Community-based health insurance: improving household economic indicators?

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Community-based health insurance (CBI)

Enrolment modalities:
- Unit of enrolment is the household
- Premium: 1500 CFA (2.29€) adult 500 CFA (0.76€) child
- Enrolment is yearly
Research Question

Is there a **causal** relationship between community-based health insurance (CBI) and household economic indicators in the Nouna Health District?

- Is there an improvement in the household livestock, assets and/or income for the insured overtime?
Observational data

Unlike randomized trials, in observational studies the intervention (CBI) is **not** randomized...

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

\[ \text{Selection bias} \]

\[ \text{Reverse (2-way) causation} \]
Model

\[ \text{Livestock}_{it} = Z_i \cdot \beta_1 + X_{it} \cdot \beta_2 + \text{CBI}_{it} \cdot \beta_3 + u_i + \epsilon_{it} + \delta_t \]

\textbf{Livestock}_{it} : Household ownership of livestock

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

\(X_{it}\) : observable time varying factors e.g. age, household size

\(\text{CBI}_{it}\) : insured household

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

\(\epsilon_{it}\) : household-specific time shock e.g. death in the household

\(\delta_t\) : 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: assets, livestock, monetary income, expenditures...
(2) Self-reported morbidity: illness episodes, health-seeking behaviour...
(3) Preventive care
(4) Risk-sharing & perceptions on quality of health care
(5) CBI: enrolment decisions, reasons for enrolling...
Data sources

2. Community-based health insurance register
   - List of households and individuals enrolled every year
   - Can be linked to NHD household survey

![Enrollment 2004-08 diagram](chart.png)
Preliminary Results
Freq. distribution of HH livestock, uninsured (2003) i.e. before CBI

- Median: 59,200 CFA
- Mean: 317,613 CFA

N= 313
Freq. distribution of HH livestock, by insurance status (2008)

Value of HH livestock (CFA)

<table>
<thead>
<tr>
<th>No. of Households</th>
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<td>N= 95</td>
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<td>N= 269</td>
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Median: 101,000 CFA
Mean: 235,560 CFA

Median: 111,500 CFA
Mean: 309,664 CFA

P<0.04
The frequency distribution of HH livestock, by insurance status (2003-08)

- # of observations for non-CBI HHs are consistently more than for CBI HHs
- 75% of all observation are < 300,000 CFA – Long tail
- Data for HHs with CBI for 2003 and 2005 are not available
Mean HH livestock has declined for insured HHs – Subsidies attract more needy HHs.

Mean HH livestock is more for insured HHs vs uninsured HHs.

Mean HH livestock has declined for insured HHs → Subsidies attract more needy HHs.
To conclude,

- There appears to be significant difference in the value of HH livestock between the insured and the uninsured.

- Insured HHs have relatively more HH livestock than uninsured HHs.

  1. This could be due to the fact that richer households are enrolling (Subsidies in 2007)

  2. Part of this could also be explained due to an improvement in HH livestock for the insured due to CBI
Thank you

Any questions, comments ...