Private Voluntary Health Insurance in Low-Income Countries. Supply Considerations

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by

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1. Introduction and motivation I

- Demand side important
- **But:** Market outcomes depend also on behavior of insurers
- Regulation usually focuses on suppliers of a product
- **Warning:** Little knowledge about objectives and constraints of health insurers, especially in low-income countries (LDCs)

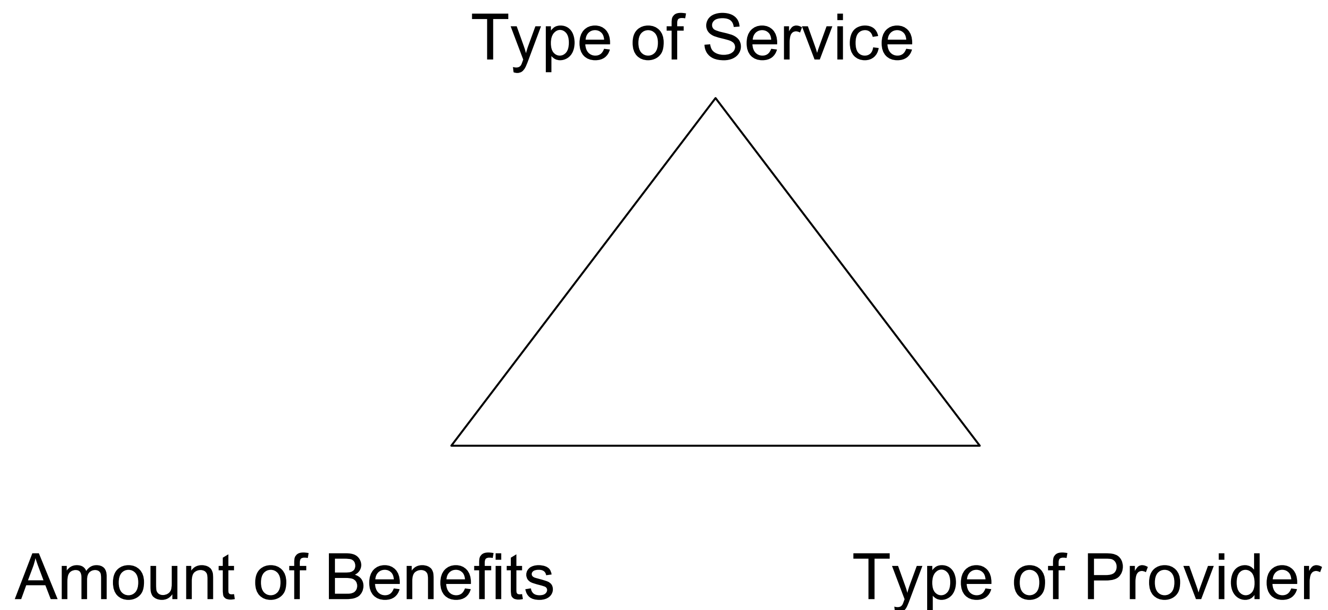
1. Introduction and motivation II

Objectives of this presentation:

- Define the main dimensions of supply of health insurance
- Use the competitive case as a benchmark and expound likely differences for private insurance in LDCs, community-based insurance (CBI), and public insurance (PuI) in LDCs
- Drawing on Industrial Organization Theory, derive predictions on comparative advantage of the 3 alternatives of organizing health insurance in LDCs

2. How health insurers decide about the benefit package I

Figure 1: Differentiation of benefits



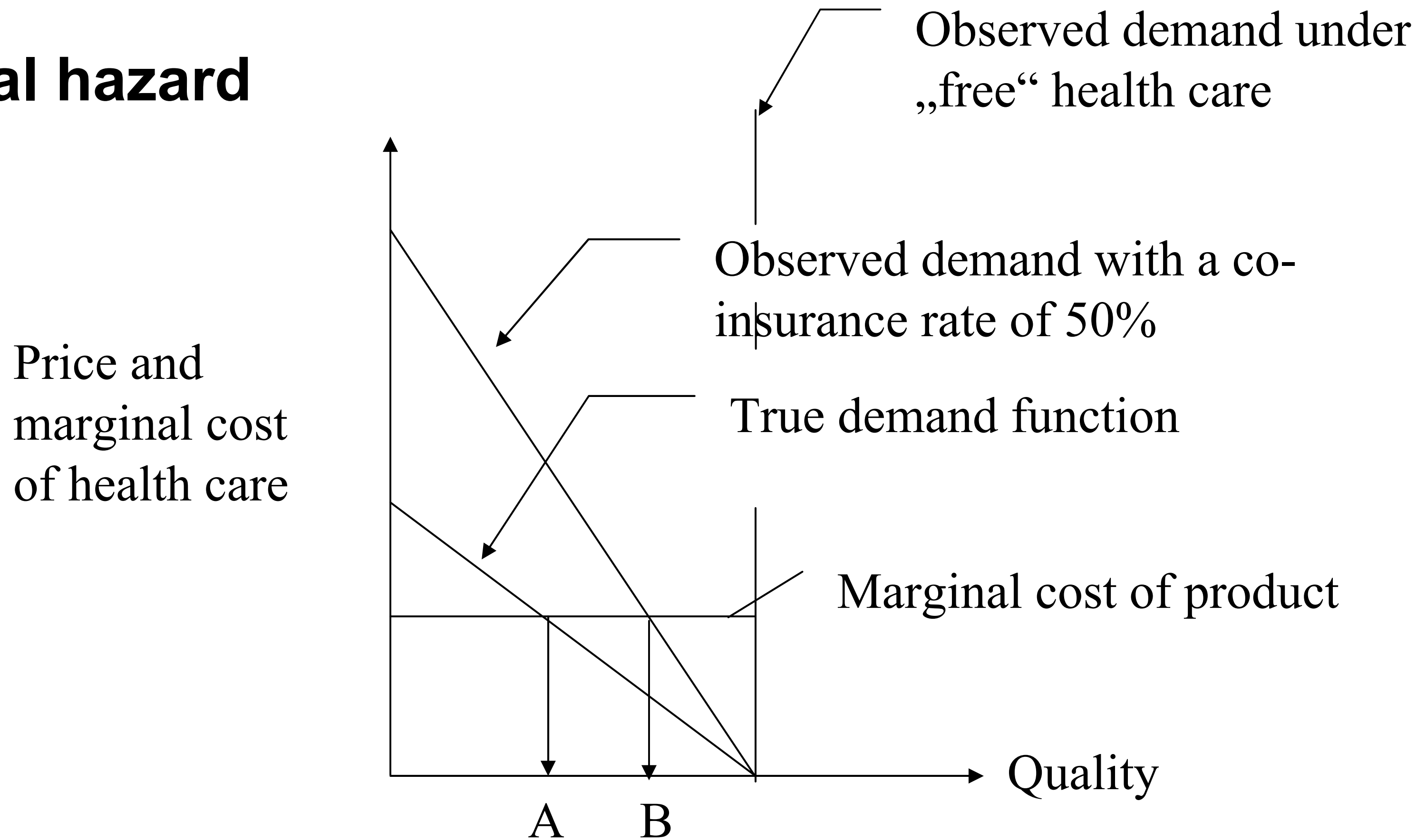
2. How health insurers decide about the benefit package II

(1) Risk aversion of insurer: Should be irrelevant in the competitive case, according to capital market theory

- However, if relevant, the degree of correlation between existing and new types of benefit becomes important
- CBI have little scope for diversification so will prefer to offer limited benefits
- PuI can usually shift risk to the government, rendering risk aversion unimportant

2. How health insurers decide about the benefit package III

(3) Moral hazard



2. How health insurers decide about the benefit package IV

Predicted effects of ex-post moral hazard

- The less cost sharing, the more health insurance causes the quantity of medical services consumed to increase
- The less cost sharing, the greater the upward pressure on fees and prices (negotiations ineffective in the long term)
- **Note:** the expenditure-increasing effect of health insurance applies to **every item** on the benefit list

2. How health insurers decide about the benefit package V

- Moral hazard may be less of a problem in LDCs, where medical supply density is still low (Ahuja and Jütting, 2003)
- CBI likely better able to limit moral hazard due to small pools that exert mutual control
- PuI most affected because of pressure to have low degree of cost sharing

2. How health insurers decide about the benefit package VI

(6) Emergence of new health risks

- Even competitive insurers will not extend their benefit package immediately (need to assess π, adjust premiums)
- In LDCs, expected cost of treatment decisive
- Fear of positive correlation between new and existing health risks!

2. How health insurers decide about the benefit package VII

(7) Regulation

- Product regulation a complement of premium regulation (comunity)
- **Example:** Croatia has little regulation, its two (!) health insurers offer a wide choice of benefits (World Bank, 2003)
- **Example:** The CBI (Mburakati Trust Fund of Tansania) offers the benefits even without regulation because its risk pool is homogenous and it enjoys a local monopoly (Musau, 1999)

3. The loading – the true price of insurance I

$P(I)$ = net premium + loading

$$= \pi(V)(1-c)I + \mu\pi(V) + \lambda\{\pi(V)(1-c)I\}$$

P: premium, depends on benefits I (in money units)

π: loss probability, depends on preventive effort V

c: rate of coinsurance, $c < 1$

μ: loading factor for variable administrative expense

λ: loading factor for acquisition cost, risk, and profit (Zweifel and Breyer, 1997, ch. 6.2)

3. The loading – the true price of insurance II

Amount of loading $L = \pi(V)\,(1\text{-}c)\,I$
$+ \mu\,\pi(V) + \lambda\,\pi(V)\,(1\text{-}c)\,I$

- **Note:** PuI also has a loading, it can even be high because π (V) is high, with V low due to comprehensive benefits I (ex-ante moral hazard)
- Officially, the loading of PuI is low because administration of the scheme is tax-financed
- Every $ of additional tax induced an efficiency loss of at least 20 cents (McMaster, 2001)

3. The loading – the true price of insurance III

(1) Administrative expense

- CBI may have low cost, but the productivity of their administrators likely is low as well. Also, their staff often is voluntary (Nugroho et al., 2001)
- PuI also has low expenses because of its monopoly (no acquisition effort, no advertising)
- **Tradeoff:** no pressure to hold down cost or to cater to consumer preferences!

3. The loading – the true price of insurance IV

(2) Reinsurance:

- Reinsurance lowers expected profits (Doherty and Tinic, 1981); it causes the loading to increase
- However, reinsurance makes insolvency less likely; this reduces λ
- Reinsurance would be especially beneficial to CBI, who have small pool size and lack access to capital markets
- PuI has a large pool size and can rely on the government (i.e. taxpayers) for reinsurance. Costly source in view of 20 cents efficiency loss per $!

3. The loading – the true price of insurance V

(5) Moral hazard

- Amount of loading $L = \mu \cdot \pi(V(I)) + \lambda(1\text{-}c)\pi(V(I)I$
  $L'(I)$ shows the effect of more comprehensive benefits on the loading
- $\pi'(V(I)) > 0$ is the ex-ante moral hazard effect
- **Note:** The amount of loading usually increases progressively with I, i.e. $L''(I) > 0$

3. The loading – the true price of insurance VI

- Since $L''(I) > 0$, contributions (premiums) should increase progressively with comprehensiveness of coverage
- Likewise to mitigate **ex-post moral hazard**, loading and premiums need to go up when coinsurance is reduced; i.e. $L'(c) > 0$, $P'(c) > 0$
- Less relevant for CBI thanks to low density of medical supply
- Major problem for PuI who are expected to keep c low, uniform and constant over time

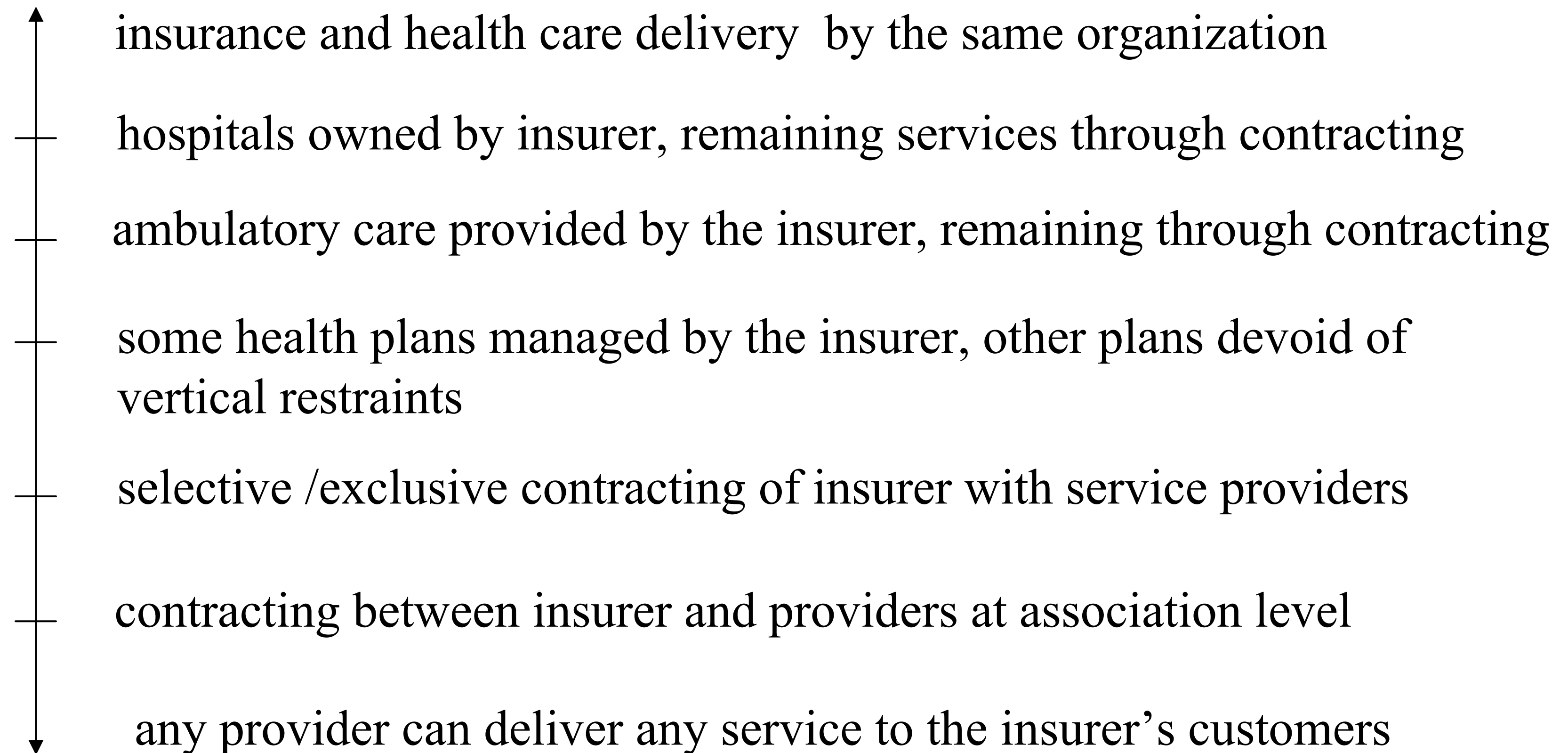
3. The loading – the true price of insurance VII

(10) Fraud and abuse

- Weak institutional framework facilitating corruption typical of LDCs (Transparency International, 2004)
- Insured may conjure with providers to overstate medical bills
- To counterbalance fraud, the rate of coinsurance **needs to be higher still!**
- Providers may purchase overly expensive inputs (Coris, 2003), causing loadings to be excessive and premiums unaffordable for low-income consumers

4. Determinants of vertical integration I

More vertical
integration/restraints



Less vertical integration/restraints

4. Determinants of vertical integration II

(3) Management know-how of insurer

- Average number of years of schooling 1.1 in Bangladesh, 2.6 in Mocambique
- Monitoring healthcare providers very difficult for CBI and PuI in LDCs!

4. Determinants of vertical integration III

(7) Lack of capital on the part of the insurer

- Full integration requires capital, which is costly in LDCs
- CBI typically lacks internal finance
- PuI can in principle draw on government finance, which however has high efficiency cost

4. Determinants of vertical integration IV

Note: Vertical integration can also originate with the service providers

(2) System efficiency gains to be realized

- Avoid „double marginalization“: independent insurer could include a monopolistic surcharge in premiums
- Avoid negative externality: independent insurer could skimp on quality (e.g. delayed reimbursement of patients), hurting reputation of participating provider
- Relevant when dealing with CBI, who wield local monopolies (Chegoria Hospital in Kenya, see Musau, 1999)

5. Cream-skimming effort: Why? How intensive? I

Insurer‘s decision problem:

$$\underset{S}{E\Pi} = l(s)(\overline{P}^l - \pi^l I) + \left\{1 - l(s)\right\}(\overline{P}^h - \pi^h I) - s$$

$$\rightarrow \max$$

$E\Pi$:	Expected profit
$l(s)$:	Share of low risks, depends on skimming expenditure
$\overline{P}^l$:	Premium paid by low risks, regulated
π^l :	Probability of illness, low risk
I :	Benefit to be paid in the event of illness, uniform

5. Cream-skimming effort: Why? How intensive? II

Condition for interior optimum ($s > 0$):

$$E\Pi'(s) = l'(s)(\overline{P}^l - \pi^l I) - l'(s)(\overline{P}^H - \pi^h I) - 1 = 0$$

Multiply by s/l to form elasticity $e(l,s) := l'(s)(s/l)$:

$$e(l,s)\left\{(\overline{P}^l - \pi^l I) - (\overline{P}^h - \pi^h I)\right\} = s/l$$

↑	↑	↑	↑
Effective-ness of skimming effort	E (contribu-tion to profit from low risks)	E (contri-bution to profit from high risks)	MC of skimming per low risk

5. Cream-skimming effort: Why? How intensive? III

$$e(l,s)\left\{(\overline{P}^{l}-\pi^{l}I)-(\overline{P}^{h}-\pi^{h}I)\right\} = s/l$$

- Necessary condition for skimming effort:
  E (profit) from low risks **higher** than from low risks

- Typical for premium regulation, e.g. community rating!

  $\rightarrow$ Premium regulation **induces cream-skimming**

6. Market structure I

- **Dimensions:** # of buyers, # of sellers, amount of product differentiation (Carlton and Perloff, 1999, ch. 1)
- Here: # of sellers, i.e. health insurers
- Neglected: legal form of insurer

6. Market structure II

(2) Economies of scale

- Might be important in (health) insurance due to the Law of large numbers (Cummins, 1991).
- But growth often means accepting higher risks
- Also, a larger risk pool exerts less social control

$\rightarrow$ The amount of loading rises $\rightarrow$ **no natural monopoly**.

6. Market structure III

(4) Barriers to entry

- Cause an increase degree of concentration
- Make collusion easier, thus reinforce effect of concentration
- LDCs often have restrictions on foreign ownership also in insurance
- **Example:** Thailand limits foreign ownership of new insurance companies to 25 percent (USTR, 1998)
- Barriers to entry **especially high** in the case of CBI, who benefit from long-standing relationships with their members

7. Conclusion: Likely comparative advantages

Dimension of supply	VPHI in ICs	VPHI in LDCs	CBI	PuI
Benefit package	Rather compre-hensive	Less compre-hensive than in ICs	Limited	Less compre-hensive than in ICs
Loading	Medium	Higher than in ICs	Low	Medium (hidden)
Vertical integration	Low	Very low	Low	Medium
Cream skimming	Low	High	Medium	None
Market concentration	Low	Medium	High	Maximum
VPHI: Voluntary Private Health Insurance				