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Enrollment in community based health insurance schemes in rural Bihar and Uttar Pradesh, India

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Abstract

This paper assesses insurance uptake in three community based health insurance (CBHI) schemes located in rural parts of two of India's poorest states and offered through women's self-help groups (SHGs). We examine what drives uptake, the degree of inclusive practices of the schemes, and the influence of health status on enrolment. The most important finding is that a household's socio-economic status does not appear to substantially inhibit uptake. In some cases Scheduled Caste/ Scheduled Tribe (SC/ST) households are more likely to enroll. Second, households with greater financial liabilities find insurance more attractive. Third, access to the national hospital insurance scheme (RSBY) does not dampen CBHI uptake, suggesting that the potential for greater development of insurance markets and products beyond existing ones would respond to a need. Fourth, recent episodes of illness and self-assessed health status do not influence uptake. Fifth, insurance coverage is prioritized within households, with the household head, the spouse of the household head and both male and female children of the household head, more likely to be insured as compared to other relatives. Sixth, offering insurance through women's SHGs appears to mitigate concerns about the inclusiveness and sustainability of CBHI schemes. Given the pan-Indian spread of SHGs, offering insurance through such groups offers the potential to scale-up CBHI.

Keywords

Community-based health insurance, health microinsurance, enrollment, rural India, self-help groups, Bihar, Uttar Pradesh.

1. Introduction*

Outpatient care represents the lion's share of healthcare spending among resource poor rural persons in India (Dror et al., 2008), and most of that cost is borne by healthcare-seekers out-of-pocket (OOP) (Selvaraj & Karan, 2012; World Bank, 2010; Meghan, 2010; WHO, 2012). High OOP expenditure has been identified as a factor driving vulnerable households further into poverty (WHO, 2000). The impoverishing effects of such expenditures in the Indian context have been highlighted by Berman et al. (2010) and Garg & Karan (2009). Binnendijk et al. (2012) have shown that households in question frequently finance such OOP spending by borrowing money with interest or selling assets, even for outpatient care, and this practice increases total OOP spending significantly. To reduce the inequity of such health financing (Kruk et al., 2009), it is now commonly agreed that risk pooling and prepayment should replace OOP spending when seeking care (James & Savedoff, 2010; World Bank, 2010). In India, in 2008, the government has introduced a hospitalization insurance scheme called Rashtriya Swasthya Bima Yojana (RSBY) which, for the time being, is heavily subsidized and open for affiliation mainly to persons confirmed as "below-poverty-line" (BPL). This scheme notwithstanding, health insurance mostly does not cover the cost of outpatient care and penetration in still low (Ma & Sood, 2008).[1] The combined effect of excluding most outpatient care from health insurance, and general concerns of clients that they might not get suitable returns from insurance due to their inability to enforce the contract may explain the low penetration of health insurance.

Since the late 1990s, Community-Based Health Insurance (CBHI) schemes at village level have been proposed as an alternative approach to increase access to insurance, replacing informal risk-pooling approaches. Special attention was drawn to CBHI that involved clients in establishing rationing rules and governing schemes (Dror & Jacquier, 1999; WHO, 2000; Wiesmann & Jutting, 2001; Ahuja, 2005; National Commission on Macroeconomics and Health, 2005; ILO/STEP, 2006;

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[1] In the Indian context, it is estimated that in 2009-10, about 26 percent of the population had access to some form of health insurance either through the government, including the recently launched *Rashtriya Swasthya Bima Yojana* (National Health Insurance Programme), or private insurance providers (Planning Commission, 2012).

Bhat & Jain, 2006; UNDP, 2007; Dror et al., 2009). This has led to the implementation of a number of CBHI schemes in several developing countries, including India.[2]

Matching the roll-out of these schemes, there has been a proliferation of studies on various aspects, e.g., uptake, utilization of health care, financial protection and impact of such schemes. An early review was provided by Jakab & Krishnan (2001) and Preker et al. (2002) who concluded, based on 45 papers they reviewed, that there was convincing evidence that CBHI schemes were able to mobilize resources to finance health care needs, albeit with substantial variation across schemes, and to reach low-income groups, although often not the very lowest income groups. Ekman (2004) who carried out a systematic review of 36 studies published from 1980 to 2002, concluded that while such schemes provide financial protection for low-income groups, the magnitude of the effect is small and the lowest income groups are excluded from enrollment. More recently, Mebratie et al. (2012) reviewed 36 papers (published between 1995 and 2011) that dealt with the determinants of CBHI uptake and, more specifically, social exclusion and adverse selection. They reported that most papers provide evidence that the lowest income groups are excluded from CBHI schemes. They also reported that about 86 percent of the studies find that individuals suffering from pre-existing health conditions/poor health were more likely to join CBHI schemes as compared to those in good health, suggesting this is a proxy of adverse selection.

The purpose of this study is to report the findings based on analysis of evidence of enrollment from the implementation and randomized evaluation of CBHI schemes launched in three rural locations (one in Pratapgarh, Uttar Pradesh, one in Kanpur Dehat, Uttar Pradesh, and the third in Vaishali, Bihar) in India in 2010 - 2011. This project is innovative in several aspects. First, households can enroll only through their female members that participate in a women's self-help group (SHG).[3] In so far as women participating in SHG are usually from lower-income households,[4] we examine whether this enrollment strategy improves inclusiveness by offering resource-poor households non-competitive access to the CBHI schemes. Second, considering that the selection

[2] Typically, such schemes are non-profit initiatives, and are intended for low-income households living in rural areas and/or for households living in urban areas and working in the informal sector. The schemes are designed to finance access to health care through a greater involvement of the target population (the community) in the design, management and governance of the scheme as compared to commercial or social health insurance schemes (Dror & Preker, 2002).

[3] A self-help group (SHG) usually consists of between 10–20 poor women living in the same village who come together and agree to save a specific amount each period. The savings of all SHG members are combined and deposited in a bank or a co-operative organization. Members may borrow from the pooled savings when the SHG agrees to give the loans. SHGs are usually supported and trained by NGOs. According to Garikipati (2012), there are about 40 million SHG members in India.

[4] The baseline data collected for the project confirms that the monthly per capita expenditure (proxy for income) of SHG members was about 6 percent lower than that of a comparator group composed of randomly surveyed non-SHG members in the same locations; and that educational attainment of the SHG members was about 7 percent lower than the comparator group.

rule for membership (female participation in SHG) is unrelated to pre-existing medical conditions, does the evidence support the assumption that this affiliation strategy reduces the likelihood of adverse selection? Third, considering that the SHG women may enroll either alone or with other members of their household (but the others can only enroll if the SHG woman is enrolled), we examine intra-household resource allocation decisions relating to payment of insurance premium. Fourth, notwithstanding the fact that the same enrollment rule applied to all three CBHI implementations, we observe variations in uptake, and assess the effect of some differences in design on enrollment.

The paper unfolds by providing, in section 2, a description of the three CBHI schemes and a discussion of the data. This is followed by a discussion of our analytical framework in section 3. Section 4 contains the empirical results. The final section of the paper contains conclusions.

2. Scheme description, scheme uptake and data

The target group is defined as households with at least one woman registered as a member of an SHG in March 2010 (when the baseline study was conducted). The target group for the entire project consisted of 3,686 SHG households (1,284 in Pratapgarh, 1,039 in Kanpur Dehat and 1,363 in Vaishali) representing a total of 23,876 individuals (8,933 in Pratapgarh, 7,105 in Kanpur Dehat and 7,838 in Vaishali).

Each of the CBHI schemes has been designed as a cluster randomized controlled trial (CRCT) (Doyle et al, 2011) and follows a three-wave implementation process. Each cluster is randomly assigned to one of the three waves of treatment, and in each wave, one third of clusters receive treatment (i.e. are offered to join the CBHI). This study is based on data relating to the SHG households that joined in Wave 1 (affiliations from March 2011) in the three locations (1,335 households or 7,722 individuals)

The two states where the CBHI schemes are located, Uttar Pradesh (UP) and Bihar, are amongst India's most populated, poorest and least urbanized, and display large gender differences.[5] All three CBHI sites are located in rural areas, about 75 kilometers from the nearest urban centers (Figure 1).

[5] According to Census of India 2011, UP is India's most populated state (with close to 200 million) and Bihar is the third most populated state in the country (104 million). Literacy rates in UP and Bihar are 70 and 64 percent, respectively (compared to a national average of 74 percent). Bihar records the lowest literacy rate amongst the country's 35 states/union territories while UP is ranked 29 out of 35. Both states rank in the bottom five in terms of female literacy rates (59 and 53 percent in UP and Bihar, respectively). Male literacy rates are 65.5 and 73.4 percent in UP and Bihar, respectively. Both states are predominantly rural with 78 (UP) and 89 (Bihar) percent of the population living in rural areas. Based on data from the Planning Commission (2009) the incidence of poverty in UP is 37.7 percent and in Bihar it is 53.5 percent (compared to a national average of 29.8 percent).

At all locations, the project was implemented by the Delhi-based Micro Insurance Academy (MIA) in co-operation with a local NGO or an implementing partner which has well-established relations with the SHGs.[6] In each location, the CBHI implementation followed MIA's 4-phase process (initiating; involving; launch; and post-launch) (Dror et al. 2013) that includes awareness building, insurance education, initial package design and premium pricing based on information obtained from a baseline survey, modification of package design and premium-setting on the basis of interactions with the SHGs during benefit option consultation workshops, and finally training of SHG members to manage the scheme ("creation of a local ground structure"). Following insurance education, the SHG members participated in benefit-package design through discussions within their family and at the SHG, in the form of a simulation game called CHAT (Choosing Health-plans All Together).[7] The activities were focused on female SHG members who were expected to spread information within their households and subsequently lead to enrollment of all household members in the scheme. In practice, while insurance was offered to an entire household, only some household members enrolled.

Baseline data from all eligible households was gathered during March-May 2010. Insurance education and preparatory activities took place between June 2010 and January 2011. Affiliation in wave I was open in Pratapgarh and Vaishali during February 2011. The schemes began operating in Pratapgarh and Vaishali in March 2011. No new enrollment was allowed between March 2011 and February 2012 in Pratapgarh and Vaishali. In Kanpur Dehat, affiliations were accepted in May 2011, and the scheme started operations in June 2011. No new affiliations were accepted from June 2011 to May 2012 in Kanpur Dehat.

Details on the benefit package selected at each CBHI scheme site are provided in Table 1. The packages in Pratapgarh and Kanpur Dehat are similar except that SHGs in Pratapgarh do not opt for coverage of outpatient care. Based on field experience it seems that SHGs in Pratapgarh appear to be more confident in being able to meet outpatient care expenses through OOP. SHGs in Vaishali district, which is relatively poorer as compared to the two districts in UP opted not to include

[6] The three NGOs are *Bharatiya Agro Industrial Foundation* (BAIF) in Pratapgarh, *Shramik Bharti* in Kanpur Dehat and *Nidan* in Vaishali. Each implementing partner managed a pre-existing network of SHGs in the project area. For further details on project implementation see http://www.microinsuranceacademy.org/content/developing-efficient-responsive-community-based-health-insurance-cbhi-india.

[7] (Choosing Health-plans All Together) is a game-like tool, developed by MIA, which is designed to help communities manage the trade-offs, when considering health-care benefits. This tool allows community members to jointly choose the benefit package that covers their most relevant needs. The community members are provided with different options for benefit package, which are based on actuarial calculations derived from the baseline data. The premium and benefits take into account the local health care costs, availability of facilities and risk of different health problems in that community, along with their socio-economic conditions. In the first CHAT exercise, the community members choose the benefit package as per their own family suitability based on discussion with other family members. All the community members then gather in the next round and mutually decide (sometimes on voting basis) on a single benefit package. This multiple-round exercise also enhances their knowledge on the CBHI scheme.

coverage of inpatient care. This may well be due to the relatively high enrollment in RSBY which covers "below the poverty line" households (48 percent, as compared to 18 percent and 15 percent respectively in Pratapgarh and Kanpur Dehat; see Table 2).

During the first wave of implementation, 525 households or 39 percent of the targeted households had at least one household member who was enrolled in the scheme (the corresponding number of individuals was 1806, or an enrollment rate of 23 percent). These figures translate into an insurance coverage of about 3.44 (1806/525) members per insured household. Given the average household size of 5.78 this implies that conditional on enrollment, 60 percent of a household is covered.

A closer look reveals considerable variation in enrollment across the three locations, ranging from 29 percent of households (15 percent of the individuals) in Kanpur Dehat to 46 percent (and 30 percent) in Vaishali, with Pratapgarh lying in the middle. Several factors may explain these differences. First, and perhaps most importantly, in Pratapgarh and Vaishali, the implementing partners have introduced innovations to enhance uptake; e.g. in Pratapgarh, households were required to pay 30 percent of the annual premium on enrollment and the balance in eight equal interest-free installments. In Vaishali, a discount was offered when several members of the same household enroll together. Finally, geographically, both Pratapgarh and Vaishali are located closer to urban areas compared to Kanpur Dehat, which means that healthcare facilities are more proximate to these two locations (see Table 2). In Kanpur Dehat, the relatively lower supply of healthcare services may explain lower interest in insurance.

Analysis of the determinants of enrollment is based on combining two data sources: (i) a baseline survey, and (ii) information on actual enrollments, premium payments and claims, maintained by MIA's Management Information System (called *Suchna)*. The baseline survey which covered all eligible households included questions on socio-economic indicators, including demographic details of each household member, household consumption expenditures, and household assets. In addition, data was collected on self-reported illness events, on the treatment sought and expenditure incurred. Information was also gathered on hospitalization or pregnancy in the 12 months preceding the survey.[8]

The analysis is based on 1,294 households (417, 369 and 508 in Pratapgarh, Kanpur Dehat and Vaishali, respectively) and 7,659 individuals (2562, 2239 and 2858 in Pratapgarh, Kanpur Dehat

[8] Data collection was subcontracted to a professional data collection company, Sigma Research and Consulting; MIA supervised the collection process together with the implementing partner NGO. Approximately 20 percent of the questionnaires, randomly chosen, were verified in the field, and questionnaires re-administered, if needed. Data was electronically captured and verified in the field. Hardcopies of the completed questionnaires are retained by MIA.

and Vaishali respectively) for which valid data could be collected in the baseline survey and which were still alive/ present when the scheme was launched.

A description of the variables used, and summary statistics, is provided in Table 2. Summary statistics conditional on insurance status are shown in the appendix (Tables 1A – 1D and 2A – 2D). A comparison of key socio-economic variables across the three sites suggests that households in Kanpur Dehat are somewhat better off as compared to their counterparts in Pratapgarh and Vaishali. For instance, average monthly per capita expenditure is higher by more than 50 percent compared to the other sites. The majority are self-employed in agriculture (66 percent) when in the other locations casual wage work dominates (about 40 percent). However, Kanpur Dehat appears to be less well-served in terms of access to health services when travel time to the nearest inpatient facility is considered: almost two hours from Kanpur Dehat compared to 44 minutes from Pratapgarh and 29 minutes from Vaishali. Access to outpatient care is more readily accessible in all three locations (12 to 20 minutes) and differences across the three districts are not material.[9]

3. Estimating enrollment

Affiliation to CBHI is voluntary and contributory. Therefore, we assume that some households that are offered the opportunity to affiliate would decline. We estimate the probability of enrollment considering various factors that are likely to influence both the demand for health insurance and for health care in the context of the three CBHI schemes in question. Since insurance was offered at the household level, we first estimate a household-level enrollment specification. However, in practice, since households selected which members would be insured, we also estimate an individual level specification.

Based on these considerations the insurance enrollment status of household *h* in location *j*, may be written as,

$$CBHI_{hj} = \alpha' SES_{hj} + \beta' FIRP_{hj} + \gamma' SS_{hj} + \delta' HE_{hj} + \varepsilon_{hj}, \quad (1)$$

where, $CBHI_{hj}$ is a binary variable with a value of 1 if at least one member of a household is enrolled in the CBHI scheme, and 0 otherwise. *SES* (socio-economic status) is a set of variables that includes caste, age, gender, education and employment status of the head of the household and the expenditure quintile in which a household falls. Specifically, to assess the effect of economic conditions on enrollment, households were grouped into quintiles based on their monthly per capita consumption expenditure (excluding illness-related expenditures). *FIRP* (formal health insurance and risk-pooling) includes access to formal health insurance notably RSBY enrollment status, type of

[9] The average distance to the nearest in-patient facilities is 9 km in the case of Pratapgarh, 44 km in the case of Kanpur Dehat and 4 km in Vaishali. For out-patient care, the corresponding figures are 1.7, 5.2 and 1.5 kilometers for Pratapgarh, Kanpur Dehat and Vaishali respectively.

family (joint or nuclear), size of household and whether incomes are pooled within a household. This set of variables also includes current household monthly per capita financial liabilities (debt) which may provide an idea of a household's ability to borrow and cope with ill-health but it may also reflect the vulnerability of a household. To assess the effects of supply side (*SS*) factors we include two variables - travel time to the nearest in-patient and out-patient facility. Finally, to account for the incidence of past and potential illnesses on enrollment status we include a set of variables indicating the total number of past health events (*HE*) (short-term illnesses, long-term illnesses, hospitalization) experienced by members of the household and variables to capture the age profile of the household (presence of children younger than 12 and adults older than 65).

To explore intra-household resource allocation we turn to an individual specification where the enrollment status of individual *i* in household *h* in location *j*, may be written as,

$$CBHI_{ihj} = \alpha' SES_{hj} + \beta' FIRP_{hj} + \gamma' SS_{hj} + \varphi' I_{ihj} + \varepsilon_{ihj}, \qquad (2)$$

where, in addition to most of the variables included in (1) we add a set of individual traits (*I*) such as SHG member, age, gender, marital status, education, employment status, relation to head of household, individual illness events and self-assessed health status (SAHS).[10] Since, SAHS is only available for individuals aged 13 and above, we estimate variants of (2) with and without imposing this age restriction. Both (1) and (2) are estimated using a logit specification. In the case of (2), standard errors allow for intra-household correlations.

4. Results

Household level marginal effect estimates based on a logit specification are provided in Table 3 while individual level estimates are provided in Tables 4 and 5. Estimates are provided for all three locations separately and also for the pooled data.

4A. *Household level estimates*

Belonging to an economically and socially backward community (SC/ST) increased affiliation to the CBHI by 13 percentage points in Pratapgarh, but was statistically insignificant in the other two sites.[11] It is perhaps more important to state that in none of the three locations was there any evidence that low-caste communities were less likely to join a CBHI scheme. The effect of economic conditions of households on affiliations was analyzed by grouping households into quintiles based on their monthly per capita consumption expenditure (excluding illness-related expenditures). In Pratapgarh, the households within the second and third quintile were substantially more likely to

[10] Health status is rated as good, moderate or bad. In cases where individuals were not present, a household member provided a response.

[11] SC/STs comprise 70 percent and 60 percent of the poorest 20 percent of the monthly per capita expenditure distribution in Pratapgarh and overall.

enroll (about 18-22 percentage points) as compared to the lowest quintile. In the other two sites there is no evidence that the poorest are less likely to enroll as compared to other quintiles. Other characteristics which indicate a household's socio-economic status are the education and occupation of its household head. While there is some evidence that household heads with some primary education, as compared to those who are illiterate, are more likely to join a CBHI scheme, the effect is restricted to Vaishali. Occupational status seems to have no bearing on insurance status. The main point emerging from this set of variables (*SES*) is that the evidence does not suggest that the CBHI scheme is inaccessible even to the poorest households living in some of the poorest parts of rural India.

Turning to the set of variables clustered under formal insurance and risk-pooling arrangements (*FIRP*), we find that belonging to a joint family or a larger household has no bearing on CBHI uptake. However, intra-household pooling of income, which is an indicator of risk-pooling and can help smooth consumption in the event of a shock, exerts a negative and large effect on enrollment. Households engaged in such pooling are about 11 percentage points less likely to join insurance with the effects emanating mainly from Pratapgarh (30 percentage point effect) and Kanpur Dehat (19 percentage point). In Vaishali the effect is also negative but small and statistically insignificant. Household financial liabilities may indicate household ability to access credit, which may have a negative effect on CBHI enrollment. On the other hand it may also be interpreted as a signal of inability to deal with past shocks through informal risk-pooling and hence the need for borrowing and in turn may have a positive effect on enrollment. Indeed, in two of the three sites, high household debt is positively linked to CBHI uptake. In Pratapgarh, a one standard deviation increase in financial liability (about Rs. 500) is associated with a 7.2 percentage point increase (500*0.0154). In the case of Vaishali the figure is about 8.2 percentage points (1150*0.00711). Given the lack of development of credit markets in rural India and the usurious interest rates often charged by money lenders, outstanding household debt seems to increase risk aversion and to increase the demand for insurance. The effect of this variable highlights the need for financial protection and the need for further development of insurance markets in rural India. Finally, we see that household access to RSBY has no effect on CBHI uptake. Even in Vaishali where almost half the population is enrolled in RSBY, there is no effect on uptake. This finding supports the view that at least in the case of the schemes under analysis, national level insurance schemes and community-based schemes are viewed as complementary in ensuring financial protection and access to health care.

While there are substantial differences in access to health services across sites, the two variables included in the specification to capture access to inpatient and outpatient care suggest that such considerations do not play a role in influencing insurance uptake. This may seem surprising but may be a feature of the participatory approach to choosing health care plans. Since the plans cover

transportation cost, at least in two sites, it is possible that this feature works towards reducing the potentially negative effect of accessibility on insurance uptake.

Turning to the effect of the incidence of past illnesses on insurance uptake we find that except for hospitalization, which increases the probability of enrolling in health insurance by 10 percentage points in Kanpur Dehat there is no evidence that household decision-making is motivated by previous illness. However, households with children seem to be more risk averse and/or expect a higher need for health care and subsequently more likely to want to join insurance. The marginal effects are large (17 to 20 percentage point increase) in Pratapgarh and Vaishali. Finally, the marginal effect of older individuals in the family is negative (7 percentage points) and for the sample as a whole, statistically significant.

4B. Individual level estimates

Though we intended to apply *"en bloc"* affiliation (i.e. all SHG household members would enroll together), in practice this was not followed, as households claimed that paying premiums for all members was too onerous. As we have seen, there is no evidence that even the poorest households are dissuaded from enrolling due to economic considerations, but there may well be systematic disparities within a household which lead to the exclusion of the aged, as well as the systematic inclusion of some members (children, those with poor health conditions). To explore these patterns, two variants of (2) are estimated. One of these is for the full sample and a second is restricted to the household members aged 13 and above, since we only have information on self-assessed health status for such individuals.

The inclusion of the additional individual traits does not alter any of the earlier findings made based on the household level estimates. There are several points which may be gleaned from these estimates. As may be expected and as the program design requires, for the overall sample, SHG members are about 20 percentage points more likely to enroll in the scheme as compared to non-SHG members. With regard to intra-household priorities, across all three sites we see that household heads are substantially more likely (25 to 28 percentage points higher) to be covered as compared to "other" household members (parents of head, siblings of the household head, spouses of siblings, in-laws of head, other relatives, non-relatives). Spouses of household heads, who are predominantly female and SHG members,[12] are 19 to 27 percentage points more likely to be covered as compared to "others". Notably, female children of the household head are as likely to be enrolled, if not more, as compared to their male counterparts (20 to 25 percentage points higher for female children and 18 to 22 percentage points higher for male children as compared to "others"). Spouses of children of household head receive less priority as compared to the household head and his spouse, although more than other relatives, while grandchildren seem to be at the same level as

[12] 94% of the spouses of the household head are female and of them 91% are members of an SHG.

"other" members. The pattern supports the idea that vertical relationships tend to receive greater priority in terms of coverage as compared to horizontal and that the household head and his spouse receive the greatest priority within a household.

With regard to previous episodes of illness, while there are some instances, especially in Pratapgarh where individuals who have experienced short or long-term illnesses during the baseline survey are more likely to be insured (5 to 6 percentage points higher), overall, it does not seem that such events play a large role in determining who is insured within a household. Estimates in Table 5 which control for illness events and self-assessed health status also do not support the idea that individuals with lower health status are more likely to be insured.

5. Conclusions

In India, illness-related expenditures have been identified as a key factor responsible for impoverishing vulnerable households. In the absence of a national insurance system covering all persons in the informal sector, community-based health insurance has been proposed as a viable mechanism to achieve some degree of financial protection. This paper analyzed the factors that determine insurance uptake in three CBHI schemes that have been rolled-out in two Indian states since 2011, and it has been shown that CBHI is perceived as complementary to other government scheme such as RSBY.

Affiliation to the CBHI schemes is offered to households and all their members through women's self-help groups. Since women participating in SHGs are typically from lower-income groups, this roll-out model is by design less susceptible to social exclusion on the basis of low income or low caste. Also, since CBHI is offered to groups who have come together for a different purpose, extending the social links that have already been established for other purposes (e.g. membership in SHG) reduce both the potential and the practical occurrence of adverse selection.

The paper yielded several clear insights. There are sharp differences in uptake across the three sites, and we saw that local innovations in the business process, such as deferred payment plans and discounts for bulk purchases, created more attractive conditions for affiliation to the specific CBHI schemes. These innovations were possible because each CBHI was governed by its members, who were also involved in the design of benefit packages, pricing and claims settlement.

Another noteworthy insight is that, only at one of the sites did we find evidence that a household's economic position (as indicated by monthly per capita expenditure) limited the propensity to join the CBHI. Nor do any of the other socio-economic related variables, e.g. education and occupational status, limit access to the local CBHI scheme. Indeed, in the case of one of the schemes, SC/ST households are more likely to enroll.

Access to existing formal insurance and risk pooling mechanisms has a bearing on uptake; households that were better protected against financial risks through income pooling within their

family network were less likely to enroll. On the other hand, households with greater financial liabilities found CBHI more attractive, and interestingly, enrollment in RSBY did not reduce enrollment to CBHI. Together these two aspects highlight (i) the need for greater development of self-governed and context-relevant insurance solutions that respond to perceived priorities of the population living and working in rural India; and (ii) the importance of designing benefit packages which can complement existing insurance schemes.

Based on the finding that past illnesses and self-assessed health status did not influence insurance uptake, we conclude that adverse selection is not a major issue.

In terms of allocating household resources to pay the CBHI premium, there is a clear pecking order, with household head and spouse of the household head occupying the top slots, followed by their children – both male and female. There is no evidence that female children are less likely to be covered as compared to male children. Siblings of household heads and their wives are far less likely to be covered. These patterns suggest that access to CBHI reflects subtle intra-household prioritization decisions, which cannot simply be explained by generalities such as income, age and gender-related exclusion.

Based on the analysis reported here, we conclude that offering CBHI through women's self-help groups mitigates common concerns that CBHI might be unsustainable or not sufficiently inclusive. Given the pan-Indian spread of SHGs, providing demand-driven and context-adapted CBHI schemes through SHGs and similar groups may be potentially an effective channel to scale-up affordable access to health insurance among India's rural poor.

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Table 1: CBHI schemes - enrollment and features of the scheme			
Indicators	**1- Pratapgarh**	**2-Kanpur Dehat**	**3-Vaishali**
Scheme Name			
	Sanjivani	Jeevan Sanjivani	Swastha Kamal
Enrollment indicators			
Households offered insurance	433	378	524
At least one member of household is enrolled	174	109	242
Enrollment rate for households (%)	40	29	46
Individuals offered insurance	2594	2264	2864
Individuals enrolled	604	334	868
Enrollment rate for individuals (%)	23	15	30
Annual CBHI premium per person/per year (Rs.)	176	192	197
Coverage for hospitalization			
Fees (cap per person per event, Rs.)	6000	3000	-
Wage loss (per day, Rs.)[1]	100	75	100
Transport (maximum coverage per episode, Rs.)[2]	100	100	-
Coverage for outpatient care			
Fees (Rs.)	-	Unlimited	Unlimited
Lab tests (per year, Rs.)[3]	-	-	200
Imaging tests (per year, Rs.)[4]	-	-	300
Coverage for maternity care			
Caesarean (per episode, Rs.)	5000	-	-

"-" *indicates "Not Included in package"*

[1] *For Pratapgarh wages losses covered for the 3rd-6th day, for Kanpur Dehat 4th-13th day, for Vaishali 4th-9th day*

[2] *For hospitalization of more than 24 hours.*

[3, 4] *Maximum amount, per person per year*

Table 2: Descriptive statistics (Mean and Standard Deviation)						
Variable	**Pratapgarh**		**Kanpur Dehat**		**Vaishali**	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
SC/ST =1 if household is schedule caste/tribe	0.36	0.48	0.26	0.44	0.41	0.49
Household size	5.99	2.73	5.99	2.23	5.47	2.1
Household enrolled in RSBY=1	0.18	0.38	0.15	0.36	0.48	0.5
Quintile 2, 20-40 percentile based on monthly per capita expenditure – excluding health expenditure (Poor) = 1	0.24	0.43	0.13	0.34	0.21	0.41
Quintile 3, 40-60 percentile based on monthly per capita expenditure – excluding health expenditure (Middle) = 1	0.18	0.39	0.19	0.39	0.22	0.41
Quintile 4, 60-80 percentile based on monthly per capita expenditure – excluding health expenditure (Rich) = 1	0.19	0.39	0.25	0.43	0.17	0.38
Quintile 5, 80-100 percentile based on monthly per capita expenditure – excluding health expenditure (Richest) = 1	0.14	0.35	0.33	0.47	0.16	0.37
Per capita financial liability (monthly) in Rupees	333	479	459	838	467	1150
Per capita expenditure (monthly) in Rupees	1128	665	1793	1653	1205	947
If household pools income = 1	0.88	0.33	0.85	0.36	0.68	0.47
Joint family = 1	0.53	0.5	0.45	0.5	0.37	0.48
Household head age	46.18	12.98	44.87	12.37	41.94	12.48
Household head is male =1	0.76	0.43	0.89	0.31	0.77	0.42
Household head has primary education =1	0.18	0.38	0.12	0.32	0.16	0.37
Household head has middle level of education =1	0.19	0.39	0.14	0.35	0.14	0.35
Household head has secondary education =1	0.32	0.47	0.45	0.5	0.26	0.44
Household head is self-employed in agriculture = 1	0.21	0.41	0.66	0.47	0.18	0.39
Household head is self-employed in non- agriculture =1	0.14	0.35	0.06	0.23	0.18	0.39
Household head is employed in other occupations (mainly casual wage work) = 1	0.4	0.49	0.14	0.35	0.4	0.49
Average time taken to reach the health facility in case of in-patient care	44.06	34.34	129.69	86.17	29.34	21.83
Average time taken to reach the health facility in case of out-patient care	19.31	11.56	12.02	17.23	15.73	27.72
No. of long-term illness events in the household, ill for more than 30 days	1.44	1	0.72	0.86	0.73	0.85
No. of short-term illness events in the household, ill for less than 30 days	1.18	1.12	1.33	1.06	1.08	0.99
No. of cases of hospitalization in the household in the last 12 months	0.14	0.4	0.19	0.49	0.18	0.43
Presence of child below 12 years in household =1	0.78	342.81	0.75	0.43	0.85	0.36
Presence of adult above 65 in household =1	0.26	0.41	0.19	0.39	0.19	0.4
Number of observations	433		378		524	

Table 3: Logit Regression Marginal Effect Estimates (Standard Errors) at the Household Level

Variable Description	Pratapgarh	Kanpur Dehat	Vaishali	All
Household Socio-Economic Status				
Caste - Schedule Caste/Schedule Tribe	0.127**	-0.0357	0.0653	0.0715**
	(0.0611)	*(0.0554)*	*(0.0520)*	*(0.0319)*
Economic Status - Poor by MPCE (quintile 2)	0.179**	0.0205	-0.0397	0.0381
	(0.0779)	*(0.127)*	*(0.0693)*	*(0.0452)*
Economic Status - Middle by MPCE (quintile 3)	0.219**	0.197	0.00237	0.0761
	(0.0885)	*(0.128)*	*(0.0703)*	*(0.0471)*
Economic Status - Rich by MPCE (quintile 4)	0.134	0.166	-0.0664	0.0287
	(0.0906)	*(0.124)*	*(0.0769)*	*(0.0484)*
Economic Status - Richest by MPCE (quintile 5)	0.0932	0.169	0.0516	0.0575
	(0.104)	*(0.119)*	*(0.0894)*	*(0.0522)*
Household Head Characteristics				
HH Head - Age	0.00186	0.000409	-0.000428	0.000747
	(0.00255)	*(0.00236)*	*(0.00237)*	*(0.00135)*
HH Head – Male	-0.0465	-0.0554	-0.0464	-0.0677
	(0.0876)	*(0.106)*	*(0.0750)*	*(0.0476)*
HH Head - Education - Primary	0.105	0.0753	0.129*	0.133***
	(0.0868)	*(0.0916)*	*(0.0692)*	*(0.0450)*
HH Head - Education - Middle	0.0987	-0.0284	0.0274	0.0651
	(0.0884)	*(0.0792)*	*(0.0728)*	*(0.0454)*
HH Head - Education -Secondary and Above	0.100	0.0133	0.0128	0.0609
	(0.0830)	*(0.0642)*	*(0.0671)*	*(0.0404)*
HH Head - Self-employed in Agriculture	0.0831	0.00598	-0.0164	0.0119
	(0.0896)	*(0.0902)*	*(0.0829)*	*(0.0478)*
HH Head - Self-employed in Non-Agriculture	0.0282	-0.00847	-0.142	-0.0534
	(0.102)	*(0.134)*	*(0.0823)*	*(0.0542)*
HH Head - Employed other work (mainly casual wage work)	0.0869	0.0329	-0.0690	-0.00107
	(0.0848)	*(0.115)*	*(0.0772)*	*(0.0474)*
Formal Insurance and Risk Pooling				
Joint Family	-0.00281	-0.0237	0.0618	0.0147
	(0.0633)	*(0.0596)*	*(0.0629)*	*(0.0353)*
Shares Income of All Members	-0.300***	-0.194**	-0.0508	-0.111***
	(0.0820)	*(0.0793)*	*(0.0520)*	*(0.0365)*
Household Size	-0.00566	0.00608	0.00351	0.00137
	(0.0135)	*(0.0157)*	*(0.0158)*	*(0.00799)*
Monthly per capita liability	0.000154**	0.00000043	0.0000711*	0.0000178
	(0.0000732)	*(0.0000298)*	*(0.0000391)*	*(0.0000177)*
Household Enrolled in RSBY	0.0105	0.0190	0.00515	0.00782
	(0.0670)	*(0.0711)*	*(0.0493)*	*(0.0332)*
Supply Side Indicators				
Average Travel Time for In-Patient Service	0.000972	0.0000763	0.00195	0.000344
	(0.000778)	*(0.000297)*	*(0.00111)*	*(0.000288)*
Average Travel Time for Out-Patient Service	0.000515	0.000617	-0.00197	0.000322
	(0.00233)	*(0.000755)*	*(0.00148)*	*(0.000695)*
Locational Characteristics				
Pratapgarh				0.155***
				(0.0509)
Vaishali				0.201***
				(0.0509)
Age Profile of Household				
Presence of Children below 12 Years	0.173***	-0.0695	0.197***	0.0899**
	(0.0619)	*(0.0699)*	*(0.0704)*	*(0.0388)*
Presence of Adult above 65 Years	-0.0609	-0.102	-0.0223	-0.0690*
	(0.0688)	*(0.0624)*	*(0.0695)*	*(0.0383)*
Household's Health Events				
No of Long-term Illness Events	0.0387	0.0173	-0.00679	0.0183

Table 3: Logit Regression Marginal Effect Estimates (Standard Errors) at the Household Level

Variable Description	Pratapgarh	Kanpur Dehat	Vaishali	All
	(0.0284)	*(0.0303)*	*(0.0299)*	*(0.0164)*
No of Short-term Illness Events	0.0396	-0.0141	0.0143	0.0161
	(0.0265)	*(0.0239)*	*(0.0246)*	*(0.0140)*
No of Hospitalization Cases	0.00565	0.0987**	-0.0685	0.00801
	(0.0673)	*(0.0499)*	*(0.0565)*	*(0.0326)*
Observations	417	369	508	1,294
Pseudo R-square	0.0814	0.0587	0.0518	0.0408

*Note: ***p<0.01, **p<0.05, *p<0.1*

Table 4: Logit Regression Marginal Effect Estimates (Standard Errors) at the Individual Level

Variable Description	Pratapgarh	Kanpur Dehat	Vaishali	All
Household Socio-Economic Status				
Caste - Schedule Caste/Schedule Tribe	0.0913**	-0.0254	0.0784**	0.0565***
	(0.0387)	*(0.0267)*	*(0.0364)*	*(0.0203)*
Economic Status - Poor by MPCE	0.126**	0.0258	-0.00141	0.0422
	(0.0565)	*(0.0742)*	*(0.0490)*	*(0.0307)*
Economic Status - Middle by MPCE	0.176**	0.0962	0.0433	0.0748**
	(0.0704)	*(0.0717)*	*(0.0515)*	*(0.0326)*
Economic Status - Rich by MPCE	0.106	0.0835	-0.0460	0.0217
	(0.0707)	*(0.0631)*	*(0.0497)*	*(0.0316)*
Economic Status - Richest by MPCE	0.131*	0.113*	0.0531	0.0812**
	(0.0742)	*(0.0630)*	*(0.0647)*	*(0.0353)*
Formal and Informal Insurance (or Risk) Arrangement				
Joint Family	0.0128	-0.0124	0.0684	0.0185
	(0.0398)	*(0.0313)*	*(0.0454)*	*(0.0225)*
Shares Income of All Members	-0.112**	-0.0885**	-0.0278	-0.0547**
	(0.0545)	*(0.0424)*	*(0.0369)*	*(0.0238)*
Household Size	-0.00129	-0.00697	-0.0130	-0.00493
	(0.00543)	*(0.00627)*	*(0.0102)*	*(0.00409)*
Monthly per capita financial liability	-5.42e-05	6.30e-06	0.0000177**	8.42e-06
	(3.47e-05)	*(1.73e-05)*	*(7.05e-06)*	*(6.37e-06)*
Household Enrolled in RSBY	-0.0266	-0.0118	-0.0155	-0.0169
	(0.0343)	*(0.0326)*	*(0.0343)*	*(0.0198)*
Supply Side Indicators				
Average Travel Time for In-Patient Service	0.000791*	-5.38e-06	-2.20e-05	0.000170
	(0.000412)	*(0.000148)*	*(0.000732)*	*(0.000189)*
Average Travel Time for Out-Patient Service	-0.000272	4.96e-05	-0.00130	-0.000226
	(0.00131)	*(0.000333)*	*(0.00101)*	*(0.000413)*
Locational Characteristics				
Pratapgarh				0.128***
				(0.0344)
Vaishali				0.164***
				(0.0361)
Age Profile of Household				
Presence of Children below 12 Years	0.102***	-0.0216	0.115**	0.0587**
	(0.0330)	*(0.0318)*	*(0.0479)*	*(0.0230)*
Presence of Adult above 65 Years	-0.0145	0.00297	-0.0188	-0.00960
	(0.0420)	*(0.0375)*	*(0.0473)*	*(0.0248)*
Individual Characteristics				
SHG membership	0.197***	0.133***	0.327***	0.222***
	(0.0358)	*(0.0358)*	*(0.0580)*	*(0.0247)*
Age	0.000351	-0.000544	0.00146	0.000532
	(0.00124)	*(0.000950)*	*(0.00136)*	*(0.000701)*
Gender - Male	0.0339	0.0414	0.0339	0.0313
	(0.0340)	*(0.0381)*	*(0.0451)*	*(0.0225)*
Marital Status - Married	0.0242	0.0661**	0.0287	0.0405*

Table 4: Logit Regression Marginal Effect Estimates (Standard Errors) at the Individual Level

Variable Description	Pratapgarh	Kanpur Dehat	Vaishali	All
	(0.0394)	*(0.0275)*	*(0.0520)*	*(0.0231)*
Relation to Head - Head	0.255***	0.245***	0.280***	0.264***
	(0.0915)	*(0.0817)*	*(0.103)*	*(0.0518)*
Relation to Head - Male Spouse of Head	0.328	0.252	0.334**	0.307***
	(0.219)	*(0.169)*	*(0.141)*	*(0.0921)*
Relation to Head - Female Spouse of Head	0.271**	0.189**	0.213*	0.232***
	(0.106)	*(0.0823)*	*(0.118)*	*(0.0578)*
Relation to Head - Male Child of Head	0.196**	0.0966	0.220*	0.179***
	(0.0918)	*(0.0623)*	*(0.114)*	*(0.0525)*
Relation to Head - Female Child of Head	0.248**	0.200**	0.248**	0.233***
	(0.107)	*(0.0906)*	*(0.106)*	*(0.0576)*
Relation to Head - Spouse of Child of Head	0.273**	0.100	0.0714	0.163**
	(0.120)	*(0.106)*	*(0.114)*	*(0.0641)*
Relation to Head - Grandchild of Head	0.0877	0.0524	-0.0284	0.0383
	(0.117)	*(0.106)*	*(0.121)*	*(0.0633)*
Education - Primary	0.0356	0.00422	0.0293	0.0345*
	(0.0350)	*(0.0220)*	*(0.0322)*	*(0.0179)*
Education - Middle	0.0170	-0.0174	0.0201	0.0141
	(0.0337)	*(0.0190)*	*(0.0338)*	*(0.0176)*
Education - Secondary	-0.00363	-0.0242	0.0517	0.0102
	(0.0355)	*(0.0198)*	*(0.0415)*	*(0.0196)*
Employment - Self-employed	0.0185	-0.0134	-0.0236	-0.00341
	(0.0365)	*(0.0194)*	*(0.0367)*	*(0.0183)*
Employment - Other employment	0.00811	-0.0233	-0.0550	-0.0329
	(0.0318)	*(0.0305)*	*(0.0350)*	*(0.0181)*
Employment - Student	0.114**	0.0757**	0.224***	0.139***
	(0.0479)	*(0.0378)*	*(0.0606)*	*(0.0298)*
Employment - Pre-school Children	0.108	0.0515	0.271***	0.171***
	(0.0691)	*(0.0487)*	*(0.0743)*	*(0.0413)*
Individual Health Indicators				
No of Long-term Illness Events	0.0468**	0.00820	-0.00873	0.0198
	(0.0224)	*(0.0231)*	*(0.0281)*	*(0.0147)*
No of Short-term Illness Events	0.0607***	0.000473	-0.00961	0.00453
	(0.0195)	*(0.00694)*	*(0.0109)*	*(0.00654)*
No of Hospitalization Cases	0.0239	0.0210	0.0361	0.0260
	(0.0411)	*(0.0322)*	*(0.0454)*	*(0.0246)*
No of Pregnancy Cases	0.0338	0.0273	0.0595	0.0349
	(0.0512)	*(0.0376)*	*(0.0511)*	*(0.0277)*
Observations	2,562	2,239	2,858	7,659
Pseudo R-square	0.0831	0.098	0.074	0.0806

*Note: ***p<0.01, **p<0.05, *p<0.1*

Table 5: Logit Regression Marginal Effect Estimates (Standard Errors) at the Individual Level

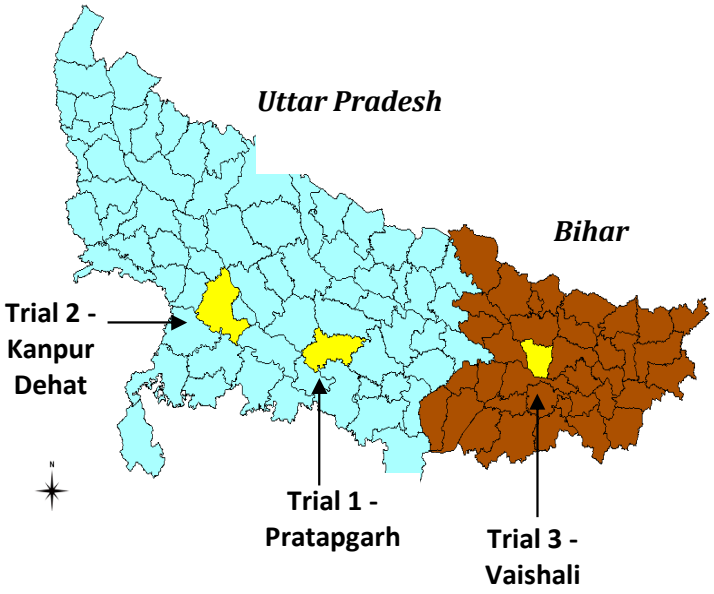
Variable Description	Pratapgarh	Kanpur Dehat	Vaishali	All
Household Socio-Economic Status				
Caste - Schedule Caste/Schedule Tribe	0.0886**	-0.0313	0.0409	0.0384*
	(0.0414)	*(0.0257)*	*(0.0371)*	*(0.0206)*
Economic Status - Poor by MPCE	0.139**	-0.0120	-0.0317	0.0325
	(0.0619)	*(0.0605)*	*(0.0468)*	*(0.0313)*
Economic Status - Middle by MPCE	0.196***	0.0913	-0.000954	0.0627*
	(0.0755)	*(0.0767)*	*(0.0508)*	*(0.0339)*
Economic Status - Rich by MPCE	0.118	0.0777	-0.0481	0.0295
	(0.0743)	*(0.0644)*	*(0.0507)*	*(0.0331)*
Economic Status - Richest by MPCE	0.137*	0.0873	0.0454	0.0704**
	(0.0769)	*(0.0611)*	*(0.0638)*	*(0.0353)*
Formal and Informal Insurance (or Risk) Arrangement				
Joint Family	0.00955	0.00673	0.0130	0.00641
	(0.0402)	*(0.0308)*	*(0.0463)*	*(0.0223)*
Shares Income of All Members	-0.0984*	-0.119**	-0.0142	-0.0588**
	(0.0559)	*(0.0480)*	*(0.0372)*	*(0.0244)*
Household Size	-0.000934	-0.00498	-0.00674	-0.00250
	(0.00563)	*(0.00664)*	*(0.0109)*	*(0.00407)*
Monthly per capita financial liability	-3.04e-05	1.20e-05	0.0000228***	0.0000136**
	(3.17e-05)	*(1.78e-05)*	*(6.32e-06)*	*(6.73e-06)*
Household Enrolled in RSBY	-0.0162	-0.000848	-0.00535	-0.00660
	(0.0385)	*(0.0330)*	*(0.0350)*	*(0.0209)*
Supply Side Indicators				
Average Travel Time for In-Patient Service	0.000521	-5.06e-05	0.000834	0.000116
	(0.000418)	*(0.000154)*	*(0.000706)*	*(0.000189)*
Average Travel Time for Out-Patient Service	0.000596	0.000174	-0.00171	-8.88e-05
	(0.00143)	*(0.000341)*	*(0.00115)*	*(0.000435)*
Locational Characteristics				
Pratapgarh				0.108***
				(0.0351)
Vaishali				0.138***
				(0.0382)
Age Profile of Household				
Presence of Children below 12 Years	0.0896**	-0.0379	0.109**	0.0471**
	(0.0368)	*(0.0340)*	*(0.0489)*	*(0.0238)*
Presence of Adult above 65 Years	0.00815	-0.0144	-0.0146	-0.0109
	(0.0450)	*(0.0360)*	*(0.0460)*	*(0.0248)*
Individual Characteristics				
SHG membership	0.191***	0.116***	0.337***	0.205***
	(0.0350)	*(0.0297)*	*(0.0645)*	*(0.0235)*
Age	-0.000261	-0.000230	0.00156	0.000484
	(0.00114)	*(0.00103)*	*(0.00137)*	*(0.000691)*
Gender - Male	0.0321	-0.00507	0.0613	0.0175
	(0.0464)	*(0.0431)*	*(0.0643)*	*(0.0287)*
Marital Status - Married	0.0236	0.0709***	0.0353	0.0429**

Table 5: Logit Regression Marginal Effect Estimates (Standard Errors) at the Individual Level

Variable Description	Pratapgarh	Kanpur Dehat	Vaishali	All
	(0.0390)	*(0.0241)*	*(0.0472)*	*(0.0214)*
Relation to Head - Head	0.116**	0.258***	0.194**	0.182***
	(0.0588)	*(0.0756)*	*(0.0905)*	*(0.0395)*
Relation to Head - Male Spouse of Head	0.182	0.362*	0.212	0.217**
	(0.195)	*(0.189)*	*(0.149)*	*(0.0887)*
Relation to Head - Female Spouse of Head	0.134*	0.180**	0.132	0.149***
	(0.0739)	*(0.0715)*	*(0.103)*	*(0.0447)*
Relation to Head - Male Child of Head	0.0106	0.111	0.126	0.0781*
	(0.0552)	*(0.0749)*	*(0.106)*	*(0.0429)*
Relation to Head - Female Child of Head	0.0611	0.158*	0.246**	0.137***
	(0.0679)	*(0.0954)*	*(0.118)*	*(0.0502)*
Relation to Head - Spouse of Child of Head	0.105	0.0729	0.0536	0.0908*
	(0.0725)	*(0.0858)*	*(0.102)*	*(0.0465)*
Education - Primary	0.0257	-0.000144	0.0250	0.0268
	(0.0378)	*(0.0252)*	*(0.0408)*	*(0.0210)*
Education - Middle	0.0364	0.00259	6.72e-05	0.0217
	(0.0378)	*(0.0244)*	*(0.0379)*	*(0.0199)*
Education - Secondary	0.0222	-0.00332	0.0228	0.0186
	(0.0397)	*(0.0246)*	*(0.0437)*	*(0.0214)*
Employment - Self-employed	0.0213	-0.000407	-0.0167	0.00277
	(0.0369)	*(0.0220)*	*(0.0359)*	*(0.0185)*
Employment - Other employment	0.0120	-0.00770	-0.0461	-0.0190
	(0.0327)	*(0.0339)*	*(0.0354)*	*(0.0189)*
Employment - Student	0.0985*	0.101**	0.258***	0.153***
	(0.0524)	*(0.0477)*	*(0.0681)*	*(0.0341)*
Individual Health Indicators				
No of Long-term Illness Events	0.0413*	0.00191	0.00359	0.0195
	(0.0234)	*(0.0258)*	*(0.0331)*	*(0.0159)*
No of Short-term Illness Events	0.0638***	0.00272	-0.00173	0.0104
	(0.0242)	*(0.00751)*	*(0.0148)*	*(0.00791)*
No of Hospitalization Cases	0.0344	-0.00416	0.0473	0.0297
	(0.0448)	*(0.0379)*	*(0.0511)*	*(0.0270)*
No of Pregnancy Cases	0.0256	0.0262	0.0455	0.0313
	(0.0510)	*(0.0382)*	*(0.0507)*	*(0.0270)*
Self-Assessed Health Rank - Very Good	0.0215	-0.0214	0.0404	0.00995
	(0.0593)	*(0.0397)*	*(0.0643)*	*(0.0330)*
Self-Assessed Health Rank - Good	0.0336	-0.0320	0.0612	0.0187
	(0.0565)	*(0.0345)*	*(0.0639)*	*(0.0315)*
Self-Assessed Health Rank - Moderate	-0.00288	-0.0136	-0.0351	-0.0158
	(0.0579)	*(0.0380)*	*(0.0575)*	*(0.0314)*
Observations	1,748	1,562	1,678	4,988
Pseudo R-square	0.0875	0.1233	0.0986	0.0878

*Note: ***p<0.01, **p<0.05, *p<0.1*

Figure 1: Location of the Three CBHI Projects



Annexure 1A: Description of Variables and Summary Statistics of Household Characteristics - Pratapgarh						
Variable	Enrolled		Non-Enrolled		Total	
	Mean	SD	Mean	SD	Mean	SD
Household Socio-Economic Indicators						
SC/ST =1 if household is schedule caste/tribe	0.40	0.49	0.33	0.47	0.36	0.48
Quintile 2, 20-40 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.30	0.46	0.21	0.41	0.25	0.43
Quintile 3, 40-60 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.21	0.41	0.17	0.37	0.18	0.39
Quintile 4, 60-80 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.18	0.39	0.20	0.40	0.19	0.39
Quintile 5, 80-100 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.10	0.30	0.15	0.36	0.13	0.34
Household head - Age	45.91	13.19	46.44	12.90	46.22	13.00
Household head is male =1	0.78	0.41	0.75	0.43	0.76	0.43
Household head has primary education =1	0.21	0.41	0.17	0.37	0.18	0.39
Household head has middle level of education =1	0.21	0.41	0.18	0.39	0.19	0.39
Household head has secondary education =1	0.32	0.47	0.29	0.46	0.30	0.46
Household head is self-employed in agriculture = 1	0.22	0.41	0.21	0.41	0.21	0.41
Household head is self-employed in non- agriculture =1	0.14	0.35	0.15	0.36	0.15	0.35
Household head is employed in other occupations (mainly casual wage work) = 1	0.43	0.50	0.38	0.49	0.40	0.49
Formal Insurance and Risk Pooling						
Joint family = 1	0.53	0.50	0.52	0.50	0.53	0.50
Household shares income of all members = 1	0.83	0.37	0.92	0.27	0.89	0.32
Household size	6.31	2.65	5.85	2.82	6.04	2.76
Monthly per capita liability in Rupees	284.88	369.00	356.51	523.60	327.48	467.98
Household enrolled in RSBY=1	0.20	0.40	0.17	0.38	0.18	0.39
Supply Side Indicators						
Average time taken to reach the health facility in case of in-patient care	47.6	34.65	41.17	33.84	43.78	34.28
Average time taken to reach the health facility in case of out-patient care	20.05	12.15	18.88	11.35	19.35	11.68
Age Profile of Household						
Presence of child below 12 years in household =1	0.85	0.36	0.74	0.44	0.79	0.41
Presence of adult above 65 in household =1	0.22	0.42	0.29	0.45	0.26	0.44
Household Health Events						
No. of long-term illness events in the household, ill for more than 30 days	1.53	1.17	1.42	0.88	1.46	1.00
No. of short-term illness events in the household, ill for less than 30 days	1.31	1.15	1.11	1.09	1.19	1.12
No. of cases of hospitalization in the household in the last 12 months	0.15	0.38	0.14	0.43	0.15	0.41

Annexure 1B: Description of Variables and Summary Statistics of Household Characteristics - Kanpur Dehat						
Variable	**Enrolled**		**Non-Enrolled**		**Total**	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Household Socio-Economic Indicators						
SC/ST =1 if household is schedule caste/tribe	0.24	0.43	0.26	0.44	0.26	0.44
Quintile 2, 20-40 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.09	0.29	0.15	0.36	0.13	0.34
Quintile 3, 40-60 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.22	0.42	0.18	0.38	0.19	0.39
Quintile 4, 60-80 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.27	0.45	0.24	0.43	0.25	0.43
Quintile 5, 80-100 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.36	0.48	0.32	0.47	0.33	0.47
Household head - Age	45.08	11.58	44.88	12.75	44.94	12.41
Household head is male =1	0.87	0.34	0.90	0.30	0.89	0.31
Household head has primary education =1	0.14	0.35	0.10	0.31	0.11	0.32
Household head has middle level of education =1	0.12	0.33	0.16	0.36	0.15	0.35
Household head has secondary education =1	0.46	0.50	0.44	0.50	0.45	0.50
Household head is self-employed in agriculture = 1	0.68	0.47	0.67	0.47	0.67	0.47
Household head is self-employed in non- agriculture =1	0.06	0.23	0.06	0.24	0.06	0.24
Household head is employed in other occupations (mainly casual wage work) = 1	0.13	0.34	0.14	0.35	0.14	0.35
Formal Insurance and Risk Pooling						
Joint family = 1	0.40	0.49	0.47	0.50	0.45	0.50
Household shares income of all members = 1	0.78	0.42	0.88	0.33	0.85	0.36
Household size	5.79	1.88	6.08	2.34	6.00	2.22
Monthly per capita liability in Rupees	523.91	1203.54	433.38	638.55	459.88	843.18
Household enrolled in RSBY=1	0.19	0.39	0.15	0.35	0.16	0.36
Supply Side Indicators						
Average time taken to reach the health facility in case of in-patient care	133.87	87.75	128.89	85.73	130.34	86.24
Average time taken to reach the health facility in case of out-patient care	37.94	32.95	33.07	30.49	34.49	31.27
Age Profile of Household						
Presence of child below 12 years in household =1	0.69	0.46	0.78	0.41	0.76	0.43
Presence of adult above 65 in household =1	0.14	0.35	0.21	0.41	0.19	0.39
Household Health Events						
No. of long-term illness events in the household, ill for more than 30 days	0.77	0.88	0.69	0.84	0.72	0.85
No. of short-term illness events in the household, ill for less than 30 days	1.33	1.07	1.34	1.06	1.34	1.06
No. of cases of hospitalization in the household in the last 12 months	0.25	0.50	0.15	0.45	0.18	0.46

Annexure 1C: Description of Variables and Summary Statistics of Household Characteristics – Vaishali						
Variable	Enrolled		Non-Enrolled		Total	
	Mean	SD	Mean	SD	Mean	SD
Household Socio-Economic Indicators						
SC/ST =1 if household is schedule caste/tribe	0.44	0.50	0.39	0.49	0.41	0.49
Quintile 2, 20-40 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.20	0.40	0.22	0.42	0.21	0.41
Quintile 3, 40-60 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.22	0.42	0.22	0.41	0.22	0.41
Quintile 4, 60-80 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.15	0.35	0.20	0.40	0.17	0.38
Quintile 5, 80-100 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.17	0.38	0.15	0.35	0.16	0.36
Household head - Age	41.19	11.83	42.59	13.01	41.95	12.49
Household head is male =1	0.74	0.44	0.79	0.41	0.77	0.42
Household head has primary education =1	0.20	0.40	0.13	0.34	0.17	0.37
Household head has middle level of education =1	0.15	0.36	0.15	0.35	0.15	0.36
Household head has secondary education =1	0.23	0.42	0.25	0.43	0.24	0.43
Household head is self-employed in agriculture = 1	0.20	0.40	0.18	0.38	0.19	0.39
Household head is self-employed in non- agriculture =1	0.16	0.37	0.21	0.41	0.19	0.39
Household head is employed in other occupations (mainly casual wage work) = 1	0.40	0.49	0.42	0.49	0.41	0.49
Formal Insurance and Risk Pooling						
Joint family = 1	0.41	0.49	0.36	0.48	0.38	0.49
Household shares income of all members = 1	0.66	0.47	0.69	0.46	0.68	0.47
Household size	5.63	1.92	5.41	2.23	5.51	2.10
Monthly per capita liability in Rupees	582.28	1556.85	384.49	670.68	475.21	1167.02
Household enrolled in RSBY=1	0.48	0.50	0.49	0.50	0.49	0.50
Supply Side Indicators						
Average time taken to reach the health facility in case of in-patient care	31.00	22.48	28.51	21.63	29.65	22.04
Average time taken to reach the health facility in case of out-patient care	16.54	17.27	17.91	15.97	17.28	16.58
Age Profile of Household						
Presence of child below 12 years in household =1	0.90	0.30	0.81	0.40	0.85	0.36
Presence of adult above 65 in household =1	0.19	0.39	0.20	0.40	0.19	0.39
Household Health Events						
No. of long-term illness events in the household, ill for more than 30 days	0.76	0.88	0.72	0.83	0.74	0.85
No. of short-term illness events in the household, ill for less than 30 days	1.13	1.04	1.04	0.94	1.08	0.99
No. of cases of hospitalization in the household in the last 12 months	0.18	0.45	0.19	0.42	0.19	0.43

Annexure 1D: Description of Variables and Summary Statistics of Household Characteristics – All						
Variable	Enrolled		Non-Enrolled		Total	
	Mean	SD	Mean	SD	Mean	SD
Household Socio-Economic Indicators						
SC/ST =1 if household is schedule caste/tribe	0.38	0.49	0.33	0.47	0.35	0.48
Quintile 2, 20-40 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.21	0.41	0.20	0.40	0.20	0.40
Quintile 3, 40-60 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.22	0.41	0.19	0.39	0.20	0.40
Quintile 4, 60-80 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.18	0.39	0.21	0.41	0.20	0.40
Quintile 5, 80-100 percentile based on monthly per capita expenditure – excluding health expenditure = 1	0.19	0.39	0.21	0.41	0.20	0.40
Household head – Age	43.58	12.42	44.57	12.97	44.18	12.76
Household head is male =1	0.78	0.41	0.81	0.39	0.80	0.40
Household head has primary education =1	0.19	0.39	0.13	0.34	0.16	0.36
Household head has middle level of education =1	0.16	0.37	0.16	0.37	0.16	0.37
Household head has secondary education =1	0.31	0.46	0.33	0.47	0.32	0.47
Household head is self-employed in agriculture = 1	0.31	0.46	0.35	0.48	0.33	0.47
Household head is self-employed in non- agriculture =1	0.13	0.34	0.14	0.35	0.14	0.35
Household head is employed in other occupations (mainly casual wage work) = 1	0.35	0.48	0.32	0.47	0.33	0.47
Formal Insurance and Risk Pooling						
Joint family = 1	0.45	0.50	0.45	0.50	0.45	0.50
Household shares income of all members = 1	0.74	0.44	0.83	0.38	0.79	0.40
Household size	5.89	2.20	5.77	2.48	5.82	2.37
Monthly per capita liability in Rupees	471.37	1213.24	391.92	616.66	423.23	900.68
Household enrolled in RSBY=1	0.33	0.47	0.27	0.45	0.29	0.46
Supply Side Indicators						
Average time taken to reach the health facility in case of in-patient care	58.29	61.94	65.93	70.52	62.92	67.34
Average time taken to reach the health facility in case of out-patient care	22.24	21.95	23.26	22.06	22.86	22.02
Locational Characteristics						
baif = 1 if location is Pratapgarh	0.33	0.47	0.32	0.47	0.32	0.47
nidan = 1 if location is Vaishali	0.46	0.50	0.35	0.48	0.39	0.49
Age Profile of Household						
Presence of child below 12 years in household =1	0.84	0.37	0.78	0.42	0.80	0.40
Presence of adult above 65 in household =1	0.19	0.39	0.23	0.42	0.21	0.41
Household Health Events						
No. of long-term illness events in the household, ill for more than 30 days	1.02	1.04	0.93	0.91	0.97	0.97
No. of short-term illness events in the household, ill for less than 30 days	1.23	1.09	1.16	1.04	1.19	1.06
No. of cases of hospitalization in the household in the last 12 months	0.19	0.44	0.16	0.43	0.17	0.43

Annexure 2A: Variable Descriptions and Summary Statistics for Individual Characteristics – Pratapgarh						
Description	Enrolled		Non-Enrolled		Total	
	Mean	SD	Mean	SD	Mean	SD
Individual – SHG Member	0.30	0.46	0.15	0.35	0.18	0.39
Individual - age	25.75	18.97	24.35	19.33	24.68	19.25
Individual is male = 1	0.44	0.50	0.50	0.50	0.49	0.50
Individual is married = 1	0.47	0.50	0.38	0.49	0.40	0.49
Relationship - head of household = 1	0.19	0.39	0.16	0.36	0.16	0.37
Relationship – Male spouse of head of household = 1	0.05	0.07	0.01	0.05	0.01	0.06
Relationship – Female spouse of head of household = 1	0.19	0.40	0.10	0.30	0.12	0.33
Relationship – Male child of head of household = 1	0.25	0.43	0.26	0.44	0.25	0.44
Relationship – Female child of head of household = 1	0.19	0.39	0.19	0.40	0.19	0.39
Relationship - spouse of child of head of household = 1	0.07	0.25	0.06	0.24	0.06	0.24
Relationship - grandchild of head of household = 1	0.09	0.29	0.15	0.36	0.14	0.35
Education - Primary = 1	0.28	0.45	0.26	0.44	0.26	0.44
Education - Middle = 1	0.18	0.38	0.19	0.39	0.19	0.39
Education - Secondary = 1	0.17	0.38	0.21	0.41	0.20	0.40
Employment - Self Employed = 1	0.11	0.32	0.11	0.31	0.11	0.31
Employment - Other employment = 1	0.14	0.34	0.13	0.34	0.13	0.34
Employment - Student = 1	0.35	0.48	0.36	0.48	0.36	0.48
Employment - Pre-school children = 1	0.11	0.31	0.14	0.34	0.13	0.34
No of long-term illness events for the individual	0.31	0.47	0.22	0.42	0.24	0.43
No of short-term illness events for the individual	0.25	0.43	0.18	0.39	0.20	0.40
No of hospitalization cases for the individual	0.03	0.17	0.02	0.16	0.02	0.16
No of pregnancy cases for the individual	0.04	0.19	0.03	0.16	0.03	0.17
Self-reported health status - very good = 1	0.34	0.47	0.41	0.49	0.40	0.49
Self-reported health status - good = 1	0.50	0.50	0.44	0.50	0.45	0.50
Self-reported health status - moderate = 1	0.11	0.31	0.10	0.30	0.10	0.30
Self-reported health status - bad = 1	0.05	0.22	0.05	0.22	0.05	0.22

Annexure 2B: Variable Descriptions and Summary Statistics for Individual Characteristics - Kanpur Dehat						
Description	Enrolled		Non-Enrolled		Total	
	Mean	SD	Mean	SD	Mean	SD
Individual – SHG Member	0.33	0.47	0.15	0.36	0.18	0.38
Individual - age	28.07	17.82	24.43	18.62	24.97	18.55
Individual is male = 1	0.45	0.50	0.53	0.50	0.52	0.50
Individual is married = 1	0.55	0.50	0.38	0.49	0.41	0.49
Relationship - head of household = 1	0.23	0.42	0.16	0.36	0.17	0.37
Relationship – Male spouse of head of household = 1	0.01	0.12	0.01	0.09	0.01	0.10
Relationship – Female spouse of head of household = 1	0.27	0.44	0.12	0.33	0.14	0.35
Relationship – Male child of head of household = 1	0.21	0.41	0.29	0.45	0.28	0.45
Relationship – Female child of head of household = 1	0.20	0.40	0.20	0.40	0.20	0.40
Relationship - spouse of child of head of household = 1	0.03	0.16	0.04	0.20	0.04	0.20
Relationship - grandchild of head of household = 1	0.03	0.17	0.09	0.29	0.08	0.27
Education - Primary = 1	0.27	0.44	0.25	0.43	0.25	0.44
Education - Middle = 1	0.18	0.38	0.17	0.38	0.18	0.38
Education - Secondary = 1	0.24	0.43	0.26	0.44	0.26	0.44
Employment - Self Employed = 1	0.26	0.44	0.24	0.43	0.25	0.43
Employment - Other employment = 1	0.05	0.22	0.07	0.25	0.06	0.24
Employment - Student = 1	0.30	0.46	0.32	0.47	0.32	0.47
Employment - Pre-school children = 1	0.08	0.28	0.13	0.34	0.13	0.33
No of long-term illness events for the individual	0.17	0.38	0.11	0.32	0.12	0.33
No of short-term illness events for the individual	0.56	0.96	0.43	0.85	0.45	0.86
No of hospitalization cases for the individual	0.05	0.21	0.03	0.18	0.03	0.18
No of pregnancy cases for the individual	0.03	0.18	0.03	0.17	0.03	0.17
Self-reported health status - very good = 1	0.38	0.49	0.46	0.50	0.45	0.50
Self-reported health status - good = 1	0.40	0.49	0.39	0.49	0.39	0.49
Self-reported health status - moderate = 1	0.14	0.35	0.10	0.31	0.11	0.31
Self-reported health status - bad = 1	0.07	0.26	0.04	0.21	0.05	0.22

Annexure 2C: Variable Descriptions and Summary Statistics for Individual Characteristics – Vaishali						
Description	Enrolled		Non-Enrolled		Total	
	Mean	SD	Mean	SD	Mean	SD
Individual – SHG Member	0.27	0.45	0.14	0.35	0.18	0.39
Individual - age	21.71	16.98	23.20	19.15	22.74	18.52
Individual is male = 1	0.43	0.50	0.50	0.50	0.48	0.50
Individual is married = 1	0.41	0.49	0.42	0.49	0.42	0.49
Relationship - Head of household = 1	0.17	0.38	0.18	0.39	0.18	0.38
Relationship – Male spouse of head of household = 1	0.01	0.11	0.01	0.11	0.01	0.11
Relationship – Female spouse of head of household = 1	0.20	0.40	0.11	0.32	0.14	0.35
Relationship – Male child of head of household = 1	0.29	0.45	0.26	0.44	0.30	0.44
Relationship – Female child of head of household = 1	0.25	0.43	0.22	0.41	0.23	0.42
Relationship - Spouse of child of head of household = 1	0.03	0.16	0.06	0.23	0.05	0.21
Relationship - Grandchild of head of household = 1	0.03	0.18	0.09	0.28	0.07	0.26
Education - Primary = 1	0.31	0.46	0.29	0.45	0.30	0.46
Education - Middle = 1	0.13	0.34	0.14	0.35	0.14	0.34
Education - Secondary = 1	0.13	0.34	0.14	0.35	0.14	0.35
Employment - Self Employed = 1	0.10	0.30	0.12	0.33	0.12	0.32
Employment - Other employment = 1	0.10	0.30	0.15	0.35	0.13	0.34
Employment - Student = 1	0.38	0.49	0.34	0.47	0.35	0.48
Employment - Pre-school children = 1	0.17	0.38	0.16	0.37	0.17	0.37
No of long-term illness events for the individual	0.14	0.35	0.13	0.34	0.13	0.34
No of short-term illness events for the individual	0.41	0.81	0.39	0.83	0.40	0.82
No of hospitalization cases for the individual	0.04	0.20	0.03	0.17	0.03	0.18
No of pregnancy cases for the individual	0.04	0.19	0.03	0.17	0.03	0.18
Self-reported health status - very good = 1	0.42	0.49	0.45	0.50	0.44	0.50
Self-reported health status - good = 1	0.42	0.49	0.37	0.48	0.38	0.49
Self-reported health status - moderate = 1	0.10	0.30	0.13	0.34	0.12	0.33
Self-reported health status - bad = 1	0.06	0.24	0.06	0.23	0.06	0.23

Annexure 2D: Variable Descriptions and Summary Statistics for Individual Characteristics – All						
Description	Enrolled		Non-Enrolled		Total	
	Mean	SD	Mean	SD	Mean	SD
Individual – SHG Member	0.29	0.45	0.15	0.35	0.18	0.39
Individual - age	24.23	17.99	23.98	19.05	24.04	18.80
Individual is male = 1	0.44	0.50	0.51	0.50	0.49	0.50
Individual is married = 1	0.46	0.50	0.40	0.49	0.41	0.49
Relationship - head of household = 1	0.19	0.39	0.16	0.37	0.17	0.38
Relationship – Male spouse of head of household = 1	0.01	0.10	0.01	0.09	0.01	0.09
Relationship – Female spouse of head of household = 1	0.21	0.41	0.11	0.32	0.13	0.34
Relationship – Male child of head of household = 1	0.26	0.44	0.27	0.44	0.27	0.44
Relationship – Female child of head of household = 1	0.22	0.42	0.20	0.40	0.21	0.40
Relationship - spouse of child of head of household = 1	0.04	0.19	0.05	0.22	0.05	0.22
Relationship - grandchild of head of household = 1	0.05	0.22	0.11	0.31	0.10	0.29
Education - Primary = 1	0.29	0.46	0.27	0.44	0.27	0.45
Education - Middle = 1	0.15	0.36	0.17	0.37	0.16	0.37
Education - Secondary = 1	0.16	0.37	0.21	0.40	0.20	0.40
Employment - Self Employed = 1	0.13	0.34	0.16	0.36	0.15	0.36
Employment - Other employment = 1	0.10	0.30	0.12	0.32	0.11	0.32
Employment - Student = 1	0.36	0.48	0.34	0.47	0.34	0.48
Employment - Pre-school children = 1	0.13	0.34	0.14	0.35	0.14	0.35
No of long-term illness events for the individual	0.20	0.40	0.15	0.36	0.17	0.37
No of short-term illness events for the individual	0.38	0.75	0.33	0.73	0.34	0.73
No of hospitalization cases for the individual	0.04	0.19	0.03	0.17	0.03	0.18
No of pregnancy cases for the individual	0.04	0.19	0.03	0.17	0.03	0.17
Self-reported health status - very good = 1	0.38	0.49	0.44	0.50	0.43	0.49
Self-reported health status - good = 1	0.45	0.50	0.40	0.49	0.41	0.49
Self-reported health status - moderate = 1	0.11	0.32	0.11	0.31	0.11	0.31
Self-reported health status - bad = 1	0.06	0.24	0.05	0.22	0.05	0.22