2000 ECHP survey on

visits to these physicians in the past 12 months might be difficult to understand. In the 2009 Finnish HYPA survey, questions are more precise, since they ask about visiting a doctor at health centres (public) or at occupational health clinics (used to define GP visits); visiting a doctor at outpatient departments or in private practices (used to define specialist visits). These differences may affect comparisons, in particular for specialist visits. Similarly, for Ireland and Spain, different sources of data were used, which may cause inconsistencies in results over time, notably for dental care.

71. Results indicate that, with few exceptions, inequities and inequalities have remained stable over time. Figure 13 shows that the country ranking is reasonably consistent with the 2004 study, and is particularly stable regarding doctor and GP visits. The country rank has changed slightly in specialist visits, due to Finland, Denmark and France's positions, and in dentist visits because of Ireland, Finland and Spain's positions.

Figure 13: Comparison of inequity indexes, 2000 and 2009



Note: Difference in data sources in 9 countries (Austria, Belgium, Denmark, Finland, France, Germany, Hungary, Ireland, and Spain).

4.7 Country overview

72. Individual country findings from the analysis are summarised in Table 2. For each type of health care, an indication is given as to the average probability of a visit in the past 12 months (or 2 years in the case of breast cancer screening, and 3 years for cervical cancer screening), relative to other countries. An indication is also given as to the level of equity found in doctor visits after the adjustment for need, and

equality in dental visits and breast and cervical cancer screening. If inequalities exist, these favour the well-off.

Table 2. Country overview of probability of a doctor or dentist visit or cancer screening, and level of inequality

Country	Doctor (GP and specialist) visits	Dentist visits	Breast and cervical cancer screening
Austria	Higher probability of a (GP) visit; Equitable	Medium probability of a visit; Unequal	High probability of screening; Equal (breast), unequal (cervical)
Belgium	Higher probability of a visit; Inequitable	Medium probability of a visit; Unequal	Medium probability of screening; Unequal
Canada	Higher probability of a visit; Inequitable	Higher probability of a visit; Unequal	Higher probability of screening; Unequal
Czech Republic	Higher probability of a visit; Equitable	Highest probability of a visit; Unequal	Medium probability of screening; Equal (breast), unequal (cervical)
Denmark	n.a.	Higher probability of a visit; Unequal	Medium probability of screening; Equal (breast), unequal (cervical)
Estonia	Lower probability of a visit; Inequitable	Lower probability of a visit; Unequal	Lowest probability of screening; Most unequal
Finland	Lower probability of visit; Inequitable	Medium probability of a visit; Unequal	n.a.
France	Highest probability of a visit; Inequitable	Medium probability of a visit; Unequal	Higher probability of screening; Unequal
Germany	Higher probability of a visit; Inequitable	n.a.	n.a.
Hungary	Medium probability of a visit; Inequitable	Lowest probability of a visit; Unequal	Medium probability of screening; Equal (breast), unequal (cervical)
Ireland	Medium probability of a (GP) visit; Equitable	Medium probability of a visit; Unequal	Medium probability of screening; Unequal
New Zealand	Medium probability of a visit; Inequitable	Medium probability of a visit; Unequal	Higher probability of screening; Unequal
Poland	Lower probability of a visit; Inequitable	Lower probability of a visit; Unequal	Medium probability of screening; Unequal
Slovak Republic	Medium probability of a visit; Inequitable	Higher probability of a visit; Unequal	Medium probability of screening; Equal (breast), unequal (cervical)
Slovenia	Lower probability of a visit; Equitable	Medium probability of a visit; Unequal	Lower probability of screening; Equal
Spain	Medium probability of a visit; Inequitable	Lower probability of a visit; Unequal	High probability of screening; Equal (breast), unequal (cervical)
Switzerland	Medium probability of a visit; Inequitable	Higher probability of a visit; Unequal	Lower probability of screening; Equal (breast), unequal (cervical)
United Kingdom	Medium probability of a visit; Equitable	Higher probability of a visit; Unequal	Lower probability of screening; Equal (breast), unequal (cervical)
United States	Lowest probability of visit; Most inequitable	Lower probability of a visit; Most unequal	High probability of screening; Unequal

Note: For Austria and Ireland, the findings for doctors refer to GPs only. n.a. means not available. The words equitable/inequitable refer to doctor visits after adjustment for need and, equal/unequal refer to dentist visits and cancer screening which are not adjusted for need.

5. INEQUALITIES IN HEALTH CARE UTILISATION RELATED TO HEALTH SYSTEM FINANCING

73. Explaining persisting inequalities in the utilisation of health care services in OECD countries has followed three general approaches. A first approach focuses on cultural and information barriers, which hinder individuals obtaining knowledge of care pathways and seeking care, and are most commonly experienced among the poor and least educated. Secondly, characteristics related to the organisation of health systems may create barriers; whether GPs act as 'gatekeepers' to facilitate access for persons in lower socioeconomic positions, or whether primary care systems explicitly focus on the needs of the most deprived are two such characteristics (Or, *et al*., 2008). Thirdly, the direct cost of care to individuals, and particularly whether they have secondary private health insurance, has most often been associated with inequalities in health care use (van Doorslaer and Masseria, 2004).

74. This section provides further evidence on how the cost of care can create inequalities in health care utilisation. The results for 2008-09 are complemented by information from the *OECD Health Data 2011* database, and the 2008 *OECD Health Systems Characteristics* survey (Paris *et al.*, 2010) to explore macro-level relationships between inequality in health services use and the financing of health systems, in the following areas:

- Public health settings
- Out-of-pocket payments
- Private health insurance.

5.1 Public health settings

75. Health care coverage promotes access to medical goods and services, as well as providing financial security against unexpected or serious illness. Most OECD countries have achieved universal coverage of health care costs for at least a core set of services, sometimes through combinations of public and private health insurance.

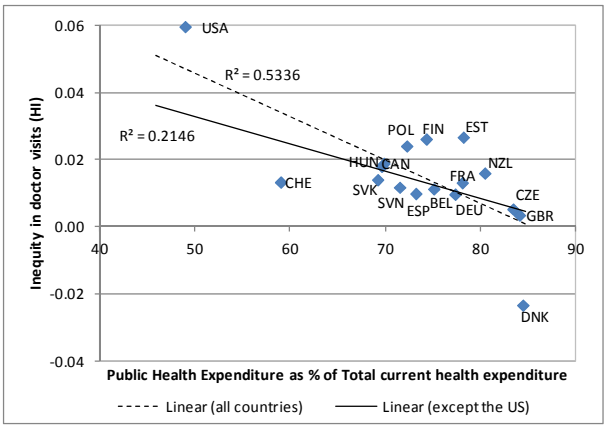
76. However, health insurance coverage, even if universal, is an imperfect indicator of accessibility, since the range of services covered and the degree of cost-sharing applied to some services (e.g. dental care and pharmaceutical drugs) varies substantially across countries (Paris *et al.,* 2010)[4].

77. The distribution of health costs between public and private funds is an important dimension that affects health care access. Previous studies have found a relationship between the share of public health spending in total health expenditure and lower inequity in doctor consultations (Or *et al*., 2008). Conversely, private funding is often regressive and negatively impacts on the uptake of needed services, in particular for vulnerable people at risk of social exclusion (Huber *et al*., 2008).

[4] Annex 4 presents the link between inequity and the indicator "depth of coverage" as defined in Paris *et al.* (2010). However, since there was little variation in depth of coverage across countries, findings were not conclusive.

78. Figure 14 highlights the relationship between high public financing and low inequity in doctor visits. The United States, with its reliance on primary private health insurance, stands out as having a substantially lower share of public health expenditure; its exclusion leads to a weaker, but still significant relationship.

Figure 14: Relationship between inequity in doctor visits and the share of public health expenditure

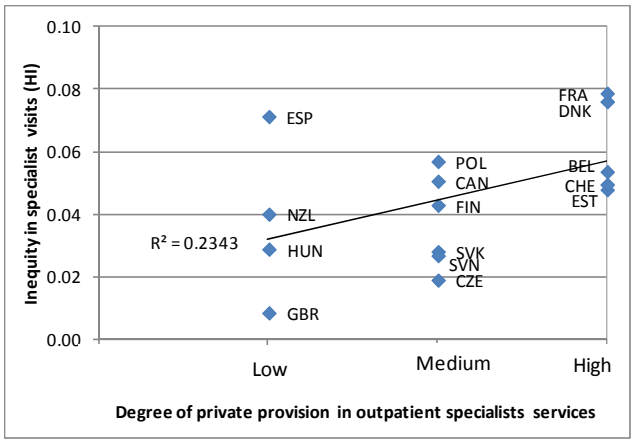


Source: OECD estimates for inequity indexes, and *OECD Health Data 2011*

79. A recent literature review focusing on health system features supports that "nationalized, publicly funded health care systems are most effective at reducing inequalities in access and reducing the effects on health of income distribution" (Gelormino *et al.*, 2011). Or *et al.* (2008) highlight that National Health Services where financing and provision of care are handled centrally demonstrate less inequity in specialist visits.

80. Data analysis using the 2008 *OECD Health Systems Characteristics* survey[5] lends support to these results. Figure 15 shows that countries with a higher degree of private provision of care display higher levels of inequity in specialist consultations.

Figure 15: Relationship between inequity in specialist visits and the degree of private provision of services



5 More details on the degree of public/private provision of care in Annex 4.

Source: OECD estimates for inequity indexes, and *OECD Health Systems Characteristics 2008*

81. Another financial barrier is related to access at the point of service delivery. Paying up-front costs that are reimbursed later creates barriers for low-income households. Bureaucratic requirements for reimbursement or lack of knowledge are further disincentives (Huber *et al.*, 2008).

82. There is a lack of information on free access at the point-of-care across countries. A question in the 2008 *OECD Health System Characteristics* survey on "regulation of prices billed by physicians" assesses whether patients must pay extra fees that are not reimbursed when consulting a doctor, and can serve as a proxy of free access at point-of-care. Findings indicate that some countries with high price regulation display lower inequities in specialist care utilisation (e.g. United Kingdom, and Czech Republic). However, the relationship is not strong – New Zealand has the lowest regulation of physician pricing among the countries considered, but has average inequity; and Hungary has a medium degree of regulation but has one of the lowest levels of inequity (see Annex 4).

83. Safety nets assist in delivering equity of access by subsidising coverage or providing services for low-income or economically disadvantaged groups. In those countries where coverage is not automatically provided to all residents through national or local health systems, policies have been implemented to guarantee access to care for people with low-income or high health risks, either through subsidies for the purchase of insurance, dedicated programmes, or direct provision of health care (Paris *et al.*, 2010).

84. Almost all countries have implemented policies to protect population groups from usual copayments or excessive out-of-pocket expenses. Exemptions from out-of-pocket payments for low-income people exist in half of OECD countries (Paris *et al.*, 2010).

85. Safety nets for the elderly in Japan play a major role in ensuring equity in access. Results from a recent study suggest pro-rich distribution of health care services[6] in the population aged under 65 (HI=0.013) (Ikegami *et al.,* 2011). However, in people aged 65 and over, estimates suggest equity in health care services utilisation (HI=-0.006[7]), reflecting the reduced copayment systems in place for the elderly in Japan. These aim to relieve the burden of cost-sharing, since the elderly often have a limited income based on their pension.

5.2 Out-of-pocket payments

86. An important determinant of the degree of inequality in health care use is the size of household out-of-pocket payments. Or *et al.* (2008) used European data to show that social inequalities are stronger in countries where out-of-pocket payments are higher, and where the share of public health spending in GDP is smaller. Gelormino *et al.* (2011) in reviewing the effects of health care reforms in European countries, underline that out-of-pocket payments increase inequalities in access to care and contribute to impoverishment. Direct payments for health care penalise the worst-off, creating barriers to access and potentially further damaging health. Recent increases in the share of health expenditure in the most deprived households in Slovenia, for example, have jeopardised access to a number of health goods and services, including medicines, therapeutic appliances, dental services and outpatient specialised health care

[6] The question asks about any visit to healthcare services in the past month, including outpatient and inpatient doctor visits as well as to traditional medicine practitioners. The majority of health care service utilisation in Japan consists of outpatient clinic visits.

[7] Analysis carried out by Prof. Hideki Hashimoto, University of Tokyo School of Public Health.

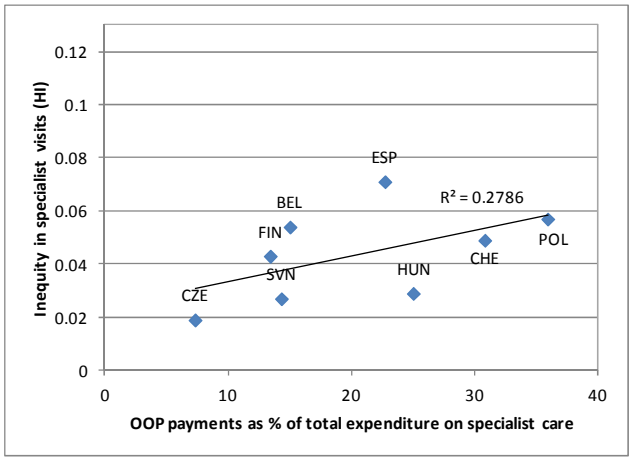
(WHO Europe, 2011). To offset their effect, many countries have introduced safeguards against excessive out-of-pocket payments.

87. Analysis of out-of-pocket payments in total basic medical and diagnostic services[8] in 2008-2009 and the inequity index in doctor visits found no significant relationship, lending weight to countries' effective use of safeguards.

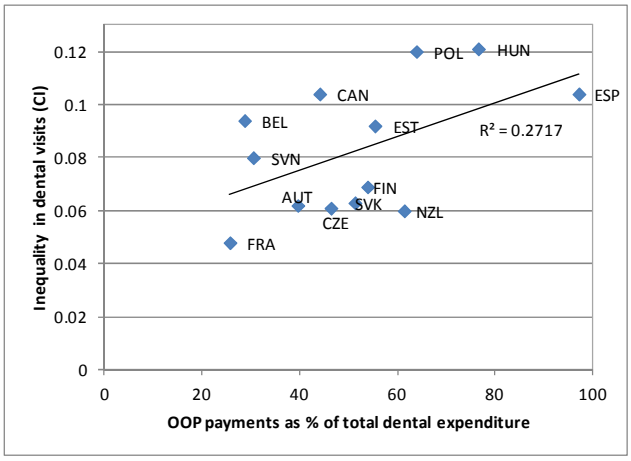
88. In contrast, the analysis of out-of-pocket payments as a percentage of total expenditure on specialist care shows a significant relationship with the degree of inequity in the probability of specialist visits (Figure 16, panel A). Similarly, a positive association was observed between out-of-pocket payments in dental care and inequality in dentist's consultations (Figure 16, panel B).

Figure 16: Relationship between inequity and the share of out-of-pocket payments

Panel A. Specialist visits



Panel B. Dentist visits



Source: OECD estimates for inequity indexes, and *System of Health Account 2011*

89. Poland has one of the largest shares of out-of-pocket expenditure on health care among OECD countries. Specialist medical services paid out-of-pocket—typically consultations provided at private medical facilities—is the second largest component of private expenditure. For dental care, about two-thirds of expenditure is financed privately, with only basic treatment covered by public insurance, leading to highly unequal access. Long waiting times to access health care has led to a network of informal payments and other queue-jumping mechanisms (OECD, 2012).

90. In Spain, adult dental care is largely absent from the benefits package, with correspondingly high out-of-pocket expenses (Garcia-Armesto *et al.*, 2010). A recent initiative proposes a number of policies and interventions to reduce social inequalities (Commission on the Reduction of Social Inequalities in Health in Spain, 2011).

8 Out-of-pocket payment in total basic medical and diagnostic services is the closest available measure for health spending related to doctor consultations.

5.3 Private health insurance

91. Private health insurance (PHI) plays an important role in facilitating access, most notably for specialist and dental care. Persons in countries with private health insurance markets have the possibility of not only buying more or better care, but also of receiving care more quickly. The function of PHI differs across countries (OECD, 2004). It can be a primary insurance that represents the only available access to basic health cover because individuals do not have public health insurance. PHI can also act as a secondary insurance in addition to public coverage: as a *complementary* insurance which covers any cost-sharing remaining after basic coverage, a *supplementary* insurance which provides cover for additional health services not covered by the public scheme, or a *duplicative* insurance that covers services which are already included in the basic benefit package, but provides faster private-sector access to medical services where there are waiting times in public systems.

92. Multivariate logistic regression models were used to assess the relationship between having PHI and the probability of seeing a doctor. This analysis was conducted on a set of countries for which national survey data provided information on PHI (France, Germany, Ireland, New Zealand, Switzerland, the United Kingdom, and the United Stated). Because of the complex role PHI serves across countries, more information besides the single dimension of the "share of total PHI" is needed to assess the link with inequity in utilisation.

93. In France, almost all of the population is covered for basic primary health care by the social security system; 94% of the French population has complementary health insurance to cover cost-sharing. The complementary health insurance is privately funded, with the exception of CMU-C (*Couverture Médicale Universelle Complémentaire*). The CMU-C provides care free of charge to the most deprived population. In this analysis, to isolate the impact of complementary insurance, the indicator refers to "having a complementary health insurance" which captures both PHI and CMU-C vs. no complementary insurance.

94. In Germany, most of the population (83%) has basic primary coverage through sickness funds, and others are privately insured (e.g. the self-employed, civil servants, opting-out income ceiling). People who are publicly covered can purchase private insurance to cover cost-sharing (complementary PHI) or for additional services (supplementary PHI). In this analysis, the indicator refers to "having a private health insurance either as a primary coverage or as a secondary source of coverage" vs. "not privately insured".

95. In Ireland, basic primary health coverage is automatic and financed from taxes. About one third of the population, under a certain income threshold, can access public health services free of charge through a Medical Card. About 3% of the population who are not entitled to a Medical Card have a GP Visit Card whereby GP visits are covered by the public system. About 47% of the Irish population has private health insurance, mainly to cover costs of inpatient bed use, some out-of-pocket charges in the primary care sector, and to bypass waiting lists for inpatient services. Private health insurance plays both a complementary and supplementary role in Ireland.

96. In New Zealand, basic primary health care coverage is supplied by national health services. However, about 32% of the population choose a private insurance to supplement what they receive from the public health system with more comprehensive and timely care. Private health insurance also plays both a complementary and supplementary role in New Zealand.

97. In Switzerland, basic coverage is mandatory and people can choose among four different options for health insurance plans: 1) ordinary basic policies, 2) policies with choice of deductibles, 3) bonus insurance, 4) insurance with a limited choice of providers. Ordinary contracts offer the highest level of financial protection against health care spending but also have the highest level of premiums. Other forms

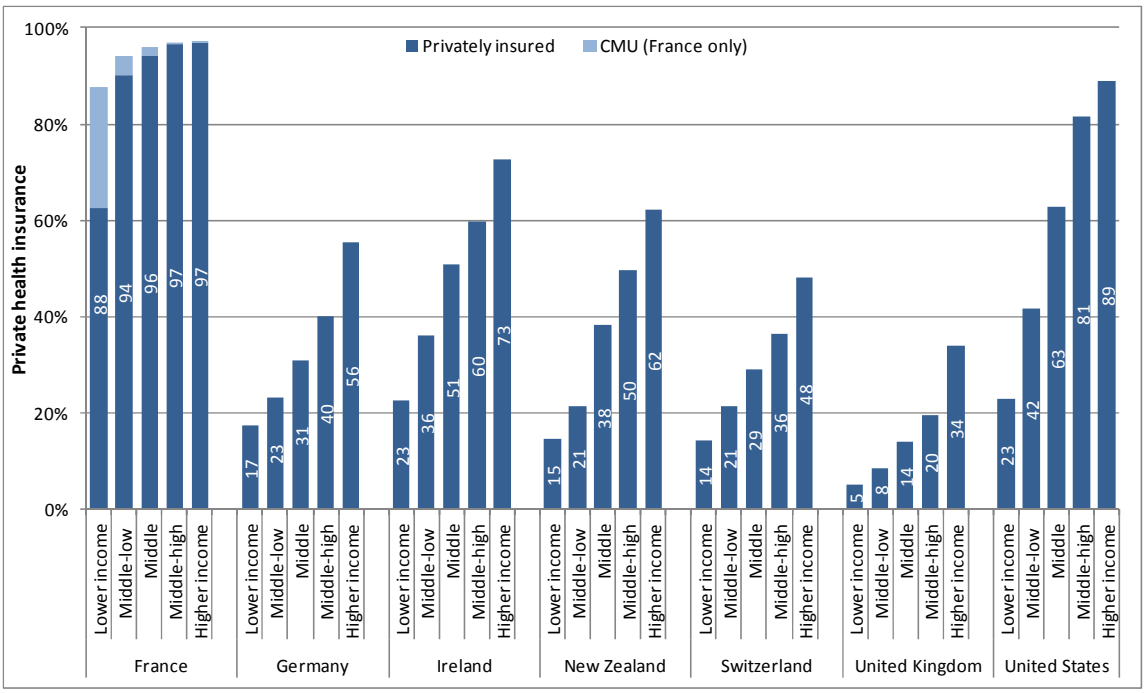
of health insurance contracts offer lower premiums with either higher deductibles or restrictions in the choice of doctor or hospital (OECD, 2011d). Supplementary insurance for additional comfort or treatment is purchased by about 30% of the population. Contracts typically cover one or several of the following benefits: private rooms in hospitals, dental care, alternative medicines and cash benefits for sickness absence.

98. In the United Kingdom, the NHS provides preventive medicine, primary care and hospital services to all residents. Around 12% of the population is covered by a private medical insurance, which mainly provides access to acute elective care in the private sector. PHI in the United Kingdom is mainly a supplementary insurance, since it provides cover for enhanced services such as faster access and increased consumer choice (Boyle, 2011).

99. In the United States, 81% of the population has a basic primary health insurance. Most people (55% of the population) are covered through private insurance plans, usually tied to their employment, while Medicare (for those aged over 65) and Medicaid (for the poor) provide public coverage. In this analysis, the indicator refers to "having a private primary health insurance" vs. "having a public insurance or no insurance".

100. Despite differences in PHI settings across countries, higher-income people are more likely to purchase PHI (Figure 17).

Figure 17: Share of PHI by income quintile, selected OECD countries, 2009 (or latest year)

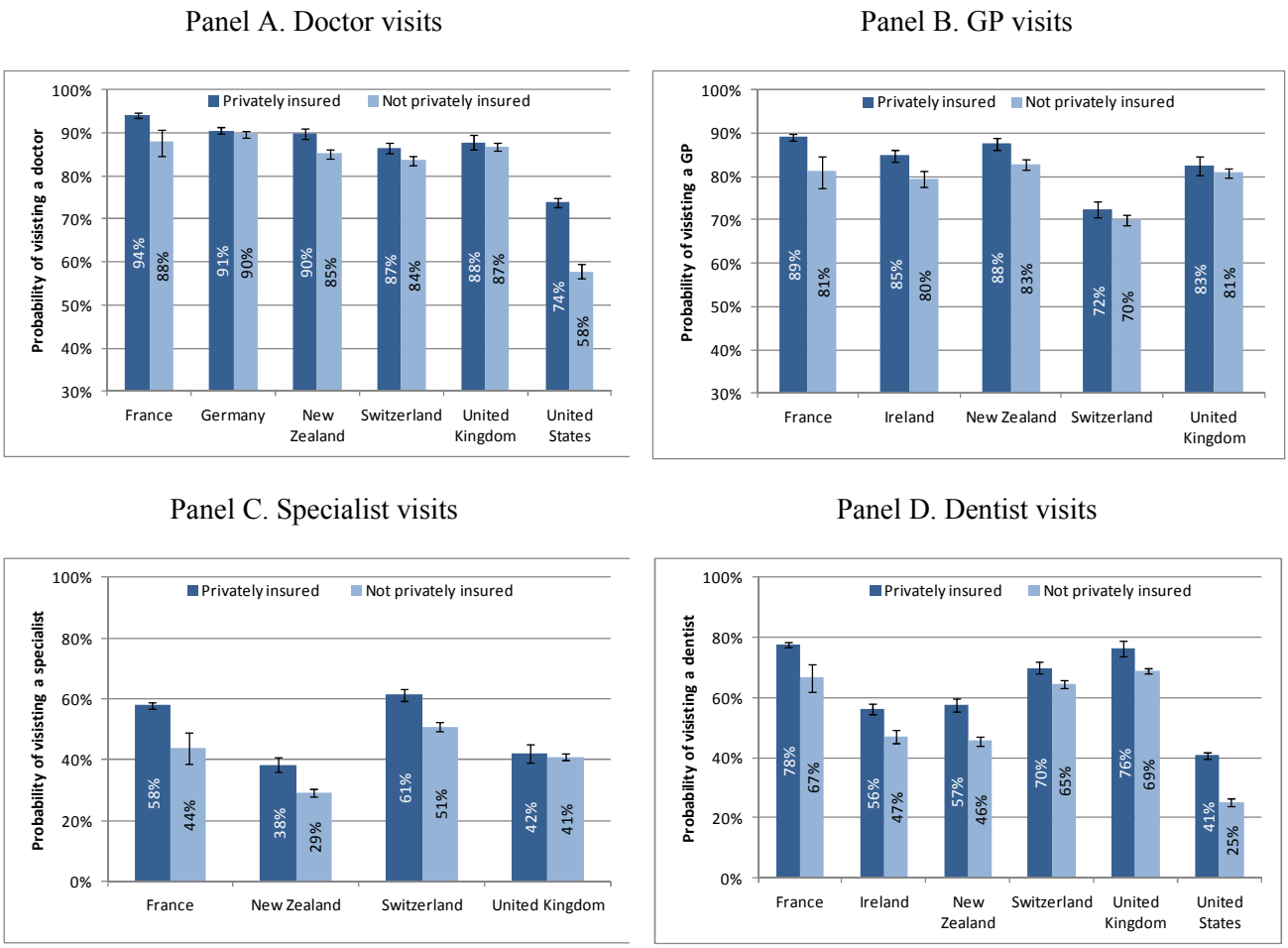


Source: National population-based surveys (see Table 1).

Note: Figures refer to both PHI and CMU-C (public) complementary coverage in France. In Germany, they represent the share of population "having a private health insurance either as a primary coverage or as a secondary coverage". In the US, they represent the share of population "having primary private health insurance".

101. PHI enhances access to medical goods and services, in particular to secondary and dental care. Figure 18 shows that in most countries people with PHI are significantly more likely to consult doctors and dentists, although with some exceptions.

Figure 18: Adjusted probabilities of medical visits by PHI status, in selected OECD countries



Source: National population-based surveys (see Table 1).

Note: Figure 18 shows the adjusted probabilities of medical visits, all other things being equal. The analysis controlled for a range of covariates: age, gender, ethnicity, health status, marital status, education level, occupation, income level, region, size of the household. In France, the indicator refers to "having a complementary insurance" (both CMU-C and PHI) vs. "no complementary insurance". In Germany, it refers to "having a private health insurance either as a primary basic coverage or as a secondary coverage". In the US, it refers to "having a private primary health insurance" vs. "having a public primary insurance or no insurance".

102. In four out of six countries (France, New Zealand, Switzerland, and the US) people with PHI are more likely to consult a doctor. The effect of PHI is not significant in Germany and the United Kingdom (Panel A). Regarding GP visits, people with PHI are more likely to consult in four out of five countries (France, Ireland, New Zealand, and Switzerland), the UK displaying no significant difference (Panel B). For specialist visits, similar results are found[9] (Panel C). Regarding dentist visits, results show in all

[9] Irish data does not provide information on specialist visits.

studied countries that people having PHI are significantly more likely to consult than those without PHI (Panel D).

103. In France, a recent study analysed the complementary insurance and its relationship with access to care (Perronin *et al*., 2011) As expected, the authors found that people with private health insurance or CMU-C compared to people without complementary insurance consult GPs, specialists and dentists more often, and report fewer unmet care needs, although the CMU-C-insured do not reach the level of utilisation of privately insured people.

6. CONCLUSION

104. Horizontal inequities and inequalities in health care utilisation persist across the 19 OECD countries studied. After adjustment for needs for health care, the better-off are more likely to visit doctors - especially specialists - than those with lower incomes. With GP contacts, the scenario is different. In most countries, for the same level of need for health care, the worse-off are as likely as the better-off to contact a GP, and they visit more often. Income-related inequalities in breast cancer screening appear in around half of all countries, with a higher rate among the better-off. Pro-rich inequalities in dental visits and in cervical cancer screening are present in almost all countries.

105. A comparison with previous results (Van Doorslaer and Masseria, 2004) shows that the relative position of countries between 2000 and 2009 has remained stable for inequities in doctor and GP visits. There is no strong evidence of diminishing inequities although some discrepancies are found in country ranks for specialist and dentist visits, these being mostly methodological in nature.

106. Findings highlight the important effects of certain health system features on equity. Broader health insurance coverage improves access. The higher the share of public health expenditure, the lower the inequity in doctor visits. Similarly, greater inequity in specialist visits accompanies a higher degree of private provision. A greater share of out-of-pocket payments is associated with inequity in specialist and dental care. Secondary private health insurance facilitates the use of care, with the privately insured more likely to visit doctors and dentists.

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ANNEXES

ANNEX 1. SET OF AVAILABLE INFORMATION IN EACH SURVEY

Table A1.1. Dependent variables

Country	GP visits: probability	GP visits: frequency	Specialists visits: probability	Specialists visits: frequency	Dentists visits: probability	Dentists visits: frequency	Breast cancer screening (mammography)	Cervical cancer screening (pap smear)
Canada 2007-08	In the past 12 months, have you seen, or talked to any of the following health professionals about your physical, emotional or mental health: a family doctor (pediatrician) or general practitioner?	In the past 12 months, how many times have you seen, or talked on the telephone, about your physical, emotional or mental health with a family doctor (pediatrician) or general practitioner?	In the past 12 months, have you seen, or talked to an eye specialist, such as an ophthalmologist or optometrist (about your physical, emotional or mental health)? - any other medical doctor or specialist such as a surgeon, allergist, orthopaedist, [gynaecologist/urologist] or psychiatrist (about your physical, emotional or mental health)?	In the past 12 months, how many times have you seen, or talked on the telephone, about your physical, emotional or mental health with an eye specialist (such as an ophthalmologist or optometrist)? - any other medical doctor or specialist such as a surgeon, allergist, orthopaedist, [gynaecologist/urologist] or psychiatrist (about your physical, emotional or mental health)?	In the past 12 months, have you seen, or talked to a dentist, dental hygienist or orthodontist (about your physical, emotional or mental health)?	In the past 12 months, how many times have you seen, or talked on the telephone, about your physical, emotional or mental health with a dentist or orthodontist?	Have you ever had a mammogram, that is, a breast x-ray? Yes / No When was the last time? 1.<6months ago 2. 6months-<1year 3. 1-<2 years 4. 2-<5 years 5.>=5 years	Have you ever had a pap smear test? Yes/ No When was the last time? 1.<6months ago 2. 6months-<1year 3. 1-<3 years 4. 3-<5 years 5.>=5 years
Denmark 2005	During the past 3 months, have you consulted a physician because of disease, disorder, illness or injury? Yes, my general practitioner	Number of times	During the past 3 months, have you consulted a physician because of disease, disorder, illness or injury? Yes, a practising specialist physician	Number of times	Have you consulted other health care providers during the past 3 months? Yes, a dentist	Number of times	Mammography in the past 12 months	Pap smear in the past 3 years
Finland 2009	in past 12 months have you visited a doctor at health centers (public) or at occupational health clinics ?	Number of visits in past 12 months	in past 12 months, have you visited a doctor at outpatient departments or in private practices?	Number of visits in past 12 months	in past 12 months, have you visited a dentist at health centers or in private practices?	Number of visits in past 12 months	missing	missing
France 2008	in past 12 months have you visited a GP?	Number of visits in past 12 months	in past 12 months, have you visited a specialist?	Number of visits in past 12 months	in past 24 months, have you visited a dentist?	missing	Last mammography: within past 2 years / within past 2-3 years / more than 3 years / never	Last pap smear: within past 3 years / within past 3-5 years / more than 5 years / never
Germany 2009	When was the last time you saw a doctor (except dentist)? 1.past 4 weeks 2.1-3month 3.4-12months 4.1-5years 5.>5years	Number of visits with private practitionners in past 12 months	missing	missing	missing	missing	missing	missing
Ireland 2007	a. When was the last time you consulted a GP or family doctor on your own behalf? [1. In the last 4 weeks/ 2. Between 1 and 12 mths ago/ 3. 1-2 years ago/ 4. More than 2 years ago/ 5. Never]	missing	missing	missing	When was the last time you visited a dentist, dental hygienist or orthodontist on your own behalf? [1. In the last 4 weeks / 2. Between 1 and 12 mths ago / 3. 1-2 years ago / 4. More than 2 years ago / 5. Never]	missing	In the last 12 months, have you been screened or tested for brest cancer - mammogram?	In the last 12 months, have you been screened or tested for cervical cancer?

Country	GP visits: probability	GP visits: frequency	Specialists visits: probability	Specialists visits: frequency	Dentists visits: probability	Dentists visits: frequency	Breast cancer screening (mammography)	Cervical cancer screening (pap smear)
New Zealand 2006-07	In the last 12 months, have you seen a GP about your own health?	Number of times	In the last 12 months, have you seen any medical specialists about your own health?	Number of times	When was the last time you visited? [1.less than 12 months ago/ 2... 4 more than 12 months / 5. never]	missing	Mammography in the past 2 years	Pap smear in the past 3 years
Spain 2009	a. When was the last time you consulted a GP (general practitioner) or family doctor on your own behalf? [1.less than 4 weeks ago/ 2. 12 months ago/ 3. 12months ago or more/ 4.never]	b.(if a=1) During the past 4 weeks, how many times?	a. When was the last time you consulted a medical or surgical specialist on your own behalf? [1.less than 4 weeks ago/ 2. 12 months ago/ 3. 12months ago or more/ 4.never]	b.(if a=1) During the past 4 weeks, how many times?	a. When was the last time you visited a dentist or orthodontist on your own behalf (that is, not while only accompanying a child, spouse, etc.)? [1.less than 4 weeks ago/ 2. 12 months ago/ 3. 12months ago or more/ 4.never]	b.(if a=1) During the past 4 weeks, how many times?	Last mammography: 1. within three years 2. more than three years ago if answer 1 => which date? (month and year)	Last pap smear: 1. within three years 2. more than three years ago
Switzerland 2007	In the past 12 months, have you seen a general practitioner?	Number of visits in past 12 months	In the past 12 months, have you seen a specialist?	Number of visits in past 12 months	Number of visits in past 12 months	Number of visits in past 12 months	Date of the last visit	Date of the last visit
UK 2008	Number of visits in past 12 months: 1. none 2. 1-2 3. 3-5 4. 6-10 5. >10	Number of visits in past 12 months: 1. none 2. 1-2 3. 3-5 4. 6-10 5. >10	Number of of visits in past 12 months: 1. none 2. 1-2 3. 3-5 4. 6-10 5. >10	Number of visits in past 12 months: 1. none 2. 1-2 3. 3-5 4. 6-10 5. >10	Health check in past 12 months: dental	missing	Health check-up in past 12 months: breast screen (Data collected in 2008, 2007)	Health check-up in past 12 months: cervical smear (Data collected in 2008, 2007, 2006)
USA 2008	Number of office-based physician visits in 2008	Number of office-based physician visits in 2008	missing	missing	Number of dental care visits in 2008	Number of dental care visits in 2008	Last mammography: Within past year Within past 2 years Within past 3 years Within past 5 years more than 5 years Never	Last pap smear: Within past year Within past 2 years Within past 3 years Within past 5 years more than 5 years Never
EHIS countries	a. When was the last time you consulted a GP (general practitioner) or family doctor on your own behalf? [1.less than 12 months ago / 2. 12months ago or more / 3.never]	b.(if a=1) During the past 4 weeks, how many times?	a. When was the last time you consulted a medical or surgical specialist on your own behalf? [1.less than 12 months ago/ 2. 12 months ago or more/ 3.never]	b.(if a=1) During the past 4 weeks, how many times?	a. When was the last time you visited a dentist or orthodontist on your own behalf (that is, not while only accompanying a child, spouse, etc.)? [1.less than 12 months ago/ 2. 12months ago or more/ 3.never]	b.(if a=1) During the past 4 weeks, how many times?	Last mammography: 1. past 12 months 2.12-24months 3.24-36 months 4. >36months 5. never had mammography	Last pap smear: 1. past 12 months 2.12-24months 3.24-36 months 4. >36months 5. never had mammography

Note : EHIS countries refer to Austria, Belgium, Czech Republic, Estonia, Hungary, Poland, Slovak Republic, and Slovenia.

Table A1.2. Explanatory variables: Need variables and socio-economic characteristics

	Need standardisation variables		Socio-economic variables								
Country	**Self-assessed health**	**Activity limitation**	**Income**	**Education**	**Activity status**	**Region**	**Degree of urbanization**	**Insurance coverage**	**Ethnicity**	**Size of household**	**Marital status**
Canada 2007-08	Excellent / very good / good / fair / poor	Impact of health problems on three main domains: home, work or school, and other activities (sometimes / often / never)	5 quintiles based on the adjusted ratio of total household income to the low income cut-off corresponding to the household and community size	low / middle / high	working status : yes / no	11 provinces	missing	missing	missing	1 / 2 / 3 / 4 / 5+	single / married / other
Denmark 2005	Very good / Good / Fair / Bad / Very bad	0.no / 1.limited	5 groups of income	low / middle / high	1. employee / 2. self-employed / 3. student / 4. unemployed / 5. retired / 6. homemakers / 7.disabled, other	5 regions	missing	supplementary insurance 0.yes / 1.no, uninsured	missing	1 / 2 / 3 / 4 / 5+	single / married / other
Finland 2009	Very good / Good / Fair / Bad / Very bad	0.no / 1.limited	equivalised income	low / middle / high	1. employee / 2. student / 3. unemployed / 4. retired / 5. homemakers / 6.disabled, other	4 regions	1.densely /2.intermediate /3.thinly	missing	missing	1 / 2 / 3 / 4 / 5+	single / married / other
France 2008	Very good / Good / Fair / Bad /Very bad	0.no / 1.limited but not severely / 2.limited severely	equivalised income	low / middle / high	1. employee / 2. self-employed / 3. student / 4. unemployed / 5. retired / 6. homemakers / 7.disabled, military, other	22 regions	1.densely /2.intermediate /3.thinly	complementary insurance 0.yes / 1.no, uninsured	missing	1 / 2 / 3 / 4 / 5+	single / married / other
Germany 2009	Very good / Good / Fair / Bad / Very bad	0.no / 1.limited but not severely / 2.limited severely	equivalised income	low / middle / high	1. employee / 2. student / 3. unemployed / 4. retired / 5. homemakers / 6.disabled, other	7 regions	1.densely /2.intermediate /3.thinly	0. privately insured / 1. publicly insured	missing	1 / 2 / 3 / 4 / 5+	single / married / other
Ireland 2007	Excellent / very good / good / fair / poor	0.no / 1.limited	5 groups of income	low / middle / high	1. employee / 2. self-employed / 3. student / 4. unemployed / 5. retired / 6. homemakers / 7.disabled, military, other	8 regions	1.densely /2.intermediate /3.thinly	Private Health Insurance :0. privately insured / 1. not insured Medical card: 0. no card 1. full card or GP card	1. White / 2. Black / 3. Asian	1 / 2 / 3 / 4 / 5+	single / married / other
New Zealand 2006-07	Excellent / very good / good / fair / poor	0.no / 1.limited	5 groups of income	low / middle / high	1.Working in paid work / 2.Not in paid work and looking for a job / 3.Not in paid work and not looking for a job	missing	1.densely /2.intermediate /3.thinly	0. insured / 1. uninsured	1.European - Other / 2.Maori / 3.Pacific / 4.Asian	1 / 2 / 3 / 4 / 5+	single / married / unknown

	Need standardisation variables		Socio-economic variables								
Country	**Self-assessed health**	**Activity limitation**	**Income**	**Education**	**Activity status**	**Region**	**Degree of urbanization**	**Insurance coverage**	**Ethnicity**	**Size of household**	**Marital status**
Spain 2009	Very good / Good / Fair / Bad / Very bad	0.no / 1.limited but not severely / 2.limited severely	Equivalised income	low / middle / high	1. employee / 2. student / 3. unemployed / 4. retired / 5. homemakers / 6.disabled /7. other	19 regions	1.densely /2.intermediate /3.thinly	missing	missing	1 / 2 / 3 / 4 / 5+	single / married / other
Switzerland 2007	Very good / Good / Fair / Bad / Very bad	0.no / 1.limited but not severely / 2.limited severely	equivalised income	low / middle / high	1. employee / 2. self-employed / 3. student / 4. unemployed / 5. retired / 6. homemakers / 7.disabled, military, other	7 regions	1.urban /2.rural	type of insurance; Supplementary insurance (indicator based on type of services received when hospitalised); Subsidies for insurance payments	missing	1 / 2 / 3 / 4 / 5+	single / married / other
UK 2008	Excellent / very good / good / fair / poor	0.no / 1.yes	equivalised income	low / middle / high	1. employee / 2. self-employed / 3. student / 4. unemployed / 5. retired / 6. homemakers / 7.disabled, military, other	12 regions	missing	private medical insurance 0.yes / 1.no, uninsured	1. White / 2. Black / 3. Asian / 4. Other	1 / 2 / 3 / 4 / 5+	single / married / other
USA 2008	Excellent / very good / good / fair / poor	no / yes	eqvincome based on the percentage of family income relative to poverty line (adjusted for the composition and size of family)	years of education	1 Employed / 2 Self-employed / 3 student 4 unemployed / 5 retired 6 homemakers / 7 disabled, others	missing	missing	uninsured: 0.no / 1.yes, uninsured	1.Hispatic / 2.Black / 3.Asian / 4.Other	1 / 2 / 3 / 4 / 5+	single / married / other
EHIS countries	Very good / Good / Fair / Bad / Very bad	no / limited but not severely / limited severely	10 deciles of household income, recoded into 5 quintiles	low / middle / high	1. employee / 2. self-employed / 3. student / 4. unemployed / 5. retired / 6. homemakers / 7.disabled, military, other	NUTS-2	1.densely /2.intermediate /3.thinly	missing	missing	1 / 2 / 3 / 4 / 5+	single / married / other

Note : EHIS countries refer to Austria, Belgium, Czech Republic, Estonia, Hungary, Poland, Slovak Republic, and Slovenia.

ANNEX 2. METHODOLOGICAL ANNEX

107. This annex presents a overview of the need-standardisation procedure. We used the indirect standardisation method as described in the appendix of Van Doorslaer and Masseria (2004). More information on Stata programs can be found in O'Donnel *et al.* (2008).

108. The indirect standardisation method estimates a health regression[10] such as the following:

[1] $Y_i = \alpha + \beta X_i + \delta Z_i + \varepsilon_i$

where Y denotes the dependent variable (e.g. doctor visits of individual in a given period), X a set of need indicator variables including demographic and morbidity variables, and Z a set of non-need variables (variables for which we do not want to standardise, but to control for, in order to estimate partial correlations with the need variables), α, β and δ are parameters vectors, and ε an error term.

109. Equation 1 can be used to generate need-predicted, or *X-expected*, values of Y. Y^X represents the amount of medical care an individual would have received if she/he had been treated as others with the same need characteristics, on average :

[2] $Y_i^X = \hat{\alpha} + \hat{\beta} X_i + \hat{\delta} \bar{Z}_i$

where $\bar{Z}$ the sample mean values.

110. Estimates of the indirectly need-standardised utilisation, Y_i^{IS}, are then obtained as the difference between actual and x-expected utilisation, plus the sample mean $\bar{Y}$:

[3] $Y_i^{IS} = Y_i - Y_i^X + \bar{Y}$

111. The distribution of Y_i^{IS} across income can be interpreted as the distribution of health care utilisation to be *expected if need were equally distributed across income*.

112. The concentration index of the actual health care utilisation measures the degree of inequality and the concentration index of the need-standardised utilisation (which is the horizontal inequity index HI) measures the degree of horizontal inequity. The concentration index of a variable Y can be computed using a simple "convenient covariance" formula:

[4] $C = \frac{2 \times cov_w(yi, Ri)}{\mu}$

where μ 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 ith individual in the income distribution.

10 Linear OLS regression is preferred since, as discussed in Van Doorslaer and Masseria (2004), the alternative of using intrinsically non-linear regression models does not change the final results.

113. Another option to obtain robust estimates for *C* and its standard error consists in running the following "convenient regression" of the transformed *Y* on relative fractional rank:

$$[5] \quad \frac{2\times\sigma_r^2}{\mu} Y_i = \alpha_1 + \beta_1 R_i + \varepsilon_{1,i}$$

where σ_r^2 is the variance of R_i and β_1 is equal to *C*, and the estimated standard error of β_1 provides the estimated standard error of *C*.

ANNEX 3. QUINTILE DISTRIBUTION OF HEALTH CARE UTILISATION

Table A3.1: Quintile distribution of the probability and number of doctor visits after need-standardisation, inequality index (CI before need-standardisation) and inequity index (HI after need-standardisation)

Country	Sample size		Poorest	Quintile 2	Quintile 3	Quintile 4	Richest	Total	CI	HI
Austria		total visits in past 4 weeks								
		probability of visit in the past 12 months								
Belgium		total visits in past 4 weeks	0.76	0.70	0.74	0.66	0.69	0.70	-0.124 *	-0.013
	4392	probability of visit in the past 12 months	0.84	0.83	0.86	0.86	0.88	0.86	-0.007 *	0.011 *
Canada		total visits in past 12 months	4.17	4.12	4.14	4.26	4.41	4.22	-0.052 *	0.012 *
	101127	probability of visit in the past 12 months	0.81	0.84	0.86	0.88	0.90	0.86	0.008 *	0.019 *
Czech Republic		total visits in past 4 weeks	0.62	0.99	0.94	1.11	0.78	0.91	-0.114 *	0.002
	1452	probability of visit in the past 12 months	0.79	0.84	0.83	0.90	0.82	0.84	-0.025 *	0.005
Denmark		total visits in past 3 months	0.97	0.97	0.89	0.85	0.88	0.92	-0.109 *	-0.028 *
	12040	probability of visit in the past 3 months	0.47	0.44	0.42	0.42	0.41	0.43	-0.074 *	-0.023 *
Estonia		total visits in past 4 weeks	0.45	0.64	0.62	0.62	0.61	0.60	-0.102 *	0.029
	5833	probability of visit in the past 12 months	0.66	0.72	0.74	0.74	0.78	0.74	-0.011 *	0.027 *
Finland		total visits in past 12 months	2.80	2.66	3.10	3.06	3.19	2.96	-0.012	0.039 *
	3916	probability of visit in the past 12 months	0.65	0.66	0.70	0.70	0.73	0.69	0.010	0.026 *
France		total visits in past 12 months	5.22	4.90	5.20	5.25	5.68	5.27	-0.032 *	0.022 *
	10174	probability of visit in the past 12 months	0.88	0.89	0.90	0.92	0.94	0.91	0.009 *	0.013 *
Germany		total visits in past 12 months	5.28	5.14	5.24	5.35	5.58	5.30	-0.048 *	0.014
	19765	probability of visit in the past 12 months	0.85	0.88	0.89	0.88	0.90	0.88	0.001	0.010 *
Hungary		total visits in past 4 weeks	0.88	0.95	0.94	0.88	0.99	0.93	-0.107 *	0.014
	4508	probability of visit in the past 12 months	0.80	0.84	0.83	0.85	0.89	0.84	-0.005	0.018 *
Ireland		total visits in past 12 months								
		probability of visit in the past 12 months								
New Zealand		total visits in past 12 months	4.07	3.76	3.55	3.71	3.83	3.75	-0.088 *	-0.003
	10629	probability of visit in the past 12 months	0.79	0.80	0.81	0.82	0.86	0.82	-0.005 *	0.016 *
Poland		total visits in past 4 weeks	0.86	0.81	0.83	0.86	0.90	0.85	0.027 *	0.116 *
	23181	probability of visit in the past 12 months	0.72	0.74	0.75	0.78	0.82	0.77	-0.006 *	0.024 *
Slovak Republic		total visits in past 4 weeks	0.85	1.03	1.01	1.06	1.02	1.01	-0.138 *	0.022
	4113	probability of visit in the past 12 months	0.78	0.82	0.82	0.85	0.85	0.83	-0.019 *	0.014 *
Slovenia		total visits in past 4 weeks	0.67	0.79	0.73	0.65	0.71	0.72	-0.155 *	-0.009
	1528	probability of visit in the past 12 months	0.77	0.74	0.79	0.77	0.80	0.77	-0.017 *	0.012
Spain		total visits in past 4 weeks	0.99	0.92	1.01	1.13	1.21	1.05	-0.010	0.056 *
	17253	probability of visit in the past 12 months	0.81	0.83	0.83	0.84	0.85	0.83	-0.004	0.010 *
Switzerland		total visits in past 12 months	4.28	4.06	4.11	4.52	4.65	4.32	-0.029 *	0.022
	14491	probability of visit in the past 12 months	0.76	0.79	0.78	0.79	0.82	0.79	0.005	0.013 *
United Kingdom		total visits in past 12 months (categorical)								
	11949	probability of visit in the past 12 months	0.78	0.80	0.78	0.79	0.80	0.79	-0.021 *	0.004
United States		total visits in past 12 months	2.79	3.10	3.10	3.82	4.19	3.59	0.020 *	0.084 *
	22611	probability of visit in the past 12 months	0.56	0.61	0.63	0.70	0.76	0.68	0.044 *	0.060 *

Note: Significant HI and CI indices highlighted with a * ($p<0.05$). The surveys in Austria and Ireland do not provide information on doctor visits.

Table A3.2: Quintile distribution of the probability and number of GP visits after need-standardisation, inequality index (CI before need-standardisation) and inequity index (HI after need-standardisation)

Country	Sample size		Poorest	Quintile 2	Quintile 3	Quintile 4	Richest	Total	CI	HI
Austria		total visits in past 4 weeks	0.57	0.55	0.57	0.53	0.49	0.54	-0.120 *	-0.027 *
	14951	probability of visit in the past 12 months	0.77	0.78	0.80	0.78	0.80	0.79	-0.013 *	0.005 *
Belgium		total visits in past 4 weeks	0.52	0.46	0.50	0.45	0.44	0.46	-0.157 *	-0.030 *
	4392	probability of visit in the past 12 months	0.79	0.79	0.83	0.82	0.82	0.82	-0.018 *	0.006
Canada		total visits in past 12 months	2.96	2.84	2.79	2.74	2.80	2.83	-0.076 *	-0.011 *
	101127	probability of visit in the past 12 months	0.73	0.76	0.77	0.79	0.81	0.77	0.005 *	0.020 *
Czech Republic		total visits in past 4 weeks	0.33	0.54	0.51	0.59	0.40	0.48	-0.168 *	-0.008
	1452	probability of visit in the past 12 months	0.70	0.74	0.74	0.78	0.68	0.73	-0.051 *	-0.009
Denmark		total visits in past 3 months	0.84	0.82	0.71	0.72	0.71	0.77	-0.119 *	-0.038 *
	12040	probability of visit in the past 3 months	0.45	0.41	0.39	0.38	0.37	0.40	-0.083 *	-0.034 *
Estonia		total visits in past 4 weeks	0.29	0.42	0.40	0.36	0.35	0.36	-0.141 *	-0.002
	5833	probability of visit in the past 12 months	0.59	0.66	0.68	0.67	0.70	0.67	-0.026 *	0.024 *
Finland		total visits in past 12 months	1.80	1.61	1.96	1.91	1.78	1.81	-0.027	0.016
	3916	probability of visit in the past 12 months	0.54	0.57	0.59	0.60	0.59	0.58	-0.001	0.019 *
France		total visits in past 12 months	3.90	3.65	3.58	3.54	3.46	3.62	-0.076 *	-0.023 *
	10174	probability of visit in the past 12 months	0.84	0.85	0.86	0.87	0.87	0.86	0.001	0.008 *
Germany		total visits in past 12 months								
		probability of visit in the past 12 months								
Hungary		total visits in past 4 weeks	0.58	0.61	0.54	0.52	0.56	0.56	-0.139 *	-0.017
	4508	probability of visit in the past 12 months	0.75	0.77	0.77	0.76	0.78	0.76	-0.022 *	0.007
Ireland		total visits in past 12 months								
	8569	probability of visit in the past 12 months	0.76	0.73	0.71	0.73	0.76	0.74	-0.021 *	0.005
New Zealand		total visits in past 12 months	3.34	2.89	2.65	2.84	2.83	2.85	-0.106 *	-0.017 *
	10629	probability of visit in the past 12 months	0.76	0.78	0.79	0.80	0.84	0.80	-0.006 *	0.018 *
Poland		total visits in past 4 weeks	0.57	0.49	0.51	0.51	0.52	0.51	-0.095 *	-0.007
	23181	probability of visit in the past 12 months	0.68	0.69	0.71	0.72	0.75	0.71	-0.018 *	0.019 *
Slovak Republic		total visits in past 4 weeks	0.50	0.58	0.55	0.59	0.57	0.56	-0.140 *	0.016
	4113	probability of visit in the past 12 months	0.71	0.77	0.77	0.78	0.79	0.77	-0.029 *	0.014 *
Slovenia		total visits in past 4 weeks	0.37	0.55	0.48	0.45	0.41	0.46	-0.174 *	-0.014
	1528	probability of visit in the past 12 months	0.71	0.67	0.72	0.72	0.73	0.71	-0.028 *	0.012
Spain		total visits in past 4 weeks	0.79	0.78	0.76	0.80	0.75	0.78	-0.081 *	-0.007
	17253	probability of visit in the past 12 months	0.76	0.77	0.77	0.78	0.75	0.77	-0.021 *	-0.003
Switzerland		total visits in past 12 months	2.60	2.31	2.34	2.33	2.29	2.37	-0.068 *	-0.022
	14491	probability of visit in the past 12 months	0.65	0.67	0.67	0.65	0.67	0.66	-0.002	0.003
United Kingdom		total visits in past 12 months (categorical)								
	11949	probability of visit in the past 12 months	0.75	0.76	0.76	0.77	0.78	0.76	-0.020 *	0.006
United States		total visits in past 12 months								
		probability of visit in the past 12 months								

Note: Significant HI and CI indices highlighted with a * ($p<0.05$). The surveys in Germany and the United States do not separately identify GP and specialist visits.

Table A3.3: Quintile distribution of the probability and number of specialist visits after need-standardisation, inequality index (CI before need-standardisation) and inequity index (HI after need-standardisation)

Country	Sample size		Poorest	Quintile 2	Quintile 3	Quintile 4	Richest	Total	CI	HI
Austria		total visits in past 4 weeks								
		probability of visit in the past 12 months								
Belgium		total visits in past 4 weeks	0.25	0.23	0.24	0.21	0.27	0.24	-0.067 *	0.023
	4392	probability of visit in the past 12 months	0.43	0.46	0.50	0.46	0.58	0.51	-0.001	0.054 *
Canada		total visits in past 12 months	1.21	1.29	1.35	1.51	1.60	1.39	-0.004	0.059 *
	101127	probability of visit in the past 12 months	0.49	0.52	0.55	0.58	0.63	0.56	0.022 *	0.051 *
Czech Republic		total visits in past 4 weeks	0.29	0.44	0.44	0.53	0.39	0.43	-0.050	0.017
	1452	probability of visit in the past 12 months	0.50	0.56	0.60	0.62	0.59	0.58	-0.024	0.019
Denmark		total visits in past 3 months	0.14	0.15	0.17	0.13	0.17	0.15	-0.061 *	0.020
	12040	probability of visit in the past 3 months	0.06	0.08	0.09	0.08	0.10	0.08	-0.011	0.076 *
Estonia		total visits in past 4 weeks	0.16	0.22	0.22	0.26	0.27	0.24	-0.046	0.075 *
	5833	probability of visit in the past 12 months	0.40	0.46	0.44	0.45	0.52	0.47	-0.007	0.048 *
Finland		total visits in past 12 months	1.01	1.05	1.14	1.15	1.41	1.15	0.010	0.076 *
	3916	probability of visit in the past 12 months	0.38	0.37	0.41	0.39	0.46	0.40	0.025 *	0.043 *
France		total visits in past 12 months	1.42	1.43	1.72	1.77	2.32	1.76	0.048 *	0.106 *
	9432	probability of visit in the past 12 months	0.46	0.52	0.55	0.60	0.68	0.57	0.061 *	0.079 *
Germany		total visits in past 12 months								
		probability of visit in the past 12 months								
Hungary		total visits in past 4 weeks	0.30	0.34	0.40	0.36	0.42	0.37	-0.060 *	0.060 *
	4508	probability of visit in the past 12 months	0.54	0.61	0.60	0.57	0.66	0.60	-0.005	0.029 *
Ireland		total visits in past 12 months								
		probability of visit in the past 12 months								
New Zealand		total visits in past 12 months	1.10	1.08	0.96	1.13	1.17	1.08	-0.063 *	0.021
	10629	probability of visit in the past 12 months	0.31	0.29	0.32	0.33	0.36	0.33	-0.030 *	0.040 *
Poland		total visits in past 4 weeks	0.29	0.32	0.31	0.35	0.37	0.33	-0.040 *	0.045 *
	23181	probability of visit in the past 12 months	0.41	0.45	0.47	0.50	0.57	0.48	0.007	0.057 *
Slovak Republic		total visits in past 4 weeks	0.37	0.44	0.46	0.46	0.44	0.44	-0.135 *	0.022
	4113	probability of visit in the past 12 months	0.49	0.54	0.54	0.59	0.58	0.55	-0.052 *	0.028 *
Slovenia		total visits in past 4 weeks	0.29	0.24	0.26	0.19	0.30	0.26	-0.119 *	0.005
	1528	probability of visit in the past 12 months	0.46	0.43	0.46	0.45	0.51	0.46	-0.030 *	0.027
Spain		total visits in past 4 weeks	0.19	0.23	0.29	0.36	0.46	0.30	0.122 *	0.196 *
	17253	probability of visit in the past 12 months	0.44	0.50	0.53	0.56	0.63	0.53	0.038 *	0.071 *
Switzerland		total visits in past 12 months	1.71	1.74	1.77	2.19	2.36	1.95	0.015	0.072 *
	14491	probability of visit in the past 12 months	0.47	0.48	0.50	0.54	0.59	0.52	0.022 *	0.049 *
United Kingdom		total visits in past 12 months (categorical)								
	11949	probability of visit in the past 12 months	0.40	0.42	0.42	0.42	0.42	0.42	-0.055 *	0.008
United States		total visits in past 12 months								
		probability of visit in the past 12 months								

Note: Significant HI and CI indices highlighted with a * ($p<0.05$). The surveys in Austria, Germany, Ireland, and the United States do not provide information on specialist visits.

Table A3.4: Dentist visits in the past 12 months, by income quintile, and inequality index (CI)

Country	Sample size		Poorest	Quintile 2	Quintile 3	Quintile 4	Richest	Total	CI
Austria		total visits in past 4 weeks	0.15	0.16	0.17	0.21	0.22	0.19	0.084 *
	14951	probability of visit in the past 12 months	0.52	0.55	0.60	0.65	0.70	0.61	0.062 *
Belgium		total visits in past 4 weeks	0.10	0.09	0.10	0.09	0.16	0.12	0.131 *
	4392	probability of visit in the past 12 months	0.40	0.44	0.55	0.57	0.69	0.58	0.094 *
Canada		total visits in past 12 months	0.95	1.19	1.38	1.55	1.67	1.35	0.106 *
	101127	probability of visit in the past 12 months	0.45	0.57	0.67	0.74	0.79	0.65	0.104 *
Czech Republic		total visits in past 4 weeks	0.20	0.30	0.33	0.47	0.24	0.32	0.011
	1452	probability of visit in the past 12 months	0.50	0.64	0.70	0.77	0.78	0.71	0.061 *
Denmark		total visits in past 3 months	0.42	0.51	0.47	0.52	0.53	0.49	0.032 *
	12040	probability of visit in the past 3 months	0.28	0.36	0.36	0.38	0.40	0.35	0.049 *
Estonia		total visits in past 4 weeks							
	5833	probability of visit in the past 12 months	0.31	0.42	0.45	0.49	0.56	0.48	0.092 *
Finland		total visits in past 12 months	1.07	1.20	1.26	1.25	1.46	1.25	0.059 *
	3916	probability of visit in the past 12 months	0.49	0.55	0.59	0.60	0.71	0.59	0.069 *
France		total visits in past 24 months							
	9904	probability of visit in the past 24 months	0.64	0.72	0.75	0.79	0.82	0.75	0.048 *
Germany		total visits in past 12 months							
		probability of visit in the past 12 months							
Hungary		total visits in past 4 weeks	0.15	0.19	0.20	0.22	0.24	0.20	0.088 *
	4508	probability of visit in the past 12 months	0.28	0.30	0.37	0.43	0.50	0.37	0.121 *
Ireland		total visits in past 12 months							
	8515	probability of visit in the past 12 months	0.38	0.45	0.53	0.57	0.61	0.52	0.092 *
New Zealand		total visits in past 12 months							
	9730	probability of visit in the past 12 months	0.44	0.45	0.49	0.52	0.60	0.51	0.060 *
Poland		total visits in past 4 weeks	0.20	0.19	0.23	0.26	0.31	0.24	0.094 *
	23181	probability of visit in the past 12 months	0.27	0.34	0.40	0.48	0.55	0.42	0.120 *
Slovak Republic		total visits in past 4 weeks	0.23	0.35	0.37	0.39	0.38	0.35	0.058 *
	4113	probability of visit in the past 12 months	0.48	0.66	0.70	0.76	0.76	0.69	0.063 *
Slovenia		total visits in past 4 weeks	0.26	0.26	0.28	0.36	0.27	0.28	0.028
	1528	probability of visit in the past 12 months	0.42	0.48	0.65	0.60	0.64	0.56	0.080 *
Spain		total visits in past 4 weeks	0.14	0.17	0.19	0.23	0.30	0.20	0.151 *
	17253	probability of visit in the past 12 months	0.34	0.39	0.44	0.48	0.58	0.45	0.104 *
Switzerland		total visits in past 12 months	1.15	1.10	1.13	1.21	1.17	1.15	0.012
	11366	probability of visit in the past 12 months	0.61	0.65	0.66	0.67	0.69	0.65	0.025 *
United Kingdom		total visits in past 12 months (categorical)							
	11949	probability of visit in the past 12 months	0.58	0.63	0.69	0.75	0.75	0.69	0.050 *
United States		total visits in past 12 months	0.49	0.61	0.79	1.04	1.40	0.99	0.196 *
	22611	probability of visit in the past 12 months	0.24	0.27	0.34	0.45	0.58	0.42	0.180 *

Note: Significant CI indices highlighted with a * ($p<0.05$). The survey in Germany does not provide information on dentist's visit.

Table A3.5: Breast cancer screening participation in the past 2 years in women aged 50-69, by income quintile, and inequality index (CI)

Country (Sample size)	Poorest	Quintile 2	Quintile 3	Quintile 4	Richest	Total	CI
Austria (2465)	0.77	0.79	0.83	0.81	0.82	0.80	0.013 *
Belgium (691)	0.59	0.60	0.71	0.72	0.89	0.74	0.074 *
Canada (9596)	0.61	0.73	0.77	0.78	0.77	0.74	0.038 *
Czech Republic (262)	0.56	0.64	0.71	0.75	0.66	0.67	0.033
Denmark* (2038)	0.13	0.17	0.15	0.12	0.15	0.15	-0.011
Estonia (947)	0.20	0.36	0.29	0.43	0.51	0.36	0.168 *
Finland							
France (1571)	0.64	0.73	0.75	0.81	0.85	0.77	0.053 *
Germany							
Hungary (856)	0.62	0.60	0.69	0.64	0.70	0.65	0.024
Ireland* (1289)	0.21	0.31	0.36	0.33	0.43	0.33	0.125 *
New Zealand (1587)	0.72	0.72	0.78	0.78	0.81	0.76	0.023 *
Poland (4584)	0.52	0.55	0.59	0.61	0.65	0.59	0.039 *
Slovak Republic (692)	0.56	0.57	0.59	0.63	0.60	0.58	0.022
Slovenia (253)	0.49	0.51	0.57	0.44	0.50	0.50	-0.001
Spain (2545)	0.83	0.85	0.84	0.87	0.87	0.85	0.012 *
Switzerland (2526)	0.50	0.49	0.53	0.54	0.55	0.52	0.029 *
United Kingdom (1975)	0.51	0.53	0.54	0.47	0.54	0.52	0.003
United States (3152)	0.69	0.66	0.68	0.79	0.87	0.78	0.066 *

Note: Breast cancer screening in the past 12 months in Denmark and Ireland. Significant CI indices highlighted with a * ($p<0.05$). The surveys in Finland and Germany do not provide information on breast cancer screening.

Table A3.6: Cervical cancer screening participation in the past 3 years in women aged 20-69, by income quintile, and inequality index (CI)

Country (Sample size)	Poorest	Quintile 2	Quintile 3	Quintile 4	Richest	Total	CI
Austria (6339)	0.73	0.80	0.81	0.83	0.87	0.82	0.029 *
Belgium (1771)	0.61	0.50	0.69	0.70	0.80	0.71	0.066 *
Canada (18556)	0.69	0.75	0.79	0.81	0.85	0.78	0.039 *
Czech Republic (565)	0.53	0.55	0.64	0.72	0.80	0.68	0.079 *
Denmark (5040)	0.52	0.66	0.79	0.79	0.80	0.71	0.071 *
Estonia (2156)	0.20	0.25	0.28	0.29	0.35	0.30	0.089 *
Finland							
France (4092)	0.59	0.68	0.74	0.79	0.81	0.73	0.064 *
Germany							
Hungary (1941)	0.52	0.61	0.62	0.66	0.74	0.63	0.062 *
Ireland* (4030)	0.13	0.13	0.14	0.18	0.19	0.16	0.090 *
New Zealand (5053)	0.60	0.67	0.75	0.77	0.82	0.74	0.051 *
Poland (10040)	0.59	0.67	0.69	0.75	0.80	0.72	0.049 *
Slovak Republic (1822)	0.56	0.58	0.62	0.64	0.67	0.61	0.034 *
Slovenia (651)	0.69	0.76	0.82	0.84	0.79	0.78	0.023
Spain (5875)	0.71	0.76	0.79	0.79	0.87	0.79	0.038 *
Switzerland (6183)	0.29	0.31	0.35	0.39	0.37	0.34	0.054 *
United Kingdom (5168)	0.43	0.45	0.46	0.56	0.56	0.50	0.064 *
United States (9363)	0.81	0.78	0.80	0.87	0.89	0.85	0.028 *

Note: Cervical cancer screening in the past 12 months in Ireland. Significant CI indices highlighted with a * ($p<0.05$). The surveys in Finland and Germany do not provide information on cervical cancer screening.

ANNEX 4. DETAILS ON HEALTH SYSTEMS CHARACTERISTICS

114. Most of the information on health system features was collected through the *OECD Health Data 2011* database or through the 2008 *Health Systems Characteristics* survey (see the questionnaire in Paris *et al.* 2010). Some indicators were constructed in order to summarize information such as the three following indicators: (a) depth of coverage, (b) degree of private provision of care, and (c) regulation of price billed by provider

115. These three aggregated indicators are described here. To be able to perform the analysis on the largest number of countries, missing data were estimated by the Secretariat or imputed by the OECD mean.

Depth of coverage

116. The indicator "Depth of coverage" is based on 3 sub-indicators:

- "scope and depth of basic coverage defined by regulation"
- "actual level of coverage by health insurance'
- "out-of-pocket payments for essential care".

Scope and depth of basic coverage defined by regulation

117. This sub-indicator reflects the "theoretical" level of coverage of the population, or what people are in principle entitled to. It is based on country replies to questions 13 and 16 of the survey questionnaire. First, a score was attributed to each function of care, according to the share of typical costs covered by basic primary coverage (see table below). Then, a global score was computed as the weighted average of function-related scores.

118. To account for the exemption from copayments (question 16 in the HSC questionnaire), we added 0.5 to the total score if exemption mechanisms exist for people with high medical needs (people with certain medical conditions or disabilities or people who have reached an upper limit for out-of-pocket payments) and 0.5 if exemption mechanisms exist for socially vulnerable people (people whose income is under a designated threshold or beneficiaries of social benefits).

119. Scoring rules for scope and depth of basic coverage defined by regulation:

Table A4.1: Scoring of depth of coverage

Level of coverage	Score
Covered, no copayment	6
Covered, copayment 75-99%	4.5
Covered, copayments 51-75%	3
Covered, copayments 1-50%	1.5
Not covered	0

Actual level of coverage by health insurance

120. This sub-indicator is based on the share of total health spending financed by any type of health insurance (public sector, social insurance and private insurance) This share, which varies from 48.9% to 92.6% in OECD countries, was rescaled on a 0 to 6 range to obtain a normalised score.

121. The actual level of coverage results from several parameters: first, the share of population covered by any type of insurance; second, the share of individual spending covered by any type of insurance (basic or secondary, public or private) for covered goods and services; and third, the share of self-consumption of not covered services in health spending. Therefore, for some countries, scores are very different from those obtained for "scope and depth of coverage". For instance, in Mexico, the scope and depth of coverage is high for people covered by health insurance, but the actual level of coverage of the whole population is lower, notably because many people remain uninsured. For different reasons, the Slovak Republic has a high score for the scope and depth of coverage defined by regulation, but one of the lowest score for the actual level of coverage. In this case, the size of the whole population insured and entitlements are wide, but in reality, out-of-pocket payments are high.

Out-of-pocket payments for essential care

122. The third sub-indicator, "out-of-pocket payments for essential care", is based on the share of out-of-pocket payments for *inpatient curative care* and for *basic medical and diagnostic services.* This indicator was chosen as a proxy to measure "real financial accessibility to health care". Selecting only two functions of care rather than total spending does not mean the other functions of care are less important. Instead, it is based on two principles. First, financial access to the first point of entry in medical care system guarantees that people are more likely consult in case of problems, which increases their opportunity to receive the diagnosis and treatments they need. Second, acute inpatient care is generally costly, and even though it corresponds to a real need, and is confirmed by a medical prescription, high copayments could be a financial hurdle for many households.

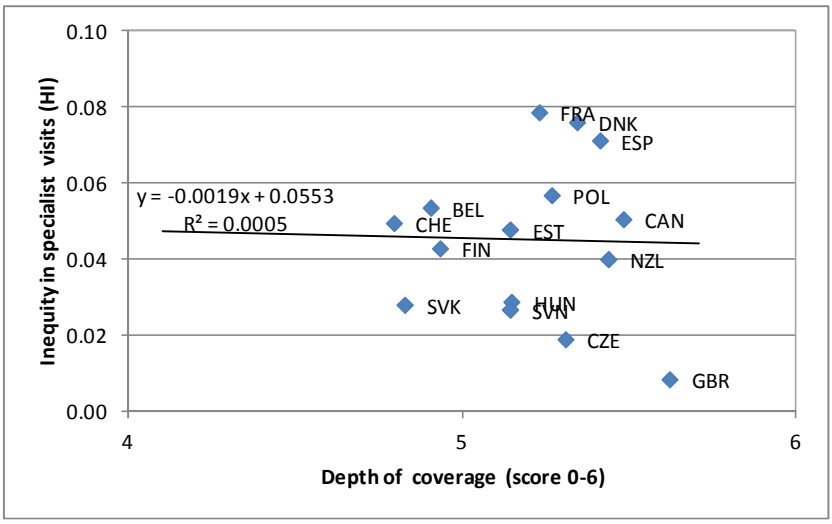
123. Data on the share of out-of-pocket payments for *inpatient curative care* and for *basic medical and diagnostic services* were drawn from the System of Health Account 2009 or estimated by the Secretariat when not available. Country scores are based on the average of both series, weighted by the OECD average share of each function in total health spending (0.72 for inpatient curative care and 0.28 for basic medical and diagnostic services[11]).

124. In contrast to the other sub-indicators, a high score reflects a lower level of coverage. In the aggregated score of "Depth of coverage", the sub-score "out-of-pocket payments for essential care" has a negative sign.

[11] These weights were estimated from System of Health Account 2009 series.

125. Figure A4.1 shows the relationship between inequity in specialist services use and the depth of coverage. There is little variation in the depth of coverage across countries (score from 0 to 6) and results are inconclusive.

Figure A4.1: Relationship between inequity and depth of coverage



Degree of private provision in physicians' services

126. The degree of private provision of physicians' services was measured using the predominant mode of health care delivery, as well as the second mode of delivery when relevant (i.e. representing more than 20% of services) for both primary care services and specialist services . Separate sub-scores were first calculated for primary care services and specialist services (see table below) and further aggregated with a simple average.

127. The *degree of private provision of physicians' services* aggregates information on primary care and out-patient specialists' services. Countries were asked to provide information on the predominant mode of delivery and to indicate whether another significant mode exists, i.e. representing more than 20% of physicians' contacts. Consequently, when the score indicates that the provision of physicians' services is exclusively public (or private), this does not mean that no other mode of provision exists, but only that it represents a small proportion of physicians' services.

Table A4.2: Scoring the degree of private provision of physicians' services

Provision of primary care services	Q27 (predominant mode)	Q27b (second mode)	Score
Public health care centres, only	public centres		0
Mix of public and private provision	public centres	private clinics, private group/solo practice	3
	private clinics, private group/solo practice	public centres	
Private provision only	private clinics, private group/solo practice		6
	private clinics, private group/solo practice	private clinics, private group/solo practice	
Provision of out-patient specialist services	**Q28 (predominant mode)**	**Q28b (second mode)**	**Score**
Public health care centres, only	public centres, public hospitals		0
	public centres, public hospitals	public centres, public hospitals	
Mix of public and private provision	public centres, public hospitals	private clinics, private group/solo practice, private hospitals	3
	private clinics, private group/solo practice, private hospitals	public centres, public hospitals	
Private provision only	private clinics, private group/solo practice, private hospitals		6
	private clinics, private group/solo practice, private hospitals	private clinics, private group/solo practice, private hospitals	

128. The score for the private provision of physicians' services is calculated as the simple average of the two previous sub-scores: private provision of primary care services and private provision of out-patient specialists' services.

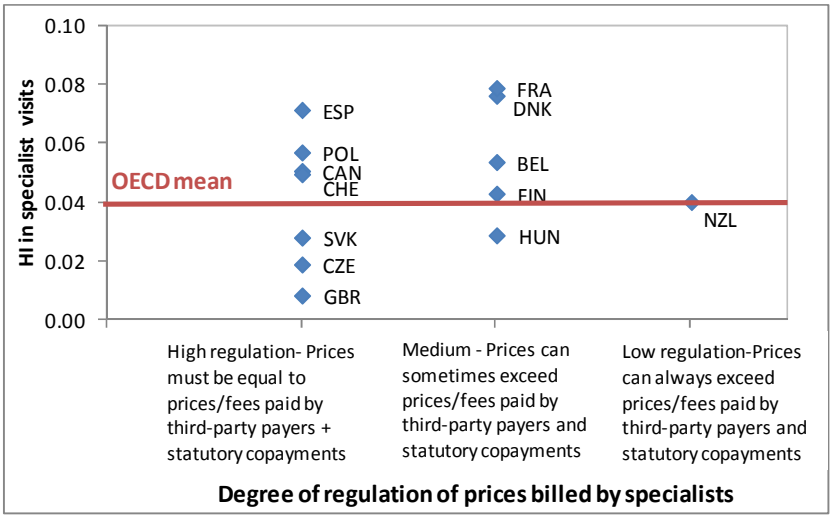
129. Physicians' services are predominantly provided by the public sector in five countries: Italy, Portugal, Spain, Sweden and Turkey. At the other end of the spectrum, the supply is exclusively private in nine OECD countries: Belgium, Denmark, France, Germany, Japan, Korea, Luxembourg, the Netherlands, Norway and Switzerland.

Regulation of prices billed by providers

130. The data on "prices billed by providers" approximates a measure of "free care at the point of care delivery". The indicator is based on the information collected in Table 25 in Paris *et al.* (2010) on the determination of prices/fees for specific services (consultation, exam, procedure). It summarises how prices are set, for both prices paid by third party payers and prices billed by providers.

131. Figure A4.2 shows the relationship between inequity in specialist services use and regulation of prices billed by specialists suggesting that higher regulation is associated with lower inequity in some countries (e.g. United Kingdom, and Czech Republic). However, the relationship, if any, is not strong – New Zealand has the lowest regulation of physician pricing among the countries considered, but has average inequity; and Hungary has a medium degree of regulation but has one of the lowest levels of inequity.

Figure A4.2: Relationship between inequity and regulation of prices billed by physicians



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