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## Nudging Households to Take Up Health Insurance: Evidence from a Randomized Experiment in Burkina Faso

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DISCUSSION PAPER SERIES

IZA DP No. 10744

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Insurance: Evidence from a Randomized  
Experiment in Burkina Faso**

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# Nudging Households to Take Up Health Insurance: Evidence from a Randomized Experiment in Burkina Faso

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## ABSTRACT

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# Nudging Households to Take Up Health Insurance: Evidence from a Randomized Experiment in Burkina Faso\*

In this paper we analyze the impact of a randomized information package on the understanding and uptake of community based health insurance. The information package consists of a detailed brochure which is distributed to households through home visits, a video also presented in people's homes and a personalized phone reminder. Overall, we find significant treatment effects on insurance uptake at the margin, although insurance uptake is low in general. We also find evidence for a better understanding of insurance principles among treated households, in particular in poorer households and in households with literate household heads. Finally, we see that treated households share the information they received with their neighbors and this also has positive effects on their understanding of insurance principles. We find further suggestive evidence that information sharing remains locally concentrated and does not surpass a radius of 1 km. Our findings contribute to the understanding how knowledge about the functioning of insurance can be enhanced in a context where the concept of insurance is largely unknown and where strong cultural beliefs prevail, and eventually, how insurance uptake can be increased, although the latter may take more time.

**JEL Classification:** D83, G22, I13, M31, O33

**Keywords:** health insurance, take-up, encouragement design, learning, financial education

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## 1. Introduction

Poor households in developing countries typically face high risks, for example, due to climate, political and macroeconomic instability and an adverse disease environment. The exposure to such risks leads to inefficient diversification, reduced investment and lower welfare (see e.g. Dercon, 2005; Fafchamps, 2003; Fafchamps and Pender, 1997; Frankenberg et al., 2003). Health shocks are frequently cited by households as the most important risk they face (see e.g. Asfaw and von Braun, 2004; Genoni, 2012; Gertler and Gruber, 2002; De Weerd and Dercon, 2006; Wagstaff, 2007). In the sample we use in this paper, almost 40% of all households report to have experienced a health shock (excluding death events) during the past 12 months. For comparison, ‘only’ 15% reported to have experienced an agricultural shock. Therefore, many governments and donor agencies think about ways to introduce health insurance in the poorest countries of the world. However, in many Sub-Saharan African countries a shortage of public resources, a lack of good quality institutions and little knowledge about insurance principles among potential beneficiaries prevent the introduction of general compulsory health insurance (Carrin 2011; Carrin and James, 2005; Wagstaff, 2010). Among the alternatives are voluntary schemes, either offered by private insurance companies, but then often only for formally employed workers, or local schemes by NGOs and community initiatives in the form of so-called ‘Community Based Health Insurance’ (CBHI). A general problem which these voluntary schemes face is low uptake (see e.g. Ekman, 2004; Giné and Yang, 2008; Platteau et al., 2017; Soors et al., 2010). The low uptake of insurance however is not only limited to CBHI. It is also reported for schemes that are compulsory by law but where enforcement is weak, for instance, in Ghana (see Schieber et al., 2012). Moreover, it has also been observed for other types of insurances, e.g. crop and other agricultural insurance (see e.g. Cole et al., 2013). The literature has identified various reasons for low uptake, such as affordability, cultural beliefs and practices, a lack of trust in insurers, the quality of health care offered, and a lack of adequate knowledge and understanding of insurance principles (see e.g. Basaza, 2008; De Allegri et al., 2006a, 2006b; Dong et al., 2009; Panda et al., 2016; Platteau, 1997; Platteau and Ugarte Ontiveros, 2013; Schneider, 2005, Wagstaff et al, 2015). Therefore, researchers and insurers think about innovative interventions to increase uptake, in particular among informal sector workers and their families.

In this paper, we analyze the effectiveness of a randomized encouragement design that we implemented jointly with ASMADE, a local NGO, and a CBHI in rural Burkina Faso. The encouragement consists of an intensive information intervention comprising of a brochure which is distributed to households through home visits done by agents specially trained for this assignment, a video also presented in people’s homes that shows the experience of a health episode with and without health insurance<sup>1</sup> and a personalized phone call reminder. The overall encouragement was stretched over four months. We consider informing an important aspect in contexts where people are still rather unaccustomed to formal insurance scheme and contracts. We focus on the impact of insurance uptake and the understanding of insurance principles. We analyze treatment heterogeneity by education and income groups and test for the presence of treatment spill-overs, i.e. whether treated households share the information with their neighbors and whether these neighbors in turn show also a higher uptake and better understanding of the insurance product.

Overall, we find significant treatment effects on insurance uptake at the margin, although insurance uptake is low in general. Yet, we find some evidence for a better understanding of insurance principles among treated households, especially in poorer households and in households with literate household heads. We also find evidence that treated households share

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<sup>1</sup> The video was produced in Mooré, the language spoken in our study area, and is available upon request.

the information they received with their neighbors and this has also positive effects on their understanding of insurance principles.

Our study thus contributes to the literature on insurance uptake in a developing country context. It is closely related to the studies by Capuno et al. (2015) and Wagstaff et al. (2015), who also look at the effect of information on insurance uptake. However, our study differs from their work in three aspects. Their studies were conducted in the Southeast Asian context in the Philippines and Vietnam respectively, whereas our work provides evidence from Sub-Saharan Africa, in a context where the concept of insurance is arguably still less widespread and where also different cultural beliefs prevail. In our study context people were highly suspicious to the idea of insurance and during our fieldwork we repeatedly encountered statements such as “*if you buy insurance you are calling upon the gods to fall sick*” (male, Barkuitenga).<sup>2</sup> Given the prevailing belief-system our encouragement consists of an intensive information intervention delivered by trained agents offering a direct interaction and the opportunity to ask questions at any point. In this respect our intervention is also different to the earlier works. Capuno et al. (2015) studied an intervention consisting of an information kit<sup>3</sup>, SMS reminders and a 50% enrolment subsidy, followed by actual help in filling out the forms for a sub-sample of the treatment group. Wagstaff et al. (2015) investigated three treatments, a leaflet, a voucher for a 25% reduction in the insurance premium and a combination of the two. In our study we are deliberately not offering a subsidy for the insurance in order to comply with the ‘business model’ of the insurer and to not distort incentives as documented in previous work in Burkina Faso which shows a sharp decline in re-enrolment rates once subsidies are removed as demand for insurance had not been altered in a durable way (Dong et al., 2009). Capuno et al. (2015) reach conclusions similar to ours at least with respect to insurance enrolment. Their intervention increased insurance uptake by a mere 5 percentage points from 9.9% to 14.9%. Assistance in the enrollment procedures among non-compliers from the first treatment was by far the most successful measure. Enrolment for this group increased from 3.4% to 39.7%. In Vietnam, Wagstaff et al. (2015) find only small effects and conclude that information campaigns and subsidies have limited effects on voluntary health insurance enrollment and that such interventions might even exacerbate adverse selection as sick individuals show a somewhat larger response. Beyond the work of Capuno et al. (2015) and Wagstaff et al. (2015) our work also links to the broader literature on insurance uptake such as Cai and Song (2017) who tested whether insurance games can increase the uptake of weather insurance. They found that households that were randomly selected to play the game showed an uptake which was higher by roughly 48%. The decisive mechanism was that playing the game allowed households to experience a hypothetical disaster. They did not find much evidence for changed risk attitudes. This is in contrast to the findings by Pradhan (2015), since she finds that playing an insurance game does exactly that; changing risk attitudes, but not changing knowledge. Patt et al. (2009) also use field games and showed that games can also help to build trust in the insurance product, in the participating organizations, and in the prospective beneficiaries’ ability to make good decisions.

The remainder of this paper is organized as follows: In Section 2 we describe the context of the study. In Section 3 we define our treatment, explain our evaluation design and provide

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<sup>2</sup> Similar statements are also recorded by De Allegri et al. (2006a) who assessed an insurance intervention in Nouna, in the North-western part of Burkina Faso. For example: “When we save, we do not talk of diseases [...] one does not say that he keeps this one animal for a case of illness [...] it is not good to talk about diseases” (p. 1524).

<sup>3</sup> The information kit included a membership application form, a data record form and a leaflet outlining the enrolment process, the insurance claims and a frequently asked question section.

balance tests between treatment and control groups. In Section 4 we present the results. In Section 5 we provide a discussion and conclude.

## 2. Context of the study

Our research is located in the *Plateau Central* region in Burkina Faso. The not-for-profit organization ASMADE has been rolling out a CBHI scheme there in the rural community of Ziniaré. This community has a total population of 44,353, living in about 6,798 households distributed over 48 villages. The insurance scheme was formally launched in July 2014 and households can subscribe to the insurance since November of that year. In a CBHI the population designs the benefit package jointly with the insurer and determines the insurance premium keeping an eye on the financial sustainability of the scheme. The insurance is intended to ensure that all beneficiaries have access to quality health care. As we will show in more detail below, most of the households in the project area live from subsistence agriculture and are relatively poor. They have only very little experience with insurance products. The most prevalent health problems are malaria and diarrhea.

In view of an impact evaluation of the insurance, we undertook a pre-intervention survey among 2,007 households. 1,499 were interviewed in October/November 2013 and an additional 508 households in early December 2014, i.e. just when the scheme started to be offered to households. A post-intervention survey, was planned for October 2015, but had to be conducted in March/April 2016 due to the political instability in the country in late 2015.

Since uptake of the scheme is voluntary any evaluation of the scheme will have to deal with potential selection effects which may confound any assessment of impacts associated with the scheme. Hence, to introduce some randomness in insurance uptake, we decided to implement a randomized encouragement design. The encouragement consisted of giving a random sample of households more information about the insurance than others. If the treatment increases uptake it can serve as an instrument for actual uptake and allows to identify local average treatment effects (LATE).

However, the impact of the treatment in itself is interesting. Given that uptake of voluntary health insurance is typically low, insurers, as well as, policy makers are interested in measures that increase uptake and can help informing households about the benefits of the insurance and make sure that all households understand the principles and functioning of the insurance. This is especially true in Burkina Faso, as the Government is planning to implement national health insurance. Hence, evaluating the effectiveness of the encouragement constitutes a research question on its own and is of policy relevance for many countries including Burkina Faso. Since the encouragement is allocated randomly, it is straightforward to provide a robust assessment. This is what we do in this paper.

Unfortunately, the study was conducted in a very difficult period. Late 2014, i.e. just when we were about to implement the treatment, the then President Blaise Compaoré made an attempt to change the constitution to extend his 27-year rule. Violent protests followed and he was eventually forced to resign. A transitional government was formed to guide the country to elections in 2015. Since President Compaoré is a native from the project region, his departure also led to a political vacuum in that particular region. Many local administrative and political positions were subsequently not filled until the end of 2015 which also affected the start of the health insurance and, in general, lowered trust in any public or semi-public institution. Eventually, a *coup d'état* further increased the people's incertitude, though the coup did not last.

### **3. Methods: Treatment and evaluation design**

#### *3.1 Treatment*

Our encouragement to take up health insurance consisted of three subsequent interventions: First, the randomly selected households received a brochure. Second, they were shown a video at home. Third, they received a phone call reminding them of the possibility to subscribe. The encouragement started in mid-December 2014 and was completed in March 2015. The three interventions were conducted with a gap of four to six weeks (see Figure 1).

[insert Figure 1]

The brochure intended to explain in relatively simple terms the functioning of the health insurance, i.e. how to subscribe, how to access services and how to get reimbursed.<sup>4</sup> Because many villagers cannot read, the information was provided in a mainly graphical way. The brochures were distributed by agents of ASMADE that have been trained for this task. The agents visited the selected households, handed over the brochure, provided additional explanations about the insurance and answered all questions the households may have had. The agent administered also a short questionnaire to each household recording the intention to take up the insurance and, if applicable, the reasons for no interest.

The video was produced by the researchers in collaboration with ASMADE. It presents a short story illustrating the advantages of having health insurance. It shows two persons with a health problem seeking care, one with and one without health insurance. Whereas the brochure was mainly intended to provide factual information about the insurance, the video tries to put the observer in the hypothetical situation of being ill under the two alternative scenarios with and without protection. At the end of the video the agent ensured that the household has well understood the video and the household could again ask questions. Furthermore, a short questionnaire was administered again recording their intention to enroll (or actual enrolment) and also included questions to see if by that time the respondents understood the basic principles of insurance.

The final intervention consists of a personalized phone call reminding the treated households of the possibility of subscribing to the insurance. The household is again referred to the brochure and reminded of the video. The agent also asked again whether there were still questions about the insurance - either its function or about the procedure to subscribe.

#### *3.2 Randomization*

Among the 1,499 households interviewed at baseline in 2013, 750 households were randomly drawn to receive the treatment. The remaining households formed one sub-sample of the control group. The randomization took place at the household level, so that in each of the 29 villages some sampled households were treated and others not. The 508 households interviewed in December 2014 formed another control group. In these 12 villages no household was treated. We have thus three types of households, treated households, control households in villages with treated households (control group I) and control households in villages without treated households (control group II). However, in all villages the insurance is offered. The fact that we have these two types of control households also allows to analyze treatment spill-overs, as we explain below, i.e. to see if an encouragement of the type

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<sup>4</sup> A copy of the brochure is shown in the Appendix.



implemented in this study can generate effects on households that were not directly approached, because households socially interact and share information.

Eventually, since not all households were around or available, when the treatment took place, we managed to treat in the first round 738 out of the 750 households. 717 households were treated in the second round; nine of them only in the second round. Again of these 482 households were treated in the third round (see Table 1). Households that subscribed to the insurance were not visited again. For other households it was not possible to reach them by phone, either because the number did not work (anymore) or they did not reply on the phone. A small fraction did not have a phone and hence could not be called.

[insert Table 1]

### 3.3 Balance tests

To ensure internal validity of our assessment it is important to verify that the treatment and control sample are well balanced along a whole range of baseline characteristics. We subsequently check balance over basic socio-economic characteristics (Table 2), health, health expenditures, health shocks and access to health care (Table 3), knowledge about CBHI and insurance more generally (Table 4) and location (Table A1). We briefly discuss each test in turn. Since randomization took place over the 1,499 households surveyed at the end of 2013 excluding the households interviewed early December 2014, we perform these tests over three groups, i.e. the treatment group and the two control groups.

[insert Tables 2-4]

Table 2 compares households across these three groups with respect to their socio-economic characteristics. There is a small difference between the treatment group and control group I regarding the main job of the household head otherwise both sub-samples are very well balanced and show no significant differences. Control group II shows a few more significant differences with respect to age, gender and religion of the household head. Yet, there are no significant differences regarding education, income and land ownership.

The picture is similar for health-related variables. The treatment group and control group I are perfectly balanced. Control group II however, seems somewhat healthier and in consequence also spends less on health care. Health centers are on average eight minutes further away but their quality is judged to be somewhat better in comparison. There is however no difference with respect to health shocks experienced.

Table 4 compares the three groups regarding their knowledge about CBHI and insurance more generally. The questions about the agreement with basic insurance principles are listed in the note to Table 4 and have been taken from Platteau and Ugarte Ontiveros (2013). It can be seen that there are almost no significant differences. The share of those who have already heard about CBHI is the same. Among those who have heard about it there are some minor differences regarding the understanding of insurance principle I (but not regarding the other two principles). Compared to the treatment group, control group I has fewer members, but in absolute terms this difference is rather small - 0.005% (i.e. 2% of 28%) vs. 0%.

Finally, Table A1 in the Appendix shows that there are no significant differences in terms of the number of households located in a radius of 1 km around a given household. Only beyond

1 km, the density of households is somewhat lower in control group II. There are also no differences in terms of the distance to treated households for treated and control households in control group I. In contrast, by construction, treatment households are far from households in control group II. This will allow for the study of spill overs (see below)

To conclude, the randomization seems to have worked quite well. For most characteristics, the treatment and two control groups are balanced, with a few minor exceptions regarding control group II. Yet, to account for a possible bias due to differences in the treatment and control group we will present all impact estimates with and without controlling for observables.

### *3.4 Attrition*

For 1,980 of the 2,007 sampled households the key information is available at baseline. Of these 2,007 households, we were able to re-interview 1,890 in the follow-up survey, i.e. we lost about 4.45% of the sample. To see whether we should expect any bias from systematic attrition, we regressed ‘being in the final sample’ on a large range of household characteristics. The results from these regressions are shown in the Appendix (Table A2). It can be seen that most coefficients are insignificant, only religious affiliation turns out to be significant suggesting that Christians and Muslims are less likely to have quit the sample compared to animists or households without any religion. Based on this analysis we have little reason to believe that attrition is highly correlated with our variables of interest and hence, we believe it can be considered to be largely random.

### *3.5 Identification*

For the subsequent analysis we will always show treatment-on-the-treated-effects (TOT), intention-to-treat-effects (ITT) and local-average-treatment-effects, i.e. estimates where we use the intended treatment as an instrument for the actual treatment (LATE). In principle, since the treatment was randomly allocated, a simple mean comparison would be enough. However, to further increase the precision of our estimates, we undertake the comparison in a regression framework and control for baseline characteristics (also to account for some of the differences revealed by the balance tests). Impact heterogeneity is assessed using adequate interaction effects.

### *3.6 Spill overs*

To analyze whether there are treatment spill-overs, we compare treatment effects estimated for both types of control households. If spill-overs take place we would expect that the estimated impact of the encouragement is lower in villages where both treatment and control households are present compared to villages where only control households are present, simply because uptake of insurance and knowledge about the insurance among control households with treated households in their neighborhood should then be higher as well. We do not expect major spill-overs from one village to the other as the average distance between villages is quite far but we can of course not completely exclude that such spill-overs exist as well.

Understanding spill-overs is important: First, because obviously it will be something to take into account when the impacts of the insurance are evaluated using the encouragement as an instrument. Second, because understanding how information about the insurance and its benefits spreads can help the insurer to further increase uptake. Banerjee et al. (2016) have

recently shown how the identification of ‘central individuals’ in a social network can significantly enhance the spread of information. If evidence for spill-overs can be provided, the identification of ‘central individuals’ would be a useful next step (see also Beaman et al., 2015). In the following section we do provide some suggestive evidence which does at least give some information on how information travels or the limits to it.

### *3.7 Ethical background to the study*

The project involved human subjects, but did not use invasive procedures for neither the intervention nor the data collection. Participation in the intervention and the data collection activities were entirely voluntary and were based on informed consent. Following the ethical standards for research in Burkina Faso, written consent to participate in the research were obtained from all study participants. The randomized encouragement meant that some households received additional or repeated information with the objective to promote insurance enrollment. However, this did not limit households which not received the encouragement from access to insurance and uptake. The project documentation and survey tools were submitted to the Ethics Board of the Ministry of Health in Burkina Faso (Comité National d’Éthique pour la Recherche en Santé (CNERSS)) on August 16th, 2013. The approval of the Ethics Board was obtained on September 11th, 2013.

## **4. Results**

### *4.1 Direct responses of treated households*

Table 5 provides information about the implementation of the encouragement and how households perceived it and what they thought, at the time, about the idea of joining the insurance. On average 2.7 household members were present when the brochure and the video were shown respectively. This corresponds to almost half of all household members. In case of the video, in some cases also neighbors joined, even if the agents conducting the encouragement tried to avoid that as much as possible. About 70% to 75% of all treated households reported that they seriously consider becoming a member. Although it may only give a weak indication about how many households really join the insurance later on, it is interesting that only few say they will definitely not enroll. Those who plan to enroll, plan to enroll about 2 to 3 members of their household. The remainder of the analysis focuses on insurance uptake at the ultimate outcome and the understanding of insurance principles as the intermediate outcome on the pathway to uptake.

[insert Table 5]

### *4.2 Insurance uptake*

Table 6 shows the effect of the encouragement on insurance uptake. We present three types of effects: ITT, TOT and LATE in each case with and without controlling for baseline characteristics. In can be seen that the uptake in the six months following the treatment is very low. This has of course also to be seen, as we explained above, in the context of the political instability the country experienced during that time. Nevertheless, all three treatment effects have a positive sign and are of a similar magnitude, yet only the ITT is statistically significant, and in contrast to what one would expect a bit larger than the TOT. At the margin, these effects suggest that the treatment increased uptake by more than 50%. It is of course difficult to say whether we would observe effects of a similar magnitude if uptake was in the

control group close to 20% or beyond. Yet, recall from Table 5, three quarters of the treated households reported to consider a membership.

[insert Table 6]

*4.3 Understanding of insurance principles*

Even if households have not yet joined the insurance, it is important to check whether the treatment helped at least to increase the knowledge about how insurance functions and whether its essential principles are understood as this is a prerequisite of seeing any impact on uptake in the future. We present again the three types of impacts and show the results for each principle separately where a negative sign signals that the treatment group has less often given an answer that contradicts the respective principle (Table 7). The last row shows the impact if the outcome is defined as having shown a misunderstanding of all three principles. The principles are again provided in the note to Table 7.

The estimated coefficients are for all principles, except principle II, and the summary measure negative. They are significant in case of principle III, i.e. treated people tend to be less ‘shocked’ by the fact that other people benefit from the person’s made contributions because they have been ill. The treatment effects are substantial. They imply that the share of people being in disagreement with this principle is lower by 50% in the treatment group, i.e. rather 4% to 5% instead of 7% to 8%.

[insert Table 7]

*4.4 Impact heterogeneity*

Next, we explore whether the treatment effects for the understanding of insurance principles differ by education and income levels. Table 8a shows estimates where we interact the treatment variable with literacy status. It can be seen that the interaction effects always have a negative sign, though they are only significant in case of the last outcome taking the value one if a respondent disagreed with all three principles. Overall, this may be considered as suggestive evidence that more educated people are better endowed to absorb and adopt the lessons from such a treatment. Conversely, it would imply that information provided in the way we did it has little effect on people with very low education levels. Yet, the results in Table 8b show that controlling for education (and other characteristics), poor people (defined as people below the Intl. \$ PPP 1.25 poverty line) do in fact more strongly respond to the treatment than non-poor people. For all three principles, the signs are negative and in the case of principle III also statistically significant. In the control group there are no major differences in the understanding of insurance across education and income groups, so the measured effects seem indeed to reflect the ability to learn and, possibly, also a higher willingness to redistribute.

[insert Table 8a and 8b]

#### 4.5 Spill-overs

From a policy point of view it is also important to understand whether treated households tend to share the information they received with other households and whether these other households also show a better understanding of the insurance principles. The results in Table 9 show that respondents of the control group in treated villages show a somewhat better understanding of the insurance principles than respondents of the control group in untreated villages. The signs are negative for all principles although they turn insignificant if all control variables are included. This is very interesting as it suggests, even if weakly, that households share information and that information sharing is effective. As seen above in a few cases neighbors were also joining the video presentation. Table 10 provides some suggestive evidence on the information spread. The results show that higher numbers of treated households in the immediate vicinity contribute to an improved understanding of insurance principles, particularly principle I (i.e. that premiums paid are not reimbursed if the insurance is not used). The estimates further indicate that beyond a radius of 1 km the number of treated households does not have an effect on the understanding of insurance principles anymore.

[insert Tables 9 and 10]

### 5. Discussion

Our results suggest that factual information about health insurance combined with the hypothetical experience of facing a health shock alternatively with and without insurance as conveyed through our video can have a significant impact on the understanding of the insurance and may with some delay also result in higher insurance uptake. As we explained above, the political context was extremely difficult during the time of our experiment which, at least partly also explains the low rate of subscriptions, even if the uptake of CBHI has been shown to be difficult in many other cases too. Yet, at the margin we find large effects - among treated households up to 50% larger. The knowledge effects seem to be stronger for poorer households and in households with literate household heads.

Our findings complement very well the outcome of a recent meta-analysis that identified knowledge and understanding of insurance principles as a key facilitator of CBHI enrollment and renewal decisions (Panda et al., 2016). Our findings contribute to the understanding how such knowledge can be enhanced, in particular in a context of a very low awareness of insurance products as in many parts of Sub-Saharan Africa, and eventually, how insurance uptake can be increased, although the latter may take more time. Our findings confirm those of Capuno et al. (2015), yet they differ from those by Wagstaff (2015) who found for the case of Vietnam only small effects associated with an information leaflet and concluded that information campaigns may have limited effects on voluntary health insurance enrollment. We believe that a key difference between his and our study is that our experiment was conducted in a context where the concept of insurance is largely unknown and where strong cultural beliefs prevail. Moreover, our treatment was probably more intense.

We also find some evidence for spill-overs, i.e. treated households seem to share information about the insurance with their neighbors and increases their understanding of insurance as well. Hence, information campaigns may significantly increase their effectiveness especially if budgets are limited, if they allow for information sharing or if the latter is even enhanced as Banerjee et al. (2016) suggests by targeting for instance opinion leaders or other influential people in the village. However, further suggestive evidence suggests that information sharing remains locally concentrated and does not surpass a radius of 1 km.

Future research will have to explore how sustainable such effects are and whether the effects on insurance uptake can be increased if the information is combined with temporary subsidies to the insurance premium to overcome liquidity constraints which typically remain an important obstacle in resource-poor settings including our context.

## **Appendix**

Distance characteristics (balance test)

[insert Table A1]

Analysis of attrition

[insert Table A2]

Map of survey area

[insert Figure A1]

Brochure used for treatment

[insert Picture A1]

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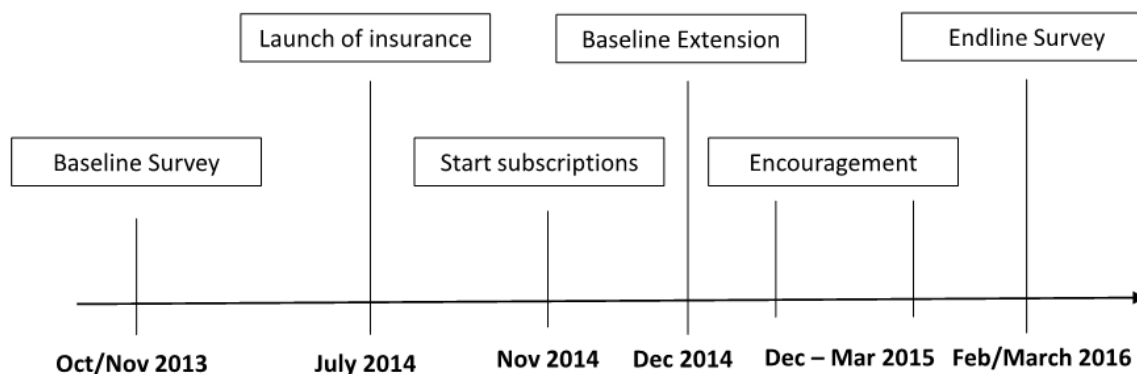
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## Tables and Figures

Figure 1: Timing of insurance, insurance encouragement and data collection



Source: own representation.

Table 1: Sampling and treatment

Treatment (in 29 villages)			Control groups	
Brochure	Brochure and video	Brochure, video and phone call	In 29 treatment villages	In 12 pure control villages
738	717	482	752	508
Total treatment: 747			Total control: 1,260	
Total sample: 2,007				

*Note:* We intended to treat 750 individuals, but finally reached only 747, a few households only received either the brochure or the video, many households did not get the phone call.

*Source:* FIDES Surveys, 2013, 2014.

Table 2: Household and household head characteristics (balance test)

	Treatment	Control I	Control II	Tests of equality (p-values)	
	(N=747)	(N=752)	(N=508)	(2) vs. (1)	(3) vs. (1)
	(1)	(2)	(3)		
Male (=1)	0.93	0.94	0.90	0.51	0.09
Age	48.70	49.52	46.53	0.30	0.01
Literate (=1)	0.17	0.18	0.20	0.68	0.27
Farmer (=1)	0.89	0.92	0.90	0.05	0.41
Inactive (=1)	0.05	0.03	0.03	0.07	0.04
Household size	6.95	7.07	7.23	0.53	0.18
Mossi (=1)	0.92	0.91	0.73	0.24	0.00
Muslim (=1)	0.54	0.57	0.67	0.21	0.00
Christian (=1)	0.42	0.40	0.28	0.32	0.00
Per day per capita expend. (Intl. 2013 \$ PPP)	1.40	1.43	1.36	0.69	0.49
Poverty headcount (1.25 Intl. \$ PPP) (=1)	0.56	0.57	0.60	0.67	0.19
Poverty headcount (2 Intl. \$ PPP) (=1)	0.84	0.84	0.84	0.90	0.93
Landsize (in ha)	3.27	3.25	3.11	0.89	0.41
Without any land (=1)	0.05	0.06	0.05	0.31	0.64

Source: FIDES Surveys, 2013, 2014.

Table 3: Household health related characteristics (balance test)

	Treatment	Control I	Control II	Tests of equality (p-values)	
	(N=747)	(N=752)	(N=508)	(2) vs. (1)	(3) vs. (1)
	(1)	(2)	(3)		
Share hh memb. ill over past 4 weeks (=1)	0.23	0.25	0.13	0.25	0.00
Health expend. per cap. past 4 weeks (Intl. 2013 \$ PPP)	7.87	7.25	4.13	0.60	0.00
Share hh memb. disabled	0.08	0.08	0.05	0.47	0.00
Disabled expend. per cap. past 4 weeks (Intl. 2013 \$ PPP)	3.83	7.28	3.99	0.11	0.91
Experienced health shock over past 12 months (=1)	0.15	0.15	0.17	0.87	0.21
Received transfers to cope with shock (=1)	0.55	0.47	0.48	0.26	0.36
Travel time to next health center (in mn)	21.72	20.17	29.14	0.12	0.00
Perceived quality next health centre (1 to 5, 5 best)	3.51	3.58	3.73	0.07	0.00
Perceived problem of absenteeism in health centre	0.14	0.16	0.11	0.17	0.11

Source: FIDES Surveys, 2013, 2014.

Table 4: Household experience, knowledge and opinion about CBHI (balance test)

	Treatment	Control I	Control II	Tests of equality (p-values)	
	(N=747)	(N=752)	(N=508)	(2) vs. (1)	(3) vs. (1)
	(1)	(2)	(3)		
Respondent has heard of CBHI (=1)	0.28	0.29	0.30	0.62	0.34
Among those who have ...					
Is already a member of a CBHI (=1)	0.02	0.00	0.03	0.09	0.91
Has ever been a member of a CBHI (=1)	0.06	0.06	0.04	0.93	0.42
Annual WTP to insure entire family (Intl. \$ PPP)	32.52	37.97	25.53	0.57	0.36
Insurance principle I	0.06	0.07	0.12	0.79	0.07
Insurance principle II	0.15	0.16	0.13	0.85	0.52
Insurance principle III	0.07	0.08	0.11	0.82	0.21
Most confidence in a public insur. provider (=1)	0.77	0.79	0.81	0.63	0.48

*Note: Insurance principle I:* If the expenditures for health care are lower than the premium paid, the insurance has to reimburse the premium (1 agrees, 0 otherwise); *Insurance principle II:* It is unfair that every member pays the same premium, whether he fell ill or not (1 agrees, 0 otherwise); *Insurance principle III:* It is shocking that other persons benefit from the premium you paid because they have been sick (1 agrees, 0 otherwise).

*Source:* FIDES Surveys, 2013, 2014.

Table 5: Encouragement – descriptive statistics

	Brochure	Video
Household members listening/watching	2.66	2.68
Non-household members listening	0.54	0.94
Of which		
Neighbours		0.82
Other		0.13
Considers membership	0.75	0.71
Does rather not want to enroll	0.04	0.08
Does definitely not want to enroll	0.04	0.02
Intention to enroll immediately	0.12	0.10
Number of members planned to enroll	2.70	2.65

*Source:* FIDES Surveys, 2013, 2014.

Table 6: Impact of encouragement on insurance uptake (LPM)

	ITT	ITT	TOT	TOT	LATE	LATE
	(1)	(2)	(3)	(4)	(5)	(6)
Encouragement	0.006 (0.005)	0.009* (0.005)	0.005 (0.005)	0.007 (0.005)	0.007 (0.006)	0.009 (0.007)
Controls	No	Yes	No	Yes	No	Yes
Control group mean	0.012	0.012	0.013	0.013	0.013	0.013
Observations	1863	1863	1863	1863	1863	1863

*Notes:* \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at village level. The following baseline variables are used as controls: Gender, age, education, religion and occupation of the household head, household size, land ownership, health care expenditures (past year), time to the next health center (in min.), perceived quality of the next health center and perceived problem of absenteeism in the next health center.

*Source:* FIDES Surveys, 2013, 2014, 2016.

Table 7: Impact of encouragement on understanding of insurance principles (LPM)

	ITT	ITT	TOT	TOT	LATE	LATE
	(1)	(2)	(3)	(4)	(5)	(6)
Encouragement (Principle I)	-0.037* (0.019)	-0.027 (0.022)	-0.027 (0.018)	-0.015 (0.021)	-0.040* (0.021)	-0.029 (0.023)
Control group mean	0.184	0.184	0.180	0.180	0.180	0.180
Encouragement (Principle II)	-0.013 (0.019)	0.002 (0.015)	-0.013 (0.018)	0.002 (0.014)	-0.014 (0.017)	0.002 (0.019)
Control group mean	0.119	0.119	0.118	0.118	0.118	0.118
Encouragement (Principle III)	-0.043*** (0.012)	-0.030** (0.012)	-0.040*** (0.014)	-0.025 (0.016)	-0.046*** (0.014)	-0.032** (0.016)
Control group mean	0.08	0.08	0.078	0.078	0.078	0.078
Encouragement (All principles)	-0.002 (0.003)	-0.002 (0.004)	-0.002 (0.003)	-0.001 (0.004)	-0.002 (0.003)	-0.002 (0.004)
Control group mean	0.005	0.005	0.005	0.005	0.005	0.005
Controls	No	Yes	No	Yes	No	Yes
Observations	1890	1890	1890	1890	1890	1890

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at village level. *Insurance principle I*: If the expenditures for health care are lower than the premium paid, the insurance has to reimburse the premium (1 agrees, 0 otherwise); *Insurance principle II*: It is unfair that every member pays the same premium, whether he fell ill or not (1 agrees, 0 otherwise); *Insurance principle III*: It is shocking that other persons benefit from the premium you paid because they have been sick (1 agrees, 0 otherwise). The used control variables are listed in the note to Table 6.

Source: FIDES Surveys, 2013, 2014, 2016.

Table 8a: Impact of encouragement on understanding of insurance principles – Treatment heterogeneity (LPM)

		ITT	ITT	TOT	TOT
		(1)	(2)	(3)	(4)
Principle I	Encouragement	-0.046** (0.019)	-0.037 (0.022)	-0.029* (0.017)	-0.018 (0.018)
	Encour*Literate	-0.002 (0.041)	0.004 (0.043)	-0.008 (0.043)	0.002 (0.046)
Control group mean		0.184	0.184	0.180	0.180
Principle II	Encouragement	-0.011 (0.018)	0.006 (0.015)	-0.005 (0.017)	0.012 (0.015)
	Encour*Literate	-0.011 (0.028)	-0.016 (0.027)	-0.028 (0.029)	-0.032 (0.030)
Control group mean		0.119	0.119	0.118	0.118
Principle III	Encouragement	-0.046*** (0.012)	-0.032** (0.014)	-0.038** (0.014)	-0.024 (0.017)
	Encour*Literate	-0.015 (0.024)	-0.014 (0.024)	-0.025 (0.023)	-0.021 (0.027)
Control group mean		0.08	0.08	0.078	0.078
All principles	Encouragement	-0.002 (0.003)	-0.001 (0.004)	-0.002 (0.003)	-0.001 (0.004)
	Encour*Literate	-0.005** (0.002)	-0.004 (0.003)	-0.005** (0.002)	-0.004 (0.002)
Control group mean		0.005	0.005	0.005	0.005
Controls		No	Yes	No	Yes
Observations		1890	1890	1890	1890

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at village level. *Insurance principle I*: If the expenditures for health care are lower than the premium paid, the insurance has to reimburse the premium (1 agrees, 0 otherwise); *Insurance principle II*: It is unfair that every member pays the same premium, whether he fell ill or not (1 agrees, 0 otherwise); *Insurance principle III*: It is shocking that other persons benefit from the premium you paid because they have been sick (1 agrees, 0 otherwise). The used control variables are listed in the note to Table 6.

Source: FIDES Surveys, 2013, 2014, 2016.

Table 8b: Impact of encouragement on understanding of insurance principles – Treatment heterogeneity (LPM)

		ITT	ITT	TOT	TOT
		(1)	(2)	(3)	(4)
Principle I	Encouragement	-0.048*	-0.047*	-0.044	-0.046*
		(0.024)	(0.025)	(0.027)	(0.027)
	Encour*Poor	-0.040	-0.017	-0.029	-0.005
		(0.027)	(0.028)	(0.028)	(0.028)
Control group mean		0.184	0.184	0.180	0.180
Principle II	Encouragement	-0.012	-0.013	-0.012	-0.015
		(0.028)	(0.027)	(0.028)	(0.028)
	Encour*Poor	-0.024	0.001	-0.024	0.001
		(0.023)	(0.025)	(0.022)	(0.024)
Control group mean		0.119	0.119	0.118	0.118
Principle III	Encouragement	-0.032*	-0.035*	-0.037*	-0.040*
		(0.019)	(0.019)	(0.020)	(0.020)
	Encour*Poor	-0.064***	-0.056***	-0.059***	-0.051***
		(0.013)	(0.013)	(0.015)	(0.016)
Control group mean		0.08	0.08	0.078	0.078
All principles	Encouragement	-0.004**	-0.004*	-0.004**	-0.004*
		(0.002)	(0.002)	(0.002)	(0.002)
	Encour*Poor	0.001	0.001	0.001	0.002
		(0.004)	(0.004)	(0.004)	(0.004)
Control group mean		0.005	0.005	0.005	0.005
Controls		No	Yes	No	Yes
Observations		1890	1890	1890	1890

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at village level. *Insurance principle I*: If the expenditures for health care are lower than the premium paid, the insurance has to reimburse the premium (1 agrees, 0 otherwise); *Insurance principle II*: It is unfair that every member pays the same premium, whether he fell ill or not (1 agrees, 0 otherwise); *Insurance principle III*: It is shocking that other persons benefit from the premium you paid because they have been sick (1 agrees, 0 otherwise). The used control variables are listed in the note to Table 6.

Source: FIDES Surveys, 2013, 2014, 2016.

Table 9: Impact of encouragement on understanding of insurance principles – Information spill-overs (LPM)

		ITT	ITT	TOT	TOT	LATE	LATE
		(1)	(2)	(3)	(4)	(5)	(6)
Principle I	Encouragement	-0.071*** (0.020)	-0.017 (0.056)	-0.065*** (0.020)	-0.011 (0.056)	-0.065*** (0.025)	-0.011 (0.055)
	Control*Treat. Village	-0.049** (0.024)	0.011 (0.059)	-0.056** (0.023)	0.004 (0.060)	-0.056** (0.024)	0.004 (0.054)
Control group mean		0.184	0.184	0.180	0.180	0.180	0.180
Principle II	Encouragement	-0.057** (0.023)	0.018 (0.042)	-0.057** (0.022)	0.018 (0.042)	-0.057*** (0.021)	0.018 (0.046)
	Control*Treat. Village	-0.060*** (0.020)	0.017 (0.052)	-0.060*** (0.020)	0.017 (0.052)	-0.060*** (0.021)	0.017 (0.046)
Control group mean		0.119	0.119	0.118	0.118	0.118	0.118
Principle III	Encouragement	-0.079*** (0.016)	-0.003 (0.044)	-0.078*** (0.017)	-0.002 (0.044)	-0.078*** (0.018)	-0.002 (0.038)
	Control*Treat. Village	-0.051*** (0.018)	0.029 (0.050)	-0.054*** (0.019)	0.025 (0.050)	-0.054*** (0.017)	0.025 (0.038)
Control group mean		0.08	0.08	0.078	0.078	0.078	0.078
All principles	Encouragement	-0.004 (0.003)	-0.008** (0.004)	-0.004 (0.003)	-0.008** (0.004)	-0.004 (0.004)	-0.008 (0.009)
	Control*Treat. Village	-0.002 (0.004)	-0.007* (0.004)	-0.002 (0.004)	-0.007* (0.004)	-0.002 (0.004)	-0.007 (0.009)
Control group mean		0.005	0.005	0.005	0.005	0.005	0.005
Controls		No	Yes	No	Yes	No	Yes
Observations		1890	1890	1890	1890	1890	1890

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at village level. *Insurance principle I*: If the expenditures for health care are lower than the premium paid, the insurance has to reimburse the premium (1 agrees, 0 otherwise); *Insurance principle II*: It is unfair that every member pays the same premium, whether he fell ill or not (1 agrees, 0 otherwise); *Insurance principle III*: It is shocking that other persons benefit from the premium you paid because they have been sick (1 agrees, 0 otherwise). The used control variables are listed in the note to Table 6.

Source: FIdES Surveys, 2013, 2014, 2016.



Table 10: Impact of encouragement on understanding of insurance principles – Information spill-overs by number of treated households and distance

	... in 0.5km radius (1)	... in 1 km radius (2)	... in 3 km radius (3)	... in 5km radius (4)
<b>Principle I</b>				
# of treated HH...	-0.005** (0.002)	-0.002* (0.001)	0.000 (0.000)	0.000 (0.000)
<i>Observations</i>	1,863	1,863	1,863	1,863
<i>Controls</i>	Yes	Yes	Yes	Yes
<b>Principle II</b>				
# of treated HH...	-0.001 (0.002)	0.001* (0.000)	0.000 (0.000)	0.000 (0.000)
<i>Observations</i>	1,863	1,863	1,863	1,863
<i>Controls</i>	Yes	Yes	Yes	Yes
<b>Principle III</b>				
# of treated HH...	-0.001 (0.001)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)
<i>Observations</i>	1,863	1,863	1,863	1,863
<i>Controls</i>	Yes	Yes	Yes	Yes
<b>All principles</b>				
# of treated HH...	0.001 (0.000)	0.001* (0.000)	0.000 (0.000)	0.000 (0.000)
<i>Observations</i>	1,716	1,716	1,716	1,716
<i>Controls</i>	Yes	Yes	Yes	Yes

*Notes:* \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. In parentheses standard errors clustered at village level. *Insurance principle I:* If the expenditures for health care are lower than the premium paid, the insurance has to reimburse the premium (1 agrees, 0 otherwise); *Insurance principle II:* It is unfair that every member pays the same premium, whether he fell ill or not (1 agrees, 0 otherwise); *Insurance principle III:* It is shocking that other persons benefit from the premium you paid because they have been sick (1 agrees, 0 otherwise). The used control variables are listed in the note to Table 6.

*Source:* FIDES Surveys, 2013, 2014, 2016.

Table A1: Distance characteristics (balance test)

	Treatment	Control I	Control II	Tests of equality (p-values)	
	(N=747)	(N=752)	(N=508)	(2) vs. (1)	(3) vs. (1)
	(1)	(2)	(3)		
# of HH within 0.5 km	16.55	17.13	16.88	0.22	0.48
# of HH within 1 km	32.47	32.98	32.57	0.52	0.91
# of HH within 3 km	115.19	112.82	101.60	0.31	0.00
# of HH within 5 km	247.80	242.75	183.41	0.23	0.00
# of treated HH within 0.5 km	8.11	7.69	0.13	0.07	0.00
# of treated HH within 1 km	15.44	15.05	0.92	0.33	0.00
# of treated HH within 3 km	50.19	49.20	16.05	0.37	0.00
# of treated HH within 5 km	105.37	102.63	42.73	0.20	0.00

*Source:* FIdES Surveys, 2013, 2014.

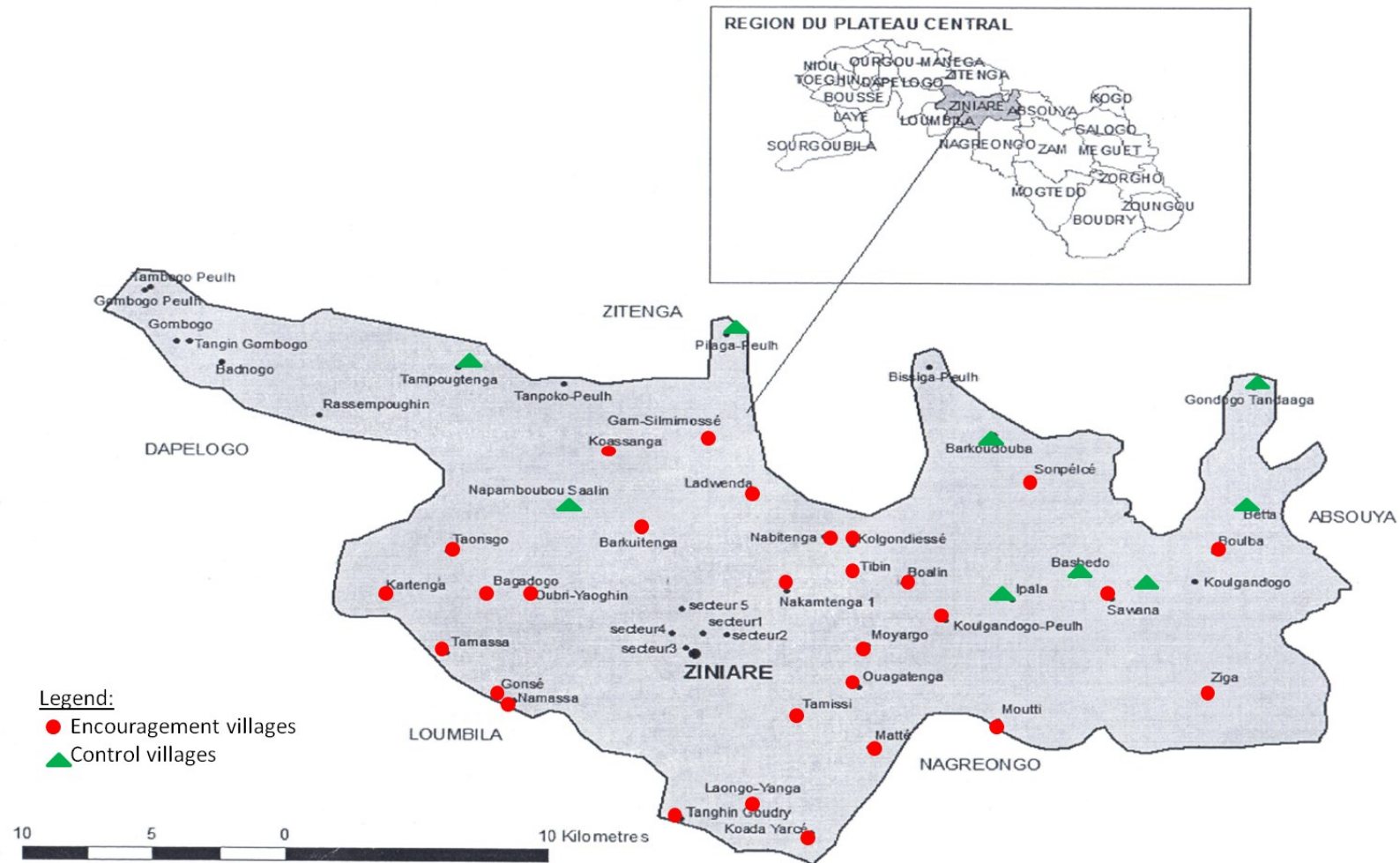
Table A2: Correlates of attrition

	(1)	(2)	(3)
Male	-0.042 (0.030)	-0.043 (0.030)	-0.044 (0.030)
Age	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Literate	0.003 (0.013)	0.003 (0.013)	0.004 (0.013)
Farmer	-0.028 (0.024)	-0.028 (0.024)	-0.028 (0.024)
Inactive	-0.018 (0.039)	-0.019 (0.039)	-0.020 (0.039)
Household size	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)
Mossi	-0.040 (0.027)	-0.041 (0.027)	-0.041 (0.027)
Muslim	-0.080* (0.041)	-0.081* (0.040)	-0.081* (0.040)
Christian	-0.088** (0.036)	-0.089** (0.036)	-0.089** (0.036)
Without any land	0.032 (0.027)	0.034 (0.026)	0.034 (0.027)
Ln health expend. per cap.		-0.002 (0.005)	-0.002 (0.005)
Travel time to next health center (in min)		-0.000 (0.000)	-0.000 (0.000)
Perceived quality next health centre		-0.010 (0.009)	-0.010 (0.009)
Problem of absenteeism in health centre		0.001 (0.013)	0.001 (0.013)
Has ever been a member of a CBHI			-0.015 (0.032)
Constant	0.251*** (0.067)	0.290*** (0.069)	0.290*** (0.069)
Observations	1,980	1,980	1,980
R-squared	0.024	0.025	0.025

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at village level.

Source: FIdES Surveys, 2013, 2014, 2016.

Figure A1: Map of survey area



Source: Own representation.

Picture A1: Brochure used for treatment

**PROTECTION** SOLIDARITÉ PRISE EN CHARGE **PREVOYANCE**  
**MUTUELLE DE SANTÉ**  
SOINS CURATIFS EVACUATIONS  
MEG MATERNITE HOSPITALISATION  
PARTAGE DE RISQUES ENTRE-AIDE

Adhérer à une mutuelle de santé, un geste de solidarité qui sauve !

**Date de création: mars 2014**

Reconnue officiellement sous le récépissé numéro :  
2014-17-MATS/RPCL/POTG/HC/CAB du 23 mai 2014

**Les organes de la mutuelle:**

- 1) Assemblée Générale ;
- 2) Bureau Exécutif ;
- 3) Comité de Contrôle ;
- 4) Bureaux Locaux.

**Le siège de la mutuelle**

La mutuelle LAAFI LA BÛMBU est sise au secteur 1 de Ziniaré, en face de la Croix Rouge.

➔ Adresses

S/C 09 BP 903 Ouagadougou 09  
Téléphone : (00226) 78 09 39 31 / 76 48 04 32

**MUTUELLE DE SANTE  
LAAFI LA BÛMBU DE ZINIARE**

**Qu'est-ce qu'une mutuelle de santé?**

Une mutuelle de santé est une association de personnes qui acceptent de mettre en commun des ressources financières pour garantir une prise en charge de leurs soins de santé en cas de survenue de la maladie.

La base de fonctionnement d'une mutuelle de santé est : la solidarité, l'entraide, la prévoyance du risque.

### ➔ Avantages de la mutuelle de santé LAAFI LA BÛMBU

La mutuelle de santé LAAFI LA BÛMBU est conventionnée avec tous les CSPS et le CMA de la commune de Ziniaré. Tout malade membre de la mutuelle peut donc se soigner dans ces centres de santé.

Les adhérents bénéficient de :

- ⊙ La prise en charge en cas de maladie;
- ⊙ La réduction du délai de recours aux soins;
- ⊙ La réduction des exclusions financières;
- ⊙ La réduction des dépenses de santé;



Prise en charge niveau CMA et CSPS:

- Soins curatifs ;
- Ordonnances en MEG ;
- Maternité ;
- Evacuation ;
- Mise en observation/ hospitalisation.

La mutuelle paie 70% du montant total de la dépense et le mutualiste les 30%.

### ➔ Que faire quand je suis malade?



PAIEMENT DIRECT

**30%**  
de montant total

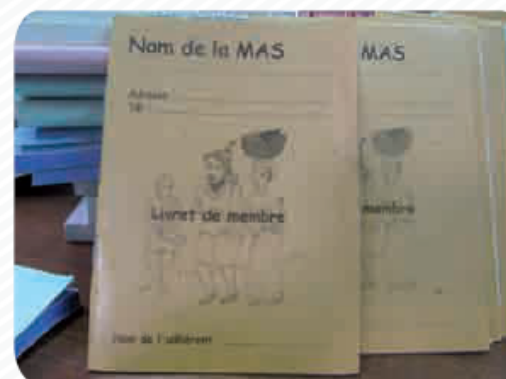


La mutuelle LAAFI LA BÛMBU :  
solidaire pour un accès aux  
soins à tous !

### ➔ Comment adhérer à la mutuelle de santé LAAFI LA BÛMBU ?

Les conditions pour être membre de la mutuelle :

- \*Droit d'adhésion: **500 frs CFA** / famille
- \*Cotisation annuelle/personne: **2400 frs CFA**
- \*Période d'observation: **3 mois**
- \*Nombre de contacts par an/personne: **4**
- \*Taux de prise en charge: **70%**



Etre membre d'une mutuelle de santé c'est contribuer à :

- ⊙ Se soigner à moindre coût ;
- ⊙ Mobiliser parents et amis à y adhérer ;
- ⊙ Témoigner son engagement pour la santé de tous.

