

How to provide insurance without data?

June 30th, 2011

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Agenda

- Product design and **pricing** in the absence of statistical data.
- The outcome? Our experience.
- Other actuarial roles in microinsurance.

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Focus Today: Health Microinsurance

Why?

- Because it's more difficult to price – you need more than a mortality table.
- Because it's more important to get right – portfolios are smaller but claims more frequent.
- Because it's more difficult to re-price – premium is considerably higher than for life insurance so customers are sensitive.

Not in focus today: interest rate assumptions or reserving.

- Why? Because most microinsurance is short term.

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Example 1 – Hospitalisation in Rural Pakistan

The product:

- Semi-mandatory for villagers in remote mountainous area.
- All costs of an inpatient admission to a hospital up to \$400.
- Cashless in network hospitals.
- No age limit (newborns and elderly).
- No exclusion of pre-existing conditions, few other exclusions.
- No waiting periods, no co-payments.
- Maternity: normal delivery + complications.
- Newborns automatically covered free of cost.

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Example 1 – Hospitalisation in Rural Pakistan

The product (continued):

- No underwriting – only requirement: $\geq 50\%$ of households per village, and entire households have to enrol.
- Enrolment possible initially once a year (later twice), single annual premium (\$5 pp) due upfront.
- One OPD voucher pp/py.
- \$400 death/funeral benefit for breadwinner.

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Example 1 – Hospitalisation in Rural Pakistan

	Incidence in Total Population	Average Cost (in PKR)	Premium (in PKR)
Non Maternity	3.60%	3,601	130
C-Section	0.33%	14,665	48
Normal Delivery	1.87%	2,043	38
Total Health Insurance	5.80%	3,724	216
Life Assurance	0.03%	25,000	7
Net Risk Premium			223
Intermediaries' Commission			83
Insurer's Margin			25
Gross Premium			330
OPD Voucher			50
Total Premium			380

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Example 2 – Hospitalisation in Urban Pakistan

The product:

- Mandatory for microfinance borrowers and their family.
- All costs of an inpatient admission to a hospital up to \$400.
- Local ambulance service.
- Cashless in network hospitals.
- Age limit adults 65, no minimum age for children.
- 50% co-payment for pre-ex conditions during first 3 months.
- No waiting periods, few exclusions (e.g. maternity).
- No underwriting.

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Example 2 – Hospitalisation in Urban Pakistan

Max. Benefit	25'000
Incidence	4%
Average claims size	6'371
Std. deviation	100%
net risk premium	
assuming Lognormal claims size distribution	246.54
assuming Exponential claims size distribution	230.03
by comparison: without benefit limit	254.82
loading	35%
gross commercial premium adults	
assuming Lognormal claims size distribution	379.29
assuming Exponential claims size distribution	353.90
by comparison: without benefit limit	392.04
suggested market premium	400

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Example 2 – Hospitalisation in Urban Pakistan

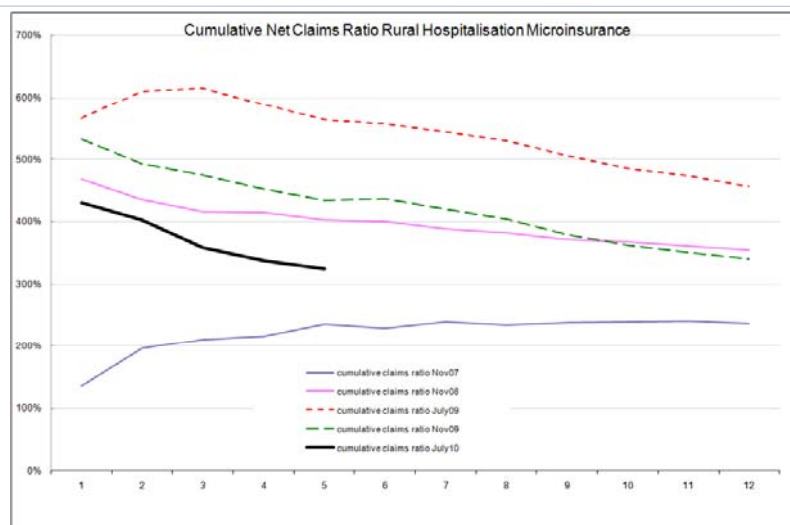
Pricing rationale:

- Incidence: 94 non-maternity claims between November and March in Rural Hospitalisation program, implying annual incidence of 3.7%.
Incidence experience of another urban Hospitalisation microinsurance in the same period implied incidence of 0.5% (not credible: scheme small, claims few).
- Average claims size: Lahore expected average (as per discussions with hospitals, from the other urban Hospitalisation microinsurance) adjusted to Karachi level of hospitalisation costs by comparison of C-section and appendectomy.

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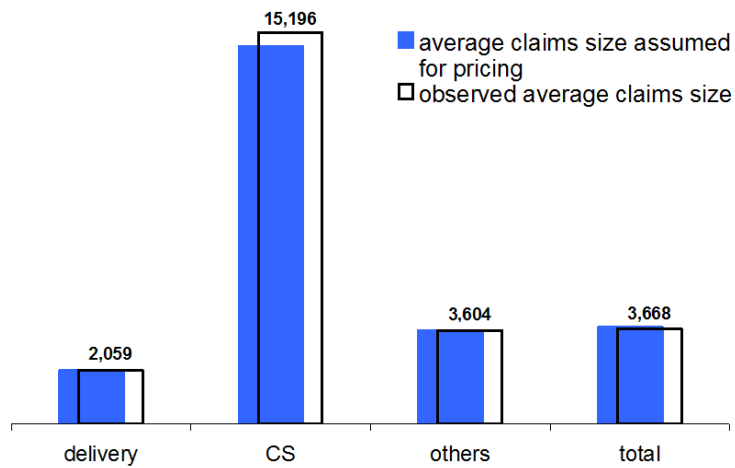
Experience with Rural Hospitalisation



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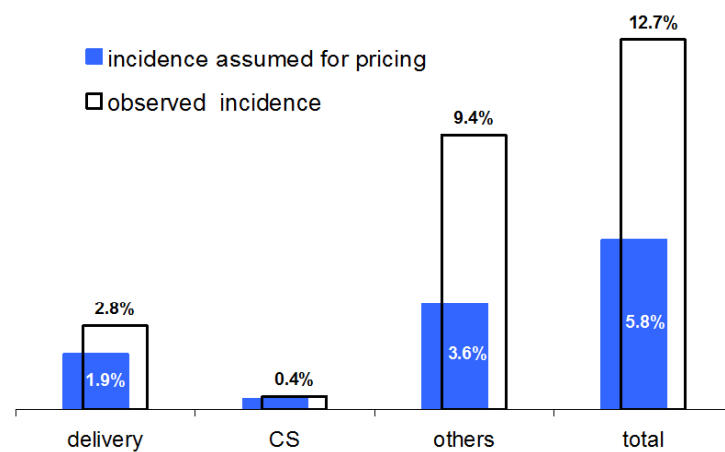
Reasons for Rural Losses – Year 1



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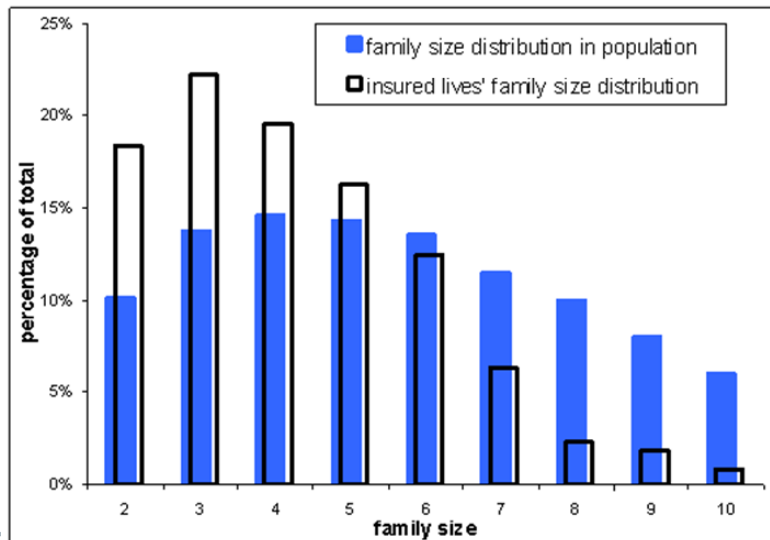
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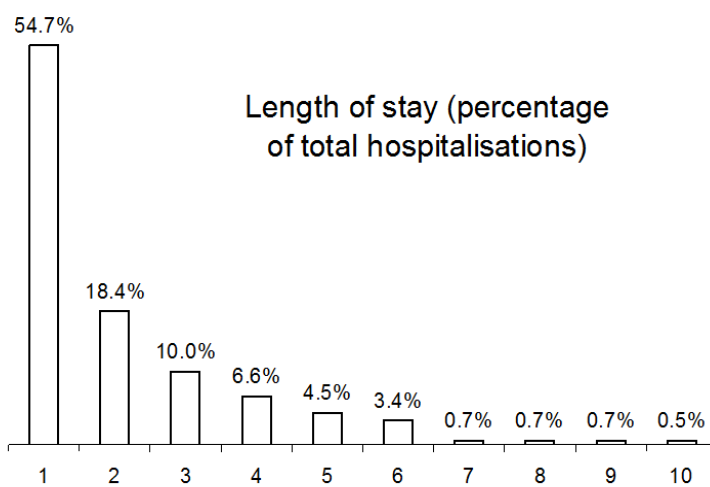
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Reasons for Rural Losses – Year 1



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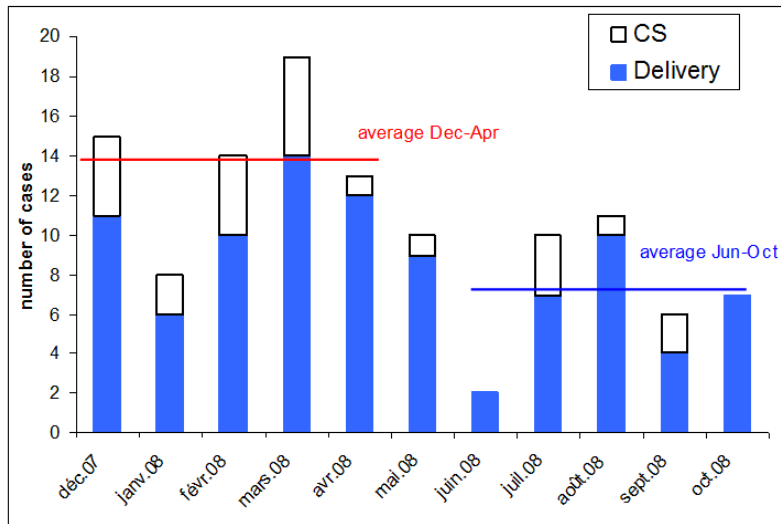
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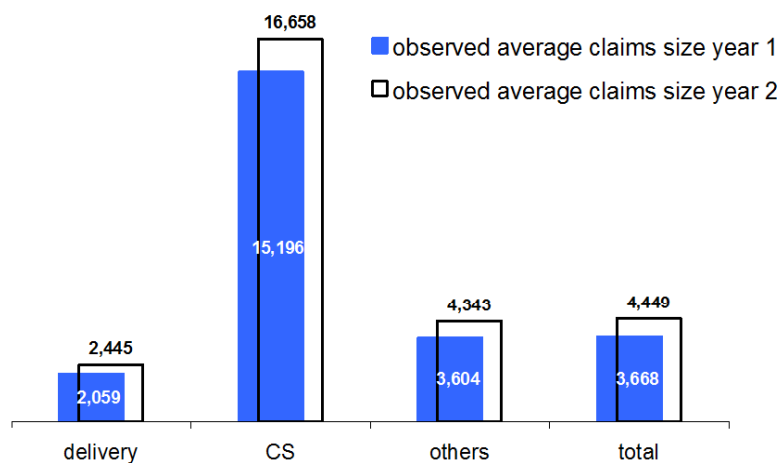
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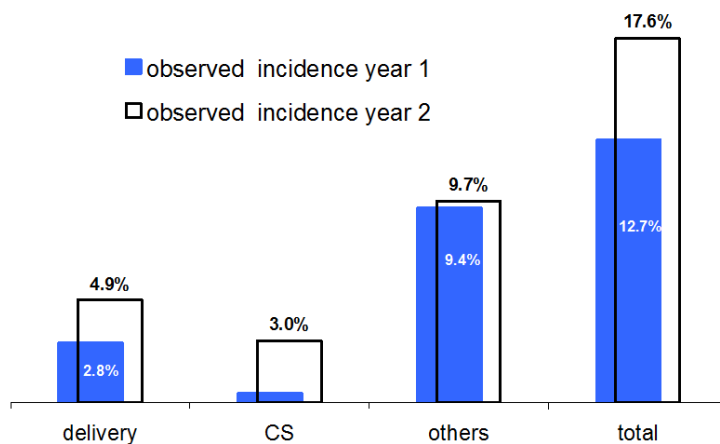
Reasons for Rural Losses – Year 2 vs. Year 1



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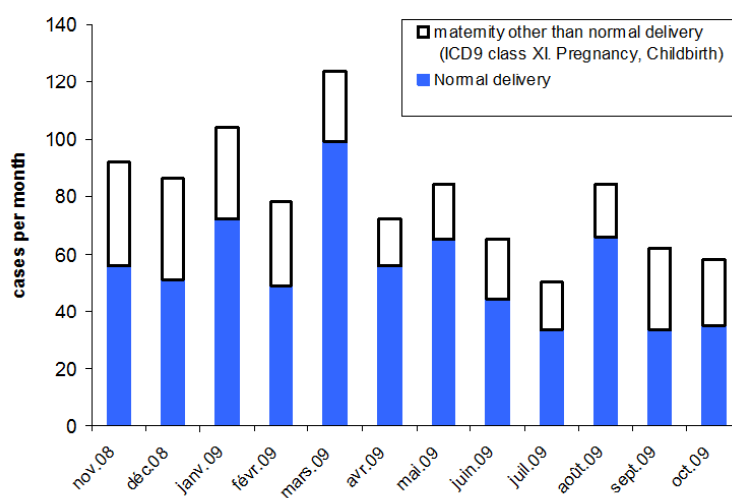
Reasons for Rural Losses – Year 2 vs. Year 1



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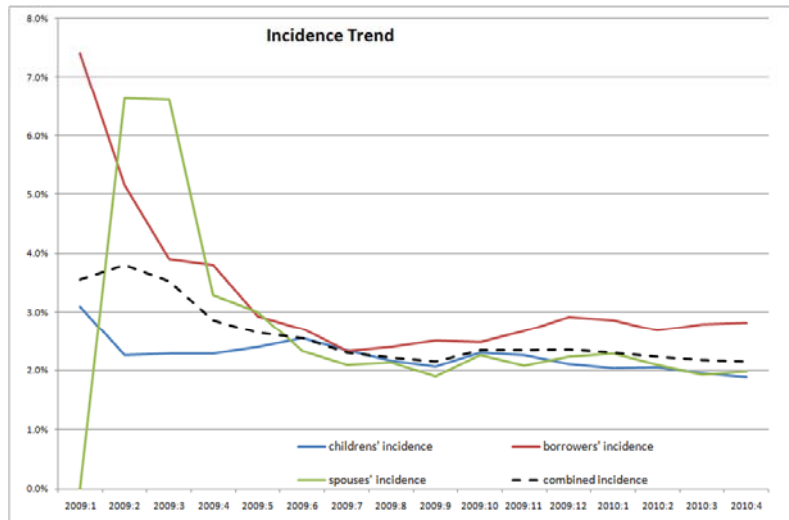
Reasons for Rural Losses – Year 2 vs. Year 1



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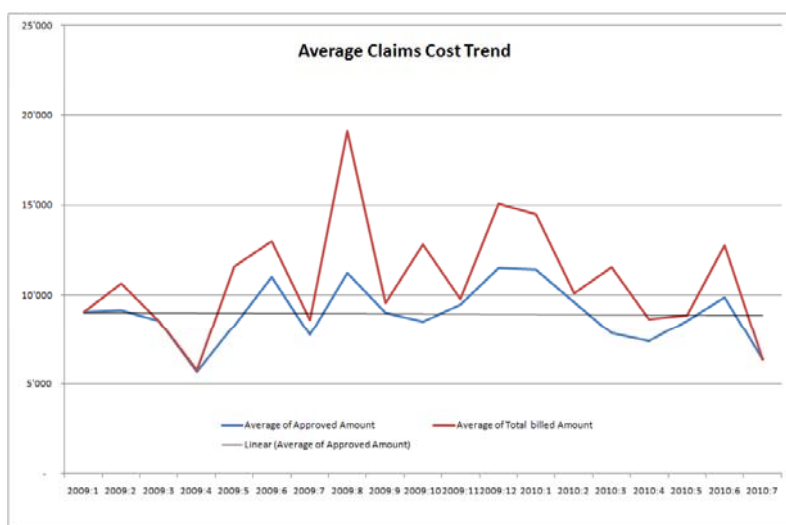
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Experience with Urban Hospitalisation



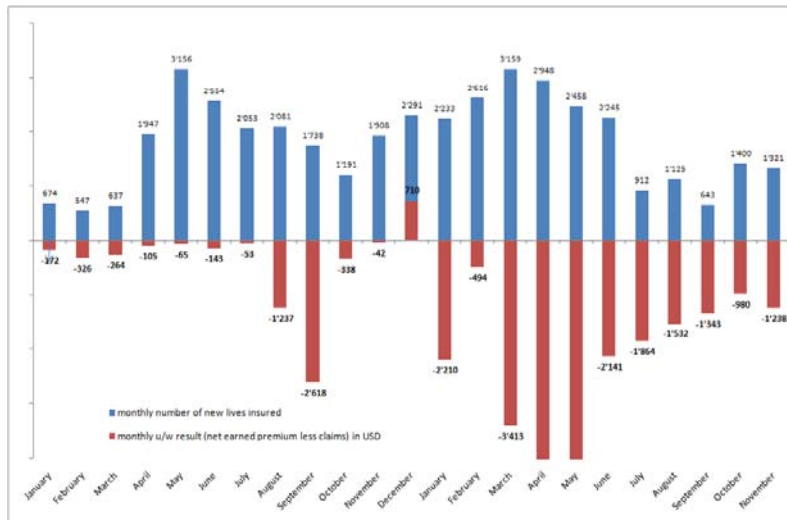
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Experience with Urban Hospitalisation



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Experience with Urban Hospitalisation



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My Approach to Pricing in the Absence of Data

- (Search as much appropriate data as possible.)
- Transfer data from similar environments and adjust as much as possible.
- Be bold! Despite deficiencies, launch product priced with best guess (but limit exposure i.e. enrolment volumes and time).
- Be vigilant! Monitor and analyse claims experience intensively.
- Be quick! Take corrective action as soon as you see something's wrong.

That's the theory ...

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My Experience with Pricing in the Absence of Data

- You may not get the necessary claims experience data in time.
Is there any reliable automated MIS in place?
Do the locals understand how to feed the reporting systems, and why? (Do they want to?)
- You may fail to understand what's wrong by just looking at numbers (and you may not be able to go there often).
- You may fail to implement the necessary corrective measures – who „owns“ the business anyway?

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Other actuarial roles in microinsurance

- Help people understand the concept of risk pooling (and why some demands are unreasonable).
- Help people understand the need for experience monitoring.
- Help design and implement the necessary processes for experience monitoring.
- Help people understand the results of experience analysis.
- Help people understand **reinsurance**; analyse reinsurance needs and availabilities; help arrange and administer reinsurance.

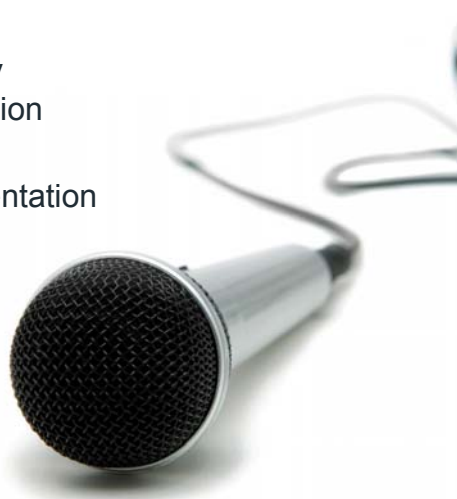
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Questions or comments?

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Thank you for your attention

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