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Analysis of the determinants of Universal Health Coverage (UHC) adherence in Côte d'Ivoire: A multi-level analysis of household decisions

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***Abstract*---**This study analyzes the determinants of adherence to Universal Health Coverage (UHC) in Côte d'Ivoire, in a context where equitable access to care remains a major challenge. The data used come from the Harmonized Survey on Household Living Conditions (EHCVM 2021), providing a representative base of the population. The estimation of a multilevel Logit regression model highlights the influence of individual characteristics (gender, education, income, age) on the probability of universal health insurance coverage, as well as the constraining role of contextual factors such as the level of satisfaction with care and the distance from health centers, highlighting the importance of geographical accessibility and perceived quality on the likelihood of taking out insurance. The results suggest the need to target women through awareness-raising actions and contribution reductions, to adapt the offer to people with middle or high incomes by improving the quality of care.

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Introduction

Over the past two decades, many developing countries have faced the complex challenge of sustaining their health system financing, in a context marked by limited resources and a growing demand for quality services (Topan et al. 2024). While developed countries have gradually moved towards the introduction of pre-payment schemes for the financing of care, a significant share of health expenditure in developing countries continues to be borne by individuals themselves. Globally, every year, nearly 150 million people face so-called catastrophic health care expenses due to the massive use of direct payments at the point of care. (Zegeye et al. 2023).

Faced with this worrying situation, the international community, particularly under the aegis of the United Nations, has become aware of the urgent need to put in place solidarity and sustainable financing mechanisms to protect vulnerable populations against the financial risks associated with access to care. These mechanisms must not only ensure universal access to health services, but also ensure that the costs of care do not become a huge barrier or burden for individuals, especially in developing countries. With this in mind, the Sustainable Development Goals, adopted in 2015, set an ambitious framework to address these global challenges. In particular, SDG 3.8 aims to ensure healthy lives and promote well-being for all at all ages, and target 3.8 is a major component by explicitly promoting Universal Health Coverage (UHC). The latter is designed as a strategic lever to improve financial access to care, reduce health inequalities and protect populations from catastrophic expenses related to medical care. It is in this sense that the Ivorian State has undertaken, since 2014, the establishment of a health coverage system called Universal Health Coverage (CMU), a national and mandatory mechanism whose objective is to guarantee the entire population, without distinction of income, social status or place of residence, equitable access, to essential health care. Through this scheme, the Ivorian State intends to significantly reduce the high share of health expenditure borne by households, strengthen solidarity and contribute to the continuous improvement of the quality of the offer throughout the Ivorian territory.

However, despite the implementation of this ambitious system based on the pooling of resources and the sharing of risks, the effective adherence of the populations to the CMU still falls far short of the objectives set by the health authorities. Indeed, a large part of the Ivorian population remains on the margins of the system, continuing to directly bear a large part of health expenses, often at the cost of significant economic sacrifices. This situation considerably limits the expected impact of UHC, both in terms of reducing catastrophic health expenditure and improving access to quality care. It thus underlines the urgency of identifying and understanding the factors that hinder adherence, in order to strengthen the effectiveness of the system and ensure inclusive and sustainable social protection. In order to better understand the phenomenon that hinders massive adherence of the population, it is necessary to ask the question, what are

the determinants of adherence to Universal Health Coverage (UHC) in Côte d'Ivoire?

The answer to this question allows us to set the objective of this study, which is to analyze the determinants of adherence to Universal Health Coverage (UHC) in Côte d'Ivoire. From a scientific point of view, this study contributes to enriching the literature on the determinants of adherence to Universal Health Coverage (UHC) in Côte d'Ivoire by simultaneously integrating individual characteristics and contextual factors related to the living environment. At the political level, it offers useful insight into the functioning of the mechanism put in place by the Ivorian government and constitutes a support to guide health and social protection policies more effectively in favor of achieving universal health coverage.
The rest of this article first presents the theoretical and empirical foundations relating to the demand for care. In a second step, the methodological approach is presented, followed by the presentation and analysis of the results. Finally, the article concludes with a synthesis of the main results accompanied by policy recommendations.

1. Literature review

All scientific production is based on a theoretical and empirical framework built from the contributions of the existing literature.

1.1. Theoretical contributions

Health insurance is based on the principles of equality and solidarity, close to the socialist ideals defended by Marx (1850), which value the collective organization of resources. It aims to ensure equitable access to care, regardless of the economic status of individuals. On a technical level, it is based on the principle of large numbers: the larger the insured population, the more the risks are pooled, which makes it possible to stabilize health spending. Solidarity is thus at the heart of this system (Boudeville, 1950), functioning as a common fund where everyone contributes according to their means in order to cover the needs of all (Dussault et al., 2006). However, the introduction of commercial approaches, as Ehrlich and Becker (1972) point out, can weaken this solidarity by privileging the search for profit to the detriment of the quality or accessibility of care. In addition, when the cost of coverage exceeds the financial capacity of the insured, the protective function of the insurance is compromised (Musango and Noua, 2010). Finally, low uptake, fraud and poor governance are all challenges that affect the overall performance of the system, highlighting the need for rigorous, fair and transparent supervision (Sarlat, 2004).

1.1.1. The social protection models of Bismarck (1881) and Beveridge (1942)

Social protection systems are based on two main models: the Bismarckian, based on occupational insurance, and the Beveridgian, based on national solidarity. Their development in industrialized countries is closely linked to the upheavals of the industrial revolution in the nineteenth century, marked by the rural exodus, the growth of the working class and precariousness in the face of social risks. In Germany, under the impetus of Bismarck, a compulsory health insurance system was established in 1883, financed by contributions shared between employers

and employees and managed on a joint basis. This model, codified in 1911, extends to other risks. At the same time, the rise of socialist ideas, the questioning of liberalism and the social teaching of the Church, in particular with the encyclical *Rerum Novarum* of 1891, encouraged some countries to favour a cover based on citizenship. The Beveridgian model, established in England in 1942 and concretized in 1948 with the creation of the National Health Service, guarantees universal coverage financed by taxes and homogeneous benefits, regardless of professional status. Today, three main forms coexist: national health services, compulsory social insurance and hybrid models. Since the post-war period, all have evolved towards expanded coverage and care provision, promoting poverty reduction, improved living conditions and economic development.

1.1.2. The theory of the demand for care

Grossman's (1972) model conceptualizes health as a stock of capital that the individual receives at birth and that depreciates over time. The individual maximizes his or her usefulness by arbitrating between income, time and investment in health, according to his or her preferences and constraints. This model has been enriched by several authors, Dowie (1975) points out that lifestyle choices influence the depreciation of health capital. Cropper (1977) shows that individuals at high risk aspire to greater health capital. Dardanoni and Wagstaff (1987) indicate that risk aversion can slow down the use of curative treatments. Thus, health is considered an economic good that everyone seeks to maintain or improve according to their objectives, their environment and their anticipation of risks.

1.2. Empirical contributions

Many studies have looked at the factors influencing the adherence to health insurance. Regarding household size, Sow et al. (2020) show, using a Logit model, that larger households are more motivated to subscribe to a health insurance company to protect themselves against high medical costs, a result confirmed by Deskisa et al. (2020) in Ethiopia through a cross-sectional analysis of 845 households. However, Seck et al. (2017) observe that in Senegal, households with fewer than ten members are more likely to join, as economic precariousness limits the ability of larger households to pay contributions.

Gender is also studied: Oduro et al. (2024) reveal that Ghanaian women are 2.7 times more likely than men to insure, a result supported by Opoku (2018), while Dake (2018) and Diallo (2023) qualify this effect, highlighting the importance of socio-economic determinants. Religion, on the other hand, influences adherence according to Mengran and Wu (2024), who observe a decrease in the probability of participation linked to certain beliefs in China; Muthoni et al. (2017) show in Kenya that insurance deemed non-compliant with Sharia law is perceived as prohibited by many Muslims, and Pokuaa et al. (2016) indicate that in some families, female membership decisions require the husband's agreement.

In terms of age, Alesane et al. (2018) find a non-linear relationship: adherence decreases with age at onset and then increases at older age due to increased

medical need, while Quartley et al. (2023) find in Ghana that young adults (26-35 years) are more likely to self-care than older adults (56-65 years).

Income appears as a key factor in the work of Topan et al. (2024) in Burkina Faso and Olkeba et al. (2024) in Ethiopia, who show that more affluent households are more likely to finance their care in advance, although Nageso et al. (2019) do not find a significant association with Boricha. Education level also plays a role: Seck et al. (2017) and Ikwara et al. (2024) show that educated individuals have a much higher probability of joining, thanks to a better understanding of the benefits, although Acharya et al. (2020) do not find a significant effect in Nepal. The place of residence also influences behaviour: Anfara et al. (2025) show in Ghana that educated rural people have higher adherence rates than urban ones. Access to information is another major determinant: Amalaman (2024), Bujitie and Daud (2024) as well as Betregiorgis et al. (2023) emphasize that good awareness or media exposure multiplies the chances of buy-in. Marital status also plays a role, with Duku et al. (2018) and Mulunga et al. (2021) showing that marriage increases the likelihood of underwriting, especially among women. Finally, geographical distance remains a determining factor: Bousmah et al. (2021) and Bop et al. (2021) reveal that the proximity of mutual structures greatly increases membership rates, with each additional kilometer reducing the probability of registration.

2. Methodological approach

2.1. Theoretical framework of the model

This research mobilizes the behavioral model of health service use proposed by Andersen (1995) and enriched by Leyland and Groenewegen (2020). This theoretical framework, widely used in the literature, notably by Comoé (2018), makes it possible to examine the interactions between access to care and individual as well as contextual factors, paying particular attention to health service use behaviours. Its relevance lies in its ability to offer an integrated approach to analyze the determinants of adherence to universal health coverage, in perfect harmony with the objectives of this study.

2.2. Rationale for the choice of model

The use of the multilevel model in this study is justified by its ability to simultaneously take into account the individual and contextual factors influencing household adherence to health coverage. This approach is particularly appropriate for the analysis of health behaviours in heterogeneous environments. It has been mobilized in various works, including by Zegeye et al. (2023) to examine the effect of women's autonomy in several African countries, by Salari et al. (2019) to assess the contextual and individual determinants of health insurance in Ghana, and by Quartey et al. (2023) to analyze the interaction between social vulnerability and insurance coverage. These studies thus confirm the relevance of the multilevel approach to understanding the determinants of UHC adherence.

2.3. How multilevel analysis works

The multilevel approach offers the possibility of analysing individual behaviour by integrating the territorial contexts in which individuals or households evolve.

While they act according to their own characteristics, their decisions are also shaped by the socio-economic conditions and infrastructure of their regional environment. Methodologically, this approach is an extension of the classical linear model, specifically adapted to the hierarchical structure of the data.

$y = \beta_0 + \beta_1 x_1 + \beta_{01} z_i + e_i$ **(1)**

And $e_i \rightarrow N(0, \delta_e^2)$

Where:

y_i : Individual-dependent variable, : Mean parity in the group, : Estimator of the individual variable, $(i)\beta_0\beta_1(i)$ x_i: Individual explanatory variable (i), β_{01}, : Estimator of the contextual variable, : Contextual explanatory variable $z_i(i)$, e_i: Residuals or the difference between the individual's actual score and the predicted value(i)

When the analysis focuses on a single region, the variability observed comes exclusively from individuals and can be represented by a variance assumed to follow a normal distribution. On the other hand, the inclusion of several regions, considered as a sample from a larger population, leads to the estimation of an equation specific to each region. This approach leads to the formulation of a multilevel compound variance model, as described by Robinson (1989).

$y_{ij} = (\beta_0 + U_0) + \beta_1 x_{ij} + \beta_{01} z_j + e_{ij}$ **(2)**

Where $u_{01} \rightarrow N(0, \delta_{u0}^2)$ And $e_{ij} \rightarrow N(0, \delta_e^2)$

u_{oj}: Residual at level 2 (contextual or region j), : Residue of individual i within region j (level 1, individual), : The dependent variable for an individual belonging to the region; : The parity of the explanatory variable of the individual belonging to the region $e_{ij}y_{ij}(i)\,(j)x_{ij}(i)(j)$,$z_j$: The parity of the explanatory variable of the region (j). Multilevel models differ from classical regressions in their specific treatment of the structure of the residuals, estimated simultaneously at the individual and contextual levels through random effects. This approach allows you to model the data hierarchy by taking into account several levels of analysis. In accordance with the literature, our study adopts a three-step structure: an empty model (without explanatory variables), a model integrating individual variables, and then a model enriched by contextual factors U_{0j}.

❖ The empty model

The multilevel approach adopts a progressive modeling, initiated by an empty model, commonly used in the literature as a preliminary step. This first phase estimates the share of variance attributable to each level of analysis, based on random effects. In our case, the simple logistic model considers a binary response variable (0= uninsured, 1= insured) and the corresponding probability. According to Goldstein and Browne (2012), the general model for a binary variable can be expressed as follows:

$\Omega = \frac{\delta_{u0}^2}{\delta_{e0}^2 + \delta_{u0}^2}$ **(3)**

❖ The model with individual factors

The introduction of individual variables helps to explain a significant part of the variation observed in the decision to take out health insurance. The model is then written as follows:

$y_{ij} = (\beta_0 + u_{oj}) + \beta_1 x_{ij}$ **(4)**

Where $u_{0j} \rightarrow N(0, \delta_{u0}^2)$

This model highlights the impact of the socio-economic and socio-demographic characteristics of individuals or households, without taking into account, at this stage, the contextual effects related to the regional environment.

❖ **The model with introduction of contextual factors**

Contextual variables are introduced to explain variations between groups or regions using level 2 factors that may influence the use of care. The model is written:

$$y_{ij} = (\beta_{00} + u_{0j}) + (\beta_{10} + u_{1j})x_{ij} + \beta_{01} \cdot z_j + \beta_{11} \cdot z_j \cdot x_{ij} \quad \textbf{(5)}$$

Where $u_{0j} \rightarrow N(0, \delta_{u0}^2), u_{1j} \rightarrow N(0, \delta_{u1}^2)\ et\ COV(u_{0j}, u_{1j}) = \delta_{u01}$

The addition of contextual variables helps to reduce variation between groups and identify sources. The inclusion of interactions between levels is particularly useful in the presence of several random effects, as it sheds light on the mechanisms by which context modulates individual behaviours. This model thus offers a better understanding of the multiscalar determinants of UHC adherence.

3. Descriptive analysis of variables

The descriptive analysis of the variables includes a detailed presentation of the data source. Finally, the model used in this study is specifically specified.

3.1. Data source

As part of this study, we use data from the Harmonized Survey on Household Living Conditions (EHCVM, 2021), carried out by the National Institute of Statistics (INS) with the support of the Ivorian government and international partners. This survey, conducted at the national level, provides detailed information on living conditions, as well as on the demographic and health situation of households. It was designed to assess the well-being of households, particularly in the post-Covid-19 context, with a focus on their vulnerability, particularly in terms of health. Our analysis focuses specifically on the individual and contextual determinants that influence household adherence to Universal Health Coverage (UHC).

3.2. Presentation of variables

This section presents the variables used for this study. As with any econometric study, two main groups of variables are used for research. The explained variable and the explanatory variables. The variable explained in our thesis is adherence to Universal Health Coverage (CMU). It is a binary variable with two modalities: Yes and No. This distinction makes it possible to analyze the status of individuals in terms of CMU membership and to better understand the determinants of the phenomenon studied. In the framework of this research, we mobilize two categories of explanatory factors: individual factors and contextual factors. Individual factors include variables such as sex, religion, marital status, socio-professional category, possession of another insurance, and place of residence. Contextual factors include the availability of health personnel, the distance

between home and the health center, and the quality of reception in health centers.

3.3. Characteristics of individual factors

For our study, we were interested in the variables of gender, age, marital status, level of education, socio-professional category, and possession of another insurance.

❖ **Gender**

The results show a statistically significant association between gender and adherence to universal health coverage.

Table 3: Gender distribution of UHC membership

	Gender		
CMU Membership	Wife	Man	TOTAL
Yes	203	257	460
NO	17201	15097	32298
TOTAL	17404	15354	32758

Pearson chi2(1) = 17.709 Pr = 0.000

Source: Author's calculation based on EHCVM 21

The results of the table show that, although there are more women in the sample, they are less represented among those insured at the CMU, with 203 women compared to 257 men. This reflects a lack of support for women compared to men, despite their high numbers.

❖ **Marital status**

The results of the chi2 test show a significant association between adherence to universal health coverage.

Table 4: Distribution of CMU membership by marital status

	Marital Status			
CMU Membership	Bachelor	Married	Divorced	TOTAL
Yes	121	301	38	460
No	11780	18090	2428	32298
TOTAL	11901	18391	2466	32758

Pearson chi2(2) = 20.417 Pr = 0.000

Source: Author's calculation based on EHCVM 21

Of the 32,758 individuals, 301 married people are members of the CMU compared to 121 single and 38 divorced. Married people therefore represent the largest share of members, while 11,780 single people and 2,428 divorced people remain uninsured.

❖ **The level of education**

The chi2 test shows that there is a significant association between CMU adherence and education level.

Table 5: Distribution of UHC membership by level of education

	The level of education			
CMU Membership	Basic education	Upper secondary	TOTAL	
Yes	94	136	56	286
NO	5412	4157	637	10206
TOTAL	5506	4293	693	10492

Pearson Chi2 (2) = 99, 654 Pr = 0.000

Source: Author's calculation based on EHCVM 21

Out of 10,492 individuals, 94 people with basic education, 136 with a secondary level and 56 with a higher level join the CMU. It can be observed that adherence increases with the level of education up to secondary school, but remains low overall, with 10,206 non-members.

❖ **Age**

The Chi2 test shows a significant association between age and adherence to CMU.

Table 5: Distribution of CMU membership by age

		Age			
CMU Membership		25-35 years old	36-45 years old	46 years and older	TOTAL
Yes	48	88	121	203	460
NO	6845	8270	7104	10079	32298
TOTAL	6893	8358	7225	10282	32758

Pearson chi2(3) = 60.354 Pr = 0.000

Source: Author's calculation based on EHCVM 21

The results show that the majority of those insured by the CMU live in urban areas outside the Abidjan (429), followed by those in rural areas (255). Very few members live in Abidjan. This suggests that CMU membership is more widespread outside Abidjan, perhaps due to a lack of insurance alternatives or better targeting of awareness campaigns in these areas.

3.4. Characteristics of contextual factors

The variables used for this study are: the distance between the home and the health center, the costs of care and the satisfaction of care.

❖ **The distance**

The Chi2 test reveals a significant association between distance and CMU adherence, indicating that distance significantly influences the probability of

being affiliated. Thus, it appears to be a differentiating factor that helps to explain the differences observed in accession.

Table 6: Distribution of CMU membership by distance

	The distance		
CMU Membership	D< 2 KM	2-10 KM	10 ≤ D
Yes	71	54	141
No	3354	1443	5646
TOTAL	3425	1497	5787

Pearson chi(4) = 21.233 Pr = 0.000

Source: Author's calculation based on EHCVM 21

The distribution shows that, proportionally, adherence to the CMU is higher among individuals living more than 10 km from a health center (141 out of 5787 insured persons, or about 2.4%) than among those living less than 2 km away (71 out of 3425, or about 2.1%) or between 2 and 10 km (54 out of 1497, or about 3.6%). These results suggest that distance could influence adherence, with people living further away seeming more inclined to subscribe, perhaps to secure access to care despite distance.

4. Presentation and discussion of results

The results of the multilevel analysis, as well as their interpretation, are presented in this section.

4.1. The empty model

The results of the empty model are recorded in the table below.

Table 7: Results of empty model estimates

CMU	**Coefficient**	**Std. err.**	**P>z**
_Cons	1.987	0,001	0.000
Var Region(_cons)	0,000	0,00	
Var (e.CMU Membership)	0,013	0,000	

Source: Author's calculation based on EHCVM 21

The results in the table show that the constant is estimated at 1.987 and significant at the 1% level. The estimated inter-regional variance of 0.013 is small but not zero, indicating that part of the variation in CMU membership is explained by differences between regions. This justifies the interest of introducing contextual variables into the model to better capture these regional disparities and refine the analysis of individual and contextual determinants.

4.2. Model with individual factors

In order to complete the analysis of the empty model and to explain in more detail the individual variations in UHC adherence, the following table presents the results of the estimates after the introduction of the individual factors.

Table 8: Results of estimates with introduction of individual factors

	Blank template		**Model with individual factors**	
Variables	Coefficient	dy\dx	Coefficient	dy\dx
Constant	1,987 (0,001)		1,684(0,000)	
Contextual variance	0,013		0,248	
INDIVIDUAL FACTORS				
GENDER (Ref: Female)				
Man			0,007**(0,04)	0,007***(0,004)
Income (Ref: Low)				
Medium			-0,180**(0,049)	-0,180**(0,049)
High			-0,029***(0,001)	-0,029***(0,001)
Age (Ref: 46 years and over)				
Under 25 years old			0,022***(0,001)	0,022***(0,001)
25 to 35 years old			0,020***(0,000)	0,020***(0,000)
36 to 45 years			0,011**(0,019)	0,011**(0,019)
Education Level (Ref: Basic Education)				
Secondary			-0,011***(0,003)	-0,011**(0,003)
Upper			-0,025***(0,002)	-0,025***(0,002)
Status marital (Ref Single: Single)				
Married			-0,018***(0,000)	-0,018***(0,000)
Divorced			-0,025***(0.005)	-0,025***(0,005)
Socio-professional category (Ref: Frame)				
Worker			0.107***(0,000)	0,107***(0,000)
Employer			0.131***(0,000)	01312***(0,000)
Other Insurance (Ref: Yes)				
No			0,194***(0,000)	0,194***(0,000)
Var Region(_cons)				
Wal chi2 (13) = 522.45				
Prob chi 2= 0.000				
Log likelihood = 3586,737				

(***) 1% significance, (**) 5% significance, (*) 10% significance

LR test vs. linear model: chibar2(01) = 57.01 Prob >= chibar2 = 0.0000

Source: Author's calculation based on EHCVM 21

Gender: The finding that men are slightly more likely to subscribe to the CMU can be explained by a more direct perception of the financial risk associated with the disease. In some societies, they frequently bear the primary responsibility for health care expenditures, both for themselves and for other household members. For example, they may be more likely to protect themselves against unexpected burdens by joining a formal plan. Conversely, women, especially those without a stable income, may favour family or community solidarity to cover current health costs, which reduces their incentive to pay individual contributions. This interpretation is in line with the findings of several studies, which highlight that the economic role and the perception of risk help explain the observed gap in adherence between men and women (Agyemang-Duah et al., 2024; Zegeye et al., 2023).

Income: The analysis shows that middle-income individuals are significantly less likely to subscribe to the CMU than those with low incomes. This result, a priori counterintuitive, can be explained by a phenomenon of substitution. As Dake (2018) and Salari et al. (2019) point out, people with higher incomes often use care directly in private institutions or opt for private insurance policies that offer services that are perceived to be of better quality and faster. In addition, Fenny et al. (2016) indicate that these potential policyholders sometimes consider public insurance to be unattractive, in particular because of perceived insufficient quality and waiting times considered excessive. Thus, rather than contributing to the CMU, they prefer direct payment for care, made possible by their immediate financing capacity.

The level of education: The result that having a secondary level or higher reduces the likelihood of adherence is explained by the effect of education on care-using behaviour. As Antabe et al. (2025) and Quartey et al. (2023) point out, a higher level of education allows individuals to be better informed about the real quality of public services and to compare available alternatives more easily. Often, these people are more critical of the efficiency of the public system and prefer to invest in options that are considered more reliable or faster, such as the use of private clinics or the direct financing of care through health savings (Ezzrari et al., 2022). In other words, a high level of education offers greater autonomy of choice in the face of the risk of illness.

Marital status: The result that having a secondary level or higher reduces the likelihood of adherence is explained by the effect of education on care-using behaviour. As Antabe et al. (2025) and Quartey et al. (2023) point out, a higher level of education allows individuals to be better informed about the real quality of public services and to compare available alternatives more easily. Often, these people are more critical of the efficiency of the public system and prefer to invest in options that are considered more reliable or faster, such as the use of private clinics or the direct financing of care through health savings (Ezzrari et al., 2022). In other words, a high level of education offers greater autonomy of choice in the face of the risk of illness.

Age: The results indicate that individuals under 45 years of age have a higher probability of joining the CMU for those under 25 years of age, 0.020 for 25–35-year-olds and for 36–45-year-olds. This trend can be explained by a better

sensitivity of this group to awareness campaigns and public programs to promote health insurance (Begna et al., 2024; Nageso et al., 2020). Young adults are also in a phase of life where they are more likely to anticipate the risks of illness for themselves, their spouse or their young children. On the other hand, older people may already have coverage through their former job, a pension plan, or out of habit to use more self-medication or traditional treatments, as indicated by Diallo (2023) and Duku (2018). This preference for alternatives may limit their motivation to contribute to public insurance.

Possession of another insurance: The absence of other insurance greatly increases the probability of joining the CMU. This is because the CMU is often the only coverage option for those excluded from formal schemes, especially in the informal sector. In the absence of alternatives, these individuals join the CMU to protect themselves from health expenses. This behaviour is confirmed by Seck et al. (2017), who show that populations without insurance are more inclined to join community or public schemes such as the CMU, which are perceived as a social safety net.

The socio-professional category: Workers and employers are more likely to subscribe to the CMU than managers. This is because they often carry out activities that are more exposed to the risk of illness or accidents, which encourages them to seek some form of protection, especially when they do not have coverage by an employer or a formal scheme (Bujitie and Daud, 2024). Conversely, managers generally have private health insurance or direct benefits linked to their professional status, which reduces their interest in public health coverage (Salari t al., 2019).

4.2. Contextual Factor Template

The estimates from the model, with contextual factors, are presented in the following table:

Table 9: Results of the estimates with introduction of contextual factors

	Blank template		**Contextual Factor Template**	
Variables	Coefficient	dy\dx	Coefficient	dy\dx
Constant	1,990 (0,000)		1,734(0,000)	
Contextual variance	0,013		0,034	
FACTORS CONTEXTUAL				
Distance between the health center and the home (Ref: Less than 2 KM)				
2- 10 KM			-0,020* (0,059)	-0,020* (0,059)
10 KM or more			-0,001 (0,943)	-0,001 (0,943)
Costs of care			-0,001(0,865)	-0,001(0,865)
Satisfaction of care (Ref: Very satisfied)			-0,027**(0,019) -0,001(0,928)	-0,027**(0,019) -0,001(0,928)
Satisfied			-0,005(0,866)	-0,005(0,866)

Not satisfied	
Not at all satisfied	
Region	
Var(_cons)	0,000
Wal chi2 (19) = 126.74	
Prob chi2 = 0.000	
Log likelihood= 434,095	

(***) 1% significance, (**) 5% significance, (*) 10% significance
LR test vs. linear model: chibar2(01) = 22.81 Prob >= chibar2 = 0.0000
Source: Author's calculation based on EHCVM 21

❖ **The distance between the health center and the home**

The result shows that living at a distance of 2 to 10 km from a health center reduces the likelihood of joining the CMU compared to those who live less than 2 km away. This trend is explained by the fact that the greater the distance, the more effective access to health services is perceived as restrictive, which can discourage adherence (Bousmah et al., 2021). People who live near a health center see more practical value in coverage because they can benefit from it easily

➢ **Satisfaction with care**

The analysis shows that only the Satisfied modality of the Care Satisfaction variable has a significant effect on the probability of adherence to the CMU. Specifically, being simply satisfied rather than very satisfied reduces the likelihood of subscribing. This result can be explained by the fact that an intermediate level of satisfaction often reflects partially unmet expectations with regard to the quality of the services offered; Moderately satisfied individuals may perceive certain flaws in the functioning of the health system (waiting, reception, quality of care) that dissuade them from maintaining their adherence or fully subscribing to it. Conversely, those who say they are very satisfied find a sufficient benefit from insurance to justify their commitment. This finding is in line with the work of Seck et al. (2017) and Diallo (2023), who emphasize that satisfaction and trust in health care services are a strong condition for loyalty to health insurance schemes. Similarly, Fenny et al. (2016) point out that a mixed perception of the service can reduce adherence, even when contributions remain accessible.

Conclusion

The objective of this study was to identify the determinants of adherence to Universal Health Coverage (UHC) in Côte d'Ivoire, based on data from the Harmonized Survey on Household Living Conditions (EHCVM, 2021). The estimation of a multilevel logit regression model highlights the significant influence of certain individual characteristics on the probability of adherence, as well as the constraining role of distance to health centres and the level of satisfaction with care, highlighting the importance of geographical accessibility and perceived quality. The results suggest the need to target women without a stable income through awareness-raising actions and contribution reductions, to adapt the offer to people with middle or high incomes by improving the quality and attractiveness of the formulas, to strengthen transparency and communication towards educated people, to develop mechanisms that take into

account the marital status, to carry out specific campaigns aimed at young people, to support individuals without other insurance, particularly in the informal sector, and to better cover professions exposed to health risks. Finally, bringing health services closer to the population and improving the patient experience appears crucial to strengthen trust in UHC, while the exploration of new forms of funding and governance could contribute to the sustainability and effectiveness of the system, thus opening up prospects for future research.

References

1. Agyemang-Duah, W., Oduro, M. S., Peprah, P., et al. (2024). The Role of Gender in Health Insurance Adherence of Geriatric Caregivers: Results from the 2022 Ghana Informal Care, Health and Health Care Survey. *BMC Public Health, 24*, 1566.
2. Alesane, A., et al. (2018). Health Insurance Use by the Rural Poor in Ghana: Determinants and Policy Implications. *Pan-African Medical Journal, 31*(124). https://doi.org/10.11604/pamj.2018.31.124.16265
3. Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior, 36*(1), 1–10.
4. Antabe, R., Anfaara, F. W., Sano, Y., & Amoak, D. (2025). Ghana's National Health Insurance enrollment: Does the intersection of educational and residential status matter? *PLoS ONE, 20*(2), e0318202. https://doi.org/10.1371/journal.pone.0318202
5. Begna, O., Gemede, H. F., Motuma, A., et al. (2024). Willingness to join community-based health insurance and its associated factors among households in Nekemte City, Ethiopia: A community-based cross-sectional study. *Journal of Health, Population and Nutrition, 43*, 71.
6. Boudeville, J.-R. (1950). *Problems of Spatial Distribution: An Essay on the Economy of Space*. Paris: PUF.
7. Bousmah, M. A., Boyer, S., Lalou, R., & Ventelou, B. (2021). Reassessing the demand for community-based health insurance in rural Senegal: Geographic distance and awareness. *SSM - Population Health, 16*, 100974. https://doi.org/10.1016/j.ssmph.2021.100974
8. Bujitie, S. B., & Daud, Y. H. (2024). Factors that affect enrollment into a community-based health insurance scheme among households in Arba Minch Zuria District, Gamo Zone, Southern Ethiopia, 2023: A community-based unmatched case-control study. *medRxiv*.
9. Comoé, A. (2018). *Demand for prenatal care in Côte d'Ivoire: A re-examination of the explanatory factors of household decision* (Doctoral thesis, Alassane Ouattara University of Bouaké).
10. Ezzrari, A., Mouhsini, F. Z., Mouttaki, O., & Zins, A. (2022). Moroccan households' differentiated access to healthcare: Which factors dominate? *Revue Réflexions Économiques, (2)*, 56–66.
11. Dake, F. A. A. (2018). Equity in Health Coverage Review: An Analysis of Ghana's National Health Insurance Scheme. *International Journal for Equity in Health, 17*, 85.
12. Diallo, M. A. (2023). Universal health coverage in Senegal: When socioeconomic factors explain the membership and use of mutual health

insurance in Ziguinchor (Senegal). *African Journal of Social Sciences and Public Health, 5*(1), 1–11.
13. Duku, S. K. O. (2018). Differences in the determinants of health insurance uptake among working-age adults in two regions of Ghana. *BMC Health Services Research, 18*, 384.
14. Dussault, G., Dubois, C. A., & Fournier, P. (2006). Human resources for health policies: A critical component in health policies. *Human Resources for Health, 4*, Article 20.
15. Ehrlich, I., & Becker, G. S. (1972). Market insurance, self-insurance, and self-protection. *Journal of Political Economy, 80*(4), 623–648.
16. Fenny, A. P., Kusi, A., Arhinful, D. K., & Asante, F. A. (2016). Factors Contributing to Low Uptake and Low Renewal of Health Insurance: A Qualitative Study in Ghana. *Global Health Research and Policy, 1*, 18.
17. Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy, 80*(2), 223–255.
18. Ikwara, E. A., Humphrey, A., & Ritah, A. (2024). Coverage and factors associated with health insurance use among women in reproductive health: Overview of the Tanzania Demographic Health Survey 2022. Quantitative study. *Journal of Health Research Students in Africa, 5*(3), 11.
19. Leyland, A. H., & Groenewegen, P. P. (2020). *Multilevel modelling for public health and health services research: Health in context*. Springer Nature.
20. Musango, L., & Noua, H. (2010). Health Financing and Health Risk Coverage in Africa.
21. Nageso, D., Tefera, K., & Gutema, K. (2020). Enrolment in a community-based health insurance program and associated factors among households in Boricha district, Sidama zone, southern Ethiopia: A cross-sectional study. *PLoS ONE, 15*, e0234028.
22. Quartey, T., Peprah, C., & Morgan, A. K. (2023). Determinants of national health insurance enrollment among people at risk of statelessness in Awutu Senya East Municipality and Gomoa East District in Ghana. *BMC Health Services Research, 23*, 153.
23. Robinson, S. (1989). Multisectoral models. In *Handbook of Development Economics* (Vol. 2, pp. 885–947).
24. Salari, P., Akweongo, P., Aikins, M., & Tediosi, F. (2019). Determinants of health insurance enrolment in Ghana: Evidence from three national household surveys. *Health Policy and Planning, 34*(8), 582–594. https://doi.org/10.1093/heapol/czz079
25. Seck, I., Sagna, O., Leye, M.-M., & Dia, A.-T. (2017). Determinants of membership and loyalty to mutual health insurance companies in the Ziguinchor region (Senegal). *Public Health, 29*(1), 105–114.
26. Topan, G. J., Thiombiano, N., & Sarambe, I. (2024). Determinants of households' willingness to pay for health insurance in Burkina Faso. *Health Economics Review, 14*, 93.
27. Zegeye, B., Idriss-Wheeler, D., Ahinkorah, B. O., et al. (2023). Association between women's decision-making autonomy within the household and their adherence to health insurance in sub-Saharan Africa. *BMC Public Health, 23*, 610.