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Institute of Public Health
Heidelberg, Germany



Nouna Research Centre
Burkina Faso

Does community-based health insurance protect household assets?

Evidence from rural Burkina Faso, Africa

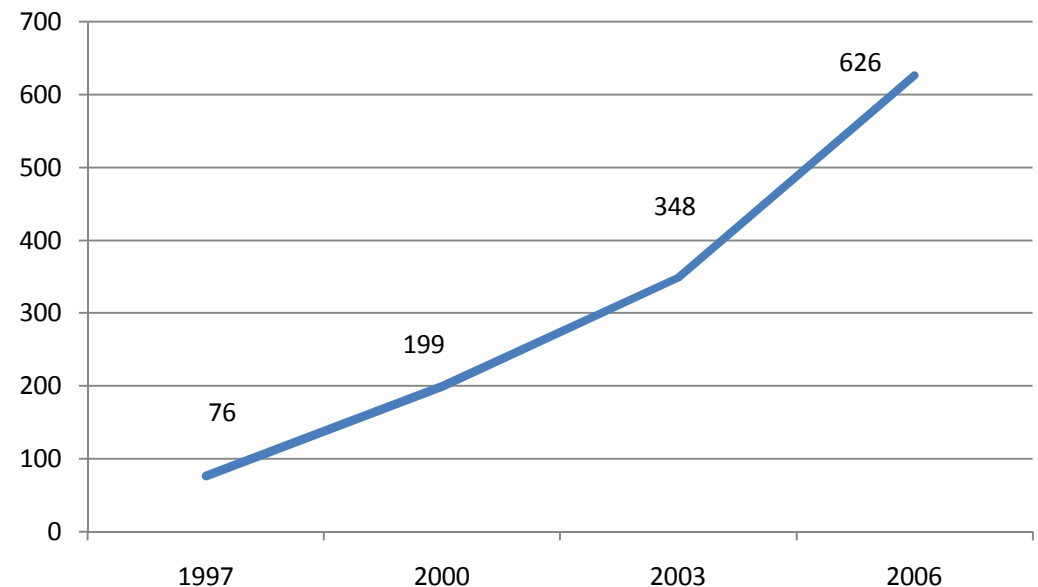
Divya Parmar, Steffen Reinhold, Aurélia Souares,
Germain Savadogo, Rainer Sauerborn

Health financing through Community-based health insurance (CBHI)

Four major types of health financing

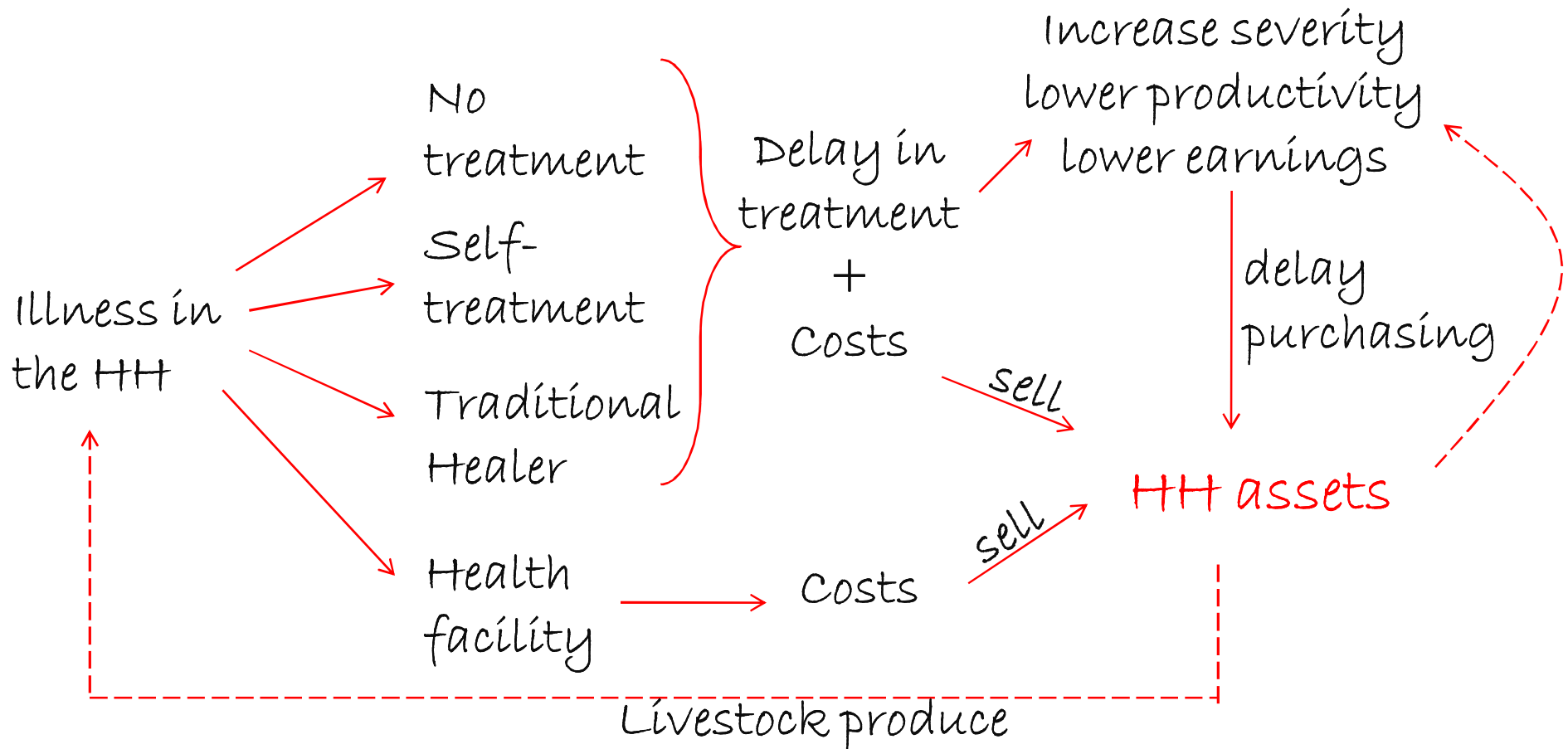
- Tax-based financing
Taxes on financial transactions
- Social health insurance
Workers, govt. employees etc
- Private health insurance
E.g. CBHI
- Medical saving accounts
Individual saving accounts

Increase in the # of CBHI Schemes in
West Africa



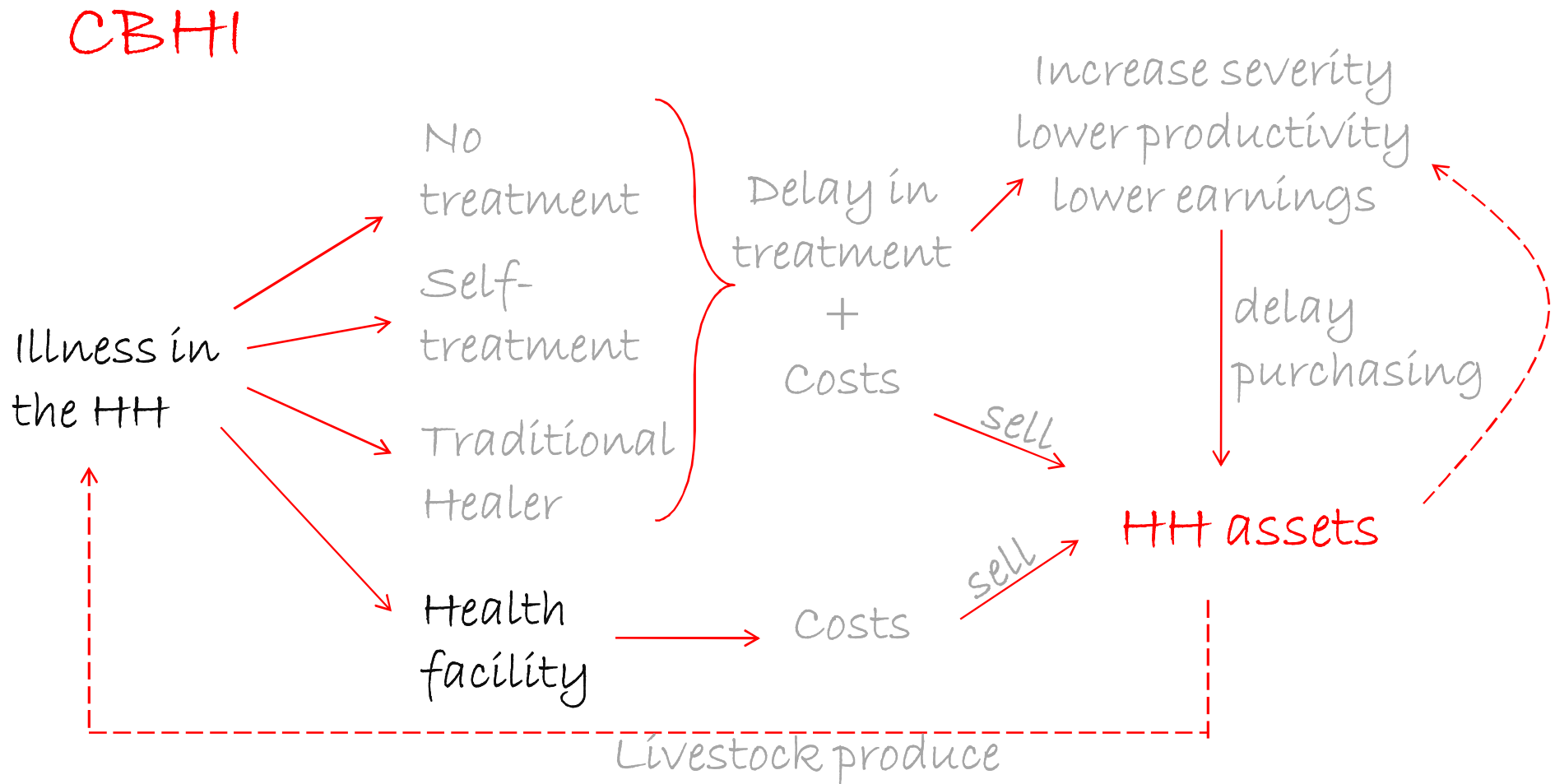
Link between CBHI and household assets

(Livestock + household goods)



Link between CBHI and household assets

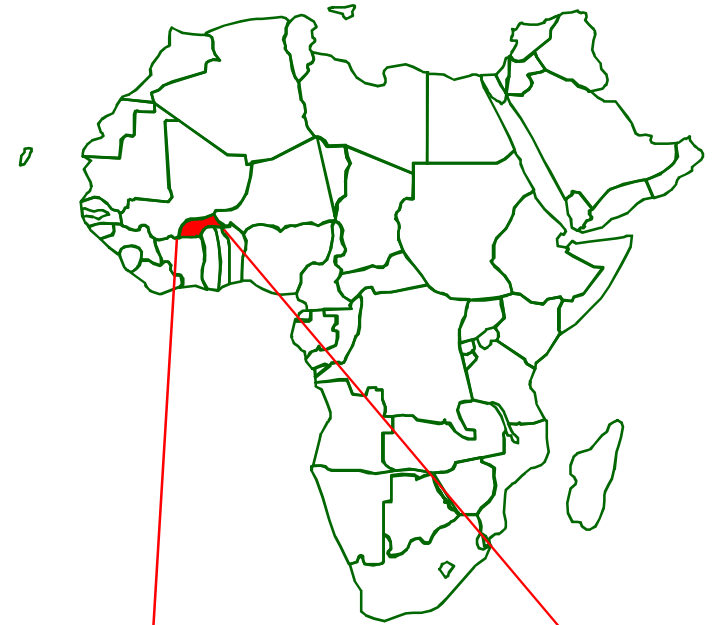
(Livestock + household goods)



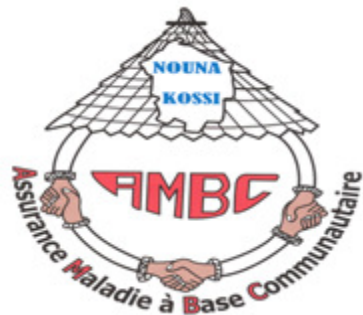


Burkina Faso

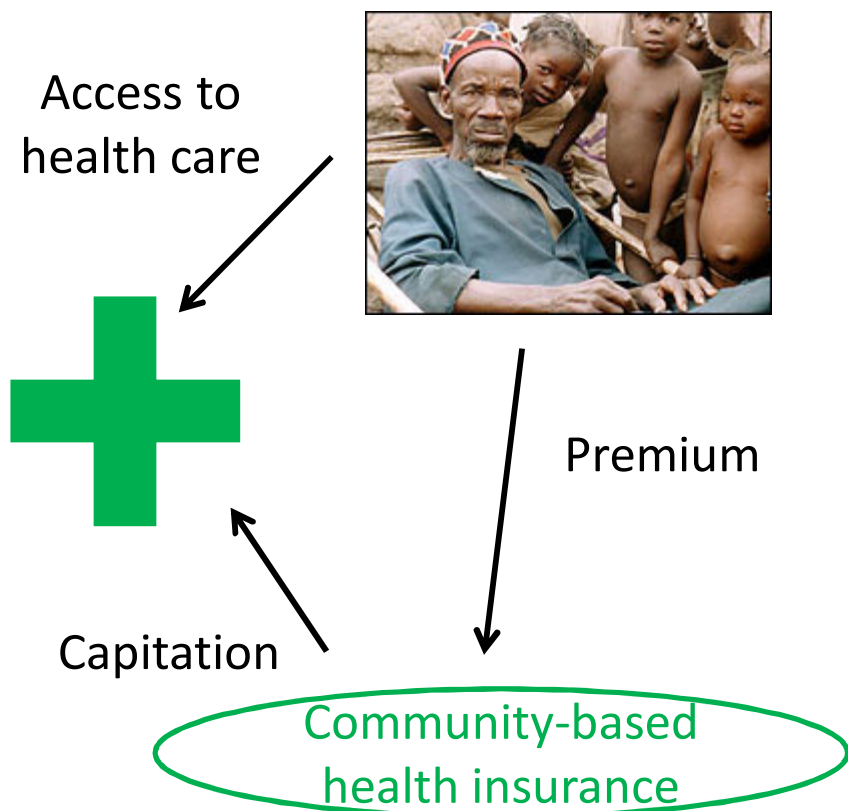
- Population: 15.8 million
- GDP per capita (PPP): \$1200
- Occupation: 90% engaged in subsistence agriculture
- Literacy: 30% (men), 15%(females)
- Life expectancy : 53 years
- Infant mortality rate: 85 /1000 live births



Reference: <https://www.cia.gov>



The CBHI scheme in Nouna



- Introduced in 2004
- 41 villages and Nouna town (i.e. 7762 households)
- Benefit package:
Consultation fee, essential and generic drugs, lab tests, hospital stay, x-rays, emergency surgery, ambulance transport
- Unit of enrolment: household
- Premium: 1500 CFA (2.29€) adult
500 CFA (0.76€) child p.a.

Data: Household Panel Survey (2004-07)

- 41 villages & Nouna town
- 15% of the population
(Total population:67,262)
- Panel survey
(same households interviewed every year)
- Conducted every year

- (0) Socio-demographic: ethnicity, religion, housing conditions, education...
- (1) Socio-economic: ownership of livestock, goods...
- (2) Self-reported morbidity: illness episodes, health-seeking behaviour...
- (3) Preventive care
- (4) Risk-sharing & perceptions on quality of health care
- (5) CBHI: enrolment decisions, reasons for enrolling...



Model

$$\text{HH assets}_{it+1} = Z_i \cdot \beta_1 + X_{it} \cdot \beta_2 + \text{CBHI}_{it} \cdot \beta_3 + u_i + \varepsilon_{it} + \delta_t$$

Reverse causality

Selection bias

HH assets_{it+1} : ln(Monetary value of livestock and HH goods)

Z_i : observable time-invariant factors e.g. religion, education

X_{it} : observable time varying factors e.g. age, HH size, chronic

CBHI_{it} : number of insured people in the household

u_i : unobservable time-invariant factors e.g. ability

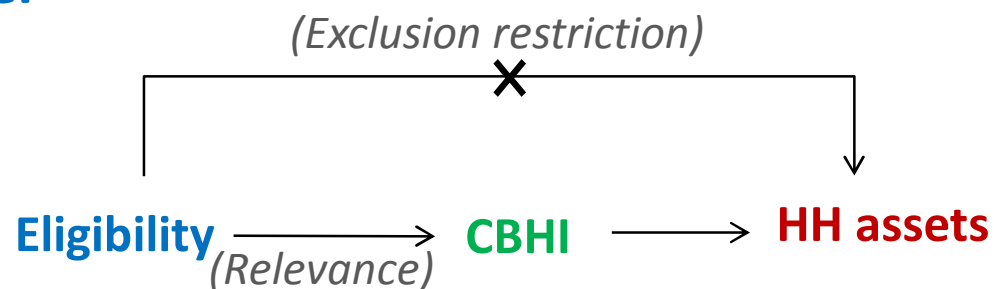
ε_{it} : household-specific time shock e.g. death in the household

δ_t : year shocks

Models

1. Instrumental Variable (IV) Model

- Study area divided into 31 clusters
- CBHI offered randomly
 - 2004: 11 clusters
 - 2005: +9 clusters (11+9=20)
 - 2006: +11 clusters (20+11=31)



Controls for both selection bias + reverse causation

2. Fixed Effects (FE) Model

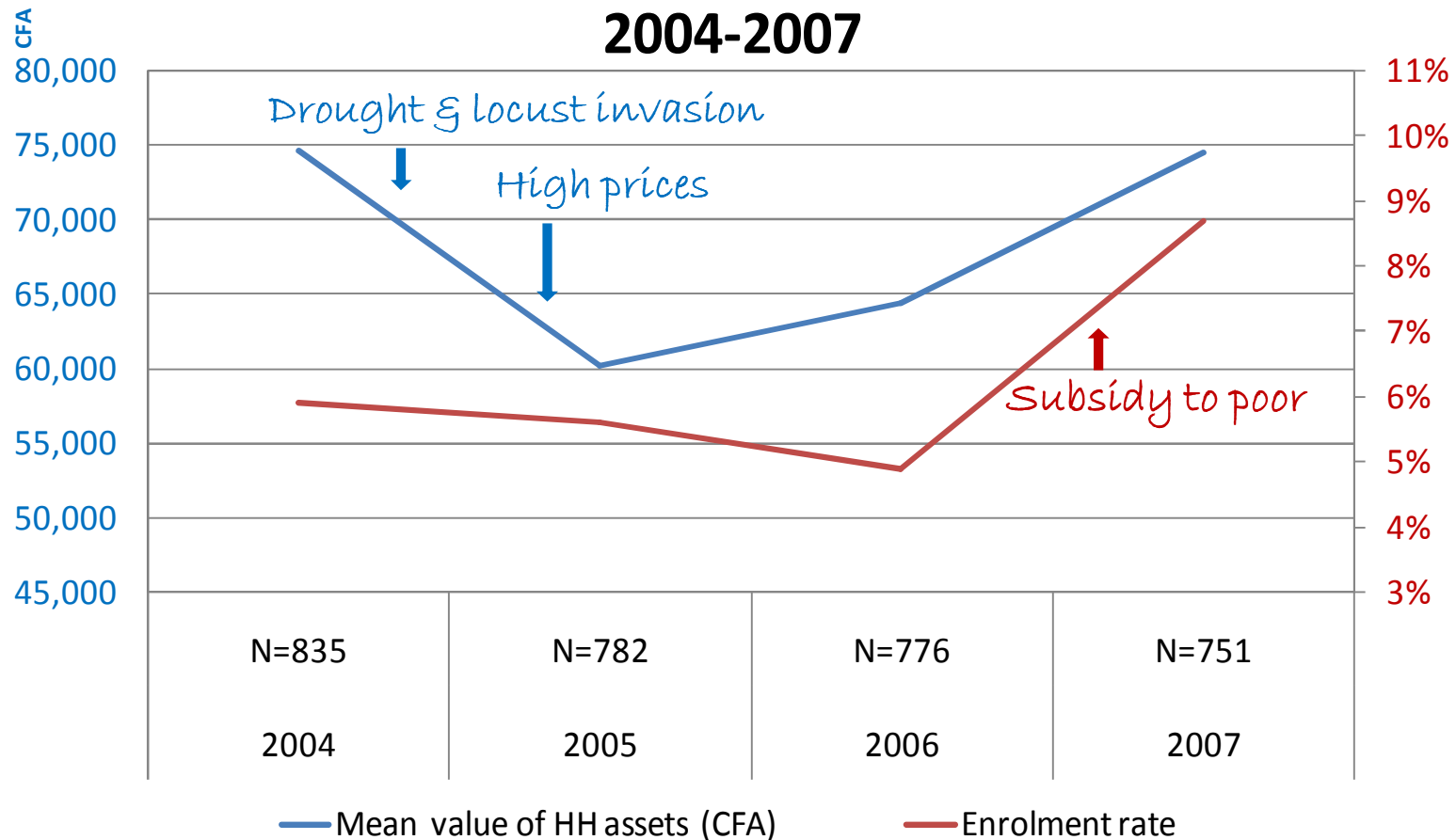
- Entire period: 2004-2007
- Does not control for 2-way causality

*Controls for selection bias only due to time constant variables
e.g. ethnicity, religion*

RESULTS

Descriptive statistics

HH assets and CBHI enrolment 2004-2007



Results: Instrumental Variable (IV) 2004-2005

Variables	Co-efficient	Robust SE	P-value
CBHI	0.220	0.121	0.070
Literate	0.273	0.082	0.001
Male	-0.374	0.106	0.000
Year_2005	-0.192	0.035	0.000
No. of clusters		31	
No. of observations		1,588	
Angrist-Pischke 1 st stage chi ²		17.33 (p=0.00)	} IV is relevant
Angrist-Pischke 1 st stage F statistic		16.47 (p=0.00)	

Notes:

1. Only variables significant at 10% significant or less are shown here
2. Model controls for

- Household head characteristics: Ethnicity, Literate, Gender, Age, Occupation
- Household characteristics: Size, Chronic, Eligible
- Village characteristics: Town, Literacy, Water source, Distance, Health facility
- Year dummies

Results: Fixed Effects (FE)

2004-2007

Variables	Co-efficient	Robust SE	P-value
CBHI	0.009	0.005	0.082
Size	-0.125	0.049	0.010
Year_2005	-0.157	0.027	0.000
Year_2006	-0.085	0.031	0.006
Year_2007	0.124	0.034	0.000
No. of clusters		890	
No. of observations		3,144	

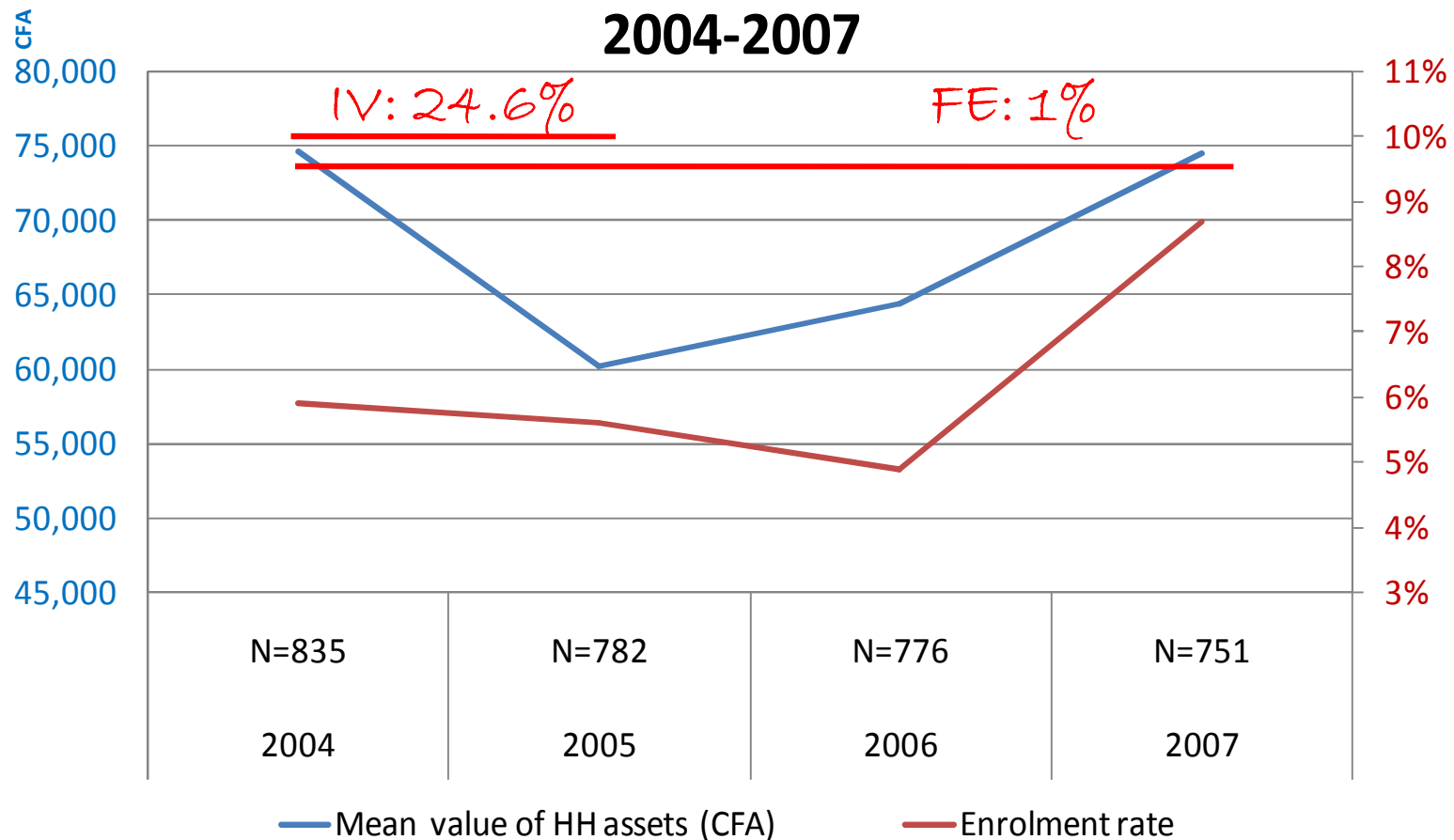
Notes:

1. Only variables significant at 10% significant or less are shown here
2. Only time varying variables are included
 - Household head characteristics: Age
 - Household characteristics: Size, Chronic
 - Village characteristics: Town, Water source, Distance
 - Year dummies

Conclusion

Both models: CBHI protects household assets

HH assets and CBHI enrolment 2004-2007



Main Conclusions

- CBHI has the potential to **protect household assets**
- CBHI, in some circumstances, can also increase household assets by breaking the cycle of ill health and poverty – *poverty reduction tool*
- Depends on **local context** – the scheme, benefit package, quality of care, trust....
- Shift from small-scale CBHI towards universal SHI?
- CBHI - an interim solution
- Sustainability?

Thank you

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