

Parmar, D., Souares, A., Allegri, M. D., Savadogo, G. & Sauerborn, R. (2011). Community-based health insurance scheme in Burkina Faso: can premium subsidies increase adverse selection?.

Paper presented at the 13th Annual Scientific Conference of ICDDR,B: Science to Accelerate Universal Health Coverage, 14-03-2011 - 17-03-2011, Dhaka, Bangladesh.



**CITY UNIVERSITY  
LONDON**

[City Research Online](#)

**Original citation:** Parmar, D., Souares, A., Allegri, M. D., Savadogo, G. & Sauerborn, R. (2011). Community-based health insurance scheme in Burkina Faso: can premium subsidies increase adverse selection?. Paper presented at the 13th Annual Scientific Conference of ICDDR,B: Science to Accelerate Universal Health Coverage, 14-03-2011 - 17-03-2011, Dhaka, Bangladesh.

**Permanent City Research Online URL:** <http://openaccess.city.ac.uk/4133/>

### **Copyright & reuse**

City University London has developed City Research Online so that its users may access the research outputs of City University London's staff. Copyright © and Moral Rights for this paper are retained by the individual author(s) and/ or other copyright holders. All material in City Research Online is checked for eligibility for copyright before being made available in the live archive. URLs from City Research Online may be freely distributed and linked to from other web pages.

### **Versions of research**

The version in City Research Online may differ from the final published version. Users are advised to check the Permanent City Research Online URL above for the status of the paper.

### **Enquiries**

If you have any enquiries about any aspect of City Research Online, or if you wish to make contact with the author(s) of this paper, please email the team at [publications@city.ac.uk](mailto:publications@city.ac.uk).



Institute of Public Health  
Heidelberg, Germany



Nouna Research Centre  
Burkina Faso

# Community-based health insurance scheme in Burkina Faso

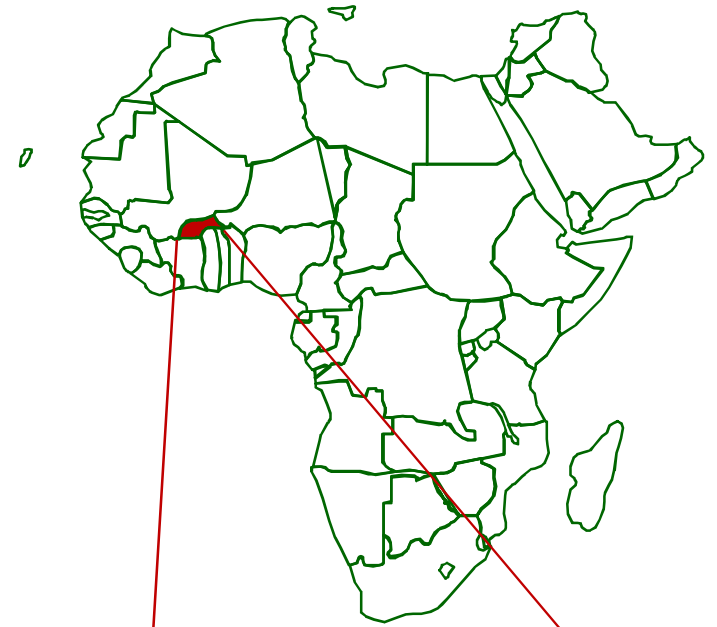
*Can premium subsidies increase  
adverse selection?*

Divya Parmar, Aurélia Souares, Manuela De Allegri, Germain  
Savadogo, Rainer Sauerborn

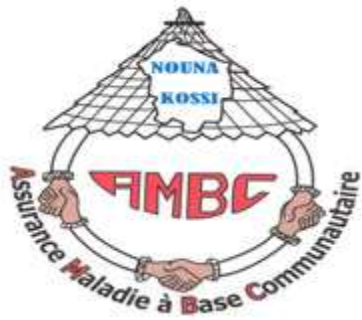


# Burkina Faso

- Population: 15.8 million
- GDP per capita (PPP): \$1200 (207/228)
- Occupation: 90% engaged in agriculture
- Literacy: 30% (men), 15%(females)
- Spending on health per person: \$7
- Life expectancy : 53 years (199/228)
- Infant mortality rate: 85 /1000 live births
- No. of people per doctor: 33,333

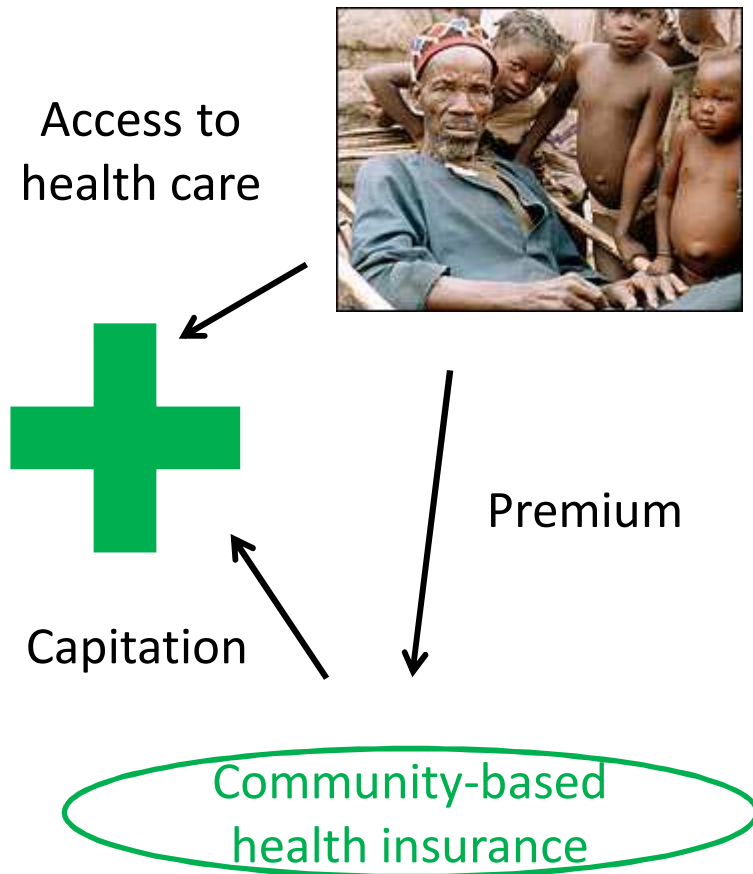


Reference: <https://www.cia.gov>



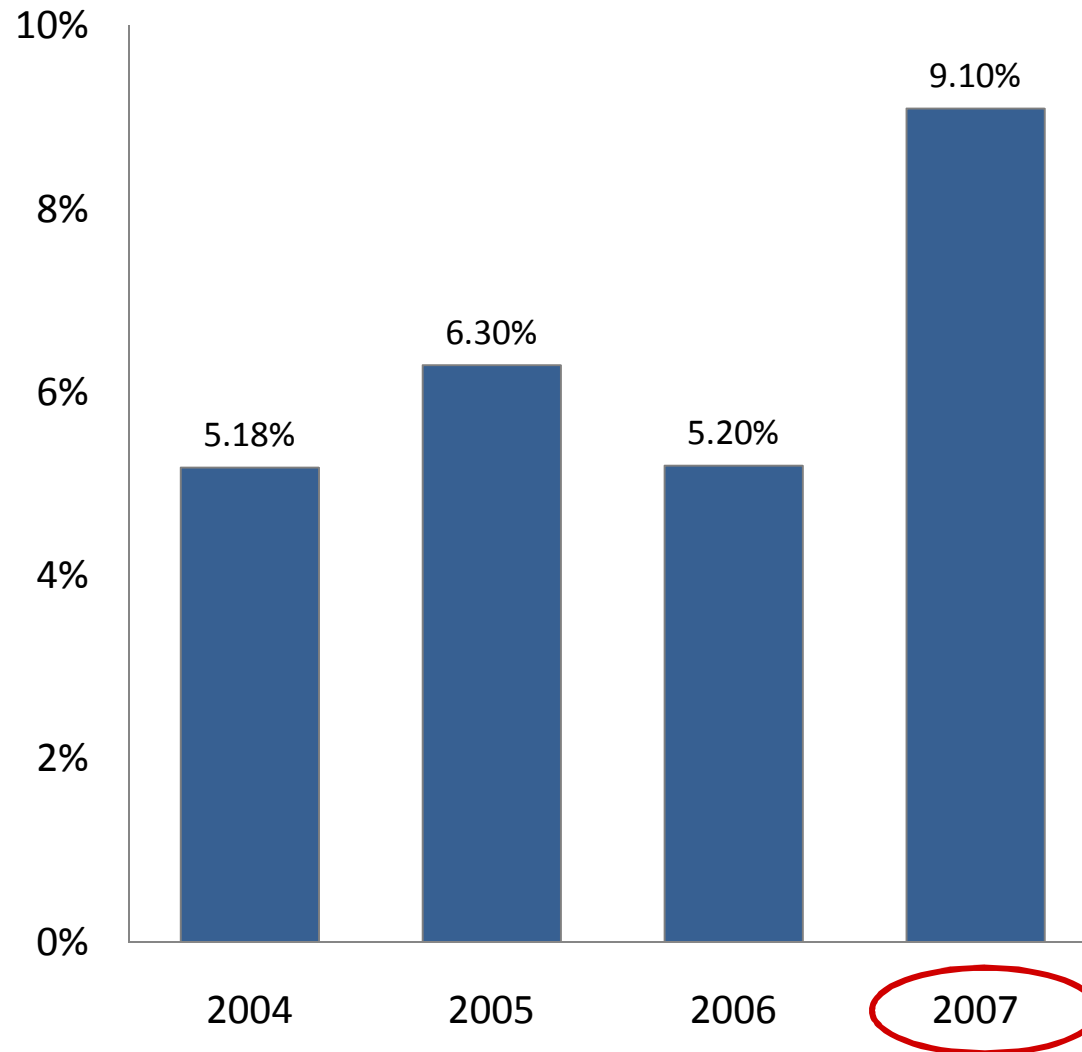
# Community-based Health Insurance (CBI)

- Introduced in 2004
- 41 villages and Nouna town (i.e. 7762 households)
- Unit of enrolment: household
- Premium: 1500 CFA (2.29€) per adult  
500 CFA (0.76€) per child p.a.



*BUT, enrollment among the poor was low. Therefore, in 2007, premium subsidy was offered to the poor*

# Enrolment Rate 2004-2007



*Sharp  
increase in  
enrolment  
after premium  
subsidy was  
offered*

Question 1.

Do the sick enrol more?

(adverse selection)

Variables	Coefficient	SE
Age (years)		
≤ 15	0.004	0.009
60+	0.015	0.036
Education		
Literate	-0.001	0.006
Subsidized		
Subsidy	0.1	0.011***
Household size		
Size	-0.002	0.001***
SES		
MidSES	0.015	0.006***
HighSES	0.028	0.007***
Year		
2005	0.003	0.003
2006	-0.002	0.003
2007	0.009	0.004**
Sick X Year		
Sick x 2004	0.001	0.010
Sick x 2005	0.000	0.009
Sick x 2006	0.008	0.009
Sick x 2007	0.021	0.011**
No. of observations		18480
No. of individuals		6713
F statistic (p-value)		11.47 (0.000)
R <sup>2</sup>		0.0078

## 1. Fixed Effects Regression

Dependent variable: CBHI (0,1)

Sick: individuals who reported being sick for at least 3 months

Interaction: Sick\*Year

\*\*\*1%, \*\*5% and \*10% sig levels

Proportion of sick individuals enrolled significantly increased in 2007



Questions 2.

Why should adverse selection  
increase in 2007?

- Did subsidy increase adverse selection?



Variables	Coefficient	SE
Age (years)		
≤ 15	0.005	0.009
60+	0.018	0.036
Education		
Literate	-0.002	0.006
Subsidized		
Subsidy	0.1	0.012***
Household size		
Size	-0.002	0.001***
SES		
MidSES	0.015	0.006***
HighSES	0.028	0.007***
Year		
2005	0.002	0.003
2006	-0.001	0.003
2007	0.013	0.004***
Sick X Subsidy		
Sick x Subsidy=0	0.008	0.007
Sick x Subsidy=1	0.048	0.027*
No. of observations		18480
No. of individuals		6713
F statistic (p-value)		11.47 (0.000)
R <sup>2</sup>		0.0078

## 2. Fixed Effects Regression

Dependent variable: CBHI (0,1)

Sick: individuals who reported being sick for at least 3 months

Interaction: Sick\*Subsidy

\*\*\*1%, \*\*5% and \*10% sig levels

*Proportion of sick individuals more among those who were given subsidy*



# Community wealth ranking: defining poverty

Poverty criteria: as decided by the community	Poverty categories		
	Very poor	Middle	Rich
Old person without child	+++		
Needs to beg to live	+++		
No chickens	+++		
No assistance network	+++		
Unable to finance medical costs	+++	++	
In good health		++	+++
High quality housing		++	+++
Sufficient food		++	+++
Nice clothes		++	+++
Ownership of farming equipment		++	+++
Able to support someone		++	+++
Ownership of transport means		++	+++

# Conclusions

- Enrolment significantly increased among the poor when subsidized premiums were offered to them
- More poor households were likely to be sick than the rich ones
- By offering the poor subsidized premiums – proportion of sick individuals increased in CBHI

# Implications for CBHI

## Cost of providing health insurance increases

- Strictly enforce enrolment of complete households
- Remove subsidy– but this will discourage the poor from enrolling who have greater need for health insurance – harms equity! ✗

Adverse Selection OR Positive selection (well-targetted)

- Increase premiums for rich: rich subsidize the poor but will discourage enrolment among them (context: rich=less poor) ✗
- Essential to receive government/international support to cover these extra costs

Need to budget for adverse selection

***Thank you***

Divya Parmar  
Parmar@uni-heidelberg.de  
Institute of Public Health  
Heidelberg University  
Germany

