

# Enrolment and Factors Influencing Health Insurance Coverage of Informal Sector Workers in South Kivu Province, D.R. Congo

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## Abstract

One of the biggest social security issues in South-Kivu province in particular, and the DRC in general, is that more than the vast majority of the Congolese population (i.e., informal sector workers and their dependents) have no access to any form of social protection, and therefore benefit neither from a state-funded social security system nor from a serious health insurance scheme. Social security coverage in the formal sector is also low, and only covers civil servants and employees of a few parastatal companies. The present study is of a cross-sectional analytical type to be carried out in the East of the DRC in the Province of South Kivu in Bukavu, where the vast majority of informal sector workers are concentrated in the town of Bukavu and its surroundings, scouring the atrocities of armed groups inside the province. This study focused on the use of health services and factors influencing health insurance coverage for informal sector workers, with the main objectives of: 1) Determine the social security take-up rate among informal sector workers. 2) Evaluate the use of health services by workers in the informal sector. 3) Identify the factors influencing membership of community social security schemes. The study showed that only 11.5% of people in South-Kivu province have health insurance, in nine health zones studied. Some people, due to lack of means, are often obliged to resort to traditional medicine, whatever the illness, and others are unable to join mutual health insurance schemes for, which leads them to give a portion of their small farms fields to access health services for those living in rural areas,

and others to give up valuable object for those living in the city. The results of this study show that health insurance, which was intended to protect the health of members in their personal and professional life by guaranteeing access to care, is scarcely available in the case of South-Kivu. In South-Kivu, however, the study reveals that, in addition to the financial barrier, there is also disappointment about the poor management of the community social protection and health insurance system.

## Keywords

Informal Sector, Workers' Perception, Kivu, DR-Congo, Health Matters

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## 1. Introduction

In most poor and middle-income countries in the region, out-of-pocket payments account for more than 50% of total healthcare expenditure (WHO, 2004). Every year, around 44 million households worldwide, or more than 150 million people, face very high healthcare costs, and 100 million people fall into poverty due to the cost of healthcare (Kanko et al., 2022). Over the past three decades, the vast majority of the Congolese population in general and of South Kivu in particular, whose incomes are low, have been confronted with problems of precariousness (Victor et al., 2023) linked to the repeated crises caused by armed groups that have affected the healthcare system in the east of the DRC (Conde et al., 2022).

In this part of the country, out-of-pocket payments account for a significant proportion of healthcare expenditure, with only two out of ten people able to meet these out-of-pocket payments (Bizibu Kushombere, 2018), which contrasts with industrialized countries which have moved towards compulsory health insurance systems, reducing the share of out-of-pocket payments (Jasarevic, 2019).

To overcome these difficulties, the DRC's health services and several other initiatives have been set up to address the population's poor access to care, notably community financing of care, and mutualization of risk control in the event of illness through pre-paid care (Moens, 1990).

These initiatives are non-profit organizations governed by their members, based on the principles of solidarity between individuals who participate freely and voluntarily. They aim to improve access to healthcare for the population of South Kivu by sharing the financial risks of illness among their members.

Despite efforts to develop health insurance schemes, enrolment rates remain low, both in terms of initial enrolment and renewal, which continues to threaten their viability, while at the same time facing enormous challenges.

The membership rate for mutual health insurance remains relatively low, calling into question the viability of mutual health insurance in South Kivu. In an attempt to understand this low membership rate, we can interrogate the economic theory of health insurance by defining its essential parameters in the specific con-

text of Eastern DRC faced with repeated wars by armed groups. However, our main objective here is at another level and is based on the following context: over the past period, several empirical studies have been carried out, albeit with varying methodologies, on the factors that can explain the decision to join or not join mutual health insurance schemes (Waelkens, 2016).

In this context, we would like to see whether, beyond this great methodological heterogeneity, it is nevertheless possible to identify some results that could enlighten public and private players in this field. Although a few studies already exist on the determinants of membership of mutual health insurance schemes in eastern DRC, this study has several advantages: on the one hand, it aims to determine the proportion of workers in the informal sector, to specify the rate of membership of social security for informal sector workers, and finally to assess the rate of use of health services for informal sector workers in the province of South Kivu.

On the other hand, it is concentrated in the 9 accessible health zones of South Kivu province. The health zones studied differ from one another in that some are rural and others urban, but all share socio-economic characteristics that influence their financing and healthcare systems. South Kivu province currently suffers from economic inefficiency and poor public governance, and its population is predominantly rural with low financial incomes. The health sector is often underfunded, and health facilities are entrusted to individuals who set the prices of care as they see fit, with the quality of health services offered, being limited, influenced enrolment (affiliation) in health and even social security services.

Marital status does not influence enrolment in health insurance services; on the other hand, level of education has a major influence on enrolment in health insurance services, since the higher the level of education, the more people enroll in health insurance services. Occupational status influences health insurance uptake (Victor et al., 2023; Defourny & Failon, 2011).

Apart from these socio-demographic factors just listed above, there are other factors which greatly influence the membership of workers in the informal sector such as:

Economic factors: financial capacity, size of the organization or company.

Geographic factors: distance to travel to declare and contribute, frequency of declarations and contributions.

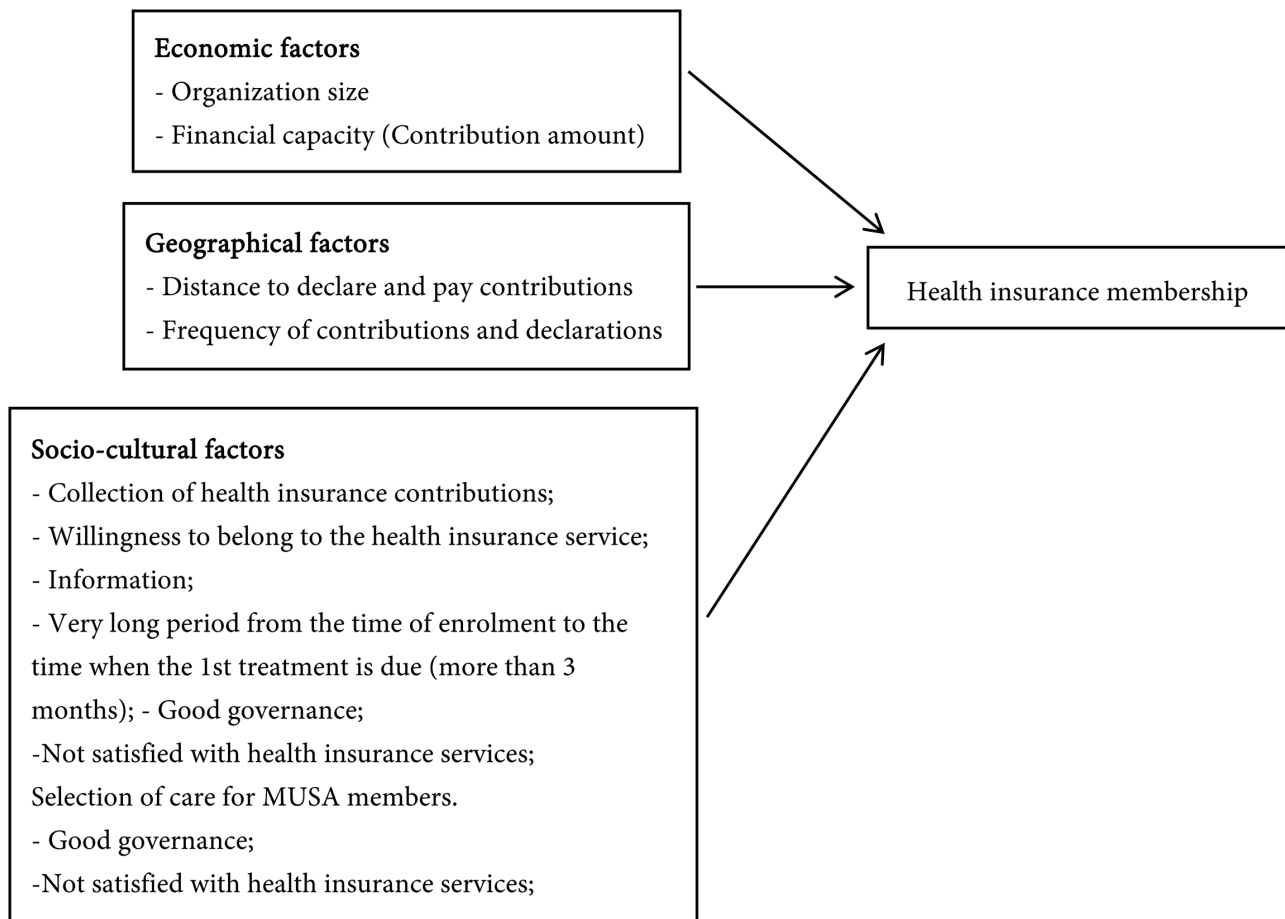
Socio-cultural factors: Perception of contributions from the health insurance service, Willingness to belong to the health insurance service, Information, very long duration from the moment of membership until the period when one can benefit from care (more than 3 months) all affect the enrolment rates (Figure 1).

## 2. Methods and Methodology

### 2.1. Description of the Study Environment

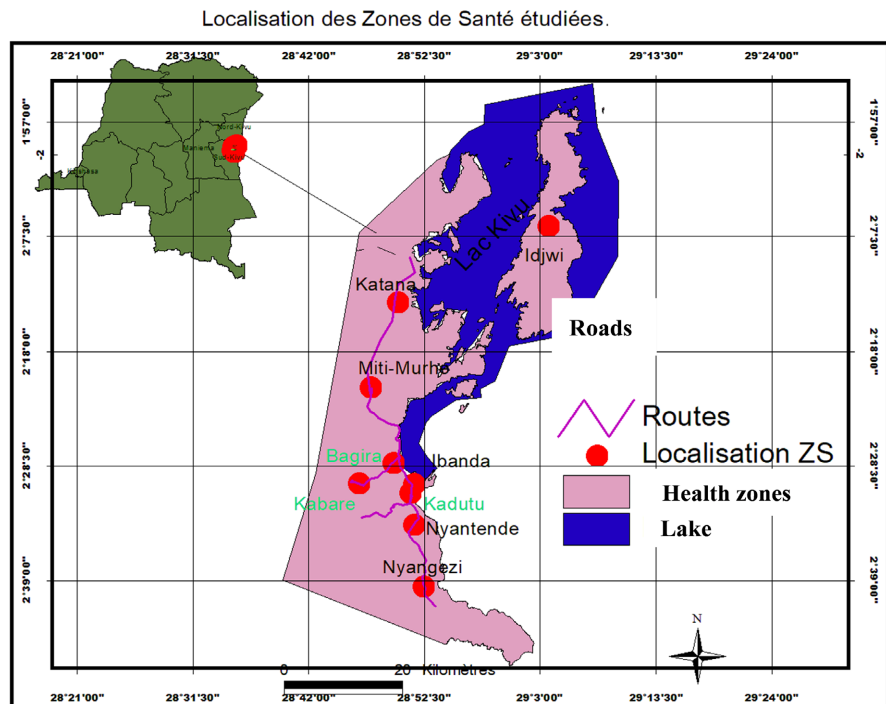
The study was carried out in the East of the DRC in the Province of South-Kivu

in province of South-Kivu, in and around Bukavu city. This province occupies 3% of the country’s surface area, or 69,130 sq.km. The majority of the population works in the informal sector particularly in agriculture, but the income they earn is insufficient. Access to health and education services is limited, the barrier is financial rather than geographical. The population per doctor is approximately 3 times lower than international standards. The results of the report on the assessment of poverty in the DRC presented by the World Bank in 2019 in Kinshasa was 64% which represents a decrease of 14.7% compared to 2014 (Adoho, 2019). With an estimated fertility rate of 6.6 children per woman (UNICEF, 2014), and an annual population growth rate of 2.9%, the DRC expects its population to double every year. This corresponds to an annual increase of more than 2 million people. Among the major endemics, malaria remains the leading cause of morbidity and mortality in the DRC. *Plan stratégique (2007-2011)*. Currently, the DRC where 370,000 people are infected with HIV/AIDS with an average prevalence rate estimated at 1.2% for diarrheal diseases and parasitic infections generally rank 3rd among the causes of morbidity and mortality (Read-Hamilton & Marsh, 2016). Ebola and COVID-19 are diseases that crippled the country.



**Figure 1.** Conceptual framework of the study.

## 2.2. Location Map of the Study Area (Figure 2)



**Figure 2.** Location map of the study area.

## 2.3. Types of Study

This cross-sectional analytical study was carried out in the eastern DRC province of South-Kivu, in and around the one million inhabitant city of Bukavu, where the vast majority of informal sector workers are concentrated, fleeing the atrocities of armed groups within the province. This study was carried out among workers in the informal sector. It comprises two complementary approaches: a quantitative study and a qualitative study.

## 2.4. Study Variables

The following variables were analyzed:

- Sociodemographic characteristics: Age, Sex, Marital status, Education level, Employment status, Household size, Residence.
- Economic factors: financial capacity, size of organization or company.
- Geographical factors: distance to travel for declarations and contributions, frequency of declarations and contributions.

Socio-cultural factors: Perception of health insurance contributions, Willingness to belong to the health insurance scheme access, information, time elapsed from the time of enrolment to the time when the 1st treatment is due.

## 2.5. Study Analysis Plan

Univariate analysis: used to calculate the proportions. We therefore reviewed the

statistical indices showing central tendencies (mean, median, mode), and dispersion (variance, standard deviation, minimum and maximum, frequency).

⇒ Bivariate analysis: used to determine which independent variables were statistically significant concerning the dependent variable.

⇒ Multivariate analysis: this involves considering the variables that were significant in the bivariate analysis and introducing them into the multivariate analysis.

## **2.6. Organization of Data Collection**

### **2.6.1. Data Collection Tools**

Data collection was based on a questionnaire sent to the heads of associations, companies, and other groups managing informal sector workers in the nine health zones of South-Kivu province. Other questions were submitted to informal workers. Two people per health zone were involved in data collection, to avoid missing any information. At the end of the interview, we reviewed all the questions to check all the information and complete them where necessary.

### **2.6.2. Data Analysis**

Data processing was based on an analysis of the similarity between answers given to the same question. These interviewers helped us with data collection. Data processing was carried out using SPSS and STATA.

## **2.7. Ethical Considerations**

The study protocol was validated by the Ethics Committee of the Official University of Bukavu and obtained the approval of the management teams of nine health zones: Ibanda, Kadutu, Bagira-Kasha, Kabare, Miti Murhesa, Katana, Nyantende and Nyangezi. Voluntary and informed consent to participate in the survey was systematically sought from study subjects.

## **3. Presentation of Results**

### **3.1. Determinants of Informal Sector Workers' Access to Social Security and/or Social Protection Services**

#### **3.1.1. Affiliation to State-Managed Social Protection (CNSS)**

**Table 1** shows that the level of morbid antecedents among workers in the informal sector who are members of an association is 80%, compared with 20% among non-members. Only 40% of informal sector workers, representing 93% of the population, have always used health services; 50% have done so occasionally and 10% have never done so. Only 30% of workers in the informal sector seek medical attention within the first few hours of illness, or without delay, compared with 60% who do so for more than a day or 24 hours. While 10% of the latter who are not members of the association, don't do so. The main reason for not always using health services is the high cost of care, cited by 40% of informal sector workers who are members of an association, and 20% of the latter cited a lack of money for treatment. Self-medication, recourse to traditional practitioners, the non-seri-

ousness of the illness, and poor quality of care were cited by 10% in each case. The reason for non-affiliation with the Social Security service is dissatisfaction with the Social Security services (CNSS) cited by 30% of workers in the informal sector, the same applies to the lack of financial resources; the lack of confidence in all state services cited by 10% of workers in the informal sector; weak organizational capacity, also cited by 10% of informal sector workers, the lack of relevance of the social security service (10%) and the unaffordable amount to contribute, also cited by 10% of informal sector workers, remain the reasons for non-affiliation with the social security service.

**Table 1.** Socioeconomic characteristics of workers in the informal sector.

| Variables  | Numbers   | %          |
|--|-----------|------------|
| Previous illness (childbirth within the previous six months) |           |            |
| 1) Yes   | 72        | 80         |
| 2) No  | 18        | 20         |
| <b>Total</b>   | <b>90</b> | <b>100</b> |
| Use of the health services:                                  |           |            |
| 1) Always  | 36        | 40         |
| 2) Sometimes   | 45        | 50         |
| 3) Never   | 9         | 10         |
| <b>Total</b>   | <b>90</b> | <b>100</b> |
| Time to access health services:                              |           |            |
| 1) Same day (without delay)                                  | 27        | 30         |
| 2) More than one day (~24 hours)                             | 54        | 60         |
| 3) Never   | 09        | 10         |
| <b>Total</b>   | <b>90</b> | <b>100</b> |
| Reasons for not always using health services:                |           |            |
| 1) High cost of care   | 36        | 40         |
| 2) Lack of money   | 19        | 20         |
| 3)self medicament  | 9         | 10         |
| 4) Traditional practitioners                                 | 9         | 10         |
| 5) Non serious illness                                       | 9         | 10         |
| 6) Poor quality of care                                      | 9         | 10         |
| <b>Total</b>   | <b>90</b> | <b>100</b> |

**Continued**

| Reason for non affiliation with state insurance CNSS:   |           |            |
|---|-----------|------------|
| 1) Not satisfied with CNSS services                     | 27        | 30         |
| 2) Lack of financial resources                          | 27        | 30         |
| 3) Lack of confidence in all government services        | 9         | 10         |
| 4) Weak organizational capacity                         | 9         | 10         |
| 5) Not important  | 9         | 10         |
| 6) Amount to contribute is not affordable               | 9         | 10         |
| <b>Total</b>  | <b>90</b> | <b>100</b> |
| Reasons for not subscribing to mutual health insurance: |           |            |
| 1) Disappointment with MUSA's management                | 9         | 10         |
| 2) Membership fees exceed income capacity               | 18        | 20         |
| 3) Experience of discouraged alumni                     | 9         | 10         |
| 4) Managers fail to meet their commitments              | 18        | 20         |
| 5) Care structures neglect members                      | 18        | 20         |
| 6) MUSA does not cover certain illnesses                | 18        | 20         |
| <b>Total</b>  | <b>90</b> | <b>100</b> |

### 3.1.2. Reasons Why Workers in the Informal Sector Do Not Join Community Mutual Health Insurance Schemes

The reason why workers in the informal sector don't join community mutual health insurance schemes is disappointment with the management of mutual health insurance schemes, declared by 10% of informal sector workers. Other reasons put forward by workers in the informal sector are costs of joining a mutual health insurance scheme, which exceeds their income (20%), the experience of former members, which discourages them from joining (10%), failure to honor commitments (20%), neglect of mutual health insurance scheme members by the health facilities that are supposed to receive them for treatment (20%), and the selection of treatments to be administered to members of the mutual health insurance scheme.

### 3.2. Factors Influencing Informal Sector Workers' Adherence to Social Security Services (CNSS)

**Table 2**, factors of mutual health insurance enrollment among informal sector workers Logistic regression Number of obs = 319, LR Chi<sup>2</sup> (8) = 71.36, Prob > Chi<sup>2</sup> = 0.0000, Log-likelihood = -178.76689, Pseudo R<sup>2</sup> = 0.1664.

The average age of health mutual members is 37.6 ± 11.67 vs. 32.3 ± 9.11 for non-members. This indicates that 95% of mutual members are between 25.9 and

49.3 years of age. These are the ages when children are still small and morbid, and maternity is still frequent on the one hand, or the family is already sufficiently large on the other. Mutual members are also often members of associations (75.2%;  $\text{Chi}^2 = 54.83$ ;  $\text{dl} = 1$ ;  $p = 0.00$ ) (Table 3, Table 4, Figure 3).

The main reasons for non-adherence to mutual health insurance were stated by respondents. Firstly, there is a problem of confidence on the part of informal sector players, who remain hesitant about the organization of mutual health insurance schemes. The idea has not yet been integrated into their habits, despite the noble effort to popularize it. This mistrust is also linked to the exclusion of certain common illnesses and to under-information. Not to be overlooked is the lack of money that characterizes the informal sector (Figure 4).

**Table 2.** Determinants of informal sector workers' access to healthcare services.

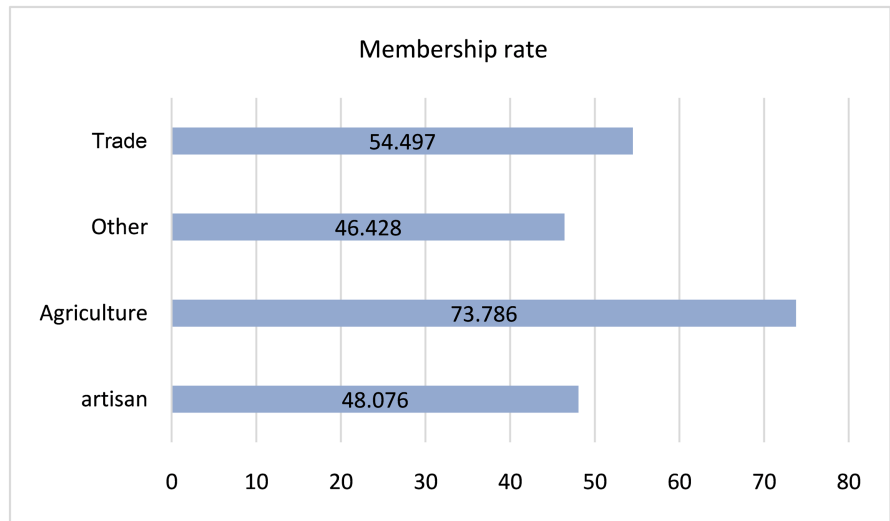
| Mutuelle          | Odds Ratio | Std. Err. | Z     | $p > z$      | [95% Conf. Interval] |
|-------------------|------------|-----------|-------|--------------|----------------------|
| Rurality          | 0.8324791  | 0.2430829 | -0.63 | 0.53         | 0.4697032 1.475446   |
| Age               | 1.028409   | 0.012975  | 2.22  | <b>0.026</b> | 1.00329 1.054156     |
| gender            | 1.238719   | 0.3290268 | 0.81  | 0.42         | 0.7359996 2.084816   |
| study             | 0.8513249  | 0.115898  | -1.18 | 0.237        | 0.6519498 1.111672   |
| association       | 5.181718   | 1.413883  | 6.03  | <b>0.00</b>  | 3.035394 8.845707    |
| employee          | 0.5280452  | 0.1860037 | -1.81 | <b>0.07</b>  | 0.2647498 1.05319    |
| employer          | 0.5196861  | 0.2156935 | -1.58 | 0.115        | 0.2303846 1.172273   |
| Employer_employer | 1.299587   | 0.4772566 | 0.71  | 0.475        | 0.6327217 2.669305   |
| _cons             | 0.4675985  | 0.3252235 | -0.09 | 0.274        | 0.1196318 1.827678   |

**Table 3.** Age of community-based health insurance members.

| Affiliation to mutual health insurance | Standard deviation | n   | average |
|--|--------------------|-----|---------|
| No                                     | 9.110              | 151 | 32.258  |
| Yes                                    | 11.676             | 214 | 37.574  |
| All Grps                               | 10.993             | 365 | 35.375  |

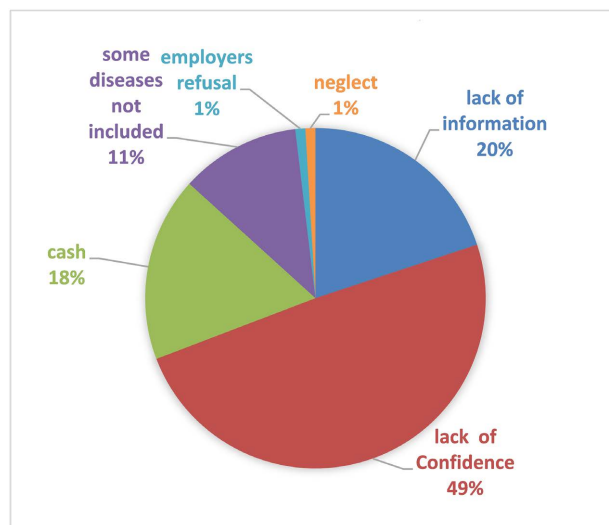
**Table 4.** Influence of association membership on community based health insurance enrolment.

| enrolment in a health mutual | association member yes | member association no | Row |
|------------------------------|------------------------|-----------------------|-----|
| No                           | 52                     | 104                   | 156 |
| Yes                          | 158                    | 62                    | 220 |
| All Grps                     | 210                    | 166                   | 376 |



Trade vs Agriculture:  $\chi^2 = 10.46$ ;  $df = 1$ ;  $p = 0.0012$ , Other vs Artisan:  $\chi^2 = 0.68$ ;  $df = 1$ ;  $p = 0.41$ , Trade vs Artisan:  $\chi^2 = 10.06$ ;  $df = 1$ ;  $p = 0.0015$ .

**Figure 3.** Affiliation to community-based mutual insurance by profession.



**Figure 4.** Reasons for not joining a mutual insurance company.

The reasons for not joining a mutual health insurance scheme can be summarized as follows: trust >> lack of information = financial means > exclusion of illnesses.

### 3.3. The Influence of Level of School Education on Mutual Health Insurance Membership

The level of school education has a negative influence on the propensity to join a mutual health insurance scheme, just as the spirit of association declined sharply as the level of education increased. We assumed that attachment to tradition played a part in this situation, since illiterate, literate adults and primaries have practically the same limited chances in working life. Also, there are many informal

sector players who have no degree, with incomplete secondary education. In fact, confidence seems to be the parameter that could be brandished in this situation, as opposed to financial crises, under-information and exclusion from certain diseases (Figure 5).

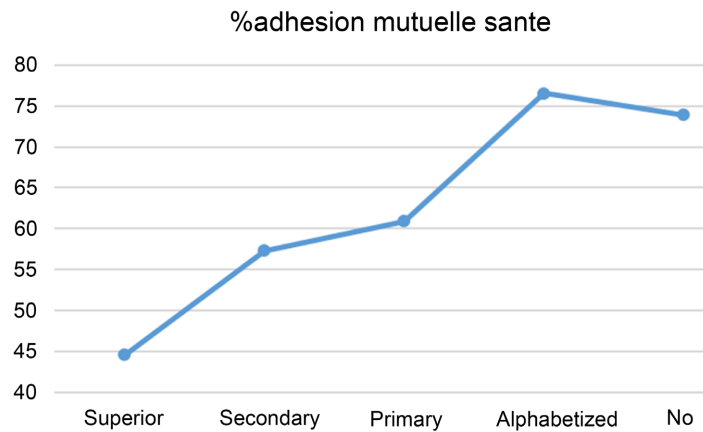


Figure 5. Mutual health enrolment and formal education based.

Cluster analysis confirmed that rural health areas are more represented in mutual health organizations. Figure 6 shows these clusters (discriminant analysis), which are differentiated by actors' age, employee or employee-employer status, and strong membership of mutual health organizations and associations, as also shown by logistic regression.

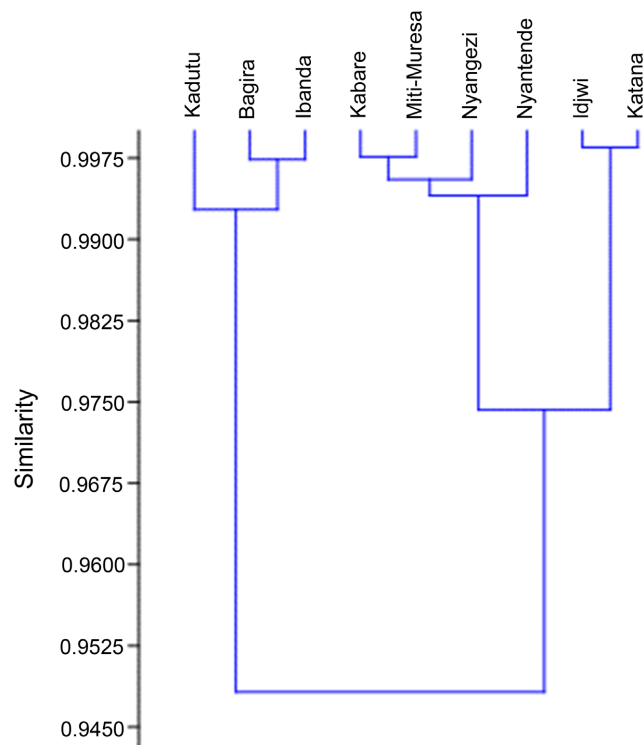


Figure 6. Clusters of urban and rural areas regarding the enrolment factors.

### 3.4. Rurality and Mutual Membership

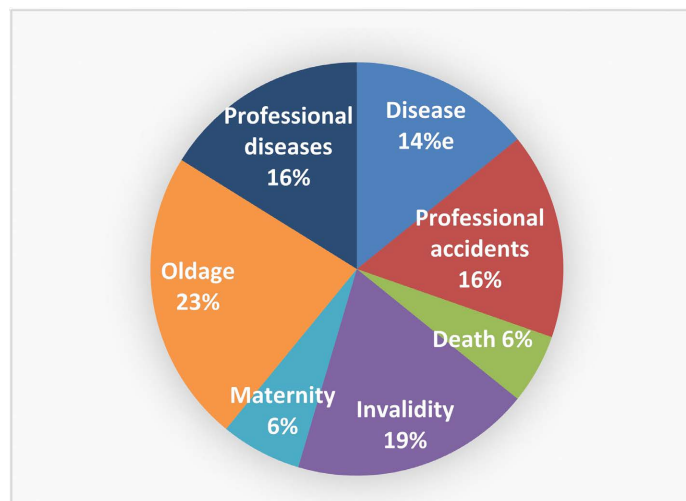
Farmers, who make up almost all rural households, showed the greatest propensity to join mutual health insurance schemes. **Figure 6** shows that rural areas similarly have a high rate of membership of associations, accompanied by higher membership of mutual health insurance schemes by older heads of household. In comparison, urban areas (Kadutu, Bagira, Ibanda) show a higher level of education and a greater frequency of employees and employee-employers among informal actors.

### 3.5. Factors Influencing Membership of the Social Security Service (CNSS)

The factors involved in subscribing to social security services are almost identical to those involved in subscribing to mutual health insurance.

#### Risks covered by the security service

**Figure 7** shows that the main risks covered by the social security service (CNSS) are: sickness (14%), maternity (6%), old age (23%), disability (19%), death (6%), industrial accidents (16%), and occupational diseases (16%).



**Figure 7.** Risks covered by CNSS according to affiliates in the informal sector.

**Table 5** shows that 90.3% of workers in the informal sector are not affiliated to the social security service, compared with only 9.1% who are.

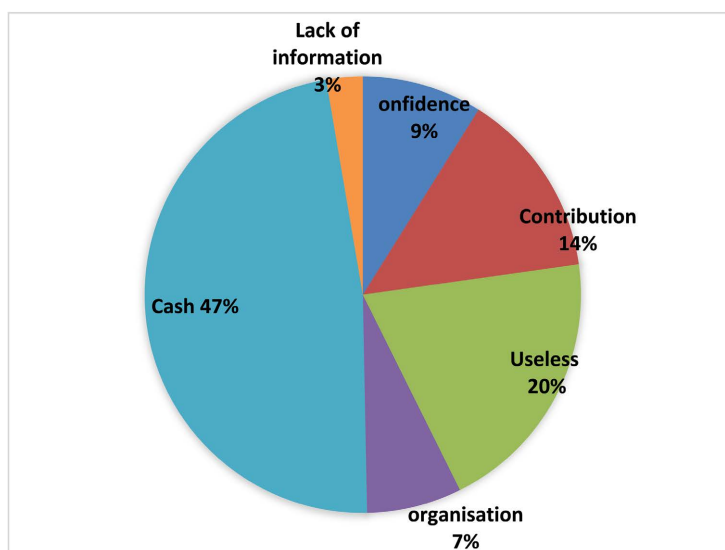
**Table 5.** Informal sector workers affiliated to the state-run social security service (CNSS).

| Affiliation to state-run insurance (CNSS) | Count | Percent |
|---|-------|---------|
| No  | 346   | 90.3    |
| Yes                                       | 35    | 9.1     |
| Missing                                   | 2     | 0.5     |

In all the health zones studied, CNSS members are very much in the minority, or even absent, especially in rural areas. In urban areas, they represent 12.4%, compared with 6% in rural areas, which is not self-evident. Members are rare among informal sector players (9%), a score that is not obvious either, since this 9% includes welders, sand sellers, shoemakers and truck drivers who may have just paid the insurance on their trucks, almost all of whom are artisans. The proportion of CNSS members is even lower in rural areas (**Table 6**).

**Table 6.** Effects of rurality on enrolment to state-run insurance (rural vs urban).

| Rurality | CNSS no | Affiliation | Row |
|----------|---------|-------------|-----|
|          | No      | Yes         |     |
| Urban    | 141     | 20          | 161 |
| Rural    | 203     | 13          | 216 |
| All Grps | 344     | 33          | 377 |



**Figure 8.** Reasons for non-affiliation to CNSS.

The reasons for not joining the CNSS (**Figure 8**) are essentially, in descending order, the lack of financial resources (low income) of informal workers, the perceived usefulness of this health insurance, with some stating that they are not even sure of reaching retirement age given the low life expectancy (59 years), others stating a lack of confidence in the service, doubting its organization. Others feel under-informed. In rare cases, the most isolated or distant from the city felt that the distance was too great to go and declare and contribute (**Figure 9**).

These reasons for non-affiliation can be summarized as follows: low income >> no perceived usefulness > financial crisis = weak organization > under-information. The crisis of confidence also stems from several years of economic crisis, in which even state employees are not affiliated at all, no longer have pay slips or

family allowances, and have been living without social security contributions for over 4 decades. The model that the State was supposed to represent is missing, so to speak.

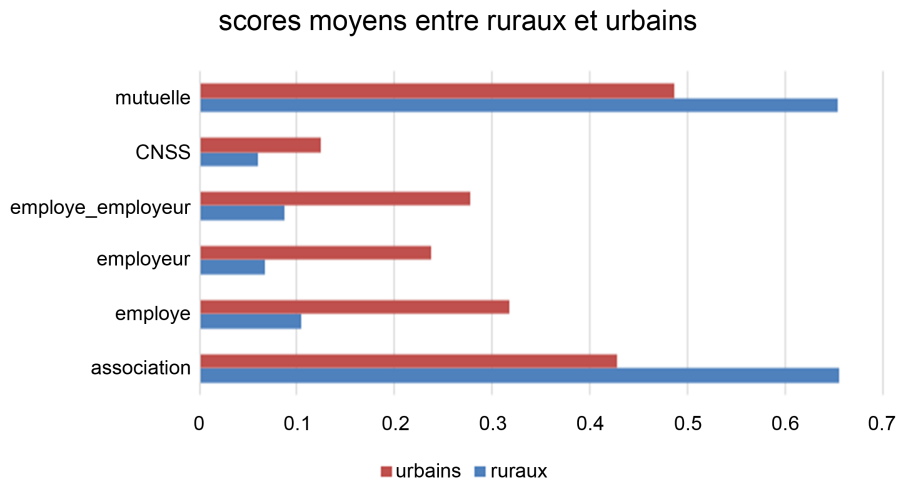
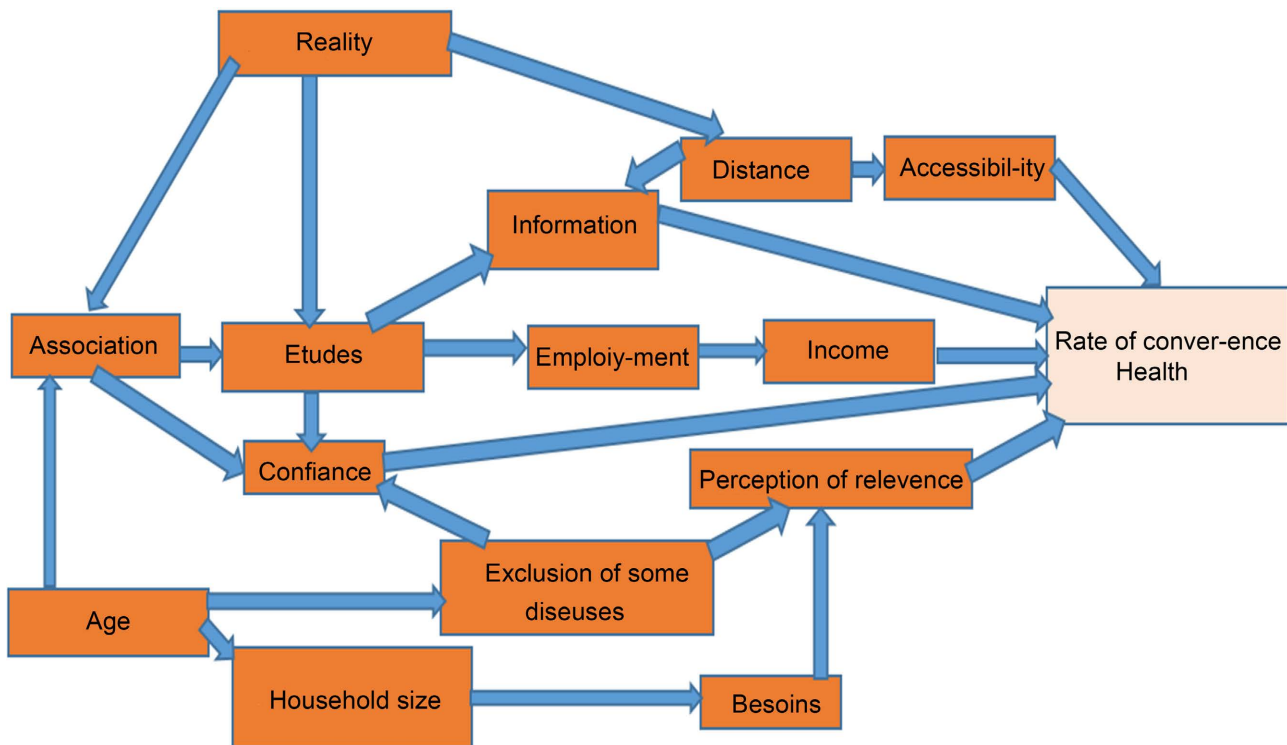


Figure 9. Scores between rural and urban.

The results of the logistic regression show that age increases the likelihood of CNSS membership by 46%. Level of education has a more significant effect, with a move from one level of education to another increasing the likelihood of membership 2.46 times. This can be understood as an increase in income and an increase in chances linked to employee status, which in turn have boomerang effects that raise the eventuality 4.75 (Table 7, Figure 10). logistic cns ruralite age sexe etude association employe employeur employe\_employeur, nolog iterate (100); logistic regression Number of obs = 322, LR Chi<sup>2</sup> (8) = 38.01, Prob > Chi<sup>2</sup> = 0.0000, Log-likelihood = -73.753644, Pseudo R<sup>2</sup> = 0.2049.

Table 7. Structural equation model of CNSS membership factors.

| CNSS              | Odds Ratio | Std. Err. | z     | p > z        | [95% Conf. Interval] |
|-------------------|------------|-----------|-------|--------------|----------------------|
| rurality          | 1.088005   | 0.538122  | 0.17  | 0.865        | 0.4126962 2.868343   |
| age               | 1.04627    | 0.0199285 | 2.37  | <b>0.018</b> | 1.007931 1.086068    |
| gender            | 1.26064    | 0.5929429 | 0.49  | 0.622        | 0.5014505 3.169234   |
| Study             | 2.467041   | 0.7542862 | 2.95  | <b>0.003</b> | 1.354957 4.491871    |
| association       | 0.9431191  | 0.4512013 | -0.12 | 0.903        | 0.3692665 2.408758   |
| employee          | 4.758093   | 2.54477   | 2.92  | <b>0.004</b> | 1.667957 13.57316    |
| employer          | 2.766029   | 1.810768  | 1.55  | 0.12         | 0.7666934 9.979108   |
| employee_employer | 0.0732165  | 0.0810949 | -2.36 | <b>0.018</b> | 0.0083525 0.6418058  |
| _cons             | 0.000306   | 0.0004794 | -5.17 | <b>0</b>     | 0.0000142 0.0065959  |



**Figure 10.** Synoptic table of factors influencing take-up of social services.

### 3.6. Under-Information Factors

Congolese informal sector workers have no social security, a situation that exposes them to lifelong vulnerability to illness, poverty, inequality, and social exclusion. These non-contributing workers, most of whom belong to the informal sector, are hampered by various factors, including a lack of knowledge about the availability of voluntary contributory schemes and the eligibility of informal workers for such schemes.

## 4. Discussion of the Results

### 4.1. Level of Attendance of Informal Sector Workers at Health Facilities

The study showed that mutual health insurance members attach greater importance to health than non-members, which testifies to the effectiveness of mutual health insurance and association awareness-raising. Furthermore, the results of another study in Burkina Faso indicate that members of a mutual health insurance scheme have a more negative perception of traditional care than non-members, often judging it to be mediocre or ineffective (Allegri et al., 2006). Previous use of health services influenced non-membership of mutual health insurance. The study showed that, in the province of South Kivu, 40% of people's first recourse was to the health center, with no difference between members and non-members. Concerning disease prevention measures, the study by Jütting and Tine (2000) indicates that adherents make greater use of techniques such as water pu-

rification and the use of mosquito nets than non-adherents. However, these differences are essentially due to the higher income levels of members (Defourny & Failon, 2011; Khoali & Lakhyar, 2022).

#### **4.2. Factors Limiting Access to Healthcare**

For example, domestic workers we met during our surveys say that “every house has a domestic, but if we work, it’s because we have no choice, we’re given an insignificant salary and most often it’s less than \$50 a month for women and between \$50 and \$80 for men. This small amount doesn’t even cover 1/4 of our household needs, and when we ask for it, we’re told that if it’s not enough, we can look elsewhere. Yet we have to live, send our children to school, feed them and look after them.”

Street vendors, in turn, say: “We spend our days in the sun and in the crowded streets of Bukavu. We work long hours with heavy loads that cause terrible illnesses, and other colleagues are knocked down and hit by vehicles, while we don’t even earn 2 dollars a day, often less than a dollar a day.”

When it comes to treatment or illness, we face serious difficulties because we’re afraid of taking out a loan for treatment; we don’t have the means to repay the debt. That’s why many of us go to prayer rooms, others to traditional healers, and still others wait for people of goodwill to pay for their care. Sometimes, when we’re ill and have been in hospital for an episode of illness or even childbirth, we can be detained for two months or more for not paying \$20 for a Eucharistic delivery, and if it’s a Caesarean section, we can even spend up to three months until we find a philanthropist; Others mentioned the lack of hope of being able to reach the age of 65 to benefit from a retirement pension. Another group of informal sector workers mentioned the very high contributions they have to pay with what they earn. Another group of informal sector workers said that political actors do not govern on behalf of the population, as health and other basic needs are not on their agendas. However, the majority said that the government does intervene, but in an insignificant way. The various reasons for not using the services of health facilities are:

- ✓ Lack of resources: We often don’t have enough work to pay for it. There’s also the distance you have to travel to pay and the fear that you won’t make it to retirement age. So there’s the fear of looking to the future, and we’re forced to make do with the present;
- ✓ Workers in the informal sector said they had no means of joining the CNSS; they were also unable to realize how much they would have to contribute, and the distance they had to travel to pay was an obstacle to joining.

#### **4.3. Capacity to Pay Social Security Contributions for Workers in the Informal Sector**

Colombet et al. investigated household socio-demographic characteristics as predictors of trends in health insurance premiums and consumer medical spending using the 2014 Consumer Expenditure Survey. This study found that age, being

married, education level and low family wage income were associated with higher family spending on health insurance premiums and medical expenses. Public employment status was associated with lower spending on health insurance premiums and medical expenses. The results of this research are instructive for households in determining health insurance premiums and medical expenses throughout life, as well as for financial advisors in personal financial planning and healthcare-focused advice (Colombet et al., 2016).

The same study showed that socio-demographic characteristics are correlated with healthcare expenditure. It provided empirical support for testimonial evidence that older age, being married, educational level, and log family wage income are associated with higher family spending on health insurance premiums and medical costs. Interestingly, household size was only positively associated with the amount paid for health insurance premiums. The findings of this study are consistent with previous research on health spending (Hong & Kim, 2005). Mortgage-free home ownership and the number of vehicles owned were only positively associated with the amount paid for medical expenses (Lassman et al., 2014).

On the other hand, government employment status was associated with lower spending on health insurance premiums and medical expenses, while the self-employed spent more on health insurance premiums and medical expenses because they had limited choices and could not take advantage of collective bargaining power in the purchase of health insurance policies (Hong & Kim, 2005; Kaiser & Sinanan, 2020).

In the Thiès study, income appears to be a significant factor in explaining membership. Belonging to the lower and upper income quartiles, respectively, reduced and increased membership. When households were classified into poor and non-poor, it also appeared that self-reported poor had a lower probability of joining a CHI than higher-income households.

A comprehensive approach to the development and improvement of the rural population, in particular girls and women, was the only sustainable way to improve the health situation in the region. As a result, a number of socio-economic activities were gradually developed, and women's education and employment were promoted wherever possible, through micro-credit and employment in traditionally male trades.

Some credit systems were entry points for CHI. Grameen Bank, for example, was interested in promoting health insurance, among other things, to reduce credit defaults; the rationale was that insured members of the credit scheme would be protected against significant financial losses due to illness, so they would be able to meet credit repayment schedules. A similar reason was given by the SEWA plan before the introduction of its health insurance scheme. Of course, since low-income groups were essentially the members of these credit systems, health insurance was also seen as greatly benefiting these groups by avoiding or reducing catastrophic expenses. Finally, trust can be strengthened when people see that their preferences count (Gilbert, 2009). Cost coverage and, consequently, the reduction

of the population's financial participation is a key issue. Several studies have addressed the factors influencing the ability to pay contributions and the contribution to the benefit of the poor by trying to burden the highest income categories; 1/10 compared with the advantaged, by taking 5% - 10% of annual household budgets. However, it was recognized that such high contributions can become a major obstacle to membership. In particular, it was recognized that the success of such policies depends on the level of development of the formal sector, which contributes significantly to taxes (Berrou et al., 2019).

In Bangladesh, they had defined four categories of health insurance payers: the indigent, the poor, the middle class and the rich. Contributions are also levied on a flat-rate basis, which is a serious disadvantage for the poor. The WHO study showed that, in urban areas, contributions tend to be levied on a monthly or quarterly basis. In Ghana, the estimated cost of contributions varied from 5% - 10% of annual household budgets. These monthly or quarterly deductions were in line with the income patterns of informal sector players. In Kabutare, Rwanda, the local church paid for the poorest (OMS, 2023).

#### 4.4. Factors Influencing Membership of Mutual Health Insurance Companies

Choi-blackburn-patterns-and-factors-associated-with-medical-expenses-and-health-insurance-premium-payments. Shinae Choia and Justin Blackburn 2014 Trends and factors associated with medical spending and health insurance premium payments. This study revealed that age, married status, education level and log family wage income were associated with higher family spending on health insurance premiums and medical expenses. Public employment status was associated with lower spending on health insurance premiums and medical expenses. Enrollment in health insurance among workers in the informal sector remains low in South Kivu in the DRC and even in Central Africa, despite repeated efforts to raise awareness of these systems for accessing care and protecting against financial risks.

Empirical work and other recent studies identify several categories of determining factors, which can be grouped into factors related to individuals and their households, healthcare providers, the characteristics of the mutual insurance company itself, sociopolitical factors, and socioeconomic and cultural factors.

#### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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