Parmar, D., Souares, A., Savadogo, G. & Sauerborn, R. (2010). Does community-based health insurance protect household assets?. Paper presented at the 9th International Conference on Health Economics, Management and Policy, 28-06-2010 - 01-07-2010, Athens, Greece.

CITY UNIVERSITY LONDON

EST 1894

Does community-based health insurance protect household assets?

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Burkina Faso
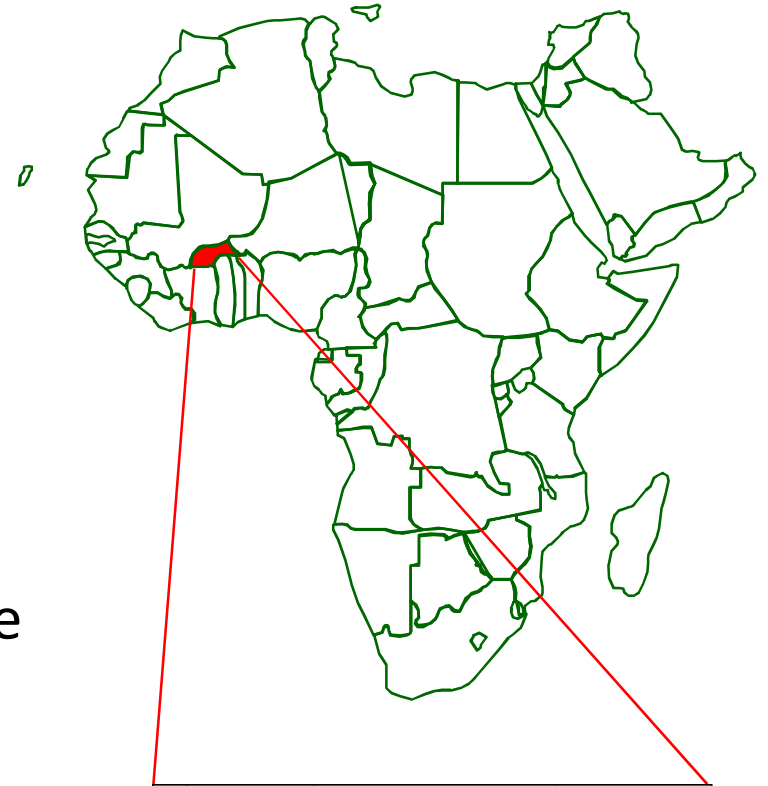
- Population: 14.4 million

- GNI per capita (PPP): $1,130 (207/228)

- Occupation: 90% engaged in agriculture

- Spending on health per person: $7

- Life expectancy m/f (years): 46/49 (199/228)

- Infant mortality rate: 85 /1000 live births

- No. of people per doctor: 33,333

Reference: WHO (2006)

Community-based health insurance

- Managed by the community
- Health risk-sharing and pooling of resources at community level
- Aims:
  - Facilitate access to care
  - Provide financial protection against the cost of illness

Access to health care

Premium

Capitation

Community-based health insurance
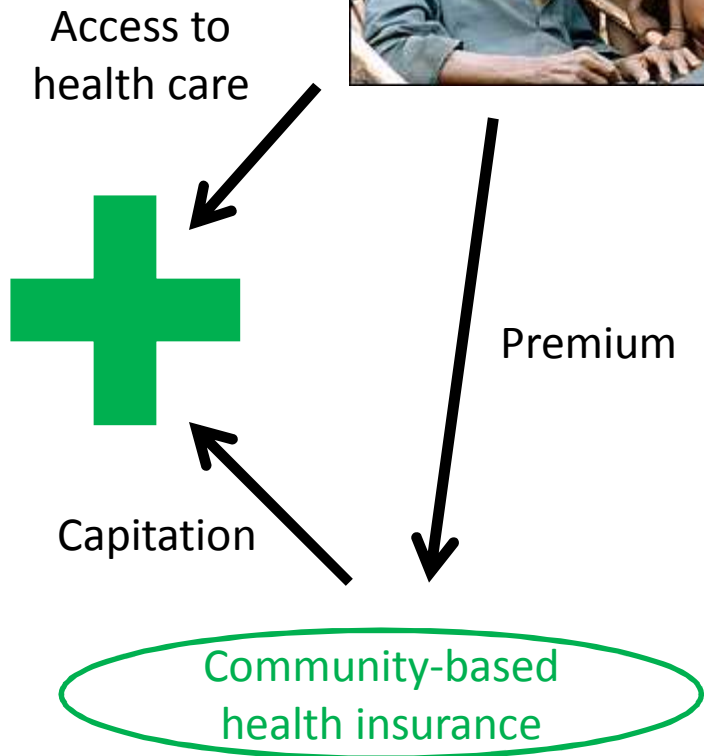
Affordable - does not cover the cost of providing insurance/health care

- Introduced in 2004
- Unit of enrolment is the household
- Premium: 1500 CFA (2.29€) adult 500 CFA (0.76€)child

Research Question

Does CBHI protect household assets in the Nouna Health District?

Livestock + household goods

CBHI

Illness in the HH → No treatment

Illness in the HH → Self-treatment

Illness in the HH → Traditional Healer

Illness in the HH → Health facility

Delay in treatment + Costs → Increase severity lower productivity lower earnings

Delay in treatment + Costs → sell → HH assets

Increase severity lower productivity lower earnings → delay purchasing → HH assets

Health facility → Costs → sell → HH assets

Livestock produce

Observational data

Unlike randomized trials, in observational studies the intervention (CBHI) is <u>not</u> randomized...

Enrolment for CBHI is voluntary: we cannot assume that the insured (cases) and uninsured (controls) are similar

unobserved variables

CBHI → Household assets

Selection bias

Instrumental variable (IV)

(Exclusion restriction)

IV →*(Relevance)*→ CBHI → Household assets

Household assets ⇅ CBHI

Reverse (2-way) causation
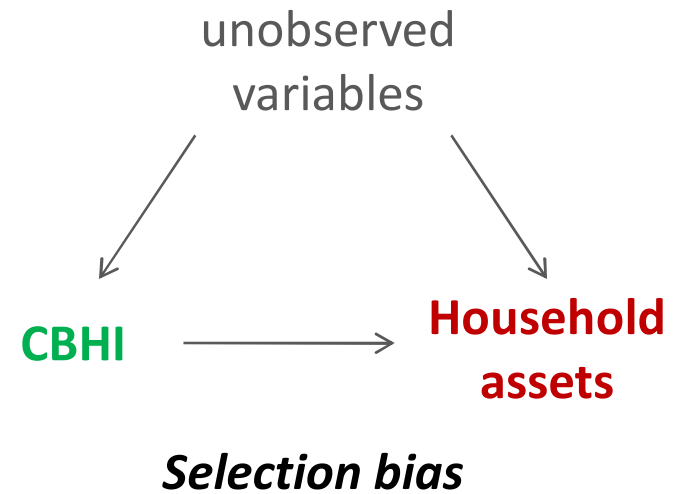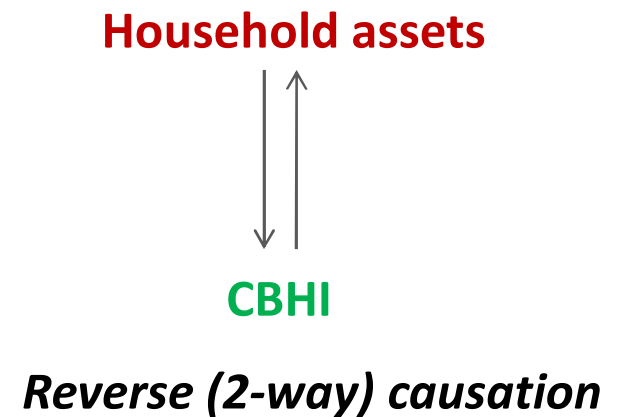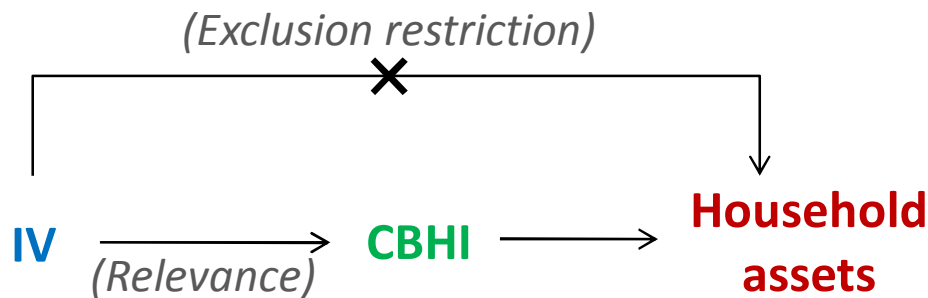
Models

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)

(Exclusion restriction)

Eligibility $\xrightarrow{\text{(Relevance)}}$ **CBHI** $\longrightarrow$ **HH assets**
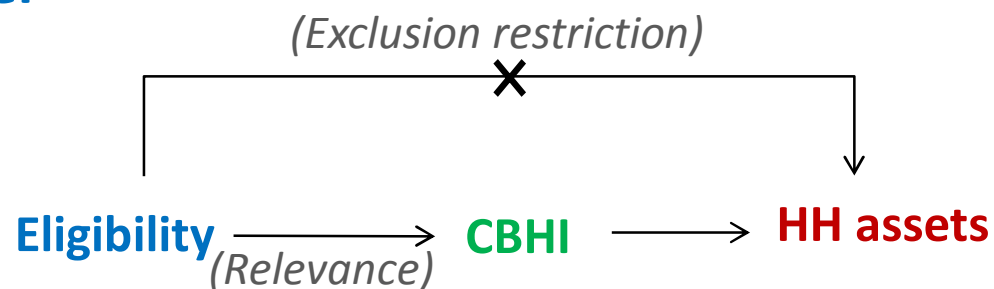
Controls for both self-selection + 2-way causation

2. Fixed Effects (FE) Model

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

Controls for self-selection only due to time invariant variables – ethnicity, religion, etc

unobserved variables

CBHI $\longrightarrow$ **HH assets**

Selection bias
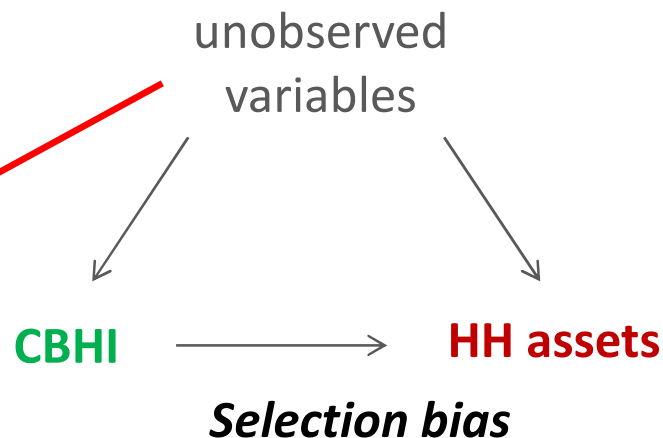
Model

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

FE model

Per capita HH assets$_{it+1}$:Monetary value of livestock and goods/HH size

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

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

nCBHI$_{it}$: number of insured people in the household

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

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

δ_t: sample-specific time shock e.g. drought that effects everyone

Data sources

1. Nouna Health District Household Survey (NHDHS)
   - DSS region: 41 villages & Nouna town
   - 15% of the population (Total population:67,262)
   - Panel survey (same households interviewed every year)
   - Conducted every year since 2000

(0) Socio-demographic: ethnicity, religion, housing conditions, education…
(1) Socio-economic: ownership of household goods and livestock…
(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…

RESULTS

Descriptive statistics

HH assets per capita and insurance variables
2004-2007

CFA

80,000

75,000

70,000

65,000

60,000

55,000

50,000

45,000

Drought & locust invasion

High prices

Subsidy for poor

0.7

0.6

0.5

0.4

0.3

0.2

0.1

0

N=835   N=782   N=776   N=751

2004   2005   2006   2007

—— Mean value of HH assets per capita (CFA)
—— Mean number of insured individuals in the HH
—— Mean number of insured HHs
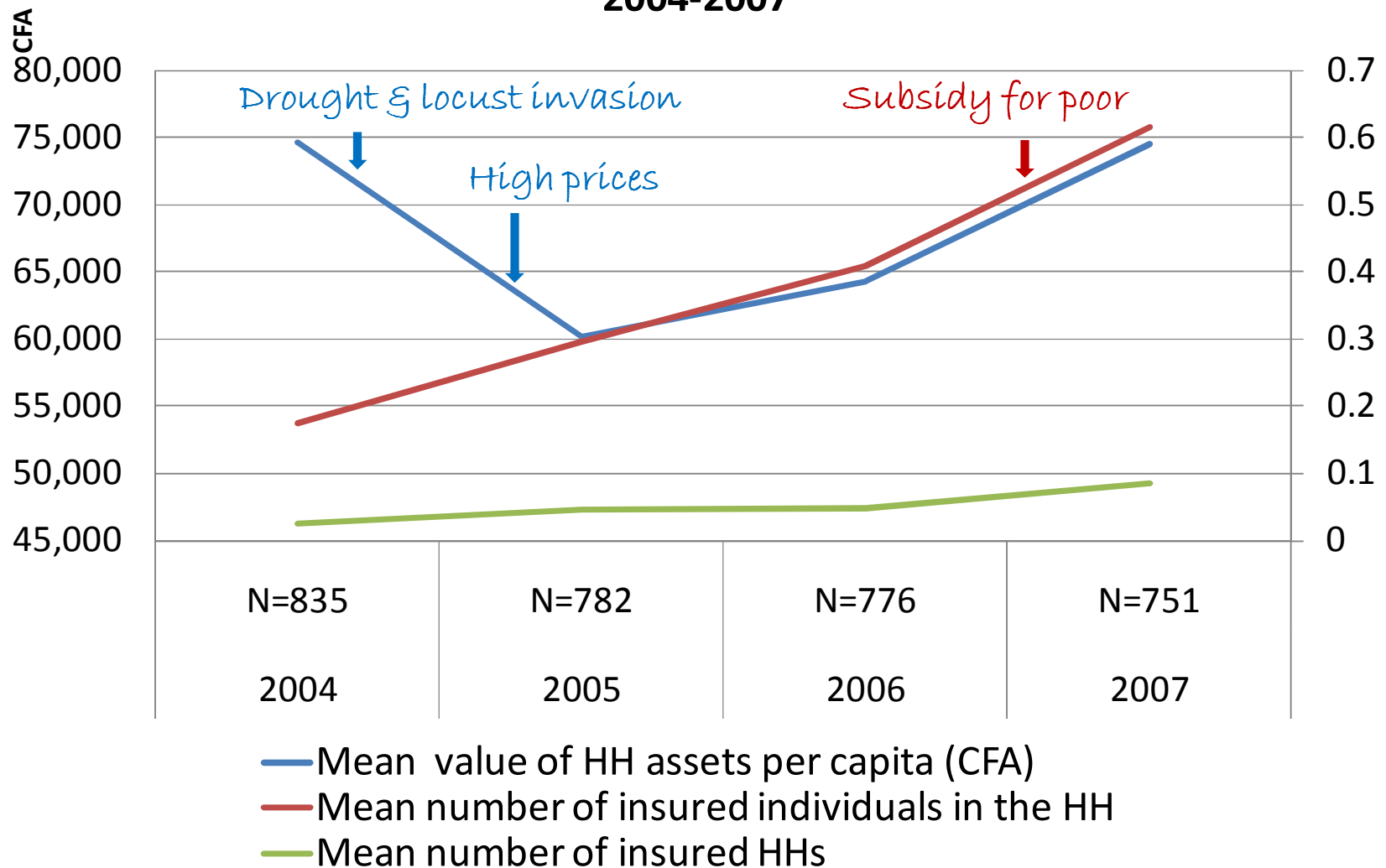
Results: Instrumental Variable (IV) Model for 2004-2005

Variables	Co-efficient	Robust SE	P-value
Insurance	0.222	0.121	0.070
Education	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 1st stage chi^2		17.33 (p=0.0000)	
Angrist-Pischke 1st stage F statistic		16.47 (p=0.0003)	

(handwritten annotations: "24.6%" next to Insurance coefficient; "IV is relevant" next to the Angrist-Pischke statistics)

Notes:
1. Only variables significant at less than 10% significant level are shown here
2. Model controls for
   - Household head characteristics: Ethnicity, Education, Gender, Age, Occupation,
   - Household characteristics: Size, Chronic, Eligible
   - Village characteristics: Town, Literacy, Water source, Distance, Health facility
   - Year dummies
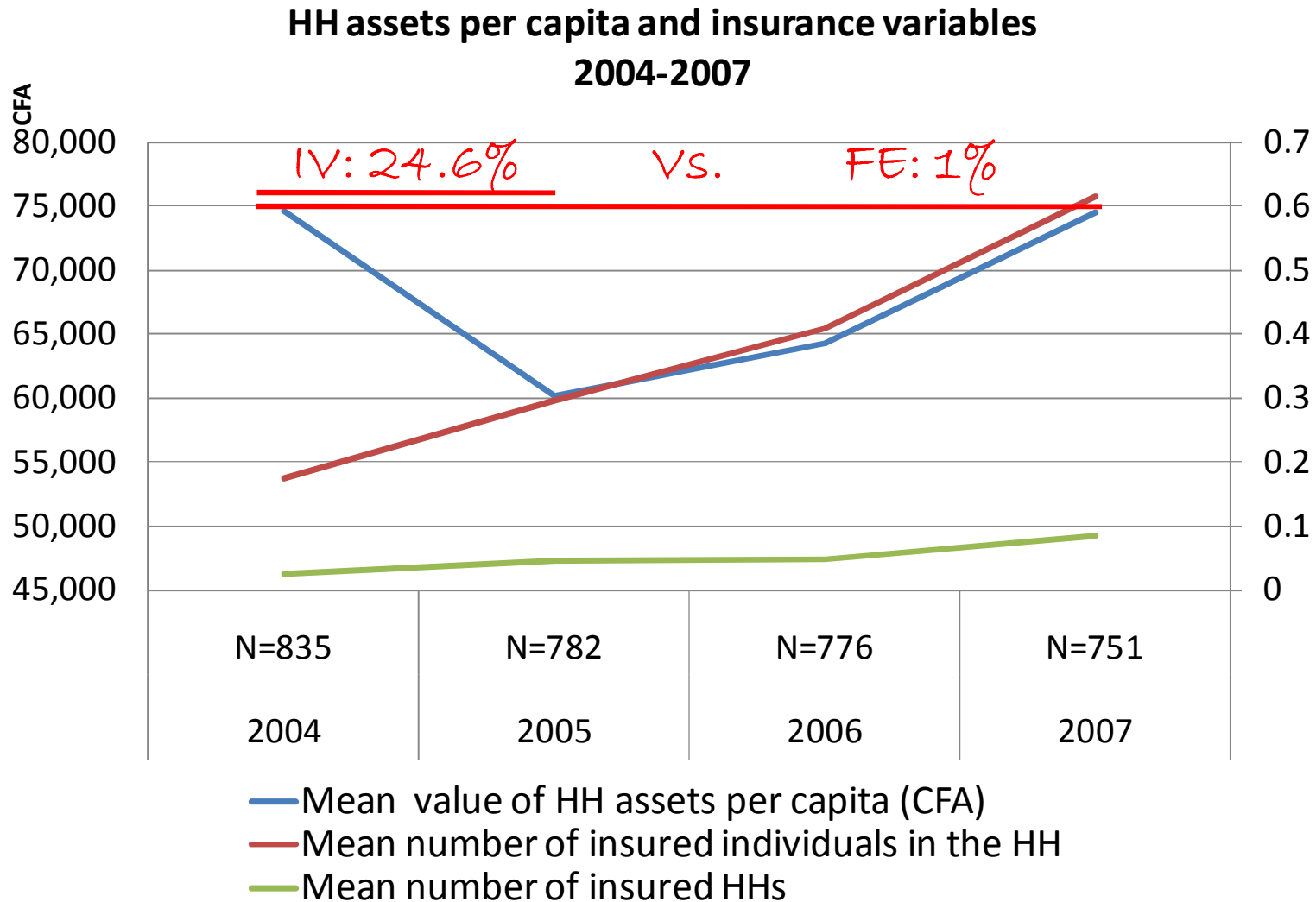
Results: Fixed Effects (FE) Model
for 2004-2007

Variables	Co-efficient	Robust SE	P-value
Insurance	0.009 *1%*	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 less than 10% significant level 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 per capita and insurance variables 2004-2007

IV: 24.6%   vs.   FE: 1%

— Mean value of HH assets per capita (CFA)
— Mean number of insured individuals in the HH
— Mean number of insured HHs

Thank you

Any questions, comments …