

Can Micro Health Insurance Reduce Poverty?

Evidence from Bangladesh

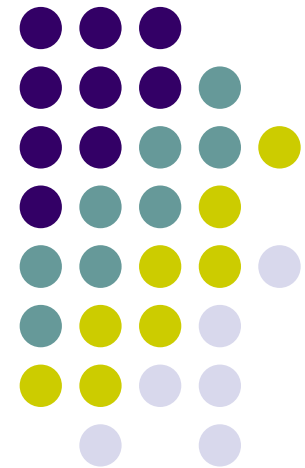
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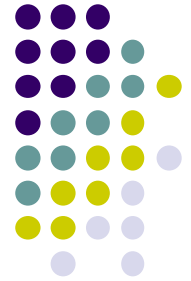
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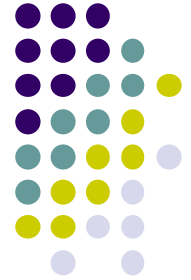
What I will talk about today...



- Why did MHI emerge in Bangladesh?
- The overview of the MHI scheme of GB
- The overview of the concept ...
- Data
- Poverty indicators
- Methods for...
- Findings
- Limitations
- Conclusion

Why did MHI emerge In Bangladesh?

- Absent of traditional health insurance markets
- Absent of social health insurance
- Government has largely failed to meet the health care needs of the rural poor.



An overview of GB MHI scheme



Mechanisms for providing health services

- Mainly through static clinics.

Categories of services covered

- Preventive care including antenatal care (ANC)
- Curative care (mainly outpatient care).
- All the basic diagnostic services including ultrasonography

Type of curative services provided

- Some health promotion activities
- Essential Services Package (ESP) including safe delivery.

Enrolment status

- Voluntary

Proof of enrolment

- Insurance card

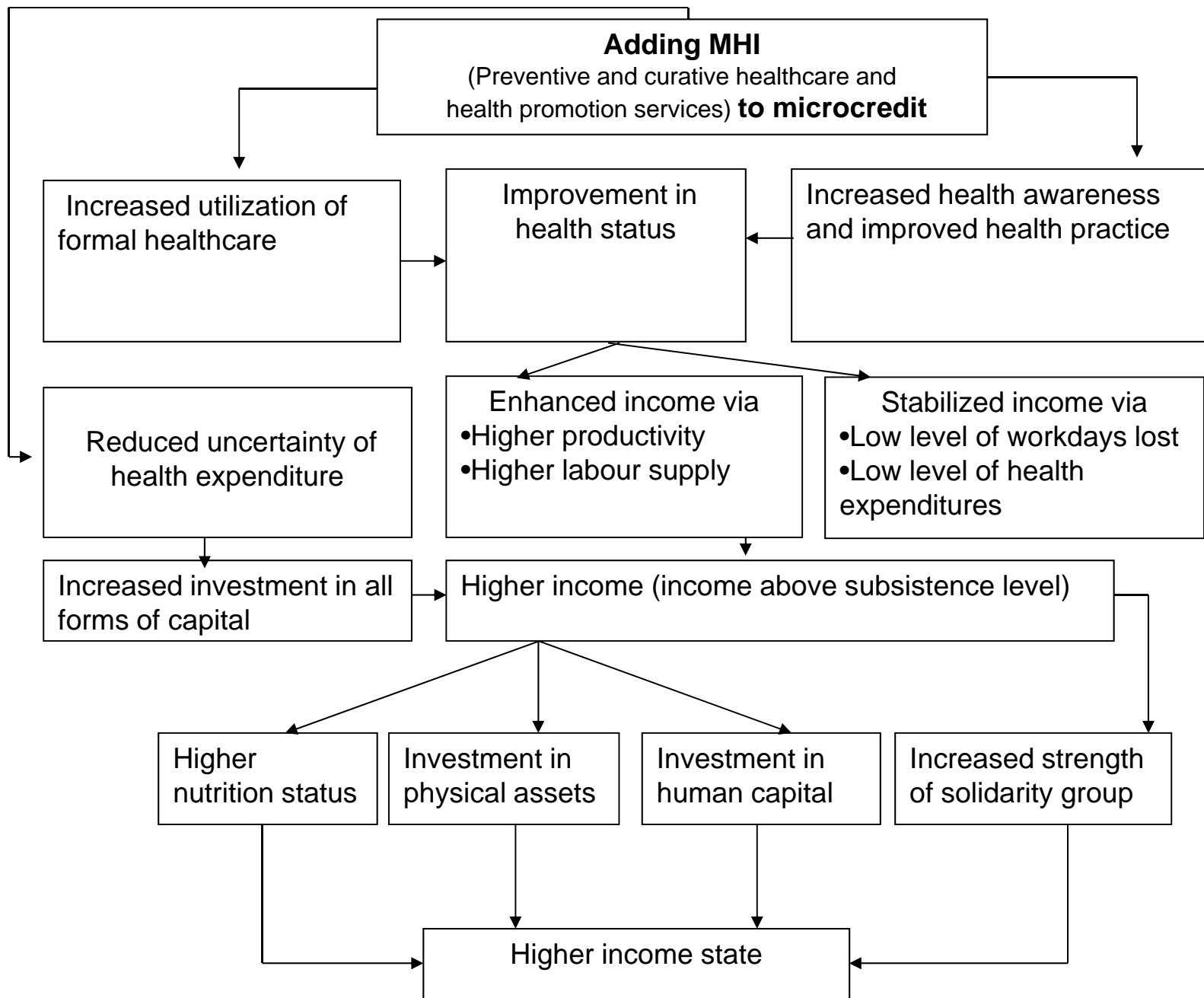
Affiliation unit

- Household. The program is identical for all enrolees (i.e. the same level of premium and the same benefit package is applicable for every household).

GB MHI scheme/cont.



- | | |
|---|---|
| Eligibility criterion | • GB member households or any villagers living within an 8 km radius of each health centre. |
| Access of non-insured households to curative care | • Yes |
| Premium | • Annual premium (covering up to 6 members) <ul style="list-style-type: none">▪ For a GB member family: TK.120 (US \$1.74)▪ For a non member family: TK.150 (US \$2.17) |
| Benefit package for the card holders | • Co-payment: <ul style="list-style-type: none">▪ Medical consultation fee for a card holder: TK.10 (US \$0.14)▪ Medical consultation fee for a non-card holder: TK.25 (US \$0.36) • Discount: Discount for basic medicine ³ on MRP: 25%, for pathological tests on listed price: 30-35%, and for referred consultation visit: 50%. |



Data and study design



Study areas	Villages (MC centre)	No. of HH interviewed
▪ ≥ 5 years exp. of MHI (GB-1)	2 (4)	136
▪ ≤ 2 years exp. of MHI (GB-2)	2 (3)	85
▪ No MHI (GB-3)	2 (4)	108
▪ Total	6 (11)	329
▪ Response rate		73 %

Enrolment status in MHI



Membership status in MHI	GB	
	GB-1	GB-2
Insured	96.3 (131)	58.8 (50)
Uninsured	3.7 (5)	9.4 (8)
ME does not know	0 (0)	31.8 (27)
Total	100.0 (136)	100.0 (85)

Willingness to enrol in MHI



	GB-3 (no MHI)
Willing to participate in MHI	98.1 (106)
Not willing to participate	1.9 (2)
Total	100.0 (108)



Poverty indicators

- Household income
 - Age and sex adjusted per capita income
- Stability of household income
 - Age and sex adjusted per capita non-land assets (both productive and non-productive)
 - Food sufficiency level
- Poverty status
 - Head count ratio via FGT index

Descriptive statistics



Different poverty indicators	Difference between GB-1 and GB-2	Difference between GB-1 and GB-3	Difference between GB-2 and GB-3
Mean per capita income	82.07***	102.32***	20.24
Mean value of per capita non-land assets	81.50***	65.33***	-16.16
Proportional difference in surplus of food	13.53	18.14	4.61

Descriptive statistics/Cont.



Different groups of GB members	Percentage of household above poverty level
GB-1 (established MHI)	80.88 (110)
GB-3 (no MHI)	69.44 (75)
Proportional difference (in percentage) between GB-1 and GB-3	11.44*

Method for estimating causal effects



- Model-1: Model for estimating the outcomes conditioning on participation

(Ekman, 2007; Msuya et al, 2007; Dror et al, 2006; Dror et al, 2005; Trujillo, 2005; Jutting, 2004; Jowett et al, 2004; Jowett et al, 2003; Trujillo, 2003; Yip and Berman, 2001; Waters, 1999)

- *Structural equation:*

$$y_{ij} = X_{ij} \beta_y + A_{ij} \delta + \varepsilon_{ij}$$

- *Reduced form (participation) equation:*

$$A_{ij} = X_{ij} \beta_A + Z_{ij} \phi + \mu_{ij}$$

Model-1/cont.



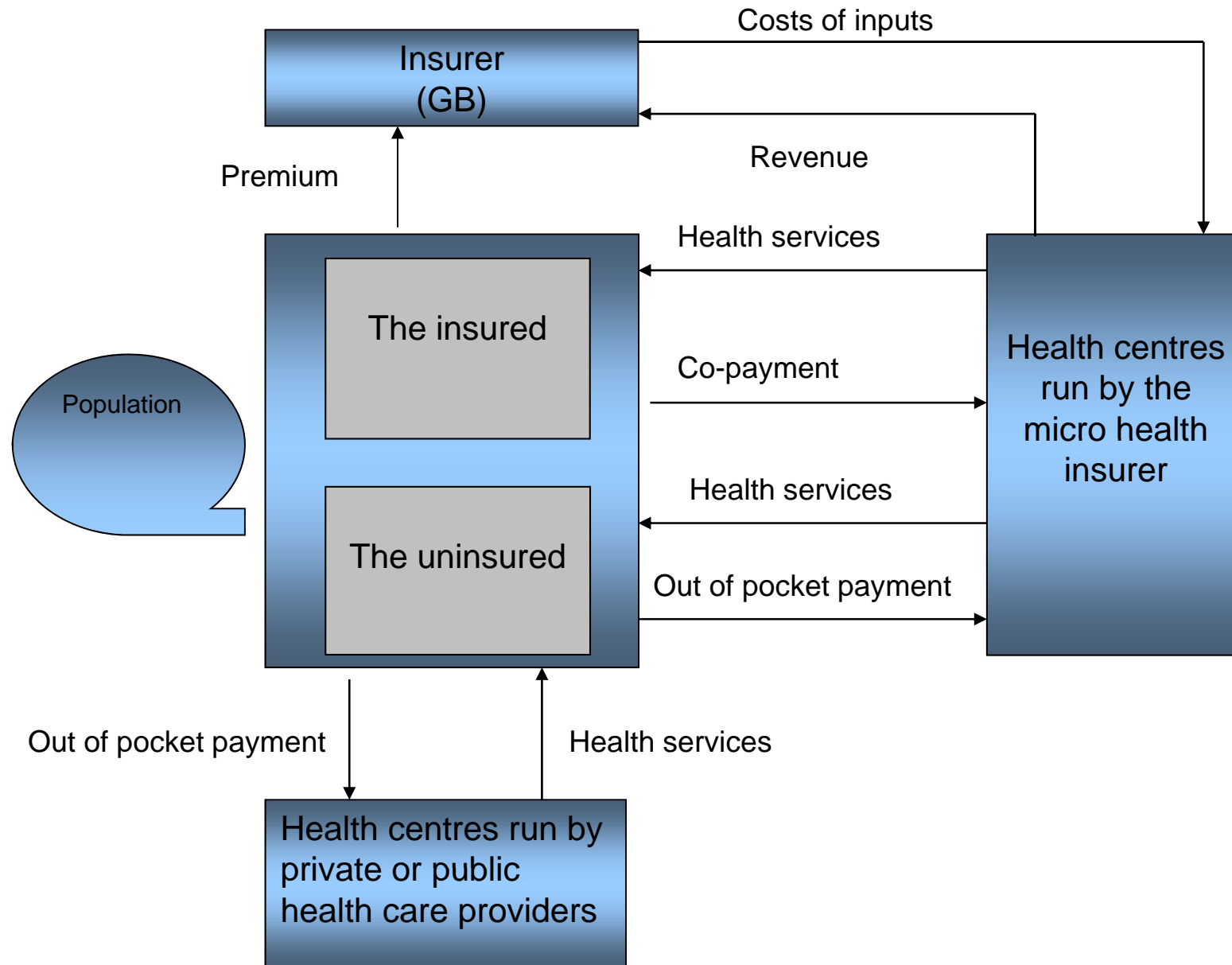
But this is not useful in our case: -

(a) very high enrolment rates

(b) spill over effects

(c) GB offers health promotion services to all microcredit members (regardless of participation in MHI) in the catchment area of the health centre

GB MHI & spill over effects



Method/cont.



- Model-2: Model for estimating the outcomes conditioning on placement of program
 - compared the program group with a comparison group where program was in pipeline (Chase, 2002; Galasso and Ravallion, 2004)
 - compared the program group with a comparison group where program has not placed at the time of survey (Amin et al, 1996; Hadi, 2002)

Model-2: Conditioning on placement of program



$$y_{ij} = X_{ij}\beta + P_{ij}\lambda + \varepsilon_{ij}$$

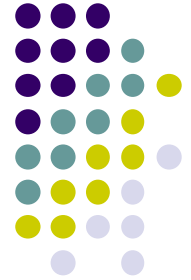
$$P = 1$$

if the household is drawn from program area (GB-1) where MHI has been operated at least for five years

$$P = 0$$

if the household is drawn from the comparison area (GB-3) where MHI was not placed at the time of survey

Model-2: Major concern



- Program placement bias
 - Demand side factors
 - Supply side factors
- Geographical heterogeneity

Model-2: How can we overcome the concern?



- Selection of GB-1 and GB-3 from the same small geographical boundary
- Choosing GB-3 where there is potential for placing the MHI
- Conducting a survey to know the willingness to be insured

Findings (Model-2)



OLS estimation of log-per capita annual income and log-per capita non-land assets

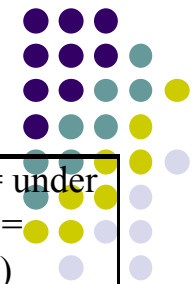
Explanatory variables	Log of (annual) per capita income	Log of per capita non-land assets
Education of the household head (years)	0.026*** (0.009)	0.006 (0.023)
Medium grade occupation of the household head (1= yes)	0.155*** (0.061)	0.215 (0.140) (p-value = 0.13)
High grade occupation of the household head (1 = yes)	0.285*** (0.084)	0.538*** (0.212)
Education of the microentrepreneur (years)	0.012 (0.014)	0.067** (0.030)
Employment status of the microentrepreneur (1= employed)	-0.066 (0.071)	0.334* (0.189)
The ratio of income earners and household size	0.182 (0.158)	0.663** (0.322)
No. of persons living abroad	0.480*** (0.088)	0.595*** (0.136)
Owned cultivable land (decimals)	0.002*** (0.001)	0.003*** (0.001)
Owned homestead land (decimals)	0.003* (0.002)	0.011** (0.005)

OLS estimation/cont.



Explanatory variables	Log of (annual) per capita income	Log of per capita non-land assets
Membership in GB microcredit (years)	0.008 (0.005) (p-value = 0.11)	0.016* (0.010)
Membership in any other microcredit program (1 = yes)	-0.065 (0.092)	0.038 (0.207)
No. of chronic diseased persons	-0.051* (0.030)	-0.066 (0.064)
Village literacy rate (%)	0.006 (0.055)	0.021 (0.096)
MHI status (1= established MHI, 0 = no MHI)	0.110 (0.169)	0.171 (0.285)
Constant	4.775** (2.050)	2.671 (3.533)
observations	244	244
F statistics	15.54***	7.38***
R ²	0.421	0.268
RESET	F(3, 224) = 0.43 Prob > F = 0.735	F(3, 224) =1.86 Prob > F = 0.123

Ordered probit estimation of food sufficiency level and probit estimation of head count poverty ratio



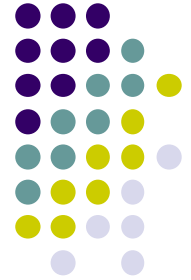
Explanatory variables	Food sufficiency level (deficit = 0, neither deficit nor surplus = 1 and surplus = 2)	Poverty status (0 = under poverty line and 1 = above poverty line)
Education of the household head (years)	0.088*** (0.028)	0.058 (0.038) (p-value = 0.13)
Medium grade occupation of the household head (1= yes)	0.049 (0.179)	0.245 (0.208)
High grade occupation of the household head (1 = yes)	0.535** (0.244)	1.420*** (0.486)
Education of the microentrepreneur (years)	0.026 (0.039)	0.048 (0.058)
Employment status of the microentrepreneur (1= employment)	0.031 (0.213)	-0.090 (0.279)
The ratio of income earners and household size	0.094 (0.439)	0.319 (0.612)
No. of persons living abroad	0.367 (0.232) (p-value = 0.11)	0.968*** (0.374)
Owned cultivable land (decimals)	0.005*** (0.002)	0.010** (0.004)
Owned homestead land (decimals)	0.020*** (0.008)	-0.007 (0.009)
Membership in GB microcredit (years)	0.039*** (0.013)	0.009 (0.016)
Membership in any other microcredit program (1 = yes)	-0.392 (0.285)	-0.529* (0.289)

Estimation/cont.



No. of chronic diseased persons	-0.004 (0.088)	0.054 (0.129)
Village literacy rate (%)	0.106 (0.172)	-0.013 (0.166)
MHI status (1= established MHI, 0 = no MHI)	0.759 (0.516) (p-value = 0.14)	0.320 (0.508)
Constant	-	0.444 (6.148)
_cut1	4.512 (6.358)	-
_cut2	6.259 (6.357)	-
Observations	244	244
Wald chi ²	90.43***	36.72***
Pseudo R ²	0.158	0.178
Log pseudo likelihood	-208.810	-110.976
RESET	Chi ² (1) = 0.01 Prob > chi ² = 0.915	Chi ² (1) = 1.40 Prob > chi ² = 0.236

Limitations



- Use of cross section data for dynamic outcome
- The sample is not representative of the insured population
- No evidence on whether MHI can reach the poorest of the poor.
- No evidence on whether MHI can play a supplementing role for the excluded to be joined in the microcredit programs.

Conclusion



- Positive, but non-robust association of MHI with all the indicators
 - lack of proper referral services
 - adverse effects of protection against moral hazard
- Not sensible to draw a generalized conclusion
- Nevertheless, the study contributes ...

Thank you!
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Appendix

Summary statistics of different poverty indicators



Different groups of GB members	Mean per capita income (in US \$)	Mean per capita non-land assets (in US \$)
GB-1(established MHI)	342.67 (174.63) [136]	223.49 (203.44) [136]
GB-2 (new MHI)	260.60 (134.96) [85]	141.99 (106.24) [85]
GB-3(without MHI)	240.35 (121.44) [108]	158.15 (127.07) [108]
GB (Total)	287.88 (155.59) [329]	180.99 (162.82) [329]

Percentage distribution of households by food sufficiency level



Different groups of GB members	GB-1 (established MHI)	GB-2 (new MHI)	GB-3 (without MHI)
Deficit in whole year	2.21 (3)	7.06 (6)	5.56 (6)
Sometimes deficit	22.06 (30)	31.76 (27)	32.41 (35)
Neither deficit nor surplus	49.26 (67)	48.24 (41)	53.70 (58)
Surplus	26.47 (36)	12.94 (11)	8.33 (9)
Total	100.00 (136)	100.00 (85)	100.00 (108)