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Community Based Health Insurance in Ethiopia – Enrollment and Impact

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Structure

- Motivation and context
- What is CBHI?
- CBHI in Ethiopia
- Data
- Empirical approach
- Results
- Conclusion

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Motivation

- Shock-prone country
- Formal protection systems are weak
- Ill-health is one of the main unprotected shocks
  - Leads to impoverishment
  - Perpetuation of poverty
- Lack of knowledge on CBHI impacts
- Assess impact of CBHI on
  - Access to health care
  - Financial protection
  - Consumption and income
  - Consumption smoothing strategies

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Context

- Poverty headcount - 30%, HDI index 173 out of 186 ranked countries
- Health policy
  - Preceding decade focus mainly on supply side
  - Health extension program
  - Upgrade health facilities
  - Availability of essential drugs
- Health care financing
  - Donors 40%, OOP 37%, government 21%, employers 2%
  - Low rates of health-care utilization

- Enrollment (Dropout)
- Impact
  - Health care utilization
  - Out-of-pocket expenditure
  - Probability of borrowing

What is CBHI?

1. **Community pre-payment health organizations**
   - Strong community involvement design, implementation, supervision
   - Trust and ownership
   - Small risk pool, lack of technical and managerial skills
2. **Provider based health insurance**
   - Provider managed with limited community influence
   - Scheme management and service provision integrated
   - Limited scale
3. **Government run community involved health insurance**
   - Top down with community involved in design and administration
   - Large risk pool and resources, enhanced sustainability
   - Limited community ownership, potentially high admin costs

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CBHI fact check (systematic reviews)

- Performance so far….
  - Enrolment rates tend to be low
  - High drop-out rate
  - Evidence of exclusion: lowest income groups tend to be excluded
  - Pre-existing health conditions motivate entry
- Scheme characteristics
  - Top down: effective in providing access to care and reducing OOP
  - Community: better in terms of outreach
- Enrolment challenges
  - Low quality of care, inappropriate product, ineffective marketing
  - Liquidity constraints, lack of trust, information and understanding
- Credible evaluations are not so common

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CBHI Ethiopia

- June 2011, Government of Ethiopia rolled out a pilot CBHI scheme in thirteen districts (301K households, 1.8 million individuals)
  - Increase health care utilization
  - Reduce out-of-pocket expenditure
  - Raise resources
  - Improve quality of care
- Feasibility studies to determine premiums
- Awareness creation activities
- General assembly meeting
  - Village determines whether to join or not (simple majority)
  - Households decide whether to join or not

CBHI Scheme – A Snapshot

- Provider payment: fee for service
- Risk pooling at district level
- Benefit package: Outpatient & inpatient services at public health centers and hospitals; excludes tooth implantation and eye glasses
- Premiums – 25% general subsidy; Members pay Birr 10.50 to 15 per month per household (about 0.5 percent of monthly income); 10% get a full subsidy

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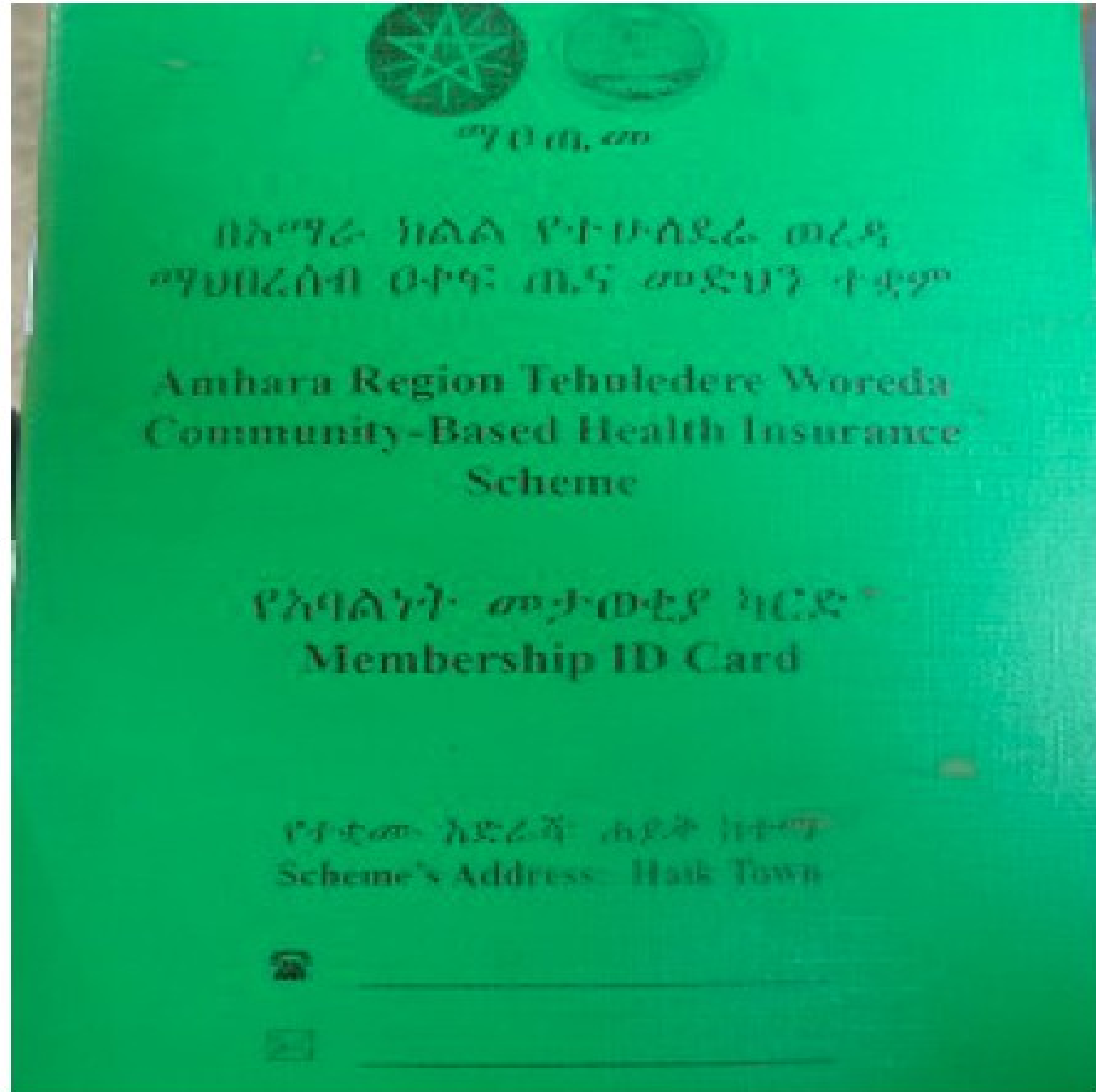
CBHI Membership card



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Enrollment

- Whether scheme is socially inclusive?
- Role of health status in influencing uptake
- Role of availability and quality of care in influencing enrollment
- Contribution
  - Current enrollment as a function of past traits
  - Survey data (1600 households in pilot districts), Key informant interviews, FGD
  - Quality and availability of care in determining enrollment

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Enrollment

- Specification

$$P(CBHI_{it}=1)=F\begin{pmatrix}\alpha SES_{it-1}+\theta DE_{it-1}+\beta HS_{it-1}+\gamma FISC_{it-1}+\\ \delta SSA_{it-1}+\eta SSQ_{it-1}+\varepsilon_{it}\end{pmatrix}$$

- SES – Socio-economic status (consumption, education, member of a productive safety net programmme, food insecure – PSNP);
- DE – Demographics;
- HS - Health status; FISC - Social capital, *Iqqub, Wonfel, Debo;*
- SSA – Availability; SSQ – Quality of care

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Table 1
CBHI in Ethiopia – Premiums, payment intervals and enrollment

Region	Unit of contribution	Premium per month		Payment interval	CBHI uptake in April 2012 (%)
		Core household members	Per extended family member		
Tigray	Household	ETB 11.00	ETB 2.50	Annual	34
Amhara	Individual	ETB 3.00	ETB 3.00	Biannual	49
Oromiya	Household	ETB 15.00	ETB 3.00	Gimbichu district - annual Kuyu, Deder, and L.Kossa districts – annual or biannual	44
SNNPR	Household	ETB 10.50	ETB 2.10	Yirgalem and D.Woyde – quarterly Damboya - three times a year	35
Total					41

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Table 2
CBHI Enrolment and drop-out

Region	April 2012		April 2013					
	Enrolled		Enrolled		Dropped-out		New members	
	%	N	%	N	%	N	%	N
Tigray	33.9	101	50.2	146	26.5	26	38.3	74
Amhara	49.5	148	62.7	188	6.9	10	33.8	52
Oromiya	44.2	133	44.5	133	21.2	28	17.4	29
SNNPR	35.3	107	35.4	107	21.5	23	11.8	23
Total	**40.7**	**489**	**48.2**	**574**	**18.0**	**87**	**25.1**	**178**

Note: Among insured households in 2012, one household did not report its enrolment status and five households were not resurveyed in 2013.

Findings

Social inclusion/exclusion

- Socio-economic status (education of household head/consumption quintile) does not influnce uptake
- Belonging to the Productive Safety Net Program increases the probability of joining the scheme by about 30 percentage points
  - Information
  - Pressure

Socioeconomic status				
2nd consumption quintile (ref: poorest consumption quintile)	0.000186	0.00552	0.00243	0.00627
	(0.0503)	(0.0513)	(0.0509)	(0.0513)
3rd consumption quintile	0.0192	0.0275	0.0214	0.0282
	(0.0507)	(0.0517)	(0.0513)	(0.0518)
4th consumption quintile	0.0332	0.0335	0.0329	0.0317
	(0.0534)	(0.0528)	(0.0536)	(0.0527)
Richest consumption quintile	0.0838	0.0871	0.0842	0.0864
	(0.0685)	(0.0700)	(0.0695)	(0.0689)
HH head education- Informal (ref: no education at all)	0.0135	0.0119	0.0119	0.00736
	(0.0517)	(0.0513)	(0.0518)	(0.0510)
HH head education- Primary or above	0.0369	0.0385	0.0361	0.0329
	(0.0454)	(0.0454)	(0.0454)	(0.0456)
Participated in PSNP	0.316***	0.320***	0.316***	0.327***
	(0.0639)	(0.0644)	(0.0640)	(0.0637)

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Findings

- Measures being to taken to integrate social programs
- Households covered by PSNP are provided information and encouraged to enrol
- Pressure – not entirely voluntary (10 percent of enrolled households) indicated they were pressured
- Those in admin/leadership positions tend to join (10 percentage points)
- Larger households tend to join

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Findings

- Not much evidence that pre-existing conditions/self-assessed health status induces enrolment
- Household located further away tend to join
- Strong availability/quality of care effects
  - Reductions in waiting time - a one s.d./28 minute decline increases enrollment by 14 percentage points
  - Increased availability of blood testing equipment - increases probability by 30 percentage points

Health status and health care use				
Prop. of household members with poor SAH (ref: Prop. of household members with good SAH)	-0.0452	-0.0538	-0.0480	-0.0646
	(0.0579)	(0.0559)	(0.0573)	(0.0559)
Past illness event	0.00141		0.00127	
	(0.00105)		(0.00119)	
Chronic illness	-0.0281		-0.0276	
	(0.0212)		(0.0212)	
Outpatient care use		0.0279	0.0186	
		(0.0320)	(0.0369)	
Inpatient care use		-0.0535	-0.0587	
		(0.0865)	(0.0850)	
Outpatient healthcare expenditure				0.000237**
				(0.000105)
Inpatient healthcare expenditure				-1.93e-05
				(2.47e-05)
Trust in modern care – Agree (ref: Not agree)	0.0930	0.0935	0.0928	0.0922
	(0.0583)	(0.0580)	(0.0581)	(0.0587)

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Supply side characteristics

Travel time to health center	0.000820**	0.000865**	0.000845***	0.000851**
	(0.000383)	(0.000387)	(0.000386)	(0.000391)
Travel time to public hospital	3.90e-05	4.96e-05	3.25e-05	7.58e-05
	(0.000335)	(0.000336)	(0.000336)	(0.000337)
Completed first degree (12+3)	-0.103	-0.105	-0.104	-0.110
	(0.0744)	(0.0737)	(0.0744)	(0.0745)
Received on the job training	-0.0597	-0.0653	-0.0623	-0.0641
	(0.0905)	(0.0912)	(0.0904)	(0.0919)
Availability of blood testing equipment	0.298***	0.296***	0.297***	0.302***
	(0.0612)	(0.0616)	(0.0615)	(0.0615)
Availability of urine testing equipment	-0.119	-0.124	-0.122	-0.114
	(0.114)	(0.115)	(0.113)	(0.115)
Waiting time to get patient card	-0.00127	-0.00146	-0.00124	-0.00159
	(0.00457)	(0.00454)	(0.00456)	(0.00454)
Waiting time to see a medical professional	-0.00507**	-0.00513**	-0.00513**	-0.00498**
	(0.00215)	(0.00216)	(0.00216)	(0.0021[illegible])
Perceived quality of care	0.195***	0.197***	0.195***	0.192***
	(0.0611)	(0.0607)	(0.0614)	(0.0613)

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Findings

- Strong availability/quality of care effects
  - Also from FGD
- Discrimination by health care professionals
  - Prefer cash payments than wait for insurance to pay
  - Doctors accuse patients of over use

Summarizing

- Scheme uptake is more than 40 percent
- No evidence of social exclusion
- PSNP – food insecure, far more likely to join/important role of information
- Not much evidence that health status influences enrollment
- Large quality of care effects
- Health providers favour uninsured patients

- Almost all insured households (96 percent) indicate they will renew membership
- 57 percent of uninsured plan to enroll in the future
- Positive design features
  - First, the scheme is embedded within existing government structures, scheme uptake is a yardstick used to measure success of village administration
  - Second, interlinking scheme with other social programs and using the PSNP as a platform to spread information and awareness

Insured households (N = 489)	N (%)	Uninsured households (N = 735)	N (%)
Reasons for enrollment (percent of insured households)		Reasons for not enrolling in CBHI (percent of uninsured but eligible households)	
Illness and/or injury occurs frequently in the household	39 (8.1)	Illness and injury does not occur frequently in the household	31 (5.2)
Pregnant women in the household need health care services	34 (7.0)	The registration fee and premiums are not affordable	203 (34.2)
Child/children in the households need health care services	37 (7.7)	Want to wait in order to confirm the benefit	117 (19.7)
To finance health care expenses	152 (31.5)	Lack of awareness about the scheme	133 (22.4)
The household is exempt from registration fee and premium	22 (4.6)	Shortage of money	32 (5.4)
Premium is low compared to user fee	120 (24.8)	Limited availability of health services	13 (2.2)
Pressure from CBHI officials	50 (10.4)	Quality of health care services is low	17 (2.9)
Other reasons	29 (6.0)	Other reasons	47 (7.9)
Insured households who plan to renew their CBHI membership	466 (96.1)	Uninsured households who plan to enroll in the future	404

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Impact

- Outcomes
  - Health care utilization
  - Out-of-pocket expenditure
  - Borrowing/indebtedness
- Concerns
  - Scheme is voluntary
- Data and control groups
  - Panel data
  - Two control groups
    - Uninsured in pilot districts
    - Uninsured in control districts

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Data

- Household surveys in March/April 2011, 2012, 2013
- 1632 Households, 9455 individuals
- 3% attrition
- 16 districts, 4 main regions (86% of country's population)
  - 12 CBHI pilot districts
  - 4 non-CBHI districts
- 42 Event history interviews
- Key informant interviews/FGD
- Facility surveys – 48 health care centres

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Evaluation design

- Household fixed effects regressions

$$Y_{it} = c + \beta CBHI_{it} + \gamma X_{it} + \delta_t + \alpha_i + \varepsilon_{it}$$

- Time-variant control variables X_{it}
  - Demographics, socio-economic controls, head of household characteristics, shocks
- Potential sources of bias
  - Selection on affordability
  - Selection on need
  - Spill-over effects
- Placebo tests using non-CBHI districts/outcomes which should not be affected by the CBHI scheme

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Results: Outpatient care (incidence)

	All districts	Control districts	Pilot districts
All modern care	0.0787***	0.0580*	0.107***
	(0.0284)	(0.0310)	(0.0305)
Public providers	0.0983***	0.0821***	0.114***
	(0.0259)	(0.0284)	(0.0275)
Private providers	0.0149	0.00839	0.0233
	(0.0217)	(0.0256)	(0.0225)

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Results: Outpatient care (incidence)

	All districts	Control districts	Pilot districts
Health post	0.00767	0.00909	0.00648
	(0.0102)	(0.0123)	(0.0110)
Health centre	0.106***	0.0995***	0.110***
	(0.0206)	(0.0234)	(0.0212)
Public hospital	-0.0220*	-0.0310***	-0.0117
	(0.0111)	(0.0113)	(0.0124)

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Results: Outpatient care (intensity)

	All districts	Control districts	Pilot districts
All modern care	0.0516***	0.0376*	0.0624***
	(0.0191)	(0.0209)	(0.0231)
Public providers	0.0595***	0.0535***	0.0675***
	(0.0150)	(0.0157)	(0.0170)
Private providers	0.0064	0.0004	0.0140
	(0.0116)	(0.0133)	(0.0125)

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Results: Out-of-pocket spending

	All districts	Control districts	Pilot districts
Treatment and medicine	-20.07	-27.56*	-11.04
	(13.53)	(15.23)	(13.87)
Transport and other	-3.231	-3.207	-2.230
	(4.213)	(4.150)	(4.566)
Total health spending	-23.3	-30.77*	-13.27
	(16.42)	(17.99)	(17.02)

Results: Healthcare spending as share of expenditure

	All districts	Control districts	Pilot districts
Treatment and medicine	-0.005	-0.008**	-0.001
	(0.003)	(0.004)	(0.004)
Transport and other	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)
Total health spending	-0.006	-0.009**	-0.002
	(0.004)	(0.004)	(0.004)

Results: Costs per visit

	All districts	Control districts	Pilot districts
Public care price	-41.94***	-54.26***	-34.73***
	(11.56)	(17.15)	(12.89)

Conditional on utilization: potential selection bias

Findings

Health Care Utilization

- 8 - 11 percentage point (30 – 42 percent) increase in the use of modern health care from public providers
- 10 - 11 percentage point (50 percent) increase in use of health centers
- 1 to 3 percentage point (50 percent) decline in use of hospitals for outpatient care
- Increase in the intensity of use – 2 to 3 more visits per year, about a 60 percent increase

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Findings

Out-of-pocket expenditure

- Negative effect on spending (consultation and medicine) but imprecise
- The cost of care per visit declines by about 56 percent

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Concluding remarks

- Enrollment
  - Uptake is impressive
  - Health status does not seem to drive enrollment
  - Socially inclusive
- Impact
  - Increase in health care-utilization
  - Decline in cost-per-visit
  - Reduces borrowing by 5 percentage points (13 percent)

Looking ahead

- Funds generated through scheme (without the subsidy) are able to cover 98 percent of the claims; including the subsidy the revenue to claim ratio is 198 percent
- Scaling up – scheme has been scaled up or pilot has been extended to 161+13 districts