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When information is not power: community-elected health facility committees and health facility performance indicators

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Health Facility Committees (HFCs) made of elected community members are often presented as key for improving the delivery of services in primary health-care facilities. They are expected to help Health Facility (HF) staff make decisions that best serve the interests of the population. More recently, Performance-Based Financing (PBF) advocates have also put the HFC at the core of health reform, expecting it to hold HF staff into account for the HF performances and development. In Burundi, a country where PBF is implemented nationwide, a randomised control trial was implemented in 251 health facilities where the HFC had been largely inactive in recent years. A random sample of 168 HFCs was trained on their roles and rights, with a subset also given information about the performance of their HF (using PBF indicators) and the PBF approach in general. The interventions, taking place in 2011-2013, made the HFCs better organised but largely failed to generate any effect on HF management and service delivery. Nested qualitative analysis reveals important tensions between nurses and HFC members that often prevent further change at the HF. In the HFs that received both the training and information interventions, this tension appeared exacerbated: the turnover of chief nurses was significantly higher as the HFCs exerted pressure to remove them. This situation was more likely to happen if the HFC had already received training before the interventions, thereby suggesting that repeated training empowers committees. Overall, the results provide rare rigorous evidence on HFCs, suggesting that more attention needs to be paid to the socio-economic and cultural contexts in which they operate. They also invite to caution when discussing the role of HFCs as a possible watchdog in PBF schemes.

Keywords: health facility committee; social accountability; primary health-care; community participation; performance-based financing; health-care management; governance; Burundi

Social accountability mechanisms are often regarded as key for enabling responsive and equitable health services. Among the array of strategies implemented by governments and non-governmental organisations, the Health Facility Committee (HFC) is undoubtedly one of the better-known interventions (Molyneux et al., 2012). The idea behind it is straightforward: residents of the catchment area of a Health Facility (HF) elect a committee that monitors activities at the HF and participates in decisions regarding its functioning. The evidence base for the efficacy of this widespread approach is thin, and it is unclear that HFCs automatically improve access to services or make them more efficient (McCoy et al., 2012). The idea of community engagement generally benefits from a positive *a priori* bias that is not necessarily helpful (Abimbola, 2019) and few large-scale rigorous impact evaluations of initiatives of community governance in health exist. Björkman and Svensson's 'power to the people' Uganda study (2009) and Raffler et al. (2018) recent response to that study are notable exceptions, but the core mechanism they study is HFC-facilitated meetings between the population and the HF rather than the work of the HFC as a HF co-manager. The present paper looks at the case of Burundi to propose new insights into the efficacy of the HFC as a mechanism of social accountability. It does so through a Randomised Control Trial (RCT) designed to (1) overhaul HFCs and (2) improve their access and understanding of information related to HFs' performance and management. In line with the literature on social accountability (e.g. Brinkerhoff, 2004; Mansuri and Rao, 2012), a suspected key element for HFC efficacy is that its members not only know about their rights but also that they access relevant information about their HF. In other words, to fully play its role, the HFC needs to know what is happening in its HF. Particularly important for the HFC is understanding the HF's performance in delivering services and managing the facility's finances.

This question of access to (and use of) data is even more important in a global context marked by the increasing use of performance indicators. In particular, Performance-Based Financing (PBF) has become a key financing strategy in a series of low- and middle-income countries. It typically supposes that HF users and HFCs can and do exploit the new data generated by PBF to hold service providers

accountable (Falisse et al., 2012). In Burundi for instance, the PBF guidelines specify that the HFC is expected to be both a watchdog of the HF activities and expenditures and a strategic planner analysing HF procedures and orientating its development (Burundi Ministry of Health, 2009).

The next section reveals the conceptual and contextual reasons for looking at the HFCs and the information they access. The paper then considers interventions designed to address the HFCs' lack of knowledge of HF performances and finances. The last three sections present and discuss the effects of these interventions. The only significant effects are in terms of the organisation of the HFC and the turnover of chief nurses. Furthermore, qualitative evidence pointing to tensions between HFC and HF staff raises questions about what can realistically be expected from HFCs in the short run in a context like Burundi or for PBF more broadly.

HFC and Performance-Based Financing in the context of Burundi

Since the 1987 Bamako Initiative, HFCs made of elected community members have been a widespread mechanism of community accountability at the level of primary health-care facilities in Africa; they are integral to health systems of many low-income countries (Lodenstein et al., 2017). In Burundi, the mission of the HFC is to “help in the mobilisation, management and allocation of the resources of the HF to ensure optimal implementation of the activities”, and “check the integrity of the health infrastructure, drugs and equipment” (Burundi Ministry of Health & WHO, 2007). The regulation further specifies that the HFCs are expected to play a key role in planning the development of HFs (quality of and access to services) and community health activities. Their role is not only advisory: HFCs, which do not have a budget of their own, are expected to decide and sign off on HF business plans and HF budgets alongside the HF chief nurse. As in many countries, researchers and policy-makers alike have reservations about the ability of the HFC system to be the influential voice of the population as advertised. A key issue, as pointed out by McCoy et al. (2012), is that HFC members often know little about their roles and have limited information about the actual management of HFs.

Under Burundian law, each publicly-funded HF must have a HFC whose members are elected by and from among the HF catchment population. The law does not specify conditions of eligibility, but the health district officers who organise the HFC elections often require ‘upright’ and literate candidates. The elections are held during population assemblies on each hill of the catchment area. They often fail to gather the majority of the population and typically do not guarantee voters’ anonymity. HFC members are unpaid, but in the 2011 survey presented below, 64.9% had arranged with the HF staff to receive a (very) small compensation: averaging the equivalent in Burundian Francs of US\$ 5.2 (SD: US\$ 12.9) shared between committee members each month.

Three policies have substantially affected the way resources are handled in HFs in Burundi in the past 15 years: (1) in 2005, the abolition of user fees for services related to pregnancy (including deliveries) and curative and preventive care for children below five; (2) the rolling out of PBF schemes from 2005-2010 (Bonfrer et al., 2014; Falisse, 2020); and (3) the introduction of a new health insurance for the poor, the *Carte d'Assurance Maladie*, in 2012.

PBF in particular could be a game-changer for HFCs. In the scheme implemented in Burundi, the Ministry of Health (MoH), through its Provincial Committees for Verification and Validation, contracts and pays HFs based on quantitative and qualitative measurements of the services they provide. PBF payments are, together with subsidies and out-of-pocket fees, the main source of income of the HFs. “Facilities have considerable management autonomy in allocating the [PBF] payments to the staff or to service quality improvements” (Boateng and Fritsche, 2012, p. 2). There is, however, a cap on the percentage of the payment going to the HF staff. PBF contracts are negotiated based on the HFs’ bi-annual business plans (also sometimes called development plans), which include a detailed account of the HFs’ strategy to achieve service targets. PBF changes the environment in which the HFCs operate in at least three ways (Falisse et al. 2012). Firstly, it promotes the idea of autonomous HFs and introduces a funding stream that is partially earmarked for HF development. Secondly, the PBF business plan, jointly prepared and signed by the HF staff and HFC, affirms the role of the HFC as a co-manager of the HF (Burundi Ministry of Health, 2009). Thirdly, PBF produces new data

through the declaration and verification of HF performances. The indicators that are generated can potentially help the HFC monitor the situation at the HF.

A typical New Public Management approach, PBF also foregrounds the idea of HFC as safeguard. The World Bank PBF toolkit suggests introducing HFCs because “enhanced autonomy with regards to the use of public funds requires oversight” (Fritsche et al., 2014, p. 145). In Burundi, where HFCs pre-existed the PBF scheme, the PBF procedures manual describes the role of the HFC in PBF centred around developing business plans. The HFCs are not part of the PBF mechanism for verifying the accuracy of the performance figures shared by the HF. However, the 2013 HFC guidelines, in furtherance of anterior documents, make the HFC a central element for fighting fraud and corruption at HFs: the HFCs are expected to help ensure the activities and actions of HFs are in line with the interests of the population and prevent forms of corruption such as patronage and overpricing.

Theoretical framework

The starting point of the paper is the low understanding HFC members have about their HF’s activities and management (see Table 1 and methods sections below). The situation is a problem of asymmetry of information, which is typical of HFCs in many countries (McCoy et al., 2012), including in Burundi. The HFC, the principal, does not know enough to adequately measure the performance of its agent, the HF medical staff. Key consequences include higher than expected agency and coordination costs for the HFC whose information is too limited to make adequate decisions (severely bounded rationality), and moral hazard for the HF staff who have no incentive to align with the HFC/population perspective. Furthermore, the HF staff has at least another principal, the health district. The latter may have other interests than the HFC’s (and better information on the agent) and, therefore, further undermine the influence of the HFC over the HF.

Social accountability theory and transparency literature (e.g. Malena and Forster, 2004) suggest that removing obstacles for citizen committees to access and exploit relevant information about their services is a key avenue for correcting the asymmetry of information and strengthen their leverage as a principal. Indeed, empirical literature on community participation in the Philippines and Uganda has

experimentally shown that information about performance gathered by the community committees may help diminish corruption and improve service provision (Olken, 2007; Reinikka and Svensson, 2005). These experiments, as well as theoretical literature, suggest a main theory of change: better-informed and competent citizens and committees enable a management of services more in line with people's needs, leading to better quality, more accessible, and higher uptake in services.

There are two non-exclusive ways to understand the relationship between transparency and information initiatives and changes in the functioning of the HFs. Firstly, the mere possibility of the committee knowing about performance and bad practices could create an incentive for the HF staff to improve its behaviour and management for the sake of preserving its reputation or avoiding problems. This mechanism is especially efficient if the committee can take action against the HF staff. Secondly, the analysis of localised information could give the HFC a better understanding of the situation at the HF and helps it make better-informed decisions. By looking at indicators on the provision of services and financial situation, they can identify priority areas for action. This second way is highlighted in PBF theory: "data analysis and learning are essential parts of PBF systems. Comparing performance trends, looking at the percentages of population coverage obtained, and benchmarking are the three most important analytical methods" (Fritsche et al., 2014, pp. 227–228). It is also officially part of the HFC's job, which "participates in the elaboration of the annual and termly action plans of the HFC" (Burundi Ministry of Health, 2009). As Fox (2015) argues, this scenario is only valid if the information is actionable and can be used to modify the situation at the HF.

Both mechanisms can develop in a static 'one-shot' fashion or in a more dynamic way. In the one-shot case, access to information comes from a third party, but the HFC does not have any easy way or willingness to access that information in the future. Information release is, therefore, a form of 'shock therapy' to the HF. More sustainable and promising is the set-up of a more dynamic system where HFCs have skills that enable them to gather information by themselves.

Empirical strategy

An experimental approach is used to test whether localised information on the HF's actual finances and performances makes a difference regarding social accountability and HF management. The approach bears similarities with experiments on releasing information about service delivery and finances, most notably in Uganda by Raffler, Posner and Parkerson (2019) and Björkman and Svensson (2009).

Two interventions were set up as part of an HFC reinforcement programme led by the local NGO COPED in collaboration with the international NGO Cordaid and the MoH of Burundi. The 251 publicly-funded HFs of then seven provinces of Burundi –Bubanza, Bujumbura Rural, Bururi, Makamba, Rutana, Ruyigi, Cankuzo– were divided into three groups: 83 randomly selected HFs acted as a control group (interventions started after the pilot phase discussed in this paper); 84 randomly selected HFs benefited from the basic training described below; and a further 84 randomly selected HFs benefited from training and an additional intervention on PBF including how to find, present, and analyse information about HF finances and service delivery.

The basic training on the responsibilities and tasks of the HFC included a series of half-day modules on the health system and the package of services that should be available at the HF-level, the role and functions of the HFCs (as defined by the MoH) and the tools available to the HFCs (scorecards, terms of reference, etc.). The importance for the HFC to have a clear sense of the framework in which it operates has been developed in the empirical literature on citizens committees and can be seen as a question of 'institutionalising' the committee (Meier et al., 2012). The training was organised in the local language (Kirundi) and attended by HFC members and HF staff. Two half-day re-cap sessions were organised during the year after the initial session.

The localised information intervention came on top of the basic training. Indeed, attempting to narrow the information gap only makes sense if the HFC and the medical staff, the principal and the agent, have clear views on their missions and the expected work. It was not conceivable to ask the HFC members to delve into the finances and operations of their HF before making sure they had a good

idea of what their role was and what the HF's main functions are. The intervention took place during an extra one-day session organised in October-November 2012, to which the chief nurse (the head of the HF), the deputy chief nurse, and the HFC members were invited.

After an icebreaker bringing together staff members and HFC members, a discussion about finding information about the HF management was organised, together with a briefing about the general functioning of the PBF system. The key themes were: (1) what is PBF; (2) what elements are available to the HFC to assess whether their HF is doing well; and (3), following the previous points, what is the business plan and what is the role of the HFC in it.

In order to make the understanding of the operational and financial management and PBF more tangible, an analysis of PBF key indicators on the use of services was conducted with the HFC. It included looking at the provision of the following HF services (relative to MoH targets): (1) curative consultation of users above five years old, (2) small surgery, (3) anti-tetanus vaccine for pregnant mothers (AVT 2-5), (4) HIV/AIDS testing, (5) new visits for pregnant mothers, (6) institutional deliveries, (7) family planning, (8) ante-natal visits, (9) post-natal visits, and (10) reference of patients to the hospital. These indicators were defined as the most important for primary health-care during a discussion with the MoH. An extra indicator, the balance between the monthly HF revenue and expenditures was also added. In line with social accountability and transparency approaches developed in recent years (Ringold et al., 2011), it was then proposed to the HFC to report these results on cards that could be used to disseminate the information among the population and the visitors of the HF (see Figures 1 and 2 for examples). The card also included information on whom to contact at the HF to have more information about the service, its cost, and when the service is accessible. The HFC was free to use the cards as it pleased, but it was recommended that the cards be displayed in the health centre and used during meetings with the population.

[Figures 1 and 2 here]


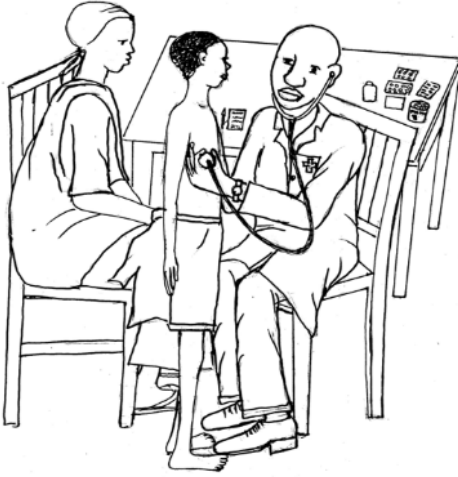
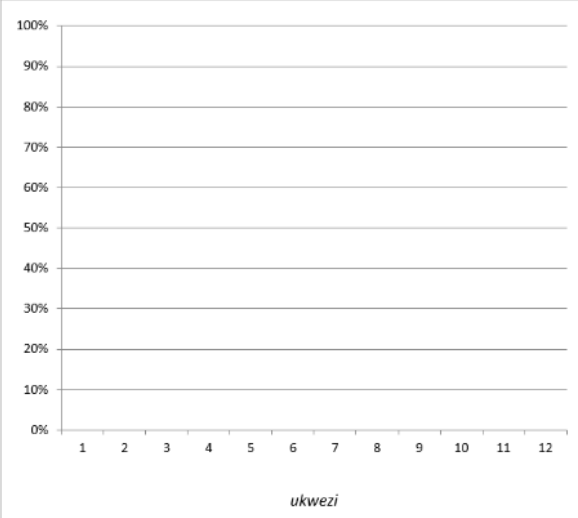
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Figure 1 Example of card (check-ups)


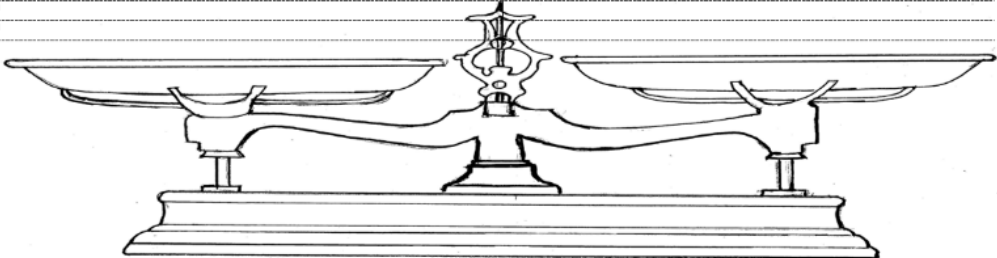
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Amafaranga yose hamwe yinjije mu kigega c'ivuriro	Amafaranga yose hamwe ivuriro ryakoresheje	

Figure 2 Example of card (income and revenue of the HF)

The facilitators were from the same pool of facilitators as in the basic intervention but went to HFs they had not already visited. In February-March 2013, re-cap sessions were organised at the HFs and focussed on elements HFC members wanted to discuss or had not understood well (mostly PBF). They received US\$ 3.5 per day for transportation to the initial and re-cap sessions.

Quantitative data collection

Data on the provision of health services was available through the National Health Information (NHIS) and PBF systems. Additional information on the activities and organisation of the HF/HFC was collected through a two-wave survey implemented by a team of professional enumerators who met with chief nurses and HFC presidents. A cross-sectional survey of 30 households randomly selected in half of the HFs was also implemented in each round (the same catchment areas were visited in both rounds). Data collection took place in the period October-December 2011 and October-December 2013.

The approach has been to follow the theory of change sketched in the theoretical framework and look at effects on (1) HFC organisation according to MoH guidelines; (2) accountability indicators (decision rights of the HFC at the HF, information flows); (3) management of the HF in terms of availability/turnover of staff, equipment, building, drugs and budget; and finally (4) perceived quality of services; (5) access/affordability of services; and (6) actual use of key services at the HF. The main theory of change suggests a chain with changes being visible in dimension (1) and manifesting in each stage until dimension (6). However, community participation mechanisms could also follow other, less obvious and less linear, pathways (Rifkin, 1996). For this reason, we consider all six stages at once. There were potentially many outcome variables for each dimension. In line with existing work on the experimental evaluation of community participation initiatives (Casey et al., 2012), and rather than cherry-picking indicators without a substantial theoretical or empirical rationale for doing so, we defined indexes encompassing different key indicators for each dimension. They are presented in Table A1 in the appendix. For the sake of transparency, the approach follows Casey et al. (2012): each dimension consists of the unweighted mean of z-scores for each variable.

Impact estimation

The main outcome variables consist of the different indexes explained above, for which different components can also be studied individually. The main approach is a difference-in-difference specification, which is used for the panel (HF/HFC-level) and the repeated cross-section (household-level) data:

$$Y_{d,i,t} = c + t + I_1 + I_2 + \beta_1 I_1 t + \beta_2 I_2 t + cX_i + cP_d + \varepsilon_{d,i,t} \quad (1)$$

where Y is the outcome variable; t , I_1 , and I_2 are binary variables that respectively identify the time (pre- or post-intervention), the group that benefitted from the basic institutional intervention, and the group that also benefitted from the information intervention. cX_{i0} is a set of key pre-intervention level covariates that includes: the size of the HFC; the ratio of women and members who attended secondary school; the number of ‘collines’ (hills, the core local unit of administration in Burundi) represented in the HFC; whether the HF is faith-based or public; the number of qualified nurses; water and electricity provisions; and the population of the HF catchment area. They are not jointly significant but improve the precision of the β_1 and β_2 estimators (Angrist and Pischke, 2008). cP_d captures health province-level fixed effects. The extra effect of the localised information intervention in the context of a HF/HFC that benefitted from the basic intervention, and relative to the basic intervention, is given by β_2 . The total effect for the groups that benefitted from the information intervention—which always comes in combination with the basic intervention—is then given by $\beta_1 + \beta_2$, and a Wald F-test is used to determine whether $\beta_1 + \beta_2 = 0$. In the rest of this paper, ‘information intervention’ refers to $\beta_1 + \beta_2$ and must be understood as the combination of the training and information interventions. P-values adjusted for multiple hypotheses testing are calculated.

As table 1 below shows, the groups are highly comparable at baseline level on most control and outcome variables, with noticeable exceptions when it comes to two of the indexes derived from the population survey: the perceived quality and access to care. The table also indicates some basic characteristics of the HF in terms of catchment area, staff, and availability of key services. Faith-based HF (*centres de santé conventionnés*) which are state-supported but have autonomy in

management, are spread equally between groups. All the HFs of the sample benefited from PBF and had similar structure and payment and financing mechanisms.

[table 1 here]

Table 1 Situation at baseline

	control group	basic bundle ⁺	information intervention ⁺	N
<i>basic controls</i>				
'Collines' represented in HFC	5.220 (0.317)	5.679 (0.406)	5.476 (0.305)	251
Number of HFC members	11.146 (0.490)	11.333 (0.581)	11.143 (0.536)	251
Ratio of women in HFC	0.343 (0.019)	0.361 (0.020)	0.351 (0.019)	251
Ratio of HFC went to secondary school	0.324 (0.025)	0.311 (0.020)	0.322 (0.023)	251
Support staff at HFC	6.133 (0.320)	5.714 (0.293)	5.774 (0.285)	251
Population in catchment area	14569 (1037)	14882 (894)	14949 (968)	251
Faith-based HF (still state funded)	0.193 (0.044)	0.179 (0.042)	0.202 (0.044)	251
Availability of 7 key services ⁰	0.940 (0.011)	0.951 (0.009)	0.945 (0.015)	251
<i>situation with the HFC at baseline</i>				
Terms of Reference available	0.217 (0.046)	0.250 (0.048)	0.321 (0.051)	251
HFC main responsibility: co-manager ¹	0.148 (0.040)	0.133 (0.037)	0.120 (0.036)	247
HFC main responsibility: sensitization ¹	0.691 (0.052)	0.735 (0.049)	0.699 (0.051)	247
HFC main responsibility: link population ¹	0.160 (0.041)	0.133 (0.037)	0.181 (0.042)	247
Rights (0-2) at HF: HFC president ²	0.484 (0.043)	0.453 (0.043)	0.474 (0.038)	235
“ “ HFC management committee ²	0.392 (0.043)	0.453 (0.048)	0.379 (0.040)	250
“ “ HFC (ordinary members) ²	0.179 (0.032)	0.167 (0.029)	0.189 (0.027)	250
Balance sheet shared with HFC ³	0.157 (0.040)	0.119 (0.036)	0.143 (0.038)	251
Business plan shared with HFC ³	0.120 (0.036)	0.119 (0.036)	0.107 (0.034)	251
<i>outcome indexes (details in table A1)</i>				
1. HFC organisation	-0.000 (0.038)	-0.051 (0.041)	-0.044 (0.046)	251
2a. Accountability: HF indicators	-0.000 (0.042)	0.085 (0.047)	0.019 (0.044)	251
2b. Accountability: household indicators	-0.004 (0.035)	0.019 (0.036)	-0.010 (0.026)	2,215
3.1. HF management: equipment	0.000 (0.080)	0.150 (0.055)	0.036 (0.071)	251
3.2. HF management: human resources	0.000 (0.065)	0.049 (0.078)	-0.076 (0.064)	251
3.3. HF management: infrastructure	-0.000 (0.087)	-0.012 (0.082)	0.021 (0.081)	251
3.4. HF management: finance	0.000 (0.058)	0.007 (0.050)	0.034 (0.067)	251
4. HF perceived quality	-0.126 (0.060)	0.084 (0.047)**	-0.015 (0.049)	1,457
5. HF perceived access	-0.050 (0.023)	0.018 (0.025)*	-0.021 (0.022)	3,645
6. Provision of services	-0.000 (0.083)	0.085 (0.081)	0.001 (0.076)	228

+ differences are all relative to the control group. Calculated as $c + \beta_1$ or β_2 in the OLS/LPM: $Y = c + \beta_1 I_1 + \beta_2 I_2 + \varepsilon$. Significance level: * <0.1 , ** <0.05 , *** <0.001 . Standard errors in parentheses | 0. See table A1 for details | 1. According to HFC (open question, re-coded) | 2. With 0: no say at all in the HF management, 1 is invited to give their opinion, and 2 is actively involved in decision-making. According to the chief nurse, similar results are found in average when asking the HFC president | 3. According to the chief nurse.

The table also confirms what was suggested by the limited literature on HFC in Burundi: in 2011, the HFCs had very little say in the functioning of their HFs. In most cases, HFC members are not even

asked their opinion about the management and acted more as auxiliary staff doing preventative work than as watchdogs or co-managers. They also had very limited information about what was happening in their HF: not even fifteen percent has access to balance sheets and business plans.

Nested Qualitative Research

The authors and research assistants —of different age, ethnicity and gender— carried out interviews and focus groups with chief nurses, nurses, HFC members, HFC president, and a randomly selected group of HF users in 60 randomly selected sites at baseline. The semi-structured questions covered the composition and functioning of the HFC and its relationship with the HF, population, and health in general. This research substantiated suggestions that the HFCs of Burundi were poorly functional in 2011 and informed the design of the above-mentioned survey, interventions, and theory of change.

At the same time as the end-line survey, qualitative material was collected among a similar population, using a semi-structured questionnaire touching on the six dimensions mentioned above. This time a ranking of the HFs/HFCs based on a self-assessment of the HFC functionality was used to select the sites. Following Lieberman's (2005) 'nested analysis', we distinguish between best, middle, and worst-performing HFCs, and the analysis below compares and contrasts the situation among these groups. The qualitative findings are presented succinctly, with the intention of casting light on the dynamics at play in the HFCs/HFs during the interventions and with the primary goal of providing a better understanding of the findings of the quantified impact evaluation. More details on the qualitative data collection and analysis, including the Consolidated Criteria for Reporting Qualitative Research checklist, are provided in the Supplementary Material.

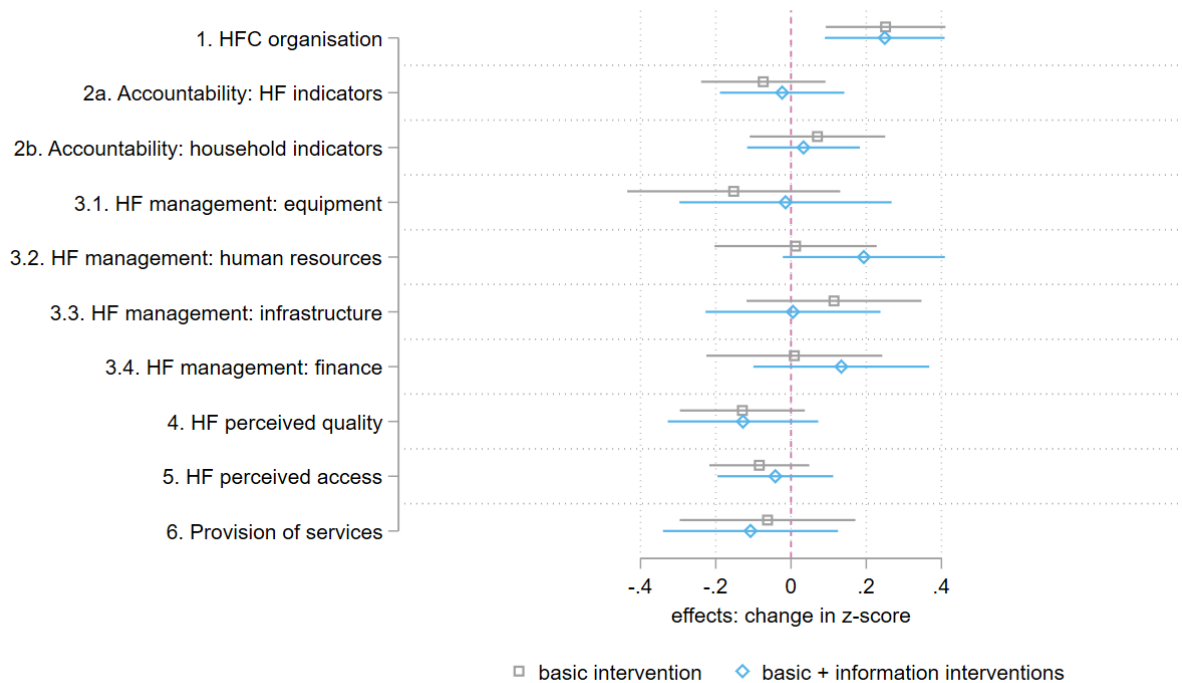
Results and Discussion

Main effects

As shown in Figure 3, the basic training intervention only affected the HFC organisation. It did not have any visible effect on other dimensions, including seemingly lower hanging fruits such as dimension 2a that includes communication between the HFC and HF staff and HFC decision rights at

the HF. The same is true for the combination of the basic training and localised information modules. These results are robust to alternative specifications of the model (table A2).

[Figure 3]



Effects are all relative to the control group, lines are standard errors. See table A2 for details, including N and p-value adjusted for multiple hypotheses testing

Figure 3 Effects of the interventions

In this context of null results, it is useful to look at individual indicators to understand whether nothing at all has been affected by the interventions. Table 2 presents the effects for all the individual components of the HF human resources and its finance indexes, as these have the largest non-significant coefficients. The individual indicators are found to point to different directions and are not significant, with one noticeable exception: the turnover in chief nurses is 22-23% higher and statistically significant when comparing the localised information intervention group to the control group (see Supplementary Material for conclusive robustness checks).

[table 2]

Table 2 Localised information intervention: effects on HF management

	effects (relative to control group)		
	(0)	(1)	(2)
	mean baseline	diff-diff model	ANCOVA model
2.2. Human resources			
Staff with post-secondary qualification (n)	0.539 (0.586)	0.072 (0.137)	0.076 (0.069)
Other staff (n)	5.679 (0.202)	-0.309 (0.407)	-0.401 (0.294)
Chief-nurse changed in last 12 months	0.202 (0.402)	0.237** (0.110)	0.236*** (0.080)
n	251	502	251
3.4. Finances and services			
HF direct revenue / revenue ¹	0.234 (0.185)	0.033 (0.044)	0.016 (0.029)
HF expenses / income	0.036 (0.185)	-0.007 (0.073)	-0.002 (0.058)
Services available ²	0.944 (0.108)	0.019 (0.026)	0.006 (0.017)
n	248	496	248

standard error deviation in parentheses in column 0, standard errors in columns 1 and 2 | 3. Direct revenue is revenue generated from user fees. | 4. Out of seven services –see Table A1 for details. | Significance level: *<0.1, **<0.05, ***<0.001.

Adherence and implementation

The basic training intervention did reach its goal of helping the HFCs understand their official role and organise in accordance to MoH guidelines. However, while the HFC organisation index captures the procedural functioning of the HFC, it does not indicate whether the HFC effectively plays its role at the HF. In other words, it does not capture whether the procedures in place are meaningful and purposeful. The lack of effects of the intervention on other aspects, and especially the “who does what at the HF” reflected in the HF accountability index, suggest that the HFCs are still not fully functional. This was somewhat anticipated: training of the committees on their roles and tools for organising is described as insufficient to strengthen them (Lodenstein et al., 2013). The remainder of the paper will focus on the better-case scenario: the group of HFCs that also benefited from the information intervention that was meant to help correct asymmetries of information.

The information intervention clearly failed its main objective of changing the level of information of the HFC: the coefficient of the HF accountability index is low and statistically not significant, and so are other indicators such as whether the HFC has access to HF financial data ($\beta = 0.013$ [SE= 0.083], relative to control group) and business plan ($\beta = -0.096$ [SE= 0.087], relative to control group).

Adherence to the information intervention was weak. While only three HFCs presented evidence of not understanding the cards principle (and the information they contain), re-cap session facilitators reported that only six HFCs (7.1%) had updated their cards six months after the intervention. Post-intervention fieldwork and implementation data suggest that, in the vast majority of cases, the cards were not used because the HFCs were not provided, or did not manage to obtain, data to fill them. HF performance data was publicly accessible on the PBF portal but, for HFC members with very limited internet access, the HF-level PBF business plan preparation meeting was the main opportunity to see (and discuss) the HF performance data HF staffs receive in hard-copy. Post intervention, 76.19% HFC presidents said they were involved in plan preparation, but many hinted that “the president only intervenes to sign” (Focus Group (FG) HFC, 2013, B.3.2). Only in 5% of cases were ordinary HFC members invited to such “high-level” meetings.

There are three competing narratives for why the HFC did not access data, even when equipped with the cards as a collection and analysis tool. Firstly, and by far the most frequent case, tensions with the HF staff are mentioned. As a committee puts it: “we never sit [with the HF staff] in a good atmosphere to talk about it and decide on strategies” (FG HFC, 2013, B.3.3). Secondly, the functioning of PBF, the key source of information, remains nebulous for many despite the training session. In the re-cap sessions, the facilitators found that only 22% of HFCs had a good understanding of PBF. A real concern is the bounded rationality of the actors: PBF (as well as the cards) is a complex system that requires knowledge, practice, and competencies that may exceed what can be reasonably expected from volunteer HFC members trained over a short period (Bertone and Meessen, 2013). Thirdly, a small minority of HFCs also reported not using the cards because they do not need them, they already have systems to access and analyse the data they need.

Nested qualitative analysis

The nested qualitative data collected at end-line helps further unpack the failure of the information intervention and the dynamics beyond the change in HFC organisation. We first compare the general dynamics between the few HFCs exposed to the training and information intervention and exhibiting positive change in social accountability indicators (in other words, where the interventions had some success) and the majority of HFCs exposed to similar interventions but where nothing changed. We then explore the narratives around changes in chief nurses.

In the very few HFs where accountability indicators have positively changed, asymmetries of information seem to have durably reduced: the HFC insists that it now participates in writing the business plan according to the budget available and, contrary to the previous situation “can follow the money without any problem” (FG HFC, 2013, B.3.10). The summary cards are said to be very useful, and HFC members declare that they “are not afraid to denounce what is not working well” (FG HFC, 2013, B.3.9). As other HFC members put it “[With the training], we have understood how to help in the management of the HF and how to look at the management. Nowadays, the HFC president is free to enter in any services at any time, without any fear” (FG HFC, 2013, B.3.7).

In HF ranked at the bottom of the nested analysis are HFCs that seem in a total impasse with their HF staff. Committees typically blame the HF staff in charge, as the following example (also a prime example of the principal-agent problem) illustrates: “the priest who is in charge refuses to collaborate with us and he is really the only one who manages the HF. We do not know what the HF possesses” (FG HFC, 2013, B.3.2). The interventions possibly exacerbated such tension, as in a HF where “the chief nurse confiscated the summary sheets. He said it is private and we [the HFC] have no right to interfere whatsoever” (FG HFC, 2013, B.3.4). Expectedly, in such HFCs, the members declare: “we have not understood the action plan too well, we do not know how to do it, but we participate in it... well, actually we just witness it being made” (FG HFC, 2013, B.3.1). On their side, chief-nurses readily blame their hierarchy for not supporting the HFC and the HFC members themselves, who are said to lack financial motivation and not understand the HF functioning.

The increase in turnover of chief nurses, the only visible change triggered by the combination of the training and localised information interventions (beyond change in HFC organisation), further

illustrates the complexity of the principal-agent relationship between HFCs and HF staff. In most cases, the HFC claimed it was involved in the removal of the chief nurse. However, in practice, removing the chief nurse is only possible because a principal with more ability to align the incentives of the HF chief nurse gets involved: the health district or, in the case of a faith-based health centre, from the church that owns the health centre.

In HFC that benefited from the localised information intervention, the replacement of a chief-nurse was often linked to their malpractice —ranging from suspicion of mismanagement to blatant embezzlement. The causal chain linking the action of the HFC and the removal of the chief nurse is often clear, as in this case: “the former chief nurse was not managing the HF money well, and a nurse hit a woman who came to deliver her baby. We made a report that we sent to the health district and provinces and these two people were transferred away” (FG HFC, 2013, B.4.5). Not all chief nurses are removed, some of them leave. One HFC explained that the information intervention led it to understand the extent of mismanagement at the HF. It was then decided to denounce the situation to the district officers, but the initiative “scared the chief nurse so much that he never reappeared at the HF” (FG HFC, 2013, B.4.6).

In a few other cases of removal of chief nurses, there was no misappropriation or mismanagement but a clash between the HF staff and the HFC, with the HFC upholding that the chief nurse refused to listen to them and “hid the functioning of the HF to the HFC” (FG HFC, 2013, B.4.64). These cases are rarer because health districts are generally reluctant to remove chief nurses without evidence of gross misconduct. Health district officers point to cases of HFs/HFCs where “everybody is corrupt”. It is useful to note that the connection between the HFC and its principal, the population, can sometimes be loose, meaning that push for replacing a chief-nurse may not always be in the best interest of those who live the HF catchment area: only an estimated 14.1% of the people who had visited the health centre in the past six months before the baseline study had an interaction with the HFC.

These accounts suggest three different theories of change behind the information intervention and invite to revisit our theoretical framework. In the best-case scenario, social accountability works: the HFC got initial access to information and learned how to access more information with the

collaboration of the chief nurse. The asymmetry of information reduced and the reported anecdotal changes in the HF management and HFC organisation reflect an agent more in line with its principal. In the second scenario, the intervention is better understood as a ‘one-shot’ release of information or eye-opener than properly equipping the HFC with tools to acquire information. The HFC mobilises the knowledge to oppose the situation at the HF and works on what is the most visible, and possibly the simplest, most actionable, element of management: human resources and especially the leadership of the chief nurse. The HFC members do not contest the situation by directly seizing decision rights at the HF to confront the nurses—they are not strong enough a principal to do that—but rather lobby another principal of the HF, the health district, which takes concrete measures. This option may jeopardise the longstanding functioning of the system and idea of a continuous debate at the health centre. In the third scenario, the HFC simply does not see itself as capable or willing to act on that information, and the next section will explore some reasons for this.

Heterogeneous effects

We introduced heterogeneous effects in our model to probe two hypotheses: (1) whether HFC literacy and experience would make the HFC better able to exploit the information/cards intervention; and (2) whether HFCs whose members are paid a financial compensation by the HF are less reactive to the information intervention. The outcome indexes on social accountability, the main target of the intervention, as well as the changes in chief nurse are considered. Table 3 presents the results relative to the control group. They should be considered carefully given the sample size and the endogeneity of both the HFC experience and HFC remuneration.

Two variables are used to capture the HFC members literacy and experience: (1) whether some or all HFC members received management training in the past, and (2) whether the HFC has a high ratio of HFC members who went to secondary school (we took the 75th percentile of our sample, 42%, as the cut-off point). The only conclusive finding is that the HFC with past training and benefiting from the information intervention are significantly more likely to have had their chief nurse changed in the past year (F-test = 3.33). In line with the discussion above, a possibility is that repeated trainings make the

HFC more familiar with the stronger principal(s) of the HF, the district authorities and influential NGOs, which eases the process of removing the chief nurse. Another option is that the HFC is emboldened by different parties highlighting its roles and duties.

Table 3 Heterogeneous effects

	effects of the information intervention bundle, relative to control group					
	<i>Prior HF management training</i>		<i>Ratio HFC with secondary school education</i>		<i>HFC members are paid</i>	
	no	yes	below 42%	above 42%	no	yes
2a. social accountability: HF-level indicators	-0.056 (0.147)	-0.029 (0.158)	-0.030 (0.123)	-0.045 (0.220)	-0.103 (0.171)	-0.004 (0.133)
2b. social accountability: household-level indicators	0.107 (0.119)	-0.049 (0.131)	0.022 (0.119)	0.058 (0.120)	0.051 (0.162)	0.028 (0.104)
change chief nurse	0.054 (0.150)	0.457*** (0.162)	0.206 (0.126)	0.278 (0.226)	-0.064 (0.179)	0.429*** (0.139)

model is the diff-in-diff model: $Y_{it} = c + t + I_1 + I_2 + H + \beta_1 I_1 t + \beta_2 I_2 t + I_1 H + I_2 H + \beta_3 I_1 t H + \beta_4 I_2 t H + c X_{ij} + \epsilon$. With H the source of heterogeneity. The below/no columns are $\beta_1 + \beta_2$, the above/yes columns are $\beta_1 + \beta_2 + \beta_3 + \beta_4$ | Significance level: * <0.1 , ** <0.05 , *** <0.001 . Standard errors in parentheses | n=502 except for 2a models (n=4,975)

Finally, the money the HFC sometimes receives is a regular source of complaints. HFC members often maintain an ambivalent position, as in this focus group: “we joined the HFC knowing it would be unpaid voluntary work. Our idea is not that being an HFC member could one day bring us money, *but it would motivate us more*” (FG HFC, 2013, B.1.6). Compensation is typically agreed with the chief nurse and paid out of the HF budget. It may also be used to control the HFC. In at least one case, the HFC members were accused of being ‘bought off’ by the chief nurse who agreed on raising their compensation in exchange for them to not look too closely at HF management. Table 3 suggests that paid HFCs exposed to the interventions were, however, more likely than non-paid HFC to have their chief nurse replaced (F-test = 4.74). This result should not be over-interpreted: besides endogeneity and statistical power limitations, no link between HFC payment and chief nurse removal emerged from the qualitative data. Similarly, using the (weak measure of the) amount HFCs are paid instead of the binary variable yields inconclusive results. A hypothesis is that ‘being paid’ matters for chief nurse removal not because of the payment itself but because it is a proxy of the HFC’s abilities: being

paid reflects the HFC's capacity to lobby and negotiate with third parties, which is critical to have district authorities replace chief nurses. Overall, in line with Lodenstein et al. (2017), we do not find any strong correlation between HFC payment and HFC or HF performance.

Conclusion

Our research shows that, in the context of Burundi, training HFCs on their roles and providing them with information about the performances of their HF do not lead to visible improvements in terms of social accountability, HF management, and use of and access to HF services. Moreover, the information component—or rather the one-off sharing of information with the HFC and failure to make such sharing more frequent—may in fact exacerbate tensions at the HF. In Burundi in 2011-2013, there is no clear evidence that revamping mechanisms of community accountability such as the HFC is substantially improving health services in the medium-run. The findings are in line with the work of Raffler, Posner and Parkerson (2019) in Uganda.

The article contributes to the growing body of evidence on social accountability in health with a detailed analysis of the difficulty of altering the equilibrium of power and improving asymmetries of information inside HFs. In many HFs, the tension remains, and the interventions fail to translate to 'power to the people' conceived as decision rights for the HFC at the HF. The main, if not only, visible change at the HF following the combined information and training interventions, is the increase in the likelihood of the chief-nurse being removed, which qualitative findings relate to the action of the HFC. It is a rather radical way for the HFC to approach its principal-agent issue.

Whether it ultimately improves social accountability and health services is unclear, but some HFCs present it as a necessary step (but possibly not sufficient in and of itself) for further involvement in HF management. The heterogeneous effects and qualitative findings suggest that meaningful changes in HFCs and HFs may require time and effort. The support and building of strong HFCs, is not a 'short route' (World Bank, 2004) to improving social services, it is a relentless endeavour.

A second contribution of the paper is in deepening the reflection on the actual place of community participation mechanisms in PBF schemes. We document the situation of multiple principle agent

scenarios at HF. In theory, PBF bears promises of renewed community accountability with HFCs that become stronger principals with more information to act upon. In practice, the HFCs of Burundi appear side-lined, with little understanding of what their agents, the HF staff, are doing. The HFCs are the least important of the different HF principals. Our results suggest extreme caution when assuming that the HFCs may play a meaningful watchdog role in PBF schemes.

Key questions about the potential of the HFC as a social accountability mechanism remain open. In particular, evidence about which socio-economic and cultural contextual elements help are only vaguely explored in the literature (see Fox, 2015, as well as a forthcoming paper by the authors of this paper). Importantly, most studies, including this year-long project, only give a snapshot view of the social life of HF, which are constantly evolving through the years. The mixed-methods approach developed in this paper has, however, introduced some tools to do this type of research in the future.

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Appendix

Table A1. Indicators for impact evaluation

	<i>Index</i>	<i>Indicators</i>	<i>Source</i>
Community Governance	1. HFC organisation	(1) HFC meetings per month; (2) consensus-based decision-making process (binary); (3) terms of reference available (at time of visit); (4) HFC self-declared confidence in their work (5-item Likert scale); (5) HFC self-declared voice at HFC (5-item Likert scale); (6) existence of executive committee; coding of the question ‘What are the main activities of the HFC?’ - binary variables divided between (7) broad general management and (8) precise activities.	HFC/HF surveys HFC minutes
	2. Accountability	<p>2.a. mean of mean made of <i>HFC decision rights</i>: (1-6) HFC, HFC executives and HFC president decision rights in 7 areas, according to the chief nurse and HFC executives; as well as (7) HFC co-signs receipts (self-declared). <i>Information sent by HFC</i>: (1) HFC information (minutes) sent to chief nurse and (2) health district, (3) months since last HFC general assembly.</p> <p>2.b. mean score made of <i>Information on user side (with HFC)</i>: (1) respondent knows HFC members; (2) went to HFC meeting last year, (3) asked the HFC a question last year, (4) identifies HFC as co-manager of the HF <i>Information on user side (at HF)</i>: (1) understood the bill when visiting HF (5-item Likert scale); (2) staff gave explanations (5-item Likert scale); (3) prices were displayed during the visit (binary).</p>	HFC/HF surveys household surveys
Management	3. Management	<p>3.1. <i>Drugs and equipment</i> (number of days of stock-out per month): mean of (1) drugs; (2) medical items (non-drugs); and (3) equipment.</p> <p>3.2. <i>Human resources</i>: (1) qualified staff; (2) support staff; (3) change in chief nurse in the last year (binary).</p> <p>3.3. <i>Infrastructure</i>: (1) small building (e.g. shed, toilet, shower); (2) building (new); (3) provision of electricity and (4) water.</p> <p>3.4. <i>Budget and organisation</i>: (1) part of user fees in revenue; (2) expenses/revenue ratio; (3) ratio of basic services available.</p>	HIS data HFC/HF surveys HFC/HF surveys HFC/HF surveys
Service delivery	4. Quality	Experience at HF in last visit last year: (1) rating of quality (5-item Likert scale); (2) attention of staff (5-item Likert scale); (3) price paid (5-item Likert scale); and (4) use of drugs (5-item Likert scale).	household surveys
	5. Equity in access	Household-level binary variables based on experience in the past year: (1) household faced catastrophic expenditure in health; (2) could not afford drugs; (3) could not afford care; (4) did go to the closest HF	household surveys
	6. Provision of services	HF-declared number of (1) Institutional delivery; (2) curative visit, prenatal visit; (3) postnatal visit; (4) family planning (new users); (5) referral; (6) immunization of children (ATV 2-5). All relative to population of the catchment area. ¹	HIS/PBF data

1. There are important discrepancies in the catchment area population between dataset (we used the Health Information System), so this dimension should be considered very carefully.

Table A2. Robustness checks

<i>index</i>	effects of the interventions, relative to the control group							
	diff-in-diff with controls		diff-in-diff without controls		ANCOVA ¹ with controls		ANCOVA ¹ without controls	
	basic	info.	basic	info.	basic	info.	basic	info.
1	0.282*** (0.091)	0.263*** (0.091)	0.279*** (0.094)	0.260*** (0.099)	0.223*** (0.066)	0.271*** (0.066)	0.252*** (0.061)	0.275*** (0.064)
FWER ² p-value	0.096	0.094	0.086	0.098	0.035	0.004	0.013	0.002
2a	-0.051 (0.107)	-0.031 (0.107)	-0.056 (0.124)	-0.036 (0.111)	0.059 (0.083)	0.013 (0.082)	0.073 (0.097)	-0.022 (0.080)
2b ³	0.070 (0.109)	0.033 (0.091)	0.068 (0.099)	0.019 (0.085)				
3.1	-0.104 (0.159)	-0.011 (0.159)	-0.103 (0.168)	-0.010 (0.205)	0.018 (0.089)	0.041 (0.088)	-0.055 (0.096)	0.007 (0.109)
3.2	0.018 (0.140)	0.220 (0.140)	0.006 (0.177)	0.208 (0.158)	0.050 (0.096)	0.211** (0.095)	0.017 (0.100)	0.162 (0.103)
3.3	0.113 (0.138)	0.002 (0.138)	0.115 (0.181)	0.003 (0.163)	0.082 (0.093)	0.067 (0.092)	0.117 (0.096)	0.044 (0.077)
3.4	-0.037 (0.150)	0.116 (0.150)	-0.024 (0.141)	0.129 (0.169)	-0.025 (0.113)	0.030 (0.113)	-0.048 (0.102)	0.091 (0.116)
4 ³	-0.150 (0.125)	-0.125 (0.139)	-0.179 (0.129)	-0.138 (0.139)				
5 ³	-0.084 (0.081)	-0.042 (0.093)	-0.078 (0.081)	-0.027 (0.090)				
6	-0.029 (0.137)	-0.115 (0.137)	-0.029 (0.203)	-0.115 (0.177)	0.057 (0.080)	-0.117 (0.079)	0.026 (0.091)	-0.111 (0.072)

1. the ANCOVA model is specified as $Y_{t+1} = c + Y_{t-1} + \beta_1 t_1 + \beta_2 t_2 + cX_{t-1} + cP + \varepsilon$ with the effect reported in column basic β_1 and in the column information $\beta_1 + \beta_2$ (kindly note that two extra interventions building on top of the basic intervention are not reported in this paper. They do not influence the findings) | 2. Only reported for index 1 (the only strong effect), bootstrapped 5,000 times | 3. ANCOVA was not possible as the households were not re-identified | Significance level: * <0.1 , ** <0.05 , *** <0.001 . Standard errors in parentheses. | n, see table 1 for indexes 1, 2a, 3.1-3.4, and 6 (multiply by 2 for diff-in-diff). n for index 2b is 4,945 ; 4 is 3,863 and 5 is 7,086