Inequalities of Opportunity in the Use of Healthcare by Young Adults in France

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Abstract – While the health of young adults is a recognised public health issue in France, less attention is paid to their use of healthcare. This article examines the existence of unequal opportunities in the use of healthcare for young adults using data from the National Survey on the Resources of Young Adults (*Enquête nationale sur les ressources des jeunes* - 2014). Using the framework of the philosophy of responsibility, a distinction is made between "unfair" inequalities linked to circumstances beyond the control of young people – or unequal opportunity, and "fair" inequalities linked to characteristics for which they are responsible. Linear probability models are used to estimate the associations between the probabilities of non-use (non-utilisation and foregone health care) and parental characteristics (complementary health insurance, main activity, income, marital and vital status) on the one hand and those of the young person (education, main activity, whether living in the parental home or not, financial resources, complementary health insurance) on the other, reflecting the existence of unfair and fair inequalities respectively. Variance decomposition makes it possible to quantify these inequalities and suggests that unfair inequalities outweigh fair inequalities.

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According to the BVA Barometer carried out by DREES (the statistical directorate of the Ministry of social affairs) in 2017, 27% of French people believe that inequality in access to healthcare is the least acceptable inequality, ahead of housing and income inequalities (Antunez & Papuchon, 2018). This concern is in line with the objective of horizontal equity in access to healthcare that the French healthcare system has had since its creation, in accordance with the maxim "to each according to his needs" (Fleurbaey & Schokkaert, 2011; Rochaix & Tubeuf, 2009; Wagstaff & van Doorslaer, 2000). However, many studies show the existence of inequalities in the use of healthcare for given needs in both France and Europe (Bago d'Uva & Jones, 2009; Devaux, 2015). Further research is therefore needed to understand and assess these inequalities in order to guide public policies to improve equity in the healthcare system.

Young people are among the populations at risk in terms of health issues. Although the health of young adults (aged 18-24) has been recognised as a public health challenge in the 2016 *"Bien-être et santé des jeunes"* (Young people's health and well-being) plan[1], little focus is given to their difficulties in accessing healthcare within that plan. Moreover, while many studies have examined inequalities in the use of healthcare among the general population, the use of healthcare among the specific population of young adults in France has so far received little attention. This is due to the fact that young people living in university halls of residence, boarding schools and student accommodation are not covered by surveys conducted in ordinary households and that students are not included in the health surveys conducted among those under the three main social security regimes (CNAMTS, RSI and MSA, the regimes for, respectively, employees, the self-employed and the agricultural sector).

The few studies carried out on the young population attest to difficulties in access to healthcare and healthcare needs that are not covered, while providing initial information on the determining factors of the use of healthcare by young people in France. Non-utilisation and foregone health care are indicators of non-use of healthcare. Ménard & Guignard (2013), based on the 2010 Health Barometer, estimate the proportion of those aged 15-30 who refuse healthcare for financial reasons to be 8.7% (with the unemployed being over-represented), with a proportion of 10.5% for those aged 31-75. They reveal that, among those aged 15-30, those with the fewest qualifications are less likely to consult a general practitioner or gynaecologist. This demonstrates both financial and social inequalities. More recently, according to the *Enquête nationale sur les ressources des jeunes* (ENRJ, National survey on the resources of young adults, DREES-Insee 2014), 3.8% of those aged 18-24 forego seeing a doctor for financial reasons, whereas the 2014 European Union Statistics on Income and Living Conditions (EU-SILC), with comparable questions, estimates this proportion to be 1.8% among the general population.[2] Castry *et al.* (2019) have studied the determining factors of refusal for financial reasons, using the cohort of i-Share students. Their results reveal the role of specific determining factors, such as receiving a scholarship, moving out of the family home, or being gainfully employed while studying. These inequalities in the use of healthcare among young people are not unique to France. Mosquera *et al.* (2017) and Wagenius *et al.* (2018) show, in Northern Sweden, horizontal inequalities in the use of healthcare, in accordance with disposable income, among young people aged 16 to 25. Although these studies suggest inequalities in the use of healthcare, both social and financial, that are related to specific determining factors among young adults, knowledge regarding the origins of the inequalities remains patchy. This is all the more true since the literature suggests that differences in the use of healthcare may be preference based, i.e., chosen, and that these sources of inequality have not been studied.

The aim of this article is to study inequalities in the use of healthcare among young adults in France and it questions the equity of these inequalities within the framework of the philosophy of responsibility (Arneson, 1989; Cohen, 1989; Dworkin, 1981; Roemer, 1998). In this context, we study the determining factors of the use of healthcare among young adults, to establish the circumstances, efforts and needs in relation to healthcare. We distinguish between inequalities in the use of healthcare that are considered illegitimate or "unfair", as they are linked to circumstances beyond young people's control and are called inequalities of opportunity, and those that are considered legitimate or "fair" as they are linked to different healthcare

needs or efforts, i.e. they are linked to things for which the young people are responsible.

There is a considerable body of empirical work that has used this analytical framework to measure inequalities in health opportunities (for example: Devaux *et al.*, 2008; Jusot *et al.*, 2012). In contrast, the literature is very patchy in the area of healthcare consumption (for a review of the literature see Jusot & Tubeuf, 2019). This literature focuses on access to care for children aged under five in developing countries (for example: Amara & Jemmali, 2017; Ersado & Aran, 2014; Saidi & Hamdaoui, 2017; Sanoussi, 2018). Few studies have examined populations other than young children. We also note the work of Barbosa & Cookson (2019), who provide evidence of unfair inequalities in relation to visiting a doctor in Brazil. The impact of social and family background on the use of healthcare is also studied by Bricard (2013). The author demonstrates intergenerational transfer of healthcare behaviours among the general population in France. However, to our knowledge, this framework has never been used to study unfair and fair inequalities in the use of healthcare by young adults. Yet the question of the role that should or should not be attributed to individual responsibility within healthcare systems is now widely debated. In the United Kingdom, for example, clinical commissioning groups have recommended that non-urgent surgical procedures be delayed for smokers and obese people until they quit smoking and lose weight (Pillutla *et al.*, 2018).

The period of transition into adulthood is accompanied by a distancing from the family environment (Galland, 1996). This transition leads young people to make their first individual choices away from the rules and norms defined within the family framework. In the framework of the philosophy of responsibility, there is an age – referred to as the "age of consent" – below which individuals cannot be held responsible for their choices (Arneson, 1989). Beyond that age, however, their choices reflect their own efforts. Hereinafter, we regard the age of responsibility to be the age of criminal responsibility and, therefore, from the age of 18 onwards, we consider that the behaviour of young adults is "freely" chosen and results from their preferences. Furthermore, research has shown that certain preferences (risk aversion, for example) are specific to young people (Paulsen *et al.*, 2011; Tymula *et al.*, 2012). Thus, even beyond the age of responsibility, and with increased independence, particularly financial

independence, one may wonder whether their behaviour, particularly in terms of the use of healthcare, is not still linked to circumstances.

We use data from the ENRJ, which surveyed young people on their non-use of healthcare. The survey provides a large number of variables on the parents, making it possible to define the background of the young people. It also makes it possible to gain an objective understanding of non-use of healthcare, through the non-utilisation of health services, and a subjective understanding, through foregone health care. Finally, the various options for reasons for refusal make it possible to identify whether that choice was explained more by constraints or the young people's preferences, making it possible to decide whether the resulting inequalities are fair or unfair. While much work has examined inequalities in healthcare use according to income using concentration indices, here we use a variance decomposition method to determine not only inequalities linked to circumstances but also those linked to needs and efforts. Variance decomposition makes it possible to quantify these inequalities and suggests that the unfair inequalities outweigh the fair inequalities.

The rest of the article presents the analytical framework, the data used and the method chosen, followed by the results.

1. Analytical Framework

1.1. Demand for Healthcare

Individual demand for healthcare as a rational economic decision depends on a comparison between the marginal utility associated with additional healthcare and its cost (Grossman, 1972). When a healthcare need arises, i.e. when an individual's state of health deteriorates, the marginal utility of health increases, leading to an increase in the demand for healthcare to mitigate this deterioration in state of health. The demand for healthcare therefore depends not only on the individual's need for healthcare, but also on that individual's preferences (including their time preferences or preference for health, i.e. the value they place on improving their health compared to the value placed on additional consumption), the incentives they have to remain in good health on the labour market and their budget constraints. This depends on income, the cost of healthcare, health insurance if the individual has it and the opportunity cost of investing time in healthcare.

The trade-off between care and the consumption of other goods (food, housing, clothing, going out, etc.) under budget constraints is in favour of the demand for healthcare if the marginal utility derived from additional healthcare is greater than the marginal utility derived from the consumption of other goods. If the individual is under severe budgetary constraints, their consumption of other goods is low. The marginal utility derived from other goods is therefore high, which can lead to a trade-off against the consumption of healthcare. This is all the more true if the level of health remains satisfactory: the marginal utility derived from the consumption of healthcare will be marginal. Furthermore, the ability to meet the cost of healthcare depends on income, the amount of healthcare the individual is required to pay for and the level of health insurance coverage. Irrespective of ability to pay, an increase in the cost of healthcare can encourage decreased consumption if the price elasticity of healthcare is sufficiently high.

The demand for healthcare is therefore expressed if the individual has a need, if the budget constraints do not hinder demand and if the trade-off is favourable. Otherwise, it is a case of foregone health care. The individual will then respond to their health needs in ways other than through healthcare consumption and may devote time to a healthy lifestyle, in particular. We therefore speak of use of healthcare, or utilisation of healthcare, when the demand for healthcare is expressed, when this demand comes up against an offer of healthcare and when that offer satisfies the demand. In contrast, if the demand is not met due to an inadequate offer, we speak of foregone health care. This inadequacy in respect of the offer may take the form of excessively long waiting times, which should be put into perspective in view of the severity of the illness, or a lack of information on the offer available, or even geographical remoteness.

Non-use, i.e. the non-utilisation of health services, can therefore result not only from the absence of any healthcare need, but also from refusal. If there is a healthcare need, the refusal may in turn be induced by budget constraints or an inadequate offer, though it may also be chosen deliberately. Two distinct types of refusal are thus established: a refusal stemming from the individual's preferences and another that is based on the individual's constraints, which is in line with the distinction made by Desprès (2013).

1.2. Fair and Unfair Inequalities in the Non-Use of Healthcare

The aforementioned theoretical framework implies a heterogeneity of individuals' demand for healthcare explained by differences in their needs, the constraints they face and their preferences. We therefore expect to observe inequalities in the population's use and non-use of healthcare. However, judging whether they are fair or unfair is not easy.

Respect for the principle of horizontal equity leads, first of all, to considering inequalities linked to healthcare needs as fair. Indeed, respect for human dignity requires that more healthcare be offered to those who need it most, regardless of the causes of the deterioration of their state of health (Fleurbaey & Schokkaert, 2011; Rochaix & Tubeuf, 2009; Schokkaert, 2018; Wagstaff & van Doorslaer, 2000).

The philosophy of responsibility then provides an analytical framework making it possible to distinguish between fair and unfair inequalities depending on their source. Inequalities resulting from behaviour freely chosen by individuals are said to be fair as they are the result of individual preferences. Individuals are held responsible for the choices that are within their control, commonly referred to as efforts. However, they cannot be held responsible for things outside their control, which are referred to as circumstances. Inequalities linked to circumstances are therefore considered unfair and are referred to as inequalities of opportunity. Within this framework of the philosophy of responsibility, there are equal opportunities only if the decisions of non-use are not linked to circumstances and only correspond to free choices reflecting individual preferences. This normative point of view is in line with the principle of "equal informed access" (Fleurbaey & Schokkaert, 2009), whereby non-use inequalities will be considered fair if the only sources of variation in the non-use of healthcare are individual preferences, with individuals being held responsible for their choices provided they are informed.

One of the difficulties in measuring inequalities of opportunity is the fact that efforts are not always independent of circumstances (Roemer & Trannoy, 2016). There are several normative views of the correlation between efforts and circumstances. Here we consider two of them: Roemer's and Barry's. According to Roemer (1998), the correlation between efforts and circumstances must be regarded as a source

of unfair inequalities, as individuals may only be held responsible for the efforts they have actually chosen, regardless of any influence by their circumstances. According to Barry (1989), in contrast, individuals should be rewarded for all of their efforts, whether or not they are influenced by circumstances. The correlation between efforts and circumstances must therefore be seen as a source of fair inequalities.

There is a similar debate concerning preferences. According to Dworkin (1981), all preferences must be respected as they define a person's identity. Cohen (1989) slightly modifies this point: only preferences that are not linked to circumstances must be respected. However, Bricard (2013) has demonstrated that individuals' healthcare behaviour is a result of an intergenerational transfer, which suggests the transfer of preferences. As parental characteristics are circumstances, insofar as they are not chosen, we will consider two scenarios. Barry's scenario, in which all inequalities linked to efforts and preferences are considered fair, and Roemer's scenario, in which only a portion of the inequalities linked to efforts and preferences not correlated to the circumstances is considered-fair.

The constraints affecting the decisions to use healthcare can also be regarded as fair or unfair sources of use inequalities. For the population in which we are interested, that of young people, their budget constraints depend on both the income of their parents, which is viewed as a circumstance as it is independent of the young person's responsibility, and the income of the young person, which depends on their decision to work. This decision may be considered an effort, insofar as it is a choice made by the young person; however, it may be influenced by the young person's circumstances, such as parental pressure or background, for example. Similarly, the information available to the young person may come from their own efforts to obtain it, or from their parents, who themselves may be more or less well informed depending on their level of education or income. In this case, it is a circumstance. The same applies in relation to the existence of complementary health cover for the young person. If it is provided by the parents, it is a circumstance; however, if it is the result of an informed choice by the young person, it should be regarded as an effort and a source of fair inequalities. Our empirical measurement of the needs, circumstances and efforts of the individual will be presented hereinafter.

2. Data and Method

2.1. Data

The data are taken from the ENRJ, which individually surveyed young people aged 18 to 24 living in France and their parents, from 1 October to 31 December 2014. The nationally representative survey consists of two sub-samples. The first, drawn from the 2013 national census, is composed of 8,857 ordinary households in which at least one person aged 18 to 24 lived. The second includes 198 group households and is drawn from the community census, excluding religious and prison communities. The sample contains 5,776 observations for which the young person's questionnaire is completed, including 5,197 for which at least one parent questionnaire is also available (there may be two if the parents are separated). We restrict our analysis to these 5,197 observations to ensure the availability of parental variables that provide us with a measurement of the circumstances.

2.1.1. Non-Use of Healthcare

In order to understand the non-use of healthcare, we use two types of variables:

- four variables on the non-utilisation of healthcare. These variables correspond to a negative response to the questions concerning visits in the past 12 months for four types of physicians respectively: "Within the last 12 months, have you visited a general practitioner/a specialist (excluding dentist and gynaecologist)/a dentist/a gynaecologist (for women) at least once for yourself?". These four variables reflect isolation from the healthcare system, but they do not indicate the extent to which isolation is suffered or chosen because of an absence of need or particular preferences;

- variables related to foregone health care, so as to understand a one-off non-use that occurred when there was a perceived need. The refusal indicator is a subjective indicator, the qualities of which have been fully demonstrated. It makes it possible to identify unmet healthcare needs and is associated with lower healthcare use and a deterioration of the state of health (Allin *et al.*, 2010; Dourgnon *et al.*, 2012; Gibson *et al.*, 2019). An initial general indicator of refusal is obtained from an affirmative response to at least one of the following three questions: "Within the last 12 months, have you refused to visit a doctor for medical examinations or healthcare/a dentist, for dental care/refused glasses, lenses,

frames or contact lenses that you needed?". We then identify the type of refusal based on a response to the question about the reasons for refusal. The reasons proposed in the survey are "You couldn't afford it", "The appointment waiting time was too long", "The doctor was too far away", "You did not know a good doctor", "You did not have time", "You were afraid to go to see the doctor or to have tests done", "You preferred to wait and see if things improved on their own" and "For other reasons". The first of these (financial, waiting time, distance and lack of information) can be considered to be suffered and we speak of "barrier" refusals. The others will be called "preference" refusals. When we examine the fact of having had at least one barrier refusal, we remove from the analysis sample those who have had at least one preference refusal, so as to study those who have only had at least one barrier refusal and to compare them to those who had no refusals. We proceed in the same manner when we study preference refusals.

The healthcare non-use rates are presented in Table 1. The non-utilisation rate is around 50% for dentists, gynaecologists and other specialists, which is fairly close to the rates observed in the general population for those aged 15-64 (45.1% for dentists and 51.4% for specialists, according to the 2014 *Enquête Santé et Protection Sociale* – ESPS, a survey on healthcare and insurance survey. Non-utilisation is less frequent for general practitioners, but the rate is still 15%. The foregone health care is divided in similar proportions between barrier refusals and preference refusals.

2.1.2. Healthcare Needs

Healthcare needs are described by gender, age and a range of health variables: the perceived state of health, the Body Mass Index, activity restrictions due to a health problem and chronic illness. The state of health appears to be fair, poor or very poor for 12% of the young people in the sample; 8.4% report having restrictions on their daily activity and almost 15% report having a chronic illness (Table 2). Compared to the general population, their state of health appears to be better: according to DREES and Santé Publique France (2017), 32% of the population aged 16 and over report a state of health worse than good, 37% report having a chronic illness and 25% report being restricted.

2.1.3. Efforts

In order to reveal fair inequalities in the use of healthcare, to measure the efforts of a young adult, we select a set of variables that reflect their choices. We take into account the possession of complementary health cover acquired on an individual basis (and not that of the parents) and a series of indicators identifying the main activity of the young adult during the week preceding the survey: being employed, an apprentice, studying, being unemployed or having another activity. The highest educational qualification obtained by the young person is used as a categorical variable: "No qualification, Primary Education Certificate (CEP)", "Certificate of General Education (*brevet des collèges*) level", "CAP and BEP vocational qualifications and

Table 1 – **Rate of non-use of healthcare**

	Observations	%
Non-utilisation of healthcare		
Of a general practitioner	759	14.6
Of a specialist (including dentist and gynaecologist)	3 957	76.1
Of a specialist doctor (excluding gynaecologist and dentist)	2 497	48.1
Of a dentist	2 499	48.1
Of a gynaecologist [a]	1 308	53.7
Foregone health care		
At least one forgoing of care	786	15.1
At least one barrier forgoing [b]	351	6.8
At least one preference forgoing [b]	381	7.3

Notes: [a] Of a total of 2,438 women. [b] The same individual may report both types of refusals. In this case, we exclude that individual from the counts of barrier and preference refusals, which explains why the sum of the figures for at least one barrier refusal and at least one preference refusal is lower than the figure reporting at least one refusal (54 individuals reported both types of refusal).
Sources: ENRJ, 2014.

Table 2 – **Descriptive statistics for the needs and efforts variables**

Needs variables	Observations	%
Gender		
Female	2 438	46.9
Male	2 759	53.1
Age		
Aged 18	1 250	24.1
Aged 19	952	18.3
Aged 20	700	13.5
Aged 21	637	12.3
Aged 22	632	12.3
Aged 23	538	10.4
Aged 24	488	9.4
Perceived state of health		
Very good/Good	4 580	88.1
Very poor/Poor/Fair	617	11.9
Is restricted		
Yes	435	8.4
No	4 762	91.6
Has a chronic illness		
Yes	773	14.9
No	4 424	85.1
BMI		
Normal/Overweight (18.5 to 30)	4 494	86.4
Underweight (below 18.5)	485	9.3
Obese (30 of higher)	218	4.2

Efforts variables	Observations	%
Main activity		
Employed	1 277	24.6
Apprentice	358	6.9
Studying	2 712	52.2
Unemployed	661	12.7
Other	189	3.6
Complementary health cover		
None	239	4.6
Individual	1 704	32.8
Parental	3 254	62.6
Not living in the parental home		
Yes	981	18.9
No	4 216	81.1
Highest level of qualification obtained		
No qualifications or CEP (Certificate of Primary Education)	310	6.0
Certificate of general education (*Brevet des collèges*)	459	8.8
CAP, BEP vocational qualifications	856	16.5
Baccalaureate	2 637	50.7
2 years of higher education	448	8.6
3 or 4 years of higher education	339	6.5
5 or more years of higher education	148	2.9
	Mean	Standard deviation
Individual financial resources (in euros)	730.28	7.76

Sources: ENRJ, 2014.

equivalent level", "Baccalaureate level", "2 years of higher education level", "3 or 4 years of higher education level" and "5 or more years of higher education level". We also take into account whether the respondent lives in the parental home. We calculate the individual monthly financial resources of the young person by adding together any reported income from work, social benefits received and total support from parents (total amount of regular financial support). This amount of individual financial resources is logged in the regressions in order to avoid the average effects being driven by the highest incomes and to be able to interpret the results in terms of elasticity.[3] Whether the young person lives in the parental home, their main activity, their financial resources and any complementary health cover they have reflect their economic situation. Here we expect, on the one hand, a positive correlation between non-use and not living in the parental home,

being unemployed or studying and, on the other hand, a negative correlation between non-use and individual financial resources and having complementary health cover.

The majority of young people in our sample are aged under 21 and are studying, although 25% are already employed. Almost 20% of them do not live in the parental home (see Table 2). The rate of non-coverage by complementary health cover, around 5%, is very close to that observed in the general population (ESPS, 2014). Among the young people with cover, a third have complementary health cover that they have acquired in their own name, with the others being covered by that of their parents. The financial resources

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3. The financial resources are kept at zero for the 134 young adults who do not report income from work, social benefits or parental support.

of young people average €730 per month. The variables that we regard as efforts are largely correlated with parental circumstances. For example, the young person's activity is not only the result of a choice they make. The young person may be employed because their parents are unable to provide the resources needed to continue to study. The correlation between effort variables and parental circumstances fully justifies an examination of the normative treatment of this correlation.

2.1.4. Circumstances

In order to reveal the existence of inequalities of opportunity, we take into account parental characteristics which, being outside the young person's sphere of control, can be considered circumstances. We first use an indicator identifying the fact that one of the parents has qualifications at least at the level of the baccalaureate, then a series of indicators identifying the occupation of each of the parents: employed, unemployed, retired, inactive or undisclosed. We also take into account the marital status of the parents (married couple, unmarried couple or separated), their vital status (at least one parent is unknown or deceased) and their place of birth (at least one parent was born outside France). The latter variables can be indicators of insecurity and they can be expected to be positively correlated with non-use. We also take into account whether or not the young person is covered by their parents' complementary health cover and the logarithm of the parents' standard of living. The disposable income of the parents is derived by matching the base with reported tax incomes and the consumption units of the tax household are determined using the OECD equivalence scale, which assigns a weight of 1 to the first adult, 0.5 to subsequent persons aged 14 and over and 0.3 to persons aged under 14. In the event that the parents are separated, and with different tax incomes, the parents' standard of living is calculated for a young adult by adding the parents' incomes and applying the OECD equivalence scale to the sum of the household compositions of both parents, with children of both parents being counted only once. Finally, we take into account the size of the urban area in which the young adult lives (with or without their parents) as a circumstance, which is fully justified for young people living in the parental home as this choice is mainly up to the parents, but it is less immediate for the 19% of young people not living in the parental home. However, the effort can be considered to be taken into account with the decision not to move out of

the parental home. Once this decision has been taken into account, certain characteristics of the municipality linked to its size, such as healthcare availability, constitute circumstances that affect the use of healthcare.

The statistical description of the circumstances is provided in Table 3. The majority of the young people have one employed parent and at least one parent with qualifications of baccalaureate level and a relative majority live in an urban area with a population of between 200,000 and 1,999,999. Just over a quarter of the young people in the sample have separated parents and 15% have at least one parent born outside France.

2.2. Method

2.2.1. Analysis of the Inequalities of Opportunity in the Non-Use of Healthcare

In order to analyse the inequalities of opportunity in the non-utilisation of healthcare by young people, we regard the non-use or refusal variables (Y) as a function of a vector of needs B, of a vector of circumstances C, of a vector of effort variables for the young adult E and of a residual term u:

$$Y = f(B, C, E, u) \qquad (1)$$

A first model is estimated to model the relationship defined by equation 1. We use linear probability models for which the standard errors are corrected to take into account heteroscedasticity linked to the binary nature of our explained variables:

Model 1:
$$y_i = \alpha + \sum_j \beta_j b_{j,i} + \sum_k \gamma_k c_{k,i} + \sum_l \delta_l e_{l,i} + u_i \qquad (2)$$

where y_i corresponds to the different variables of non-use of healthcare for a young adult i, the j variables b_j correspond to the variables of the young adult's needs, the k variables c_k correspond to the circumstance variables and e_l are the l effort variables.

Estimation of the coefficients γ_k associated with the circumstances that we will note as $\hat{\gamma}_k$ makes it possible to identify, through their significance, the existence of inequalities of opportunity in the non-use of healthcare. The existence of fair inequalities in non-use of healthcare is revealed when the coefficients $\hat{\delta}_l$ are significantly

Table 3 – **Descriptive statistics for the circumstances variables**

	Observations	%
Vital status: at least one parent is unknown or deceased		
Yes	380	7.3
No	4 817	92.7
Country of birth: at least one parent is born outside France		
Yes	779	15.0
No	4 418	85.0
Marital status: parents separated		
Yes	1 404	27.0
No	3 793	73.0
Qualifications: one parent has at least baccalaureate level		
Yes	2 729	52.5
No	2 468	47.5
Father's employment situation		
Employed	3 472	66.8
Unemployed	274	5.3
Retired	387	7.5
Inactive	148	2.9
Undisclosed	916	17.6
Mother's employment situation		
Employed	3 687	70.9
Unemployed	413	8.0
Retired	149	2.9
Inactive	751	14.5
Undisclosed	197	3.8
Size of urban area		
2,000 inhabitants	906	17.4
Between 2,000 and 4,999 inhabitants	228	4.4
Between 5,000 and 9,999 inhabitants	310	6.0
Between 10,000 and 19,999 inhabitants	256	4.9
Between 20,000 and 49,999 inhabitants	467	9.0
Between 50,000 and 99,999 inhabitants	446	8.6
Between 100,000 and 199,999 inhabitants	403	7.8
Between 200,000 and 1,999,999 inhabitants	1 537	29.6
Paris agglomeration	644	12.4
	Mean	Standard deviation
Parents' standard of living	1984.3	19.1

Sources: ENRJ, 2014.

different from zero. In this analysis, the proportion of efforts correlated to the circumstances is included in the efforts coefficient. Inequalities linked with this correlation are therefore implicitly considered to be fair, which is in line with Barry's view (Barry's scenario).

We perform an additional analysis to consider inequities relating to the correlation between efforts and circumstances as unfair, in line with the view of Roemer (1998), for whom only the proportion of efforts not linked to circumstances is fair. Formally, this means integrating into the circumstances the proportion of efforts correlated with them and removing the efforts. For each efforts variable, we identify the correlation with the set of circumstances variables based on Model 2:

Model 2: $E_i = \alpha + \theta C_i + \varepsilon_i$ (3)

The residual ε_i then gives a measurement of relative effort, i.e. the proportion of choices independent of the circumstances. The estimated residuals from Model 2, which we note as $\hat{\varepsilon}_i$, are the efforts not linked to the circumstances. Model 2 is estimated using a linear probability model for each efforts variable (main activity, level of educational qualification, not living in the parental home, individual health cover and individual financial resources). The residuals are obtained directly and are then substituted for the efforts variables in equation 2.

Model 3 then allows the probability of non-use to be modelled in accordance with needs, circumstances and relative efforts, including the residual estimated by Model 2 in Model 3 in place of the effort variable:

Model 3:
$$y_i = \alpha + \sum_j \beta_j b_{j,i} + \sum_k \gamma_k^R c_{k,i} + \sum_l \delta_l \hat{\varepsilon}_{l,i} + v_i \qquad (4)$$

According to the Frisch-Waugh-Lowell theorem: $\gamma^R = \gamma + \delta \times \theta$. The coefficient γ^R includes the portion of the efforts that is correlated with the circumstances. This is in line with Roemer's view (Roemer's scenario). Again according to the Frisch-Waugh-Lowell theorem, the coefficients associated with relative efforts are the same as in Model 1, $\hat{\delta}_l$ is unchanged. The coefficients for the needs variables (β_j) are not impacted and are therefore similar to those in Model 1. The greater the difference between $\hat{\gamma}^R$ and $\hat{\gamma}$, the more that will indicate a strong correlation between circumstances and efforts and an indirect effect of circumstances on non-use of healthcare by efforts.

2.2.2. Assessment of the Contribution of Circumstances to Inequalities in Non-Use of Healthcare

In order to measure the contribution of circumstances to inequality in the non-use of healthcare, we use variance as a measurement of inequality.[4] Shorrocks (1982) demonstrates that variance can be decomposed by source. In order to assess the respective contributions of circumstances and efforts, we adapt the method proposed by Jusot *et al.* (2012, 2013) on health inequalities and we estimate the probability of non-use of healthcare for an individual i based on Model 1:
$$\hat{y}_i = \hat{\beta}B_i + \hat{\gamma}C_i + \hat{\delta}E_i \qquad (5)$$

where $Y_B = \hat{\beta}B_i$ is the portion explained by the needs, $Y_C = \hat{\gamma}C_i$ is the portion explained by the

circumstances and $Y_E = \hat{\delta}E_i$ is the portion explained by the efforts.

The variance of the estimated probability of non-use ($\sigma^2\left(\hat{\gamma}\right)$) can be decomposed as follows:
$$\sigma^2\left(\hat{\gamma}\right) = cov\left(Y_B, \hat{\gamma}\right) + cov\left(Y_C, \hat{\gamma}\right) + cov\left(Y_E, \hat{\gamma}\right) \quad (6)$$

where each of the covariances gives the contribution of each source to the inequality. The covariance between non-use and circumstances provides a measurement of the inequalities of opportunity in the non-use of healthcare. This result is the variance decomposition in accordance with Barry's scenario. The procedure is repeated based on Model 3 to obtain the variance decomposition in accordance with Roemer's scenario.

3. Analysis of the Non-Use of Healthcare

3.1. Inequality of Opportunity

The analysis of the associations between non-use of healthcare and circumstances makes it possible to reveal the factors at work in the creation of inequalities of opportunity in the non-use of healthcare among young people. The most significant circumstance variable is being covered by the parents' insurance (Table C1-1 of Online Complement C1 – see the link to the Online complements at the end of the article). Being covered by complementary parental health cover is negatively correlated with the probability of non-use. The healthcare cost reduction function of complementary health cover seems to be confirmed by the highest coefficient for barrier refusals (Table C1-2 of Online Complement C1) and for non-utilisation of specialists and dentists, the healthcare which has, on average, the greatest remaining cost.

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4. A normalised and globally accepted measurement of horizontal inequities in the utilisation of healthcare according to income is the concentration index (O'Donnell et al., 2007). This measurement has the advantage of providing a single indicator for inequities in the use of healthcare throughout the income distribution range, considering all income-related inequalities as unfair and the inequalities related to healthcare needs as fair. It therefore has the disadvantage of not taking into account sources of inequality that are not correlated with income. It also does not make it possible to identify whether the differences in utilisation observed in accordance with income are linked to barriers to access to healthcare or whether they are freely chosen by individuals in view of their preferences. For these reasons, and given our object of study, we adopt the method of variance decomposition.

Surprisingly, the parental standard of living variable is not significantly associated with non-use. It is possible that the effects of the parents' economic situation on non-use are identified by the efforts variables or by the other circumstances variables related to the parents (parental activity, parental vital status, parental relationship status and at least one parent born outside France). As the associations are generally robust to both specifications, the second explanation seems to be the most probable. This indicates the existence of inequalities of opportunity linked to a direct and indirect effect of the circumstances on the use of healthcare.

Several variables also appear to be sources of fair inequalities. Among the efforts variables, the activity variables of the young person are significantly associated with non-use, particularly being unemployed, which appears to be an indicator of economic insecurity. The level of educational qualifications is negatively correlated with non-use, indicating social inequalities. Having individual complementary health cover, compared to not having any, is significantly and negatively correlated with non-use. In addition, the not living in the family home variable is also significantly correlated with all types of use, but whether such correlation is negative or positive differs by speciality.

3.2. Decomposition of the Inequality of Non-Utilisation

In order to measure the magnitude of the fair and unfair inequalities, we study the contribution of the circumstances, efforts and needs to the variance predicted by the linear probability models presented above, in accordance with Barry's scenario and Roemer's scenario.

For all our non-utilisation indicators, the variables that contribute most to the variance are those relating to needs (Figure), which suggests that the healthcare system achieves its primary objective of vertical equity in access to healthcare, including among young adults. However, for the refusal variables, the proportion of the variance explained by needs is lower than for the non-utilisation variables (a maximum of 48% for refusal and a minimum of 61% for non-utilisation). This seems to be the result of the difference in the contribution of the gender variable to inequality in non-utilisation and to inequality in refusal (Tables 4 and 5). We also note that the contribution of needs varies according to speciality (Figure A-I in the Appendix).

The proportion for circumstances is greater than for efforts, which demonstrates the importance

Figure – **Relative contributions of needs, efforts and circumstances to the variance of the variables for the non-utilisation of healthcare (as a %)**
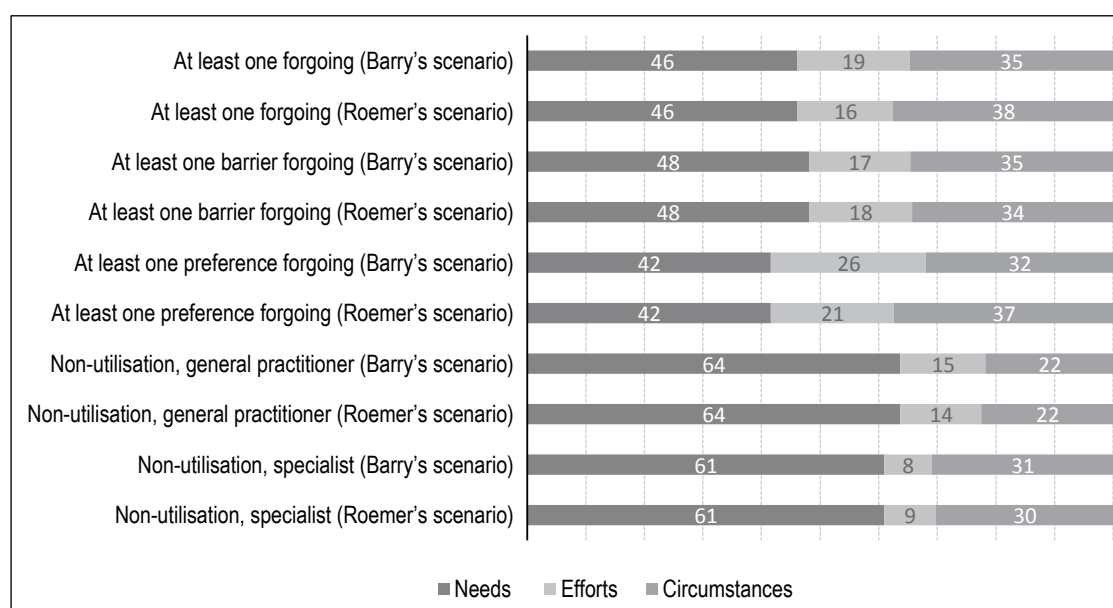
Reading Note: Needs explain 46% of the predicted variance in the probability of having at least one foregone health care if correlation of circumstances and efforts is included in the efforts (Barry's scenario).
Sources: ENRJ, 2014.

of unfair inequalities compared to fair inequalities. The contribution of circumstances is higher for foregone health care variables than for the non-utilisation variables. The contribution of circumstances is greatest in Roemer's scenario for at least one refusal (38%). In this scenario, taking into account the correlation between circumstances and efforts mechanically increases the weight of circumstances for all non-use and foregone indicators. The difference between the two scenarios is more or less marked depending on the speciality concerned.

These differences are associated with the different contributions of certain individual variables (Tables 4 and 5). Among the circumstances, of all the parental variables, being covered by parental insurance is often the one that contributes most to explaining inequalities of opportunity. Then comes the size of the urban area, which hints at the important role of healthcare availability. Among the other circumstances, the parents being separated rather than together and the father's activity status are the most important contributors to explaining the variance of non-use.

In respect of efforts, not living in the parental home is the variable that contributes most to inequality in the case of refusal, but its contribution is less in the case of non-utilisation. The level of educational qualification is the main source of fair inequalities in preference non-utilisation and refusal. However, the effort variable is the one for which the contribution decreases most in Roemer's scenario. Circumstances therefore have a strong effect on non-use and this effect is mainly due to the level of educational qualification.

There are differences according to the speciality for which the non-utilisation is observed. In

Table 4 – **Contributions of the needs, efforts and circumstances variables to inequalities in non-use in both scenarios (as a % of the variance)**

	General practitioner		Specialist	
Scenario	Barry's	Roemer's	Barry's	Roemer's
Variance explained	0.0060	0.0060	0.0069	0.0069
Needs	*63.7*	*63.7*	*60.9*	*60.9*
Age	12.0	12.0	17.4	17.4
Perceived health	5.4	5.4	1.6	1.6
BMI	0.2	0.2	1.3	1.3
Female	33.1	33.1	25.6	25.6
Is restricted	1.9	1.9	5.5	5.5
Has a chronic illness	11.1	11.1	9.5	9.5
Efforts	*14.6*	*13.9*	*8.1*	*8.9*
Indivdual's main activity	5.0	4.8	6.2	4.7
Individual's educational qualification	12.8	11.9	4.0	5.0
Individual health cover	-3.9	-3.2	-5.6	-3.5
Not living in the parental home	0.3	0.1	0.6	0.4
Young person's financial resources	0.4	0.4	3.0	2.2
Circumstances	*21.7*	*22.4*	*30.9*	*30.2*
Parental health cover	8.1	7.4	12.2	12.3
Vital status of the parents	0.4	1.0	0.1	0.3
Parents' place of birth	1.0	1.2	3.4	3.7
Parents are separated	0.1	0.0	0.2	0.3
Parents' standard of living	0.1	0.6	1.3	2.0
Educational qualification of the parents	-0.5	-0.2	1.3	0.7
Father's activity status	5.5	5.4	3.3	2.2
Mother's activity status	2.0	2.3	5.1	4.7
Size of urban area	5.0	4.8	4.0	4.0

Reading Note: Age explains 12% of the predicted variance of the probability of not having consulted a general practitioner when the correlation of circumstances and effort is included in the effort (Barry scenario).
Sources: ENRJ, 2014.

Table 5 – **Contributions of the needs, efforts and circumstances variables to inequalities in forgoing in both scenarios (as a % of the variance)**

	At least one forgoing		At least one barrier forgoing		At least one preference forgoing	
Scenario	Barry's	Roemer's	Barry's	Roemer's	Barry's	Roemer's
Variance explained	0.0078	0.0078	0.0051	0.0051	0.0017	0.0017
Needs	*46.0*	*46.0*	*48.0*	*48.0*	*41.5*	*41.5*
Age	10.7	10.7	19.8	19.8	2.8	2.8
Perceived health	21.0	21.0	13.3	13.3	26.0	26.0
BMI	1.8	1.8	2.1	2.1	0.8	0.8
Female	1.7	1.7	6.0	6.0	0.5	0.5
Is restricted	3.9	3.9	3.1	3.1	3.9	3.9
Has a chronic illness	6.9	6.9	3.7	3.7	7.4	7.4
Efforts	*19.2*	*16.4*	*17.3*	*17.6*	*26.7*	*21.1*
Individual's main activity	6.1	6.0	8.1	8.8	7.6	6.1
Individual's educational qualification	5.2	3.8	3.7	3.1	12.9	10.6
Individual health cover	-5.7	-3.9	-5.1	-2.4	-1.9	-1.7
Not living in the parental home	13.3	10.2	10.9	8.2	6.5	4.6
Young person's financial resources	0.2	0.4	-0.2	-0.1	1.6	1.5
Circumstances	*34.8*	*37.6*	*34.7*	*34.3*	*31.9*	*37.4*
Parental health cover	11.3	13.2	11.9	12.1	6.8	10.4
Vital status of the parents	2.8	3.6	3.1	3.9	0.3	0.6
Parents' place of birth	2.5	1.9	2.7	2.4	0.5	0.2
Parents are separated	4.8	5.5	1.8	2.2	7.5	8.9
Parents' standard of living	1.4	1.5	1.0	1.4	0.5	0.4
Educational qualification of the parents	-0.8	-1.0	1.1	-0.3	0.8	0.5
Father's activity status	5.9	5.1	7.9	6.6	3.0	3.1
Mother's activity status	0.8	0.8	1.0	0.7	1.6	2.0
Size of urban area	6.0	7.0	4.1	5.2	10.9	11.4

Reading Note: Perceived health accounts for 21% of the predicted variance of the probability of having at least one forgoing when the correlation of circumstances and effort is included in the effort (Barry scenario).
Sources: ENRJ, 2014.

particular, the nature of the inequality of non-utilisation of a gynaecologist appears to be very different from that observed for the other indicators (see Table A-1 in the Appendix). The variance appears to be less explained by healthcare needs and it is the efforts variables that contribute most to the variance. One possible explanation is that use of gynaecological healthcare is essentially preventive, for contraceptive reasons in particular (Cohen *et al.*, 2000). It would therefore be less linked to other health problems and would be more determined by individual preferences. We see that circumstances nevertheless play a significant role, contributing 24% of the variance in Barry's scenario and 30% in Roemer's scenario.

It can be noted that having individual complementary cover contributes negatively to the variance of the estimated probability of non-utilisation. Compared to having no cover, having complementary cover decreases the probability of non-use and reduces the deviation from the sample average of non-use. These two negative effects make a positive contribution to the variance of the estimated probability of non-utilisation.[5] This effect, which is expected, is that observed for the parents' complementary health cover. However, on average, there is more non-use among young people with individual cover than for the sample as a whole, which increases the deviation from the average of non-use for the sample. Therefore, contrary to the expected effect, individual complementary health cover contributes negatively to the variance, which explains the negative contribution of individual health cover.

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5. *As a reminder, the contribution of a variable is the product of the coefficient of the variable in the models explaining non-use and the covariance of that variable with the estimated probability of non-use.*

The article analyses the fair and unfair inequalities in the non-use of healthcare, an under-studied issue in France for the young adult population.

The determining factors of the use of healthcare are not specific to this population, our results are in line with those in the literature for the general population: being female, having poor health and having complementary health cover are positively linked to use. Our results are consistent with those of Ménard & Guignard (2013). We find a positive association between the use of a general practitioner and the young person's educational qualification level. We reveal the association between non-use and several parental variables, which suggests the persistence of the role of circumstances in non-use beyond the age of responsibility.

While the literature on inequalities in the use of healthcare focuses on inequalities according to standard of living, surprisingly, the parents' standard of living and the young person's financial resources do not appear to be linked to non-use, once the other determining factors are controlled for. One explanation would be that the indicator for the young person's financial resources does not adequately reflect their overall social situation because of its interdependence on their employment situation. For those who are unemployed, the financial resources reflect the parental support and social benefits received. For those who are employed, the main financial resource is their salary but, as young people are at the beginning of their careers, this salary is not stable and it is therefore also not a good indicator of standard of living. These results therefore show the importance of considering sources of horizontal inequity in access to healthcare, without remaining restricted, as analyses that use concentration indices (Barbosa & Cookson, 2019) are, to inequalities in use throughout the distribution of incomes.

The decomposition of predicted inequalities in the non-use of healthcare by source shows that the strongest contribution is that made by healthcare needs. This suggests that it is, first and foremost, a case of fair inequalities, reflecting a system that respects the principle of vertical equity in the use of healthcare. The contribution of efforts, which are a source of fair inequalities, is lower than that of circumstances, which are a source of unfair inequalities. Our results thus show the importance of circumstances in explaining inequalities in the non-use of healthcare and the extent of inequalities of opportunity.

With regard to the factors at work in the creation of these unfair inequalities, the role of parental complementary health cover is crucial. By reducing the cost of healthcare and thus facilitating access to healthcare for those who have it, this complementary cover contributes to inequalities in non-utilisation. In addition to non-coverage, heterogenous quality of cover offered by different complementary health cover policies could be a source of inequalities in the non-use of healthcare. It can be hypothesised that parental complementary health cover provides better coverage than cover taken out on an individual basis, given the cost of the most comprehensive policies.

Data from the ENRJ make it possible to take many variables into consideration, albeit with a greater number of circumstance variables than effort variables. In particular, the survey does not provide information on risky behaviour in the area of health. This may lead to an overestimation of the relative proportion of inequalities that can be explained by circumstances, thus overestimating unfair inequalities and, in contrast, underestimating fair inequalities. Furthermore, the literature on inequalities of opportunity has shown the importance of social reproduction, whether this involves the intergenerational transfer of the level of educational attainment or income (see Ferreira & Peragine, 2015, for a review of the literature). Given that not all of the population in our study have finished their education, and that the salary level or occupation is not stable at the beginning of working life, it can be assumed that the correlation between circumstances and efforts may be under-estimated.

The data also do not allow us to study the use of mental health services, despite the fact that policies, such as the *Pass santé Jeunes* (Youth health Pass), have been put in place to improve access to psychologists.

Another limitation of our analysis is the low proportion of inequalities for which we provide an explanation, which is common in the analysis of inequalities of opportunity in the field of health (Jusot & Tubeuf, 2019) and stems from the low variance explained by the explanatory variables in the models. This is one of the limitations of using a parametric method in the

analysis of inequalities. Instead, this method allows for the decomposition of inequalities.

In this analysis, we have assumed that the age of consent is achieved at the age of legal responsibility and, therefore, that all the preferences (and therefore efforts) of young people who have reached full age must be respected, which is consistent with medical practice: up to the age of 18, parents must give their consent for surgical procedures. However, it is possible for a minor to consult a doctor without their parents being informed. It would therefore be conceivable to adopt an age of consent below the age of 18, as has been possible in other studies (e.g., Hufe *et al*., 2017). However, this is not possible with the ENRJ.

Despite these limitations, the results presented here demonstrate the importance of circumstances in explaining inequalities in the non-use of healthcare among young people. They stress the importance of taking them into consideration in policies aimed at reducing inequalities in non-use. Taking parental resources into account when allocating support for accessing healthcare and providing good-quality complementary cover for the young people who need it most appear to be possible avenues for a policy to combat inequalities of opportunity in the use of healthcare. More generally, understanding inequalities in the non-utilisation of healthcare among young adults may provide an explanation for the increase in the social health gradient seen during the transition from adolescence to adulthood (Currie & Stabile, 2003; Sweeting *et al*., 2016) and thus a means of reducing health inequalities (Marmot *et al*., 2008; White *et al*., 2009).

By showing the extent of inequalities of opportunity in the use of healthcare, this research also helps to provide an understanding of how inequalities of opportunity in health are created. From the perspective of combating inequalities of opportunity in health, this demonstrates the importance of monitoring them throughout the life cycle. ☐

Link to the Online Complement: https://insee.fr/fr/statistiques/fichier/4514417/ES-514-515-516_Jusot_Mignon_Complements.pdf

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Figure A-I – **Relative contributions of needs, efforts and circumstances to the variance of the variables for non-utilisation of healthcare, by speciality (as a %)**
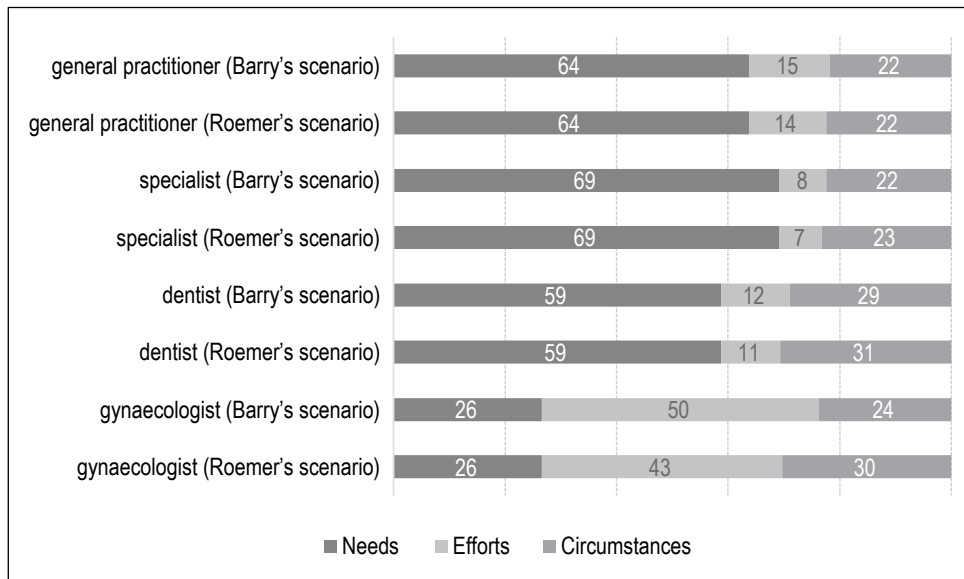
Reading Note: Needs explain 64% of the predicted variance in the probability of having not used a general practitioner if correlation of circumstances and efforts is included in the efforts (Barry's scenario).
Sources: ENRJ, 2014

Table A1 – **Contributions of the needs, efforts and circumstances variables to inequalities in non-use in both scenarios (as a % of the variance)**

	General practitioner		Specialist		Dentist		Gynaecologist	
Scenario	Barry's	Roemer's	Barry's	Roemer's	Barry's	Roemer's	Barry's	Roemer's
Variance explained	0.0060	0.0060	0.0165	0.0165	0.0081	0.0081	0.0145	0.0145
Needs	*63.7*	*63.7*	*69.2*	*69.2*	*58.8*	*58.8*	*26.3*	*26.3*
Age	12.0	12.0	6.3	6.3	50.2	50.2	25.1	25.1
Perceived health	5.4	5.4	9.9	9.9	0.1	0.1	0.0	0.0
BMI	0.2	0.2	0.5	0.5	3.1	3.1	-0.1	-0.1
Female	33.1	33.1	16.5	16.5	4.4	4.4		
Is restricted	1.9	1.9	14.3	14.3	0.1	0.1	1.2	1.2
Has a chronic illness	11.1	11.1	21.6	21.6	0.8	0.8	0.2	0.2
Efforts	*14.6*	*13.9*	*8.4*	*7.5*	*12.1*	*10.5*	*50.0*	*43.3*
Young person's main activity	5.0	4.8	6.8	5.5	7.5	6.6	8.7	8.7
Young person's level of educational qualification	12.8	11.9	4.8	4.1	2.2	3.0	7.0	5.9
Individual health cover	-3.9	-3.2	-6.0	-3.8	-7.5	-6.6	15.7	15.5
Not living in the parental home	0.3	0.1	2.2	1.2	8.7	5.7	7.1	4.9
Young person's financial resources	0.4	0.4	0.5	0.4	1.3	1.7	11.4	8.2
Circumstances	*21.7*	*22.4*	*22.4*	*23.3*	*29.1*	*30.7*	*23.7*	*30.4*
Parental health cover	8.1	7.4	12.0	12.6	16.6	17.8	-9.0	-4.8
Vital status of the parents	0.4	1.0	0.1	0.3	2.1	2.4	0.2	0.3
Parents' place of birth	1.0	1.2	0.3	0.3	-0.2	-0.2	4.2	5.3
Parents are separated	0.1	0.0	0.6	0.9	1.8	2.1	4.0	3.7
Parents' standard of living	0.1	0.6	0.9	1.5	0.1	0.2	7.0	9.4
Educational qualification of the parents	-0.5	-0.2	2.4	2.5	0.9	0.5	0.4	-0.3
Father's activity status	5.5	5.4	1.2	0.7	-1.1	-1.3	2.8	2.9
Mother's activity status	2.0	2.3	2.5	2.2	1.0	1.1	7.7	7.7
Size of urban area	5.0	4.8	2.5	2.3	7.8	8.1	6.5	6.3

Reading Note: Needs explain 64% of the predicted variance in the probability of not having consulted a general practitioner when the correlation of circumstances and effort is included in the effort (Barry scenario).
Sources: ENRJ, 2014.