Bundling Health Insurance and Microfinance in India: There Cannot be Adverse Selection if There is No Demand

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Most of the world's poor face large risks, which affect their investment decisions and contribute to the perpetuation of poverty (Karlan et al., 2013). In this context, insurance products targeted at the poor are seen as having substantial promise, as opportunities both to make profit and to improve efficiency and social welfare. The marketing of insurance products to the poor has faced two obstacles, however. First, demand for insurance products is generally low (Cole et al., 2013). Second, insurers have been worried about adverse selection and moral hazard, with the latter concern leading insurers to offer only basic products (e.g., indexed weather insurance or catastrophic health insurance).

Bundling insurance policies with other products, such as Microfinance loans, has been seen as a promising solution to both the demand and the adverse selection problems (see, e.g., ILO, 2013), under the theory that even those who derive little benefit from insurance would still want the bundled services. Microfinance institutions might either serve as an agent to a larger insurance company or offer the insurance policy themselves. The hope is that bundling would create a large pool of non-selected clients, eliminating adverse selection and reducing administrative costs.

Major health expenditures are a significant source of risk for the world's poor that is not well-insured, even by the informal insurance network that households typically call upon (Gertler and Gruber, 2002; Fafchamps and Lund, 2003). Many Microfinance institutions have therefore experimented with bundling health insurance with their loans.

Drawing evidence from the randomized introduction of a health insurance program bundled with a standard Microfinance program, we show that the basic presumption that bundling the two would lead to a large client base is wrong. We find that a large fraction of borrowers (16 percentage points) were actually willing to give up microfinance to avoid purchasing health

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insurance, and that the majority of those clients ended up losing access to Microfinance altogether.

The observed client dropout, while discouraging for the Microfinance institution and the insurer, provides an opportunity to observe whether the original concerns of adverse selection are actually a main barrier to providing health insurance. We find that the answer to this question is an emphatic no: there is no evidence that clients dropping out to avoid purchasing insurance are systematically different from those who remain clients, in terms of their propensity to have insurable health care expenses, including covered maternity expenses that are most easily predictable.

It seems that insurers, policy makers, and academics are one step ahead of insurance clients. The central issue seems not to be that only those who need health insurance would be willing to sign up, but that *even* those who would need it are not willing to sign up for it, potentially at the cost of losing a valuable resource.

I. Bundling of Health Insurance and Microfinance

In 2006, SKS Microfinance decided that it should offer health insurance to its clients. At that time, SKS was the largest MFI in India, although it has since become embroiled in the Microfinance crisis. The hope was that the expanded product offering would allow SKS to leverage its presumed administrative advantage in dealing with low-income clients spread across rural areas of India. SKS was also motivated to protect its loan portfolio from the risk of default caused by uninsured health expenditures (see, e.g., Gross and Notowidigdo, 2011). ICICI-Lombard provided the back-end insurance, while SKS administered enrollment and the initial processing of claims.

In June 2007, in 101 pilot villages, SKS began requiring loan clients to purchase health insurance at the time of renewing their loan. The typical health insurance policy cost Rs. 525 (approximately $13 at 2007 exchange rates), which was loaded into the amount of the loan and paid in weekly installments along with the loan payments. By comparison, the average loan amount was Rs. 8000. The insurance premium thus represented only a moderate increase in the interest rate, which was roughly 24% APR at the time. The health insurance policy was intended to be actuarially fair, though SKS was prepared to lose money initially on administrative costs.

Due to concerns about moral hazard in health care usage, the insurance policy only covered hospitalization and maternity expenses. Clients had the option of going to various approved health facilities to get cashless treatment, or paying out of pocket for treatment at other facilities and submitting a claim for reimbursement.

The launch of the insurance product did not go smoothly. SKS initially planned to make the purchase of insurance mandatory for all *existing* clients. Amidst clients' rebellion, it was decided that purchasing insurance would only be mandatory for new clients or at the time of existing clients' loan renewal. Many clients still remained opposed to the requirement to purchase health insurance, despite an educational campaign to help them understand the benefits of the insurance product. Indeed, discontent with the policy and resulting client

drop-out led SKS to make the insurance voluntary in October 2008. This unilateral change to the insurance product, and anecdotal accounts of adverse selection and outright fraud, led to a breakdown of relations between SKS and ICICI-Lombard and insurance enrollment was discontinued in March 2009.

II. Randomization and Data Collection

In December 2006, we randomly selected 101 treatment villages from a list of 201 candidate villages provided by SKS. The remaining 100 villages form the control group. Randomization was done in our office using stata code, and was stratified by SKS branch and size of SKS client base. From December 2006 through March 2007, we collected detailed baseline data on a random sample of SKS client households in treatment and control villages.

In the baseline data on health status and healthcare usage, we see evidence of a strong need for health insurance that is consistent with previous literature (Gertler and Gruber, 2002; Banerjee and Duo, 2006). Table 1, panel A, reports that SKS client households experienced a large number of "serious" health events in the previous year.[1] Households' health expenditures averaged approximately Rs. 4670, though some households had considerably higher health expenditures (Rs. 15600 at the 95th percentile).[2] Average expenditures were Rs. 603 for hospitalization and maternity, excluding costs for transportation and medicines obtained elsewhere, which is similar to the health insurance premium. By comparison, households' average annual spending on consumer durables and non-durables was roughly Rs. 48000.

Most clients report formal health insurance being unavailable in their village at baseline, and very few clients report having formal health insurance (Table 1, panel B). There are few substantial or statistically significant differences at baseline for clients randomly assigned to pilot villages, as reported in column 4 of Table 1 or across a range of other characteristics. Our empirical analysis focuses on clients' baseline characteristics, though we also draw on endline data collected after insurance enrollment was discontinued and clients had the opportunity to re-join SKS without purchasing insurance.[3]

In addition to survey data, we received administrative data from SKS that includes loan clients' entire loan history. These administrative data also include loan renewals after the health insurance requirement was instituted and after health insurance enrollment was discontinued. We also have administrative data on health insurance take-up in the period when it was voluntary (November 2008 to March 2009).

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[1]Serious health events refer to illness or injury that prevented normal daily activities for more than one week, overnight hospitalization or surgery, and any health event requiring expenditure of more than Rs. 300.

[2]Average household health expenditures are comparable to estimates from India's National Sample Survey in 2004–2005 (Gupta, 2009).

[3]Of the baseline households surveyed, only 1.3% were not found for the endline survey and this attrition was not differential in pilot villages. We generally analyze a sample of clients for which we have data in both the baseline and endline surveys.

III. Methodology

The empirical analysis begins by comparing client loan renewal decisions in treatment villages to client loan renewal decisions in control villages. For each client i in village v and randomization strata s, we regress loan renewal (Y) on an indicator variable for treatment village (T) and randomization strata fixed effects (α):

$$Y_{ivs} = \beta T_v + \alpha_s + \varepsilon_{ivs}. \quad (1)$$

The coefficient of interest β indicates the average impact on loan renewal from the requirement to purchase health insurance.

To assess the extent of adverse selection, we then compare baseline household characteristics for clients in treatment villages who decide to renew to those clients in control villages who decide to renew. SKS loan renewal in treatment villages implied enrolling into health insurance, so we estimate whether the treatment effect on client drop-out varies systematically with household characteristics. Extending equation (1), we also regress loan renewal on a client characteristic (C_i) and the interaction between that characteristic and the indicator for treatment village:

$$Y_{ivs} = \gamma T_v \times C_i + \delta C_i + \beta T_v + \alpha_s + \varepsilon_{ivs}. \quad (2)$$

The coefficient of interest γ indicates whether the health insurance requirement systematically shifted loan renewal toward clients with particular characteristics, i.e., those predisposed to have greater insurable health care expenses. For all regressions, the standard errors are adjusted for heteroskedasticity and clustered by village to adjust for local geographic correlation.

Due to administrative constraints, SKS decided to gradually roll-out the health insurance requirement to villages between June 2007 and November 2007. As we did not randomly select village roll-out dates, we define a sample of clients who had loans prior to June 2007 and we focus on intent-to-treat estimates from relative impacts on SKS client loan renewal in treatment villages after June 2007.

IV. Results

Loan Renewal

The requirement to purchase health insurance substantially lowered SKS clients' loan renewal rates. Table 2, column 1, reports that clients in treatment villages were 16 percentage points (or 23%) less likely to take out an annual loan within one year after the pilot began.[4] The pilot's gradual roll-out implies that approximately 73% of clients in treatment villages would have faced the health insurance requirement at the time when their

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[4]Specifically, clients were less likely to take out a new loan between June 7, 2007 and July 3, 2008. Clients' annual loans are repaid over 50 weeks, and we have included a 6-week period for clients to renew their loan.

previous loan expired, so these intent-to-treat estimates might be scaled-up by a factor of 1.37.[5] The estimated impacts on loan renewal are somewhat larger (22 percentage points) when restricting the sample to clients in our baseline and endline surveys (Table 2, column 2).

Interestingly, this difference in loan renewal persisted: even after the health insurance requirement had been eliminated, at the time of our endline survey, SKS clients in treatment villages remained substantially less likely to have a SKS loan. Based on administrative data, clients in treatment village were 16 percentage points (30%) less likely to have an outstanding SKS loan (column 3). This difference is smaller based on self-reported data (column 4), which may reflect measurement error because many clients report having a SKS loan when these do not appear in the administrative data.[6]

Adverse Selection

From estimating equation (2) in separate regressions, each row of Table 3 reports the interaction effects of interest (in column 1) and the sample size (in column 2).[7] Table 3 reports no evidence of adverse selection across a variety of household characteristics. We do not find greater insurance take-up for households in worse health at baseline (panel A), or for households more likely to experience a pregnancy (panel B). Indeed, some of the estimates are marginally the "wrong sign," with less loan renewal and insurance take-up among households predisposed to have greater insurable health care expenses. There is little increase in R-squared from adding all interaction terms from panels A and B, and a joint F-test of these interaction terms is statistically insignificant.

The empirical analysis focuses on households' baseline outcomes, which are by definition not impacted by insurance take-up. Any difference between the characteristics of those who renew and those who do not would be a sign of differential selection. For panel C of Table 3, we regress health care experiences at endline on the baseline characteristics in panel A (or panel B) and report the interaction effect for households' predicted outcomes. The baseline health characteristics in panel A are somewhat predictive of endline health expenses or of whether someone spent a night in a hospital, but higher predicted healthcare consumption at endline is not associated with greater insurance take-up.

The baseline health proxies may be too weak or households may not be able to predict whether they will need insurance in the future, though this would itself alleviate concerns of adverse selection. It is much easier to predict pregnancy than other healthcare expenses, yet predicted pregnancy is also not associated with greater insurance take-up.[8] Thus, even

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[5]Based on clients' previous loan expiration dates and the dates of pilot roll-out, we calculate the fraction of clients who would have faced the health insurance requirement when their previous loan expired. If clients' renewal decisions are only affected when the health insurance requirement is binding at the time of their first opportunity for renewal, then the implicit first-stage impact of the treatment is 0.73. We do not observe rollout dates for 20 villages, but make the conservative assumption that roll-out was immediate in these villages. Clients whose previous loan expired prior to June 2007 are assumed to not face the health insurance requirement.
[6]Both our survey and the administrative data may contain data errors, though we suspect the administrative data is more accurate than the self-reports. Average loan renewal rates should decline over time, as previous clients naturally drop-out from SKS, and the self-reported mean renewal rate in control villages is higher than would be expected.
[7]The sample size varies across specifications, as some households have missing data for some characteristics.
[8]Our first-stage prediction of whether there is new baby at endline (based on the characteristics in panel B) has a much larger R-squared than our prediction of healthcare consumption (based on the characteristics in panel A).

households with almost-obvious benefits from enrolling in the insurance program did not selectively elect to stay SKS members. In panel D, we simply include these endline characteristics instead of the predicted values, and there is no systematic association with insurance take-up.[9] Finally, panel E reports variation in insurance take-up by households' baseline economic characteristics, and these characteristics are not very predictive.

V. Conclusion, Discussion, and Future Research

The design of SKS's microinsurance offering, while standard, seems to have unwittingly created a much larger problem in attempting to solve a small one. SKS was clearly successful in avoiding adverse selection in the take-up for their product. But what they did not initially forecast is that this was because *no one* seemed to demand insurance, even people for whom there was clearly value (e.g., young women planning to have a child). This lack of demand was painfully obvious in the voluntary period: 29 clients in our sample purchased insurance when they did not have to.

Strikingly, a substantial fraction of clients (16 percentage points) preferred to let go of Microfinance than to pay a moderately higher interest rate and keep their loan. Our endline data suggest that these households did not generally substitute for SKS loans with other Microfinance loans, so their non-renewal decision represents a net loss in access to Microfinance. The relevant margin for client drop-out may therefore have been their willingness to pay for a loan, and have nothing to do with the insurance *per se*. In ongoing work, we are investigating the impact of decreased access to microfinance, and we are finding significantly negative impacts on the performance of their businesses.

These data suggest that adverse selection was simply a moot concern in this setting. More generally, in early stages of introducing formal health insurance to the poor in developing countries, worries about adverse selection may be counter-productive. There cannot be adverse selection for a product that no one wants. It is difficult to get people to purchase formal health insurance, but "successful" insurance take-up through bundling carries risks of fostering client resentment, refusal to engage with insurance on its own terms, and possibly inefficient loss of another product that they would otherwise value.

And as it turns out, SKS clients were correct *ex post* in not wanting to purchase this particular health insurance policy. Implementation of the insurance was mismanaged by the partnership of SKS and ICICI-Lombard. In our sample of clients, few claims were submitted and very few clients received any reimbursement. By the end-line survey, and in our regular monitoring data, very few people report using insurance, largely because clients were never given documentation to be able to use the insurance or clients did not know how to use the insurance. There is no particular reason to think that this was expected by SKS clients *ex ante*, at least beyond the beyond the normal pessimism in developing countries about the prospects of formal health insurance. By the time the product was voluntary, however, these failures were probably quite obvious and could explain why only 29 people purchased

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[9]Although these endline characteristics are clearly endogenous because insurance could have affected behavior, we will see below that this is unlikely in practice for this particular case.

insurance voluntarily. The fact that client pessimism was well-grounded suggests that offering products that do work, and letting people experience them, should come before trying to solve issues like adverse selection that can only arise once insurance actually delivers a valuable service.

Acknowledgments

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Table 1

Baseline Household Characteristics

	All Villages	Treatment Villages	Control Villages	Difference: T - C
	(1)	(2)	(3)	(4)
Panel A. Insurance Demand				
Serious health events, previous year	2.521 [1.922]	2.596 [1.985]	2.440 [1.848]	0.141 (0.098)
Total health expenditures, previous year	4670 [15103]	4897 [18516]	4430 [10312]	422 (445)
Hospitalization expenditures, previous year	603 [3144]	653 [3467]	549 [2760]	93 (97)
Consumption of durables and non-durables, previous year	47938 [50809]	47722 [44354]	48166 [56811]	−774 (2165)
Panel B. Insurance Supply				
Formal health insurance, available in village	0.140 [0.347]	0.135 [0.341]	0.146 [0.354]	−0.018 (0.020)
Formal health insurance, owned by household	0.003 [0.053]	0.004 [0.061]	0.002 [0.044]	0.002 (0.001)

Notes: Column 1 reports average household characteristics at baseline, with standard deviations reported in brackets. Columns 2 and 3 report average characteristics for households in randomly-assigned treatment villages and control villages, respectively. Column 4 reports the estimated difference between treatment and control households, controlling for the randomization stratification groups (SKS branch and above/below median number of clients within branch). Robust standard errors, clustered by village, are reported in parantheses.

*** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 2

Estimated Impacts of Treatment on SKS Loan Renewal

	Administrative Data			Self-Reported
	First Loan Cycle		At Time of Endline Survey	
	(1)	(2)	(3)	(4)
Treatment	−0.161***(0.024)	−0.221***(0.029)	−0.162***(0.029)	−0.076***(0.024)
Control Group Mean	0.708	0.724	0.541	0.717
Number of Clients	14670	5366	5366	5232

Notes: Column 1 reports the impact of insurance requirements on whether clients took out a new SKS loan by the end of June 2008, for a sample of SKS clients who had an annual loan prior to June 2007. Column 2 restricts the sample to SKS clients in our baseline and endline surveys. Column 3 reports the impact on whether baseline SKS clients had a loan at the time of the endline survey, continuing to use SKS administrative data, whereas Column 4 uses clients' self-reported loan data. All regressions control for the randomization stratification groups, and robust standard errors clustered by village are reported in parantheses.

*** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 3

Differential Impacts of Treatment on Loan Renewal by Standardized Household Characteristics

	Loan Renewal	Clients
	(1)	(2)
Panel A. Baseline Health Indicators		
Chronic disease, any in household	−0.016 (0.013)	5070
Chronic disease, any family history	−0.015 (0.013)	5070
Self-reported health, household average	−0.001 (0.015)	5062
Any household member in poor health	−0.028** (0.014)	5062
Any consultation for symptoms, previous 30 days	−0.009 (0.015)	5056
Any household member who smokes or drinks	−0.015 (0.015)	5063
Panel B. Baseline Pregnancy Indicators		
Any household member plans to have baby	−0.014 (0.017)	5169
Number of females aged 17-to-24 in household	−0.002 (0.014)	5366
Panel C. Predicted Endline Health and Pregnancy		
Spend night in hospital, predicted	−0.005 (0.014)	4700
Health expenditures, predicted	−0.020 (0.015)	4700
Pregnancy, predicted	−0.009 (0.016)	5169
Panel D. Endline Health and Pregnancy		
Spent night in hospital	0.013 (0.015)	5355
Health expenditures	−0.010 (0.014)	5358
New baby, between baseline and endline	0.017 (0.013)	5366
Panel E. Baseline Economic Indicators		
Household consumption, previous year	0.032* (0.017)	5232
Self-reported financial status	−0.012 (0.017)	4881
Household owns business	−0.029 (0.019)	5233

Notes: From estimating equation (2), each row of column 1 reports impacts on loan renewal from interaction terms between treatment and the indicated household characteristic (normalized to have standard deviation of one). Robust standard errors, clustered by village, are reported in parantheses.

*** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level.