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UNIVERSAL HEALTH COVERAGE AND FINANCIAL BARRIERS TO CARE: THE IMPACT OF EX-ANTE PAYMENTS IN MOROCCO

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Abstract:
Objective: This article examines the limitations of a universal health coverage (UHC) model based on ex ante payment for healthcare services with ex post reimbursement, in a context marked by significant inequalities in access to health services. Although this model aims to rationalize healthcare consumption and promote equity, it remains poorly suited to the needs of the poorest populations, who are often unable to advance medical expenses. **Methods:** To address this issue, the study adopts a quantitative methodological approach based on a field survey conducted among Moroccan households. The analysis relies on econometric techniques, including binary logistic regression and propensity score matching (PSM), to test the hypothesis that ex ante payments constitute a significant barrier to access to healthcare and to assess the actual impact of prepayment mechanisms on healthcare demand. **Results:** The findings indicate that in systems characterized by limited coverage or ex-ante payment requirements, access to healthcare services remains constrained for low-income populations. By contrast, comprehensive UHC improves access to care, while simultaneously raising concerns related to resource waste and moral hazard. **Conclusion:** The study underscores the need to integrate income disparities and the real costs of healthcare into health policy design in order to sustainably reduce foregone care and enhance equity within the healthcare system.

Keywords: Universal health coverage (UHC), Ex-ante payment, Forgoing access to healthcare, Poor populations, Propensity score matching (PSM).

Introduction

Universal health coverage (UHC) is one of the main challenges facing health policies around the world today. It is based on the idea that everyone, regardless of income, social status, or place of residence, should have real access to quality healthcare without financial hardship. To achieve this goal, economic, social, and geographic barriers must be reduced in order to ensure equitable access to healthcare for the entire population.

In theory, UHC has been the subject of numerous studies by health economists. It is based on concepts such as market failures, collective benefits, and positive effects for society.

The healthcare market has several limitations, such as information asymmetry, uncertainty related to illness, adverse selection, and inequalities in access. These problems justify government intervention (Arrow, 1963), while contributing to social justice and economic growth through a healthier and more productive population (Becker et al., 1990). Without regulation, the healthcare system risks excluding the most vulnerable and operating inefficiently. UHC is not only a moral obligation. It also aims to improve the efficiency of the health system, reduce inequalities, improve the health of the population, and reduce spending on preventable diseases. This theoretical framework gives UHC a solid legitimacy as the foundation for public health policies.

However, a common criticism of UHC concerns its financing, particularly in low- and middle-income countries, where public resources are limited. In these countries, health systems are often fragmented, with multiple actors and mechanisms that exacerbate inequalities in access to care. According to Meheus and McIntyre (2017), low tax revenues can be explained by the size of the informal sector, inefficient tax collection, and weak institutions. These factors make it difficult to mobilize sufficient public funds to ensure equitable access to health services. Furthermore, the practical implementation of UHC raises several structural challenges. While centralization can promote better control of spending, it also risks creating administrative burdens and hindering innovation (Folland et al., 2007). Furthermore, the effectiveness of prevention policies, which are essential to the success of UHC, depends heavily on the relevance of program targeting and the active engagement of the populations concerned (Cutler, 2007).

Despite global efforts to achieve UHC, a significant gap remains between political commitments and actual access to care. According to recent data from the WHO and the World Bank published in 2023, nearly 3.5 billion people, or about half of the world's population, still do not have adequate access to basic health services. In low-income countries, the richest 20% have up to five times more access to health services than the poorest 20%, calling into question the very principle of universal health coverage (WHO, 2023). As in many countries, Morocco has expanded its social protection in health by combining insurance, contributory, and assistance mechanisms. Since 2005, compulsory health insurance (AMO) has covered employees in the public and private sectors, and a specific mechanism has been put in place to guarantee access to care for the most vulnerable populations. Despite these advances, a significant gap remains between theoretical coverage and actual access to care. In 2023, 70% of the population had some form of medical coverage (Ministry of Health, 2023), but only 53% of RAMED

beneficiaries actually used public health services when needed. This disparity can be explained by several factors, including insufficient medical provision, unequal geographical distribution of resources, and cultural barriers. According to the High Commission for Planning (2023), there is one doctor for every 1,630 inhabitants in urban areas, compared to one for every 3,500 in rural areas.

This context shows that universal access to healthcare cannot be limited to the implementation of a single health insurance system. It requires integrated policies capable of removing the barriers that hinder effective access to services. It is essential to take into account the social determinants of health and strengthen the capacity of the system. Without these efforts, the expansion of coverage risks remaining symbolic. Financial barriers remain one of the most significant obstacles to effective access to healthcare.

Inequalities in access to healthcare persist even in universal systems, particularly in rural areas and among certain social groups. These disparities can be explained in particular by geographical factors and differences in the quality of care. Furthermore, the method of financing the UHC, whether based on social security contributions or taxation, raises important questions in terms of equity. A key issue concerns healthcare costs paid ex-ante, even if they are reimbursed ex-post, as they can represent a barrier to access to healthcare for low-income populations. We consider that the factor preventing access to healthcare is the cost of consultations, even if they are reimbursed in full or in part. This constitutes a psychological cost insofar as it exceeds the average minimum income. It is in this context that our problem arises, formulated through the following research question: to what extent does the UHC, characterized by consultation fees paid ex-ante and reimbursed ex-post, influence the demand for healthcare? This question, which has been little explored in the existing literature, is the central focus of this article.

In order to provide answers to this new issue, and drawing on a solid theoretical and empirical framework, we conducted a quantitative survey aimed at empirically analyzing the relationship between users' socioeconomic characteristics and their behavior with regard to healthcare spending. The analysis is based on a sample of 1,183 randomly selected heads of households in a context characterized by high income heterogeneity. In a deliberately targeted analytical approach, we excluded certain variables relating to subjective expectations in order to focus the study on three key dimensions of healthcare demand, namely the attractiveness of healthcare services, the perceived usefulness of care, and anxiety related to medical treatment.

The main objective is to empirically test the hypothesis that the mechanism of ex-ante payment of healthcare costs, even when reimbursed ex-post, can generate inequalities in access to care. Indeed, within the framework of a UHC system, this method of financing is likely to exclude the poorest households, who are unable to pay medical expenses up front, despite their subsequent reimbursement. In this context, our study aims to assess the concrete impact of these financial mechanisms on households' health behavior and on the actual effectiveness of the UHC. To this end, we use several statistical methods, including binary logistic regression and propensity score matching (PSM), to identify more precisely the determinants of healthcare demand in a UHC system based on reimbursement of expenses incurred.

This article is divided into four sections. The second section reviews the literature on the functioning of the healthcare market and its failures, socioeconomic inequalities, the UHC, and the demand for healthcare among low-income populations, explicitly incorporating the dimensions of daily income and consultation costs. The third section presents the research methodology used to assess the extent to which individuals with modest incomes are at risk of being excluded from UHC due to ex-ante payments for healthcare costs. This approach is based on an empirical survey aimed at determining whether these payments constitute a barrier to access to healthcare for the most disadvantaged populations and whether they contribute to the accentuation of social inequalities. The fourth section is devoted to analyzing the empirical results, using several statistical techniques, including binary logistic regression and propensity score matching. Finally, a conclusion summarizes the main findings of the study.

2. Literature Review

This section examines the main failures of the healthcare market, particularly information asymmetry and moral hazard, which undermine the efficiency and fairness of the system in the absence of public intervention. It highlights the role of UHC in correcting these dysfunctions and reducing inequalities in access to care linked to income disparities, by guaranteeing equitable access to essential health services.

2.1. Moral hazard and information asymmetry

The UHC economic model is based on the idea that the healthcare market is characterized by information asymmetries and moral uncertainties. According to Arrow (1963),

patients, who are not specialists, have less medical information than healthcare professionals. This difference creates an imbalance in healthcare decisions, as patients cannot always judge whether treatments are appropriate or effective. For their part, providers may be influenced by financial interests and offer costly, sometimes unnecessary procedures. This imbalance can lead to excessive consumption of healthcare by high-income individuals, while those with low incomes may forego care due to lack of means. Furthermore, the healthcare sector remains characterized by a high degree of uncertainty. As explained by Arrow (1963) and Haas-Wilson (2001), patients may experience symptoms without knowing which treatment is appropriate, making them highly dependent on the judgment of professionals. This unbalanced relationship necessitates the creation of mechanisms outside the market, such as professional associations, rules set by authorities, or public institutions. Their role is to regulate medical practices and ensure equitable access to care. Without these protections, health inequalities tend to worsen, especially for the most vulnerable.

Moral hazard refers to the tendency of individuals to engage in risky behavior when they are protected from the financial consequences. Without coverage, the costs can discourage people from seeking preventive care. Conversely, the introduction of universal health coverage removes these economic barriers, promoting early access to care and encouraging prevention. Individuals are thus more inclined to seek medical advice without fear of unexpected costs, which contributes to better collective management of health risks.

Arrow's theory, although influential, has certain limitations. It is based on a static conception of information asymmetry, without taking into account recent developments in access to information. Folland et al. (2007) point out that patients are now better informed, particularly thanks to the Internet, which can improve their health choices. This development shows that asymmetry is not systematically disadvantageous to patients. Furthermore, correcting this asymmetry is not enough to guarantee the efficiency of the system, unless economic incentives are consistent with public health objectives.

The concept of moral hazard has also been criticized. Rothschild and Stiglitz (1976) argue that problems related to adverse selection and moral hazard cannot be solved solely by extending coverage. According to them, complementary tools such as private insurance or co-payment mechanisms can encourage more efficient consumption of healthcare, while limiting the effects of saturation in public systems.

Another key aspect to consider is that, in certain contexts, the predominance of public provision, often justified by uncertainty, can slow down innovation in the private sector. This situation tends to reduce the benefits of competition, maintain high costs for sometimes ineffective care, and lead to long waiting lists. It can also encourage discriminatory practices, where access to care becomes unequal depending on patients' economic resources. As Rothschild and Stiglitz (1976) point out, a fully public health system may be less willing to adopt technical or organizational innovations, which can limit the performance and adaptability of the system as a whole.

2.2. Socioeconomic inequalities and access to healthcare

Social and economic inequalities play an important role in access to healthcare. As explained by Wagstaff et al. (2009) and Graham (2004), the poorest people face financial barriers that limit their access to healthcare services, particularly due to the direct costs of care. In systems where patients are required to contribute financially, low-income individuals are often forced to delay or even forego necessary treatment. This situation creates a cycle of deteriorating health, thereby exacerbating social inequalities in health.

In response to these disparities, some authors, such as Musgrave (1959), argue that UHC is an effective redistribution mechanism, guaranteeing access to care regardless of individuals' financial capacity. Wagstaff et al. (2009) and Graham (2004) emphasize that universal health coverage (UHC) reduces economic barriers and ensures equitable access to quality healthcare for the entire population, regardless of income level. This effect is particularly evident in low- and middle-income countries. For instance, in Mexico, the *Seguro Popular* program helped reduce healthcare expenditures for poor households and improve their access to services, although wealthier populations continue to benefit more from specialized care (King et al., 2009). In developed countries, mandatory health insurance also lowers the financial burden of care but does not completely eliminate inequalities, particularly in access to preventive services (Van Doorslaer et al., 2006). The study by Moussane and Elazzouzi (2024) confirms these findings, showing that cost-sharing is lower in low-income countries and higher in high-income countries. Consequently, out-of-pocket health expenditures increase in low-income settings, while they decrease in high-income contexts. These patterns highlight the limitations of social health protection systems in ensuring equitable access to essential healthcare services in the most vulnerable contexts.

However, the effectiveness of the UHC in reducing social inequalities remains debatable. Myles and Quadagno (2002) show that simply making healthcare accessible to all is not enough to correct inequalities. In many cases, indirect costs, such as transportation expenses or loss of income due to absence from work, continue to hinder access to healthcare for the most vulnerable populations. Wealthier households are more likely to seek insurance coverage for their members (Duku, 2018). Indirect costs, such as transportation expenses or loss of income due to absence from work, remain significant barriers to access to healthcare. In addition, employment conditions can limit the actual use of services, even for insured individuals. Folland et al. (2007) also point out that the UHC, while essential, must be accompanied by other social policies. Indeed, health inequalities are often linked to broader factors, such as lifestyle, diet, or housing conditions. It is therefore important to adopt a broader approach, combining health policies with targeted social measures, to ensure equitable access to care and meet the needs of all.

Access to healthcare does not depend solely on the costs paid directly by patients. In many countries, healthcare systems are mixed, combining public provision with a private sector, often supported by supplementary insurance. In low- and middle-income countries, the lack of public resources prevents the state from guaranteeing universal access to healthcare on its own (Asante & Zwi, 2007). These countries therefore rely on mixed systems, where the private sector sometimes plays a dominant role, in a context of insufficient public funding and limited regulation (Kula & Fryatt, 2014). This situation can undermine the equity and efficiency of the system and even exacerbate social inequalities, despite the existence of a single health insurance system.

Van Doorslaer et al. (2000) show that, in this type of system, high-income individuals have easier access to quality care, particularly specialized services and shorter waiting times. Conversely, low-income individuals, even if they are covered by public insurance, often continue to receive lower quality care and have to wait longer. Without strict regulation, this coexistence of the public and private sectors reinforces inequalities, as those who can afford it enjoy privileged access to the best services (Barros & Siciliani, 2012). The presence of both public and private healthcare systems often creates two tiers of care. This imbalance is even more apparent when the private sector is poorly regulated, as some providers focus on patients who can pay, reinforcing inequalities in access to care based on income level.

These theoretical frameworks justify that, even in the presence of UHC, the use of mechanisms such as co-payments, user fees, or deductibles should be considered in order to introduce a form of budgetary discipline. However, these mechanisms presuppose the existence of *ex-ante* disposable income, a condition that is often incompatible with the realities of countries in the Global South, where liquidity poverty is more widespread than permanent income poverty (Bitran, 2014). In such contexts, the inability to pay healthcare costs up front, even when they are reimbursable *ex-post*, often leads to people foregoing care, including in emergency situations.

3. Research methodology

In this section, we present the main variables in our analysis. The outcome variable measures forgoing care, while the treatment variables reflect financial barriers related to ex-ante advance payment of consultation fees, reimbursement delays, and covariates included in our estimation.

Outcome variable. In our study, forgoing care was used as an outcome variable to assess demand for and use of health services by the heads of households surveyed. Our analysis focused on the impact of advance payment on heads of households' decisions to seek care, as measured by two direct and indirect questions. Household heads who answered « *yes* » to the question « *Is the requirement to pay healthcare costs in advance a constraint for you?* » were asked to share their experience. This question focuses on ex ante out-of-pocket costs as a constraint to access. Household heads were then asked a second direct question to determine the effect on demand for care: « *Does this cause you to forego seeking healthcare?* » For this purpose, we used a binary indicator, where a « *yes* » answer to this question corresponds to a household head who has foregone care, and « *No*» to one who has sought care.

Treatment variables.We have identified the following treatment variables: the first concerns « *ex-ante out-of-pocket costs*». Ex-ante payment of consultation fees means that patients are required to pay the cost of the consultation before receiving treatment, often in a system where reimbursement is provided after the fact by a health insurance plan. This method of financing is based on the logic of regulating demand and making users accountable for healthcare expenses (Zweifel & Manning, 2000). In health systems with user fees, it is sometimes justified as a means of limiting overconsumption and controlling public costs. However, this practice raises serious questions of fairness, particularly for low-income households. Several studies have shown that having to pay upfront, even for

reimbursable expenses, is a real barrier to accessing healthcare. Ruger (2009) argues that this mechanism undermines the principles of social justice, as it makes access to healthcare contingent on immediate ability to pay. Similarly, Thomson et al. (2019) point out that any ex-ante payment, even partial, can have catastrophic effects on low-income households by introducing a form of economic selection at the point of entry into the healthcare system. The second concerns « *reimbursement delays* ». In UHC systems, reimbursement of medical expenses is a financial protection mechanism designed to ensure equitable access to care. However, when reimbursement is delayed, it can become an indirect but powerful barrier to the effective use of health services, particularly for poor and low-income households. According to Thomson et al. (2019), late reimbursement can undermine the financial protection function of the health system by exposing households to immediate cash flow pressures. When a household head reports being unable to pay healthcare costs ex-ante (high upfront cost) or experiencing a prolonged reimbursement delay, these two variables are set to 1. If neither of these obstacles is reported, the two variables are set to 0.

Covariates used. A total of eleven covariates were selected to assess the impact of the obligation to pay healthcare costs ex ante on healthcare utilization or the decision to forgo treatment. These covariates include demographic characteristics, such as age and education level, as well as a household-related variable represented by household size. Socioeconomic factors, including household income and UHC status, were also incorporated into the model. In addition, the health status of household heads was considered by identifying whether they suffered from a chronic illness. The potential influence of geographic location on healthcare utilization was captured through the variable geographic distance. In line with the recommendations of Rosenbaum and Rubin (1983), it is essential to include a comprehensive set of covariates in the propensity score model to minimize selection bias, including variables with limited predictive power. Accordingly, additional covariates likely to affect healthcare utilization and demand were included, notably healthcare costs, proxied by the number of medical consultations and the use of hospital services, as well as waiting time for obtaining an appointment. In this study, respondents were asked about medical consultations during the past two years and hospital consultations over the previous twelve months, which were used as indicators of hospital service utilization. A detailed description of these covariates is provided in Table 1.

Table 1 : Definition of variables

Variable	Definition
Declined to seek care	Binary variable (1 = Yes; 0 = No)
Advance payment	Binary variable (1 = Yes; 0 = No)
Reimbursement delay	Binary variable (1 = Yes; 0 = No)
Income	Quintiles I (poor), Quintiles II (average), Quintiles III (rich)
health status	Binary variable (1 = Yes; 0 = No)
UHC	Binary variable (1 = Yes; 0 = No)
Geographical distance	Binary variable (1 = Yes; 0 = No)
Number of consultations	One per month, At least one per quarter, At least one per semester, At least one per year
Waiting time for an appointment	Same day, One day, Two days, Three days, Four days, Five days maximum.
Education	None, Primary, Secondary, Higher
Age	18-30, 31-45, 46-60, 61-75
Number of people in the household	0 people, 1 person, 2 people, 3 people, 4 people, 5 or more people

Source : Auteurs

In the remainder of this section, we present the estimation method used and the validity tests applied to ensure the reliability of the results. These methodological tools make it possible to assess the effect of ex-ante consultation fees, reimbursement delays, and other covariates on the renunciation of care.

First, we used binary logistic regression analysis to examine the association between out-of-pocket health care costs and health care utilization, taking into account potential confounding variables. In addition, we used propensity score matching (PSM) to overcome the risk of selection bias inherent in studies on healthcare utilization. This approach, developed by Rosenbaum and Rubin (1983), allowed us to assess the impact of user fees on the demand for and utilization of healthcare services by heads of households. By comparing the behavior of heads of households in a market where prepayment for care is mandatory, this method relies on matching individuals based on their propensity score, defined as the probability of needing healthcare. Odds ratios from the logit model were used to calculate these scores.

The PSM process consists of two stages. First, propensity scores are estimated for each respondent using a logistic regression model. These scores, calculated based on 11 predefined variables, reflect the probability of using healthcare services. This method allows for a balanced comparison between the treatment and control groups, ensuring that differences in healthcare demand are due to the requirement to pay upfront rather than external factors. The propensity score is defined as follows:

$$logit(P) = \log\left(\frac{1}{1-P}\right) = \mu + \beta x$$

Where P is the probability that the respondent foregone care; x is a vector of characteristics correlated with the demand for or foregone care by heads of households; β is a vector of parameters to be estimated; and μ is the intercept term corresponding to foregone care. Thus, the demand for or renunciation of healthcare (Y) is a binary variable where: Y = 1 if the household head who renounced healthcare requested it. Y = 0 if the household head did not request healthcare.

To be more precise, the model we estimate is as follows :

$$\begin{aligned}\log\left(\frac{p(Y=1)}{1-P(Y=1)}\right) = {} & \beta_0 + \beta_1 \text{Advance payment} + \beta_2 \text{Reimbursement delay} \\ & + \beta_3 \text{Income} + \beta_4 \text{health status} + \beta_5 Number\ of\ consultations \\ & + \beta_6 UHC + \beta_7 Geographical\ distance \\ & + \beta_8 \text{Waiting time for appointments} + \beta_9 Education + \beta_{10} Age \\ & + \beta_{11} \text{Number of people in the household}\end{aligned}$$

Where : P (Y = 1) is the probability that the demand for care will be foregone. β_0 is the intercept. β_1, β_2, …, βk are the coefficients of the independent variables.

We also estimate the average treatment effect on treated heads of households (ATT), which represents the difference between the expected values of the outcomes (Y) with and without treatment (D) for those who received treatment :

$$\tau ATT = E(\tau|D=1) = E[(Y(1)|D=1)] - E[(Y(0)|D=1)]$$

In the second step, the propensity scores estimated in the first step were used to match the sample of household heads. In order to ensure the reliability of the estimates, it was important to verify the balance of covariates between the treatment group (those who had foregone healthcare) and the control group (those who had used healthcare). To do this, the first method consisted of calculating the standardized bias before and after matching, considering that a difference of less than 10% indicates a negligible imbalance (Nguyen et al., 2017). The second method involved analyzing the pseudo-R^2 and performing a likelihood test to verify the joint insignificance of the regressors, thus confirming the absence of systematic differences in the distribution of variables after matching. In

addition, a two-sample t-test was used to assess the quality of the matching. If no significant differences were observed between the covariates of the two groups after matching, the PSM result was considered successful. The quality of the matching was also assessed visually using histograms to verify the overlap of propensity scores between the treatment and control groups.

Finally, to test the robustness of the results, additional estimates of the average treatment effect on the treated (ATT) with ranges of 0.01 and 0.001 were provided. The bootstrap method was used to calculate the standard error of these estimates and the corresponding p-values to assess their statistical significance (Lechner, 2002). The relative treatment effects (RATT) of advanced care costs on healthcare use or non-use were also calculated by dividing the ATT by the mean of the outcome variable for the control group, multiplied by 100 (Garcia-Gomez et al., 2013). Finally, the STATA psmatch2 module was used to implement the matching procedure and estimate the ATT (Leuven & Sianesi, 2018). The results of the binary logistic regression and the PSM method are presented in the following sections.

4. Results and discussion

This third section presents the results of an in-depth statistical analysis of our sample. The univariate analysis describes the distribution of the main variables studied, while the bivariate analysis explores the relationships between these variables. These analyses were performed using appropriate statistical tests, including cross-tabulations and F-tests adapted to the sample structure. The results obtained also justify the choice of variables included in the estimation. A binary logistic regression was then used to estimate the effect of these factors on the probability of forgoing care, identifying the associated individual and structural determinants. Finally, the results obtained from PSM provide a more rigorous estimate of the effect of the obligation to pay reimbursable medical expenses in advance on the demand for care.

4.1. Descriptive statistics

The survey was conducted among a sample of 1,183 respondents. The gender distribution is relatively balanced, with 57.9% men and 42.2% women. This composition is consistent with recent trends in Morocco, particularly the gradual integration of women into the labor market, especially within the public sector (56.4% women in 2021 compared with 39.1% in 2012).

The sample covers different age groups: 25% are between 18 and 30 years old, 23.8% are between 31 and 45, 35% are between 46 and 60, and 15.6% are between 61 and 75, which corresponds to a relatively young population (66.14% of the Moroccan population aged 16 to 64 according to the 2024 census). The majority of respondents live in urban areas (50%), compared to 30% in rural areas, reflecting the growing rate of urbanisation.

In terms of education level, 16.7% of respondents have no formal education, while 37.5% have completed higher education. The marital status is dominated by married or single people. Household size is predominantly large: 53.2% have five or more people, 20.3% have four people, and 15.7% have three people, with single-person households remaining in the minority (1%), illustrating the intergenerational cohabitation typical of Moroccan society. AMO and AMO-Tadamoun beneficiaries account for an overwhelming majority, exceeding 80% of the sample. This distribution is consistent with national trends in social coverage and can be largely attributed to the universal social protection policies implemented by successive governments. Table 2 summarises these sample characteristics.

Table 2 : Overall descriptive statistics

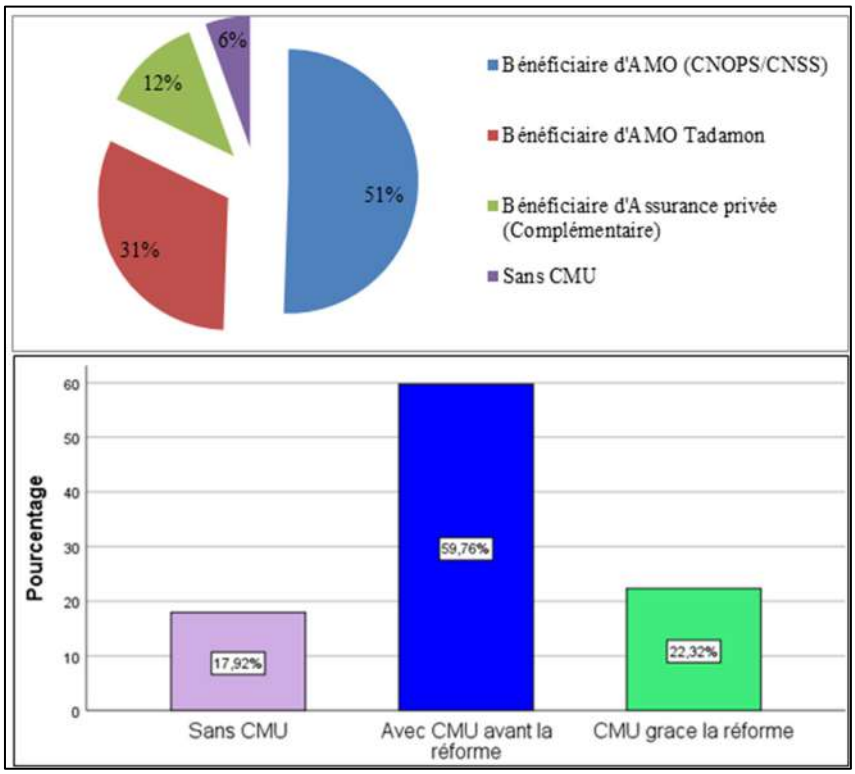
Variables		Frequency	Percentage
Gender of head of household	Male	685	57,9
	Female	498	42,1
Age	18-30 years old	302	25,5
	31-45 years old	282	23,8
	46-60 years old	414	35
	61-75 years old	185	15,6
Residence	Urban	598	50,5
	Rural	371	31,4
	Semi-urban	214	18,1
Education	None	198	16,7
	Primary	277	23,4
	Secondary	264	22,3
	Higher	444	37,5
Marital status	Single	321	27,1
	Married	700	59,2
	Divorced	91	7,7
	Widowed	71	6
Socio-professional category	Unemployed	401	33,9
	Employed	711	60,1
	Retired	71	6
income	Less than minimum wage	423	35,8
	At least minimum wage	218	18,4
	3,000-7,000 dirhams	302	25,5
	Over 7,000 dirhams	240	20,3

Number of people in household	Aucun	19	1,6
	1 person	21	1,8
	2 persons	88	7,4
	3 persons	186	15,7
	4 persons	240	20,3
	5 people or more	629	53,2

Source : Auteurs

Figure 1 illustrates the distribution of household social security schemes. AMO beneficiaries, including those covered by CNOPS and CNSS, constitute the largest share, accounting for 50% of household heads. AMO Tadamoun covers 31% of respondents, while 2% report having private supplementary insurance. A smaller proportion, representing 6% of household heads, report having no health insurance coverage. The majority of respondents are long-term beneficiaries, with over 50% having been affiliated with the UHC for more than two years. New beneficiaries, with less than 12 months of affiliation, account for 20% of respondents, while 17% have been covered for one to two years. In contrast, 11% of respondents report having no social security coverage. This pattern reflects the impact of recent health insurance reforms, which have expanded membership, particularly under the AMO-Tadamoun scheme.

Figure 1 : Medical coverage for the head of household



Source : Auteurs

As our documentary analysis shows, healthcare expenditure is a major determinant of access to care, particularly for poor and vulnerable households. The results of our survey also confirm this reality by highlighting the distribution of additional expenditure according to the type of medical service used. Thus, 57.9% of household heads indicate that medicines are the main source of these additional costs, which can be explained by their high price in Morocco and the low share of generic medicines on the pharmaceutical market, estimated at 28% (Zaoui et al., 2013). Expenditures related to radiology and diagnostic tests also constitute a substantial financial burden, accounting for 11.5% of current health expenditures (WHO, 2018). For example, the cost of a CT scan is approximately 1,000 MAD, of which 80% is reimbursed by the AMO scheme, leaving an out-of-pocket payment of around 200 MAD, typically borne by households. This financial burden is even higher in the private sector, which is used by about 90% of households to access medical services (CNOPS, 2025). Furthermore, hospitalisation and consultation costs account for 46.2% of additional expenses, 28% of which are related to outpatient hospitalisations. In the public sector, 33% of heads of households report bearing these additional costs, which constitute a significant barrier to accessing healthcare, particularly in rural areas (Bouirbiten et al., 2023). These expenses are often due to the unavailability of medicines or the need to consult specialists for certain conditions, forcing families to finance care directly.

Finally, in line with our previous findings, we observe a negative correlation between income level and forgoing care: the higher the income, the lower the probability of forgoing care. However, regardless of income, nearly 60% of households report having foregone care, highlighting the structural nature of this constraint. Indeed, even among the highest income quartile, nearly half of household heads report having foregone care, revealing the limitations of the financial protection system in the face of direct healthcare expenditure.

4.2. Results of the binary logistic regression estimation

First, we present the results of the logistic regression models used to calculate the propensity scores of all heads of households to forego healthcare based on the 11 variables in Table 1. Table 5 presents the empirical results obtained using binary logistic regression models. All results of the estimates of the impact of the obligation to pay in advance for the use of health services in the public and private sectors on the renunciation of health care by heads of households show significant and positive coefficients.

More specifically, this analysis examines the factors influencing household heads' forgoing of healthcare using three binary logistic regression models. The first model (M1) assesses the effect of the advance payment requirement, while the second model (M2)

introduces the reimbursement period as an additional explanatory variable. Finally, the third model (M3) includes both variables to provide a more complete picture of the determinants of non-use.

Table 3 : Binary Logistic Regression Result

Variables	**M1**		**M2**		**M3**	
Declined to seek treatment	Coefficient (β)	Odds Ratio (e^{β})	Coefficient (β)	Odds Ratio (e^{β})	Coefficient (β)	Odds Ratio (e^{β})
Obligation to pay healthcare costs in advance	3.95 (0.30)***	51.90	-	-	3.69 (0.31) ***	39.84
Reimbursement delay	-	-	1.88 (0.15)***	6.58	1.46 (0.18)***	4.29
Income						
Quintile I Quintile II Quintile III	0.26 (0.24) -0.04 (0.24) -1.06 (0.28)***	1.29 0.96 0.34	-0.15 (0.21) -0.33 (0.22) -0.78 (0.26)***	0.85 0.718 0.46	0.23 (0.24) -0.06 (0.25) -0.89 (0.29)***	1.26 .939 0.41
Chronic illness	0.35 (0.21)*	1.41	0.28 (0.19)	1.32	0.39 (0.22)*	1.47
UHC	-0.33 (0.17)*	0.71	-0.31 (0.16)*	0.73	-0.50 (0.18)***	0.60
Geographical distance	0.74 (0.17)***	2.09	0.84 (0.16)***	2.32	0.79 (0.18)***	2.19
Number of doctor visits						
One per month Up to one per quarter Up to one per halfyear Up to one per year	-0.61 (0.31)* -0.51 (0.28)* -0.17 (0.29) -0.01 (0.26)	0.54 0.60 0.84 0.98	-0.62 (0.30)** -0.47 (0.25)* -0.25 (0.26) 0.02 (0.24)	0.53 0.62 0.77 1.02	-0.66 (0.33)** -0.52 (0.29)* -0.26 (0.30) -0.08 (0.27)	0.51 0.59 0.77 0.92
Waiting time for an appointment	0.17 (0.06)***	1.19	0.23 (0.06)***	1.25	0.16 (0.07)**	1.17
Education						
Primary Secondary Higher	0.34 (0.25) -0.22 (0.26) 0.22 (0.32)	1.40 0.80 1.24	0.45 (0.24)* -0.13 (0.25) 0.03 (0.29)	1.56 0.87 1.02	0.26 (0.26) -0.29 (0.28) 0.27 (0.34)	1.30 0.74 1.31
Age 31-45 years old 46-60 years old 61-75 years old	0.23 (0.25) -0.46 (0.29) -0.74 (0.32)**	1.25 0.63 0.47	0.11 (0.22) -0.36 (0.26) -0.51 (0.31)*	1.11 0.69 0.60	0.30 (0.26) -0.34 (0.30) -0.61 (0.34)*	1.35 0.71 0.54
Number of people in the household	-0.19 (0.07)***	0.82	-0.17 (0.06)***	0.84	-0.20 (0.08) ***	0.81
Constant	-2.29 (0.57)***	0.10	-0.36 (0.46)	0.70	-3.08 (0.61)***	0.045
Observations	1,182		1,182		1,182	
Adjusted R-squared	0.3107		0.1950		0.3545	

Source : Auteurs Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Logistic regression analysis of the three models (M1, M2, and M3) showed that the variable « obligation to pay in advance » was the most influential factor in the decision of the surveyed head of household to forego seeking healthcare. This factor remained stable even after introducing other variables, confirming that it is a major barrier to accessing care. This factor has a high and significant coefficient ($\beta = 3.69$, OR = 39.84 $p < 0.01$ in model 3) in all three models. The odds ratio (OR) is greater than 39.84, meaning that heads of households facing this obligation are nearly 40 times more likely to forego healthcare than those who do not face it.

However, when comparing the coefficients of models M2 and M3, we see that the effect of the reimbursement delay decreases slightly when all factors are taken into account, suggesting that its effect may be partially absorbed by other variables. The addition of late reimbursement shows a significant effect on healthcare forgoing (coefficient $\beta = 1.46$, OR = 4.29, $p < 0.01$ in model 3). The reimbursement delay increases the probability of forgoing care, although this effect is less pronounced than that of the obligation to pay in advance.

Regarding the influence of income on the decision not to seek treatment or on the healthcare-seeking behavior of wealthy heads of households, the coefficients reveal negative and significant results in all three models. While the results differ for low-income (poor) and middle-income heads of households, whose coefficients are not significant in the three models (M1, M2, and M3), wealthy households are significantly less likely to forego care. However, the effect of higher income is significant and negative in all three models, particularly in model M3 ($\beta = -0.89$, OR = 0.41, $p < 0.01$), indicating that wealthier individuals are less likely to forego care. This may be explained by better access to resources and a greater ability to pay for healthcare costs.

The presence of a chronic disease is associated with a positive and significant coefficient in models M1 and M3. In particular, for model 3 ($\beta = 0.39$, OR = 1.47, $p < 0.1$), this means that an improvement in health status is associated with an increase in the logit, i.e., the odds ratio of foregoing care. People with chronic diseases are more likely to forego care, which can be explained by the recurring cost of treatment. On the other hand, having health insurance significantly reduces the probability of foregoing care ($\beta = -0.50$, OR = 0.60, $p < 0.01$ in model 3). Insured individuals therefore have easier access to care, confirming the importance of insurance systems in limiting inequalities in access to care.

The number of consultations also has a significant effect on the likelihood of foregoing care. People who consult a doctor once a month or once a quarter are less likely to forego care. This effect is particularly significant in model 3 ($\beta = -0.66$, OR = 0.51, $p < 0.05$ for monthly consultations; $\beta = -0.52$, OR = 0.59, $p < 0.1$ for quarterly consultations), indicating that the higher the frequency of consultations, the lower the likelihood of foregoing care. In addition, geographical and structural factors, such as distance to health centers, were taken into account in the estimation and were a significant factor in all models, particularly in model M3 ($\beta = 0.79$, OR = 2.19, $p < 0.01$). Households living far from health centers were thus almost twice as likely to receive no assistance.

The waiting time for an appointment has a positive and significant effect ($\beta = 0.16$, OR = 1.17, $p < 0.05$ in model 3). A longer waiting time therefore increases the likelihood of foregoing care, but to a lesser extent than the other factors. Analysis by age group reveals significant differences, particularly for heads of households in the 61-75 age group, for whom the effect is negative and significant ($\beta = -0.61$, OR = 0.54, $p < 0.1$ in model 3), indicating that these individuals are less likely to forego care. This explains why older people have greater healthcare needs relative to their health status. Indeed, exposure to health risks decreases among young people and increases significantly among older people, with nearly half of lifetime medical expenses incurred after age 65 (Alemayehu & Warner, 2004).

Other variables such as education level and number of people in the household were also included in the estimation, and the latter has a significant impact on the decision to forego care, as shown in model 3 ($\beta = -0.17$, OR = 0.84, $p < 0.05$), indicating that the more people in a household, the less likely the individual is to forgo care. In this model, education level does not have a significant effect on care provision. However, people with higher education levels tend to be slightly less likely to forgo care. A higher level of education reduces the probability of being exposed to a health shock (Cheng et al., 2019).

However, with regard to gender, female-headed households are assumed to be more vulnerable to shocks, particularly in terms of increased demand for healthcare (Chaudhuri, 2017). In addition, large households (with a very high number of people in the household) will generally have lower education expenditure per child or lower per capita medical expenditure. At the population level, higher per capita income is associated with better health, and this link is strong for many health indicators, including life expectancy, chronic disease burden, and self-rated health (Marmot, 2005, Krieger, 2024).

4.3. Results of PSM approach

Our results show that heads of households who are likely to forego healthcare are significantly influenced by the various variables included in the model. Next, we plotted histograms of propensity scores for the treatment and control groups, which showed sufficient overlap between these two groups and thus confirmed the overlap or common support hypothesis for PSM.

Table 5 presents the results of the treatment effect (ATT) estimate obtained by matching propensity scores. These results provide a valuable overview of the impact of the requirement to pay for healthcare in advance on the ability to forego it. Before matching, the average differences between the treatment and control groups were highly significant for most confounding variables. After kernel matching, these differences became statistically insignificant, indicating a high-quality matching process.

Furthermore, kernel matching substantially reduced these differences. We estimated the average treatment effect on the treated (ATT) of the requirement to pay for care in advance on household heads' demand for healthcare using a matching algorithm. Specifically, kernel matching indicates an ATT of 0.74 for household heads who forwent care, compared with 0.076 for those who sought care ($T = 15.56$, $p < 0.05$). This means that, on average, the requirement to pay upfront increases care avoidance among the household heads surveyed by 0.74 units among treated individuals (requirement to pay upfront = 1) compared to the control group (requirement to pay upfront = 0). Before matching, the average difference in the number of household heads who forwent care between the treatment group and the control group was 0.6754 with a standard error of 0.0299, which is significant (t-stat = 22.53). After matching, the ATT was estimated at 0.6693 with a standard error of 0.0430, which remains significant (t-stat = 15.86).

Based on Table 5, we calculate the average relative treatment effect on treated heads of households (RATT). The probability that heads of households sought healthcare (control group) is lower (RATT = 15.6%) than that of foregoing healthcare. This means that the effect of the treatment, in particular the requirement to pay in advance, increases the number of people foregoing healthcare by 15.60% compared to the control group.

$$\text{RATT} = \left(\frac{\text{ATT}}{\text{Control group average}}\right) \times 100, \text{RATT} = \left(\frac{0{,}0716}{0{,}4592}\right) \times 100 = 15{,}6\ \%.$$

Table 4 : Estimation of treatment effects in the logit model

Propensity score matching						
Waiver of treatment	Coef. ATET	S.E	z	P>z	[95% Conf. Interval]	
Advance payment requirement (Yes or No)	0.6035	0.0841	7.17	0.000	0.4386	0.7685

Average effect of treatment on treated individuals ATT						
Variable	Sample	Advance payment requirement = 1 (treated group)	Advance payment requirement = 0 (control group)	Difference	S.E.	T-stat
Waived treatment	Unmatched	0.7357	0.0603	0.6754	0.0299	22.53***
	ATT	0.7409	0.0716	0.6693	0.0430	15.56***

Bootstrap results						
ATT	Coef.	Bootstrap S.E.	z	P>z	Normal-based [95% Conf. Interval]	
	0.6693	0.0374	17.88	0.000	0.5959	0.7427

ATT : quality indicators						
Sample	Ps R2	LR chi2	p>chi2	Mean Bias/Med Bias	B/R	%Var
Before matching	0.214	250.64	0.000	23.0 17.6	127.7 1.09	50
After matching	0.093	230.15	0.000	18.9 17.2	75.1 1.25	0
si B>25%, R hors [0.5 ; 2] ; *p<0,10 ; **p<0,05 ; ***p<0,01						

Source : Auteurs

The information provided reconfirms the quality of the matching using other indicators, including the results of the Pseudo-R2 and LR tests before and after matching. In the propensity score estimation model, the mean and median biases decreased to below 5% after matching, which is considered satisfactory in empirical analyses (Garcia-Gomez et al., 2013). The LR test results again confirm the similarity in the distribution of explanatory variables between the treatment and control groups, as after matching, the LR test is also statistically significant in the propensity score estimation model. Thus, the low pseudo-R2 values indicate the absence of systematic differences in the distributions of explanatory variables between the treatment and control groups after matching.

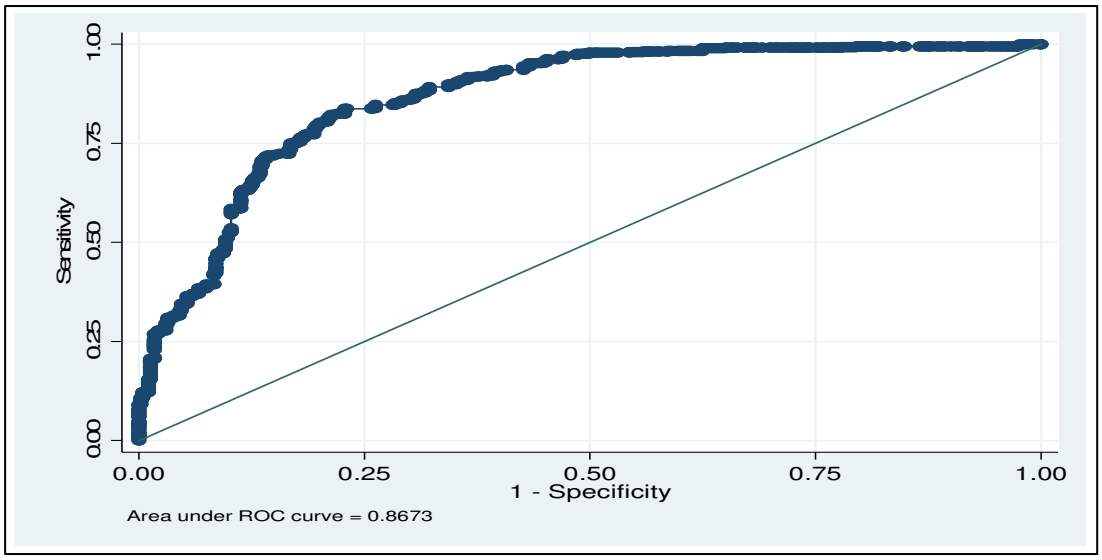
4.4. Diagnostics and model validation

Several statistical tests were used to assess the robustness of the model and its predictive capacity for healthcare forgoing. The adjusted R^2 allows us to assess the explanatory quality of the three estimated specifications (M1 = 0.31; M2 = 0.19; M3 = 0.35). The M3

model appears to be the most relevant, explaining 35% of the variance in healthcare forgoing, as it incorporates a broader set of explanatory factors while maintaining high explanatory power. The likelihood ratio test confirms, at a significance level of 5% ($p < 0.05$), that the introduction of additional variables significantly improves the model.

The overall adequacy of the model was assessed using the ten-group Hosmer–Lemeshow test ($\chi^2 = 32.55$; $p > 0.05$), indicating a good fit between observed and predicted values and confirming satisfactory calibration. Furthermore, the classification table reveals a good classification rate of 78.11%, above the 70% threshold, confirming the model's ability to correctly distinguish between individuals who have given up on care and those who have not. ROC curve analysis reinforces these results, with an area under the curve (AUC) of 0.86, reflecting an excellent ability to discriminate between positive and negative cases.

Figure 2 : ROC curve and AUC



Source : Auteurs

Overall, these elements confirm the model's overall performance and suitability for the data analyzed. In order to reinforce the reliability of the results presented in Table 4, alternative estimates were made. The results from the multivariate linear regression show that the statistical significance and sign of the coefficients remain stable across models M1, M2, and M3, attesting to the robustness of the estimates.

Furthermore, Table 5 presents the assessment of the balance of covariates before and after PSM. The results indicate a reduction in pseudo-R^2 from 21.4% to 9.3%, suggesting better comparability between groups after matching. The mean and median biases decrease from 23 to 18.9 and from 17.6 to 17.2, respectively, although they remain statistically

significant. The B indicator declines from 127.7% to 75.1%, but remains above the critical threshold of 25%, indicating the persistence of some bias. On the other hand, indicator R, rising from 1.09 to 1.25, remains within the acceptable range [0.5; 2], confirming a satisfactory balance of variances between the groups. Finally, the standardized variance decreased from 50% to 0%, reflecting a homogenization of distributions after matching.

In line with theoretical expectations, the results show a relative increase in the proportion of heads of households who have foregone healthcare. The estimates confirm that the probability of foregoing care, particularly due to ex ante costs, is significantly higher than that of actually receiving care. This conclusion is corroborated by the ATT estimates, which remain robust for wider and narrower bandwidths (Table 6).

Table 5 : Estimation of treatment effects in the logit model

ATT: basic estimates	Waiver of treatment	Coef.	SE	P-value	Number of observations	R-squared
bandwidth = 0.01	Obligation to pay in advance	0.6737	0.0300	0.000	1,176	0.2998
bandwidth = 0.001	Obligation to pay in advance	0.6754	0.0299	0.000	1,182	0.3007

Source : Auteurs

The results of the binary logistic regression, which confirm the significant association between forgoing care and upfront costs, as well as the propensity score matching approach, also highlight the fact that upfront costs constitute a significant financial barrier that significantly increases the rate of forgoing care among the heads of households surveyed.

4.5. Discussion of results

A key question that arises when examining our results is whether the effects of ex ante advance payments reflect a more profound change in the demand for healthcare or simply a renunciation of medical services by households. With this in mind, our analysis of our general hypothesis incorporated a set of economic and demographic variables that influence the demand for medical services. Our results show that demand for healthcare depends mainly on income, consumption of other goods, the individual's state of health, and the cost of care. Other demographic variables, such as age, household size, and marital status, were introduced as proxies for preferences and included in the estimation. Although the main objective of this study is not to identify the effect of a large set of variables, their inclusion is necessary in order to rigorously isolate the impact of ex ante out-of-pocket costs on household spending behavior.

The results of our study confirm the hypothesis that the ex ante healthcare payment mechanism, involving advance payment followed by ex post reimbursement, is likely to generate inequalities in access to care. Logistic regression analysis of the three models (M1, M2, and M3) reveals that the variable “obligation to pay in advance” is the most decisive factor in household heads' decisions to forego care. This effect remains stable after the introduction of control variables, confirming the central role of advance payments as a barrier to access to care. Furthermore, propensity score matching between the treatment and control groups shows sufficient overlap, validating the overlap hypothesis. The results indicate that kernel matching produces an average treatment effect on the treated (ATT) of 0.74 for household heads who forwent care, compared to 0.076 for those who sought care ($T = 15.56$; $p < 0.05$). This means that, all other things being equal, the advance payment requirement significantly increases healthcare forgoing among the individuals concerned.

The analysis of individual and household incomes from our health survey shows that medical care is a normal good, reflecting a positive relationship between income and healthcare consumption. It also reveals that uninsured individuals are mainly characterized by low income or disadvantaged socioeconomic status. Our results confirm that heads of households with higher incomes are better able to pay upfront and access care, while the poorest households, faced with liquidity constraints, have severely limited access to care. The renunciation of healthcare is thus negatively and significantly associated with household wealth in all models, particularly in model M3 ($\beta = -0.89$; $e^{-0.89} = 0.41$; $p < 0.01$), indicating that wealthier individuals are less likely to forego healthcare. A significant difference is observed between poor households (quintile I), intermediate households (quintile II), and wealthy households (quintile III).

These results are consistent with existing economic literature, which highlights a reduction in the use of health services when costs are borne by the patient. In this regard, Sirag and Mohamed (2021) show, based on an analysis of 145 countries between 2000 and 2017, that there is a positive and significant relationship between out-of-pocket health expenditures and poverty levels. Similarly, the systematic review by Rezayatmand et al. (2013), based on 47 empirical studies, concludes that out-of-pocket payments are a major barrier to access to preventive services and medicines. Newhouse's (1993) study also highlights that an increase in disposable income reduces financial barriers and encourages the use of healthcare services.

Our findings also help explain why poor or low-income households forego healthcare due to their inability to pay out-of-pocket healthcare expenses, or why some households are forced to reduce their food and non-food expenditures to cover medical costs. Budgetary choices relating to food, housing, or leisure can thus influence the ability to finance healthcare. Furthermore, health shocks can reduce households' ability to generate income, leading to both income losses and high treatment costs, which can result in a reduction in essential expenditures, particularly on food and education (Genoni, 2012). These results are consistent with Nguyen et al. (2020), although they differ in part from the findings of Panikkassery (2020), who observes, in the case of India, an increase in food expenditure in response to higher healthcare expenditure.

In a context marked by rapidly rising healthcare costs and persistently high levels of uninsured individuals, monitoring inequalities linked to income and poverty status is essential for public policy development. The Moroccan government has committed to implementing universal health coverage, in accordance with the WHO doctrine ratified by Morocco in 2005. In its recommendations, the WHO (2018) emphasizes the need to prioritize reducing out-of-pocket payments, which constitute a major barrier to access to care, as confirmed by the results of our study. When the share of out-of-pocket expenses is high and no effective social protection mechanism is in place, these expenses can represent a significant portion of household income and become catastrophic when they exceed families' ability to pay (Sarker, 2021). The results further confirm that longer reimbursement delays increase the likelihood that heads of households will forgo medical treatment when upfront costs remain prohibitive. Excessive delays in access to care can have serious consequences for patients' health, as demonstrated by Mimouni et al. (2018) in their study on delays in breast cancer treatment in Morocco. Timely access to healthcare is a fundamental determinant of the quality of health services (Kreindler, 2010).

Furthermore, the presence of a UHC significantly reduces the risk of forgoing care, even when ex-ante payments are required, confirming the theoretical and empirical analyses supporting the policies promoted by the WHO (2005). The UHC mitigates the financial risks associated with healthcare expenditure, particularly those associated with unpredictable costs (Sommers et al., 2017).

Finally, geographical accessibility appears to be a major factor in the decision not to seek care. Distance from health centers significantly increases the likelihood of abandoning care, particularly in rural areas, where distance, transportation costs, and lack of medical

infrastructure are significant barriers. Despite efforts by public authorities, including increasing the availability of local healthcare and renovating health centers (Ministry of Health, 2025), geographical distance remains a structural barrier to effective UHC.

Conclusion

This article is based on a survey of 1,183 heads of households in Morocco, using empirical analyses based on binary logistic regression models and the propensity score method. The results confirm the hypotheses formulated and show that heads of households' decision not to seek care is significantly influenced by the explanatory variables included in the model. The propensity score analysis reveals that, prior to matching, the average differences between the treatment and control groups were statistically significant for most of the confounding variables. However, after kernel matching, these differences became insignificant, attesting to the quality and robustness of the matching process. The results also highlight that advance payment for healthcare is a major financial barrier, significantly increasing the likelihood of forgoing care.

Access to healthcare, or the decision not to seek treatment, appears to be closely linked to the costs borne by households, which represent a particularly heavy financial burden for vulnerable and low-income populations. Although medical expenses are reimbursable ex post, the upfront costs remain a significant burden. In addition, heads of households who face difficulties in enrolling in UHC often encounter the same constraints in advancing healthcare costs. This renunciation has direct consequences on the management of chronic diseases, increasing health risks and future healthcare costs. In a context marked by increased cost sharing and the widespread adoption of health insurance, the poorest households remain exposed to high financial burdens and persistent difficulties in paying upfront.

Even in a comprehensive universal coverage system, where income is no longer, in principle, a barrier to accessing healthcare, certain indirect costs, such as transportation or medication, may continue to limit access to healthcare services, particularly for low-income households. Furthermore, the results show that the wealthiest households are not necessarily the heaviest users of health services, suggesting that other factors, such as individual preferences, perceptions of the need for care, or preventive behaviors, also influence the demand for care.

This research makes several important contributions to the literature. To our knowledge, it is one of the few studies to quantify the extent of financial barriers related to ex ante payment for healthcare, with a focus on the most vulnerable populations. These economic constraints can lead households to forego necessary care due to their inability to pay upfront, even when they have universal health coverage. The analysis also highlights the central role of income in accessing care. Low-income individuals, who are often more exposed to health risks, have limited purchasing power once essential expenses are covered, which reduces their ability to finance care. High hospitalization costs can thus force them to delay or abandon consultations, worsening their health.

Overall, these results highlight the need to develop balanced health policies that can reconcile expanding access to care with controlling costs. While universal health coverage helps reduce inequalities in access, it also exposes the system to risks of moral hazard and waste, calling for appropriate regulatory mechanisms to ensure its long-term sustainability.

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