Tokyo, December 14th 2018
Waseda-Keio Mini-Conference on Economics of Healthcare Systems

Switching Costs in Health Insurance Markets: The Role Price Strategies

Karine Lamiraud[ab], Pierre Stadelmann[b]

a. ESSEC Business School, Paris
b. University of Lausanne

1. Background

Competition in health insurance markets

➔ Some nations have implemented **competition in health insurance markets**

➔ **Competition works** only if enough **consumers switch** to more efficient companies

Consumer inertia in competitive health insurance markets

➔ **Consumer inertia** and **low switching rates** have been highlighted in the literature

➔ **Barriers to switching** in basic health insurance

- Attachment to status quo (Strombom et al., 2002)
- Choice overload (Frank and Lamiraud, 2009)
- Reluctance to switch health care providers (Abraham, 2006)
- Fear of risk selection in supp. markets (Dormont et al., 2009, Roos and Schut, 2012)

2. Objectives of this study

We approach the problem from a different angle

- ➔ Firms are aware of consumer inertia and should therefore take optimal advantage of it
- ➔ We examined **firms' pricing strategies** in settings where competitive health insurance companies offer basic and supplementary products
- ➔ More specifically we investigated whether Swiss firms use **bundling strategies** or/and **supplementary products** as **low price products** in order to capture consumers

Outline

1. Swiss Health Insurance Markets
2. Pricing Strategies
3. Data
4. Empirical strategy and results
5. Concluding remarks

1. Managed competition in basic health insurance in Switzerland (LAMAL, 1996)

- Individual mandate for basic health insurance coverage
- Standardized benefits
- Premiums are community rated
- Insurers must accept every applicant
- Open-enrolment opportunity in June and December
- Risk adjustment

\+ Regulatory separation between basic and supp. Coverage

\+ Enrollees have a great deal of choice (50 to 69 choices in 2007)

➔ **One would expect strong price competition within each area pf competition, resulting in small premium differences across plans**

1. Managed competition in basic health insurance in Switzerland (LAMAL, 1996)

- Individual mandate for basic health insurance coverage
- Standardized benefits
- **Premiums are community rated** , i.e.

  an insurer must offer **uniform premiums to everyone**

  - in the same geographical area (78 regions, i.e. 3 per canton)

  - in the same age group (0-18,19-25,>25)

  - with the same type of contract

  ordinary deductible (300 Swiss francs)
  higher deductible (500, 1000, 1500, 2000 and 2500 Swiss francs)
  limited choice of physicians
- Insurers must accept every applicant
- Open-enrolment opportunity in June and December
- Risk adjustment

1. Managed competition in basic health insurance in Switzerland (LAMAL, 1996)

- Individual mandate for basic health insurance coverage
- Standardized benefits
- Premiums are community rated
- Insurers must accept every applicant
- Open-enrolment opportunity in June and December
- Risk adjustment

\+ Regulatory separation between basic and supp. Coverage

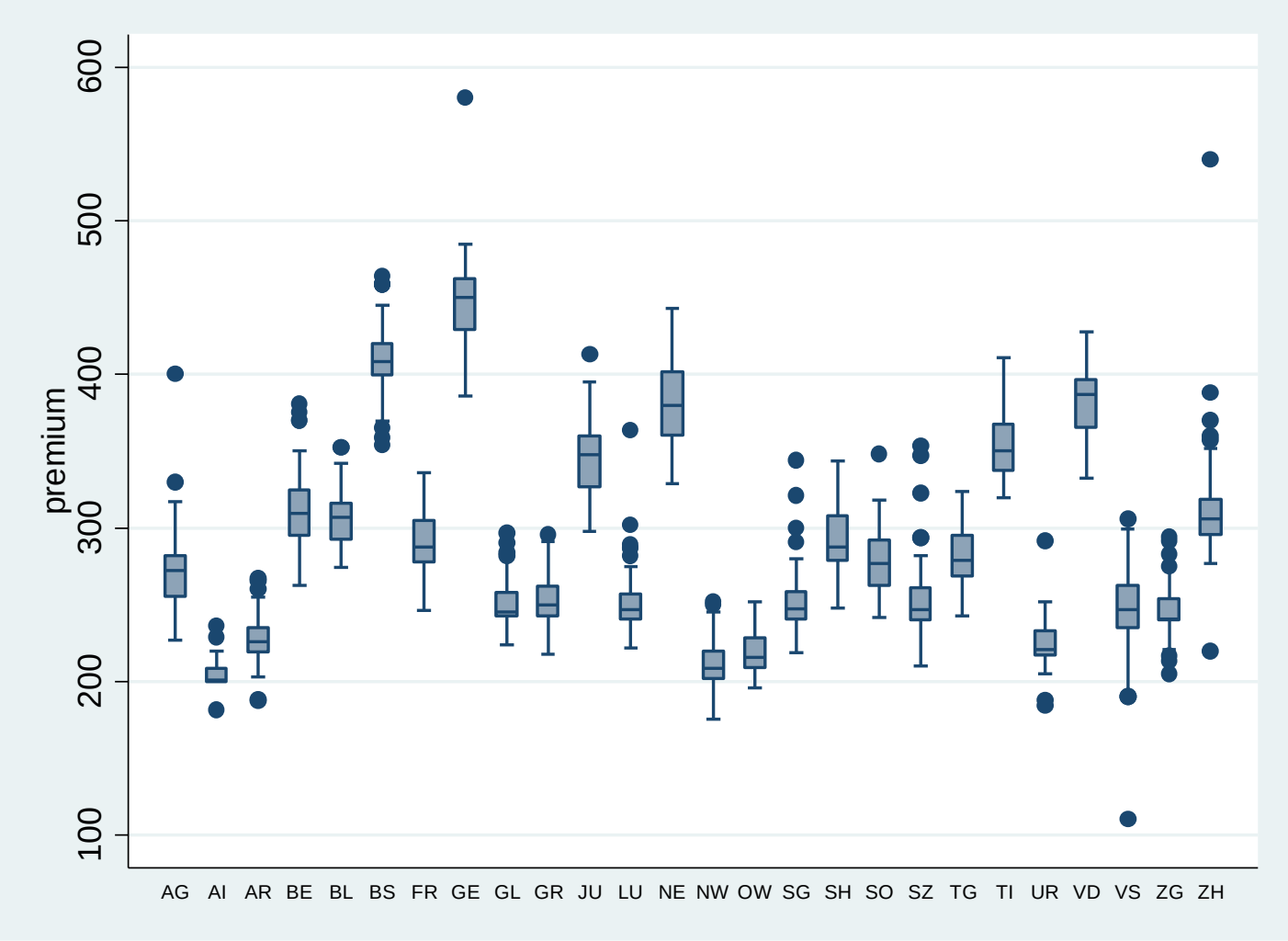
\+ Enrollees have a great deal of choice (50 to 69 choices in 2007)

\+ Price information easily available

➔ **One would expect strong price competition within each area of competition, resulting in small premium differences across plans**

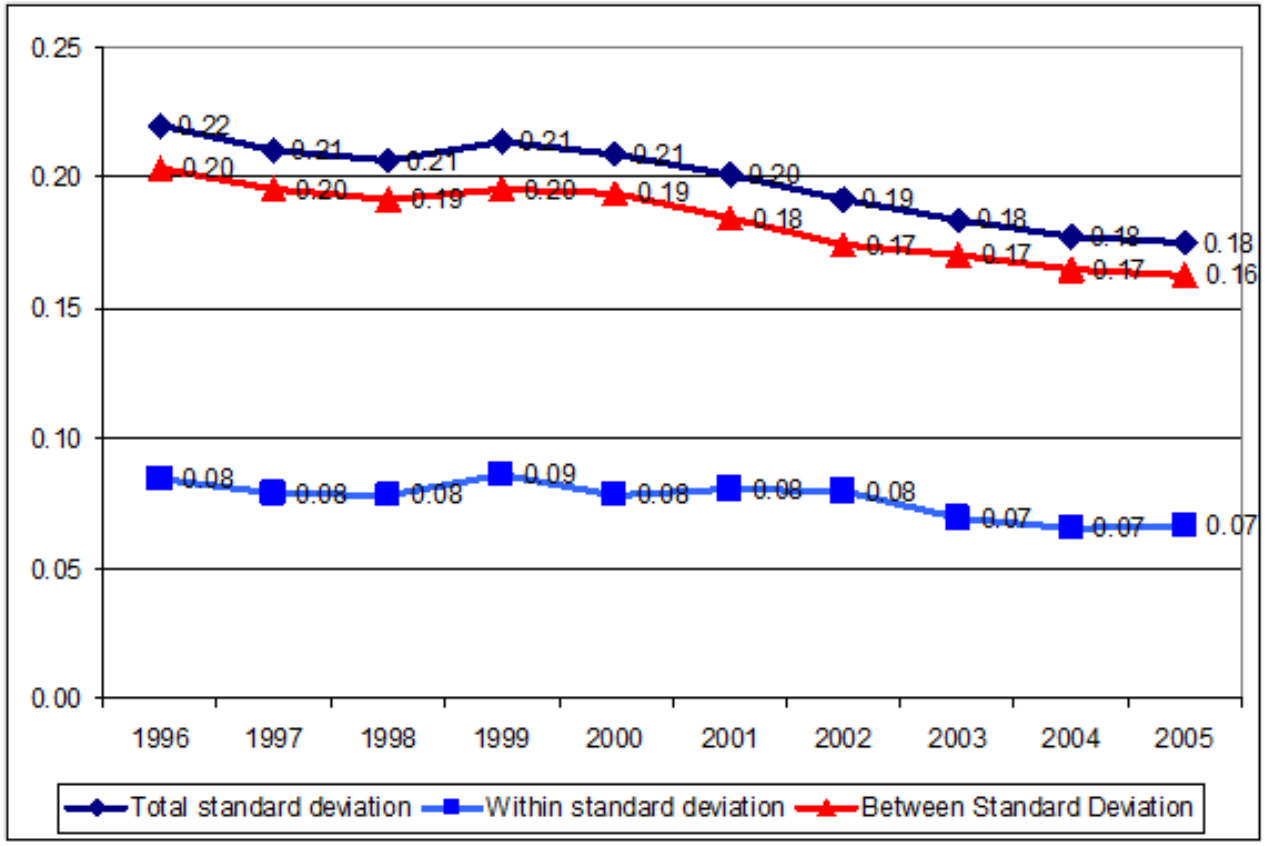
2. Premium variability

Box plot of adult monthly premium (for a 300 CHF deductible contract) by canton (2007)



3. Persistence of price variability over time

The overall variance of premiums in year t can be divided into two parts: the between-canton variance and the within-canton variance : $V(p_{j,c,t}) = V(p_{.,c,t}) + V(p_{j,c,t} - p_{.,c,t})$



4. The ineffectiveness of competition to date

The ineffectiveness of competition in basic health insurance markets

➔ Great **premium variability** exists within cantons and has not converged

➔ One important factor for this is **low switching rates** (ranging from 2% to 5%)

How can low switching rates be explained?

➔ **One possible barrier is the relationship between basic and supplementary insurance**

5. Regulation of supplementary insurance

- Supplementary insurance is regulated by a different law to that of basic insurance (Insurance Contract Law)
- Companies are allowed to operate both in basic and supp. markets
- Most individuals subscribe to supplementary insurance with the same insurer who provides their basic contract (93%,2001; 91%, 2007)

⇨ **Although the law stipulates strict separation, in reality both types of insurance coverage are strongly linked**

1. Pricing strategies

➔ **The pricing of several products can take different forms**

➔ Most strategies have **not been analyzed in the context of insurance**

2. Bundling

➔ **Bundling** is the sale of two or more products in a **package** (Stremersch and Tellis, 2002)

➔Selling goods in a **package** is **more profitable** than monopoly pricing (Adams and Yellen 1976, Whinston 2009)

➔ The **bundle** comes at a **discount** with respect to purchasing the different products separately (Matutes and Regibeau 1992)

3. Setting a low price for a product

Another strategy consists in establishing a **low price for a product** in order to **attract customers** who are likely to buy **other products at regular/high prices**

- **Add-on pricing**: advertising a base price for a product and trying to sell additional "add-ons" at high prices at the point of sale (Ellison and Ellison 2004, Ellison 2005)
- **Loss-leader pricing**:

  Loss-leaders are sold at a low price (most often at or below the retailer's marginal cost):

  - they are heavily marketed
  - they provide incentives for customers to shop in a particular store (Hosken and Reiffen 2007)
  - they increase profits through the sale of other products (Lal and Matutes 1994)

1. Insurance market data (2007)

Supplementary insurance

➔ **Premiums** offered by each insurance plan *(i)*, per canton *(c)*, per risk category *(r)*, per supplementary insurance product *(s)* (P_{icrs})

(r) 3 age groups (born in 1948, 1962, 1977), by gender

(s) **Private room** in hospital (one bed)
Semi-private room in hospital (two beds)
dental care
alternative medicines and homeopathy

➔ 60 companies

➔ Source: authors' **own data collection** (advertised prices, phone and website data collection)

Basic (compulsory) insurance

➔ Observations on each insurance plan (*i*), per canton (*c*), for each type of contract *(b)*

Premiums (P_{ic}^{b}) (adults)

Number of enrollees (n_{ic}) (adults)

➔ 87 companies

➔ Source:
Federal Office for Public Health

2. Survey data (2007)

➔ **3,016 households**

➔ **1 respondent per household**

➔ **Variables**

- name of basic insurance plan provider
- options (deductible, HMO)
- premium for basic insurance
- insurance switches (2002 – 2007)
- intention to switch

+ age, gender, education, income, health status

- types of supp. contracts
- names of supp. insurance plan providers
- premium for supp. insurance

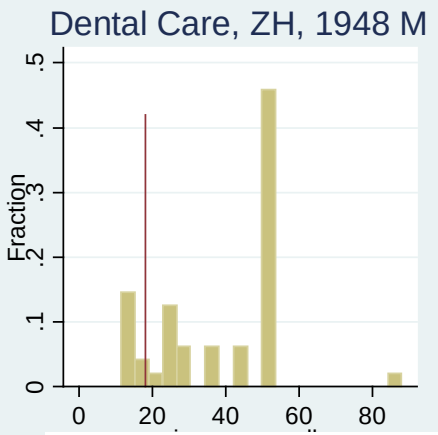
1. Identify potential low price products by firms

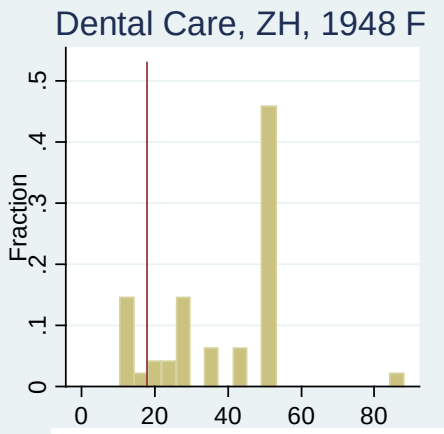
- The distribution of premiums shows **two clear groups**:
  - ➔ 1st: one group of firms pricing at a low level
  - ➔ 2nd: other firms who all usually price at around the same higher level

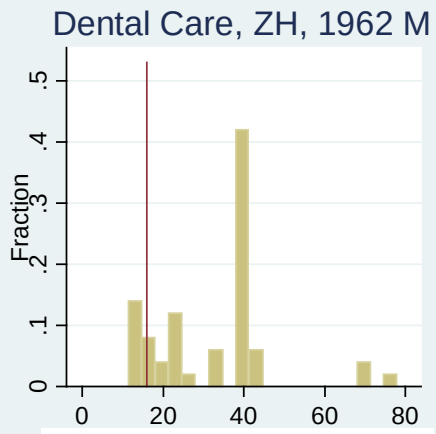
- The threshold of 15% was chosen to identify the 1st **group of firms**

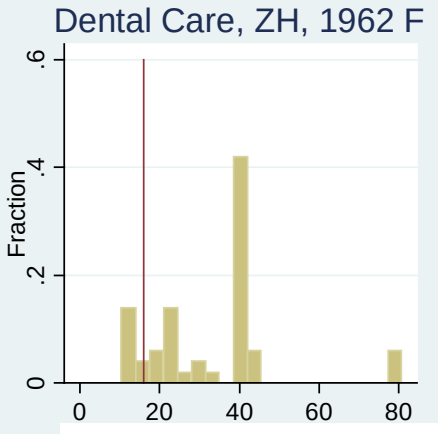
  (premium < D15 of the premium distribution)

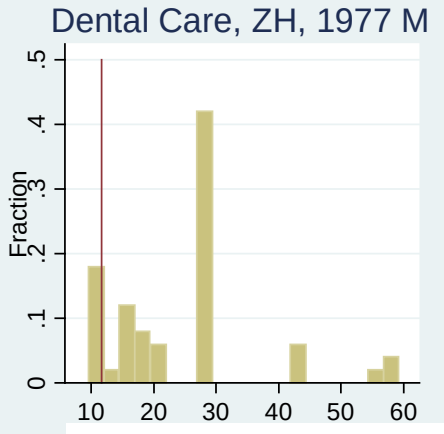
2. Illustration
Zurich canton, dental care

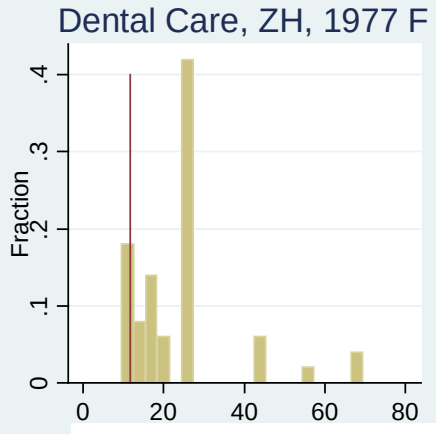












3. Characterizing markets

➔ **We investigated whether each firm offered a low price product or not**

➔ **We computed the % of markets in which each firm offered a low price supp. product**

			Choice of low-price supplementary products			
Firms	% of supplementary markets***		Private room hospitalization **	Semi-private room hospitalization**	Alternative medicine**	Dental care**
1	0,23	*	0	0	0	1
2	0,21	*	1	0	0	0
3	0,19	*	1	0	0	0
4	0,27	*	1	0	0	0
5	0,26		1	0	0	0
6	0,31		0	0	1	0
7	0,32		0	0	0	1
8	0,23		0	0	1	0
9	0,51		1	1	0	0
10	0,34		0	0	0	1
11	0,34		0	0	0	1
12	0,48		1	1	0	0
13	0,29		1	0	0	0
14	0,47		1	1	0	0
15	0,28		0	0	0	1
16	0,17		0	0	1	0
17	0,43		1	1	0	0
18	0,51		1	1	0	0
19	0,22		1	0	0	0
20	0,19		0	1	0	0
21	0,26		1	0	0	0
22	0,28		1	0	0	0
23	0,24		1	0	0	0
24	0,21		0	1	0	0
			0,58	0,29	0,13	0,21

* these companies sell basic insurance at a low price

** 1 means that the product is sold at a low price, 0 means that the product is not sold at a low price

*** in which the company has a low price supplementary product

4. What do markets look like?

- **None** of the firms offered **less expensive** contracts for **all types of coverage**

- **A majority of companies priced one of their products at a low price**
  76% sold at least one low price product
  48% sold at least one low price supplementary product

- **Most companies discounted one single supplementary product (79%)**
  Most often companies discounted the chosen supp. product for all 6 risk classes

- The low price product differed across firms: firms were engaged in **market segmentation.** Out of the companies with one low price product:
  58% private room in hospital
  29% semi private room in hospital
  13% alternative medicine
  21% dental care

1. Analyze consumers' reactions

Low price products are supposed to provide incentives for customers to buy other insurance products with the same company and to induce consumer inertia (i.e. low levels of switching)

Are consumers who opt for one **low price supplementary product**

- more likely to take out basic insurance with the same company?
- more likely to subscribe to other supplementary products with the same companies?
- less likely to switch basic insurance contracts?

2. Descriptive statistics of the survey (n = 3,016)

	%
Age: [27,35]	12,7
Age: [35,50]	35,0
Age: [51,65]	29,3
Age: >65	23,0
Household Income: < 5000 Swiss Francs per month	34,4
Household Income: 5000 - 8000 Swiss Francs per month	30,8
Household Income: > 8000 Swiss Francs per month	34,8
Subsidy for the Premium (yes=1) in Basic Insurance	16,8
Gender: male	46,4
Education level: first cycle regular track (compulsory school)	10,7
Education level: second cycle regular track	8,2
Education level: short professional track	49
Education level: long professional track	14,5
Education level: university completed	15,8
Urban setting	69,1
Swiss citizen	86,3
Poor subjective health	16,6
Good subjective health	44,8
Very good subjective health status	38,4
Had a hospital stay (excluding childbirth) in 2006	11,1
Number of physician visits in 2006: 0 or 1	38,1
Number of physician visits in 2006: 2 or 3	27,2
Number of physician visits in 2006: 4 or more	34,7
Opted for a low deductible (300 CHF) in basic insurance	37,2
Had a supplementary insurance contract	87,6
Subscribed to different companies for basic and supplementary contracts	9,0
Intended to switch in the near future	11,6
Intended to switch in 2008	5,2

Source: IEMS survey (2007)

3. Individual choices for supplementary insurance

➔ **87% of individuals held at least one supplementary product**

➔ **The average number of supplementary products for an individual was 2.3 (±1.5)**

	% with supp. coverage	% having supp.coverage with the same company as for basic insurance	% with low price products
Private room in hospital	11,7	83	20.4
Semi-private room in hospital	21,4	88	25,0
Dental care	11,3	92	9,8
Homeopathy/ alternative medicines	45,8	89	31,5

Source: IEMS survey (2007)

4. Low price supp. products and choice in basic insurance

Assumption: Enrollees opting for a low price product were more likely to buy basic insurance from the same firm than those taking out supplementary insurance with a firm which did not sell low price products

% of enrollees having basic and supp. coverage with the same company, depending on whether enrollees opted for low price supp. coverage product or not

	% having basic coverage with the same company		
	with non low-price product for supp.coverage	with low- price product for supp.coverage	p*
Private room in hospital	79	100	< 0.001
Semi-private room in hospital	84	100	< 0.001
Dental care	88	100	< 0.001
Homeopathy and alternative medicines	87	100	< 0.001

*Khi2 test

Source: IEMS survey (2007)

➔ **Those who opted for low-price supplementary products were significantly more likely to buy basic insurance with the same company**

5. Charateristics of individuals opting for low price supp. products

	Very good subjective health status (%)	Number of contacts with a physician in 2006 (mean)	Had a hospital stay in 2006 (%)	Male (%)	Completed University (%)	Income** (mean)
with low-price product for **private room in hospital**	40,85	3,81	13,89	54,17	33,33	7,46
without low-price product for private room in hospital	47,62	4,04	13,50	45,26	31,39	7,17
p*	0,38	0,75	0,93	0,18	0,75	0,53
with low-price product for **semi-private room in hospital**	40,37	3,95	14,91	41,61	21,38	6,84
without low-price product for **semi-private room in hospital**	36,90	4,54	14,88	43,40	18,01	6,53
p*	0,43	0,30	1,00	0,69	0,36	0,62
with low-price product for **dental care**	40,19	3,90	9,35	53,27	12,54	6,15
without low-price product for **dental care**	41,48	3,78	13,97	53,28	12,15	5,76
p*	0,82	0,82	0,23	1,00	0,10	0,27
with low-price product for **homeopathy/ alternative medicines**	36,76	4,30	10,29	45,59	22,79	6,17
without low-price product for **homeopathy/ alternative medicines**	40,36	4,19	10,80	37,95	18,83	5,72
p*	0,42	0,84	0,86	0,08	0,32	0,28

*comparison of characteristics between the group with low price products and the group without low price products
(khi 2 test and student test for mean comparisons, respectively for dichotomous and continuous variables)
** The survey records household income as a categorical variable with 11 categories (1 is the lowest income category, 11 is the highest income category)
Source: IEMS survey (2007)

➔ **Health status did not significantly differ between those with low-price supplementary products and those without low-price supplementary products**

6. Basket of goods

- Furthermore, the basket of goods bought from a given insurer was larger when a low-price product was chosen

- Participants with a low-price product (out of the 4 products considered) bought on average 3.2 supplementary products from a given insurer, while those who did not have any low-price products bought on average 2.1 supplementary products from a given insurer.

7. Intention to switch model

$$y_j^* = LS_{js}'\beta + S_{js}'\eta + g_j\gamma + X_j'\alpha + u_j$$

y :* **propensity to switch**
$y_j = 1$ if individual *j* intends to switch ,$y_j = 0$ if individual *j* does not

LS_{js} : vector of **low price supplementary insurance products**
LS_{is} = 1 if individual j has a low price product for supplementary insurance *s*

S_{js} : vector of **supplementary insurance products**
s_{js} = 1 when the individual has a contract for product *s*

g_j: potential **gains from switching health plans** (Lamiraud & Frank, 2009)
standard deviation in health plan premiums within a Canton

X_j : vector of **individual characteristics** (age, gender, education, health status, income)

u_j: **disturbance** supposed to follow a normal distribution

All regressions include cantonal dummies

8. Intention to switch model

	Coef.	z
low price product for private room in hospital	-0,11	-1,62
private room in hospital	-0,20	-0,98
low price product for semi private room in hospital	-0,61	-2,17
semi private room in hospital	-0,03	-0,18
low price product for dental care	-0,28	-2,24
dental care	-0,16	-0,89
low price product for homeoptahy/alternative med	-0,63	-1,98
homeopaty/alternative medicines	-0,09	-0,95
g	0.02	1.91
male	0,12	1,28
poor subjective health	ref	ref
good subjective health	-0,09	-0,65
very good subjective health status	-0,21	-1,37
age: [27,35]	ref	ref
age: [35,50]	-0,45	-4,00
age: [51,65]	-0,74	-5,58
age: >65	-1,92	-5,65
education level:compulsory school	ref	ref
education level: short professional track	-0,03	-0,16
education level: second cycle regular track	0,20	0,90
education level: long professional track	0,19	0,93
education level: university completed	0,08	0,39
swiss	-0,01	-0,06

➔ **Those who opted for low price supplementary products were less likely to declare an intention to switch basic insurance companies in the near future**

8. Interpretation (1)

➔ **We considered the possibility that low price product variables might be endogenous**

- This might be because they wanted to optimize their consumption basket
- Another possibility is that a firm was cheap in both the basic and supp. Insurance markets

8. Interpretation (2)

	Mean premium in basic insurance		
	without low price product for supp.coverage	with low price product for supp.coverage	p
Private room in hospital	266	285	< 0.01
Semi private room in hospital	265	287	< 0.01
Dental care	260	298	< 0.01
Homeopathy and alternative medicines	239	264	< 0.01

➔ **The average premium in basic insurance was significantly higher for those who had a low price supplementary product**

8. Interpretation: Reasons for being insured at the current Lamal Insurer (3)

	Reasons for being insured with the current Lamal insurer All sample (n = 3016)					
	Parents have always been there %	Low/moderate premiums %	Agent advice %	Friends advice %	Advertisement campaigns %	Offered good supp. products %
with low-price product for private room in hospital	12,6	12,2	3,1	7,1	13,7	79,1
without low-price product for private room in hospital	13,9	25,2	3,2	7,2	12,6	12,0
with low-price product for semi-private room in hospital	12,1	14,5	2,9	7,2	13,4	81,5
without low-price product for semi-private room in hospital	11,6	24,2	2,9	7,3	12,9	9,8
with low-price product for dental care	11,5	12,8	2,8	7,5	14,0	73,5
without low-price product for dental care	14,2	27,8	3,2	7,8	13,5	14,2
with low-price product for homeopathy/ alternative medicines	12,2	13,6	2,9	7,5	12,8	77,5
without low-price product for homeopathy/ alternative medicines	11,0	26,3	3,1	7,2	13,1	11,4

Source: IEMS survey (2007)

8. Interpretation (4)

	Reasons for being insured with the current insurer for supplementary coverage						
	Parents have always been there	Low/moderate premiums	Agent advice	Friends advice	Advertisement campaigns	Offered other good supp. Products	I had my basic insurance contract with the same company
	%	%	%	%	%	%	%
with low-price product for private room in hospital	0,3	98,6	3,3	1,4	88,6	10,5	1,5
with non low-price product for private room in hospital	0,5	16,7	2,8	1,6	12,5	30,6	20,4
with low-price product for semi-private room in hospital	1,7	95,7	2,7	1,4	85,5	4,2	2,8
with non low-price product for semi-private room in hospital	1,4	12,8	2,5	1,9	13,5	25,8	22,7
with low-price product for dental care	0,8	96,8	3,1	1,9	92,6	8,7	2,7
with non low-price product for dental care	0,9	14,6	2,7	2,1	12,4	29,4	24,6
with low-price product for homeopathy/ alternative medicines	1,1	94,9	3,1	2,2	89,4	9,5	1,8
with non low-price product for homeopathy/ alternative medicines	1,2	15,8	2,6	1,9	9,5	32,7	23,8

Source: IEMS survey (2007)

1. Implementing a bundling test

The bundle comes at a discount with respect to purchasing the different products separately

$$P_{js} + P_{jb} < P_{js} + P_{kb}, k \neq j$$

For each individual having basic and supp. insurance contracts with the same provider

- we computed the theoretical total health insurance premium* s/he would pay by choosing the cheapest basic product on the market** and staying with his/her current arrangements for supp. coverage
- we compared this theoretical total to the actual total premium that the insured individual was paying

Note: the basket of products was unchanged for each individual

* sum of basic and supplementary contracts, for each type of supplementary contract
** keeping her/his deductible and HMO choices constant

2. Results of the test on bundling

- The total mean monthly premium paid for basic coverage and a private room hospitalization contract with the same insurer amounted to 543 CHF.
- If these individuals switched their basic insurance to the least expensive product, the premium would have been reduced to 479 CHF

	Mean current premium when buying supp. and basic coverage from the same company	Mean theoretical premium when buying basic coverage from the cheapest company	p
Private room in hospital	543	479	< 0.01
Semi privatae room in hospital	458	398	< 0.01
Dental care	376	316	< 0.01
Homeopathy/alternative medicines	359	306	< 0.01

Source: survey data

➔ Separating the products by buying them from different firms would be cheaper for the insured
➔ There is no evidence of bundling

1. Pricing strategies and switching costs

➔ We investigated **firms's pricing strategies**

➔ Our analysis focussed on **Swiss health insurance markets**

➔ In Switzerland, the **same companies** offer **basic and supplementary products**

2. Main findings

- A majority of firms price one of their products at a low price
- None offer cheap products overall (i.e. in both basic *and* supp. markets)
- Low price insurance products differ across companies

- Low price supp. products seem to succeed in attracting and retaining consumers to insurance plans:

  Consumers, when buying a low price supp. product :

  - always buy their basic contract from the same firm
  - buy more insurance products from the same firm
  - have lower intention to switch basic insurance companies

3. Main findings (cont'd)

- We do not find any evidence of a similar low price product strategy based on *basic* insurance
  - an individual buying a low-price basic product is less likely to buy supp. products from the same firm (results not shown)

- We do not find any evidence of bundling

4. Discussion

- Our paper contributes to the industrial organization literature studying multiple-product pricing as, to our knowledge, it is the first work to investigate low-price product strategies (in order to retain consumers) in the context of health insurance
- It also contributes to the literature studying consumer inertia in health insurance markets which has already discussed consumer inertia in the Swiss health insurance market from the consumer's perspective (Frank and Lamiraud, 2009; Dormont et al, 2009).
- Hence our analysis raises the question of profits. A good priced at a low level is expected to be bought with other products, the latter providing most of the profit.
- More generally, a full understanding of pricing strategies in Swiss health insurance market would also be interesting

1. Using basic insurance as a low price product in order to attract consumers?

% of enrollees having basic and supp. coverage with the same company, depending on whether enrollees opted for low price basic product or not

	% with supplementary coverage from the same company		
	without low price product for basic insurance	with low price product for basic insurance	p
Private room in hospital	87,88	58,18	<0.001
Semi private room in hospital	90,74	71,91	<0.001
Dental care	92,77	69,83	<0.001
Homeopathy and alternative medicines	94,6	83,05	<0.001

An enrollee buying a low-price basic product was less likely to buy supp. products from the same firm
➔ The basic insurance product did not attract consumers to supp. products

2. Characteristics of individuals choosing cheaper basic insurance

	without low price product for basic insurance	with low price product for basic insurance	p
Very good subjective health status (%)	37,35	43,55	0,007
Number of contacts with a physician in 2006 (mean)	4,24	3,09	< 0.001
Had a hospital stay in 2006 (%)	12,74	8,42	0,005
First cycle regular track (compulsory school) (%)	11,24	8,59	0,067
age (mean)	54,22	49,13	<0.001
Income (mean) (1 - 11 scale)	5,34	5,32	0,897

- ➔ **Individuals choosing cheaper basic insurance were younger and in better health**
- ➔ **There is no evidence of differences in socio-economic status**

3. Explaining the asymmetry between basic and supp. products

➔ It might be the case that those who look for the cheapest basic insurance products are consumers who make informed decisions about each insurance product

Hence these customers tend to take out basic and supplementary products from two different providers

1. Implementing a bundling test

The bundle comes at a discount with respect to purchasing the different products separately

$$P_{js} + P_{jb} < P_{js} + P_{kb}, k \neq j$$

For each individual having basic and supp. insurance contracts with the same provider

- we computed the theoretical total health insurance premium* s/he would pay by choosing the cheapest basic product on the market** and staying with his/her current arrangements for supp. coverage
- we compared this theoretical total to the actual total premium that the insured individual was paying

Note: the basket of products was unchanged for each individual

* sum of basic and supplementary contracts, for each type of supplementary contract
** keeping her/his deductible and HMO choices constant

2. Results of the test on bundling

- The total mean monthly premium paid for basic coverage and a private room hospitalization contract with the same insurer amounted to 543 CHF.
- If these individuals switched their basic insurance to the least expensive product, the premium would have been reduced to 479 CHF

	Mean current premium when buying supp. and basic coverage from the same company	Mean theoretical premium when buying basic coverage from the cheapest company	p
Private room in hospital	543	479	< 0.01
Semi privatae room in hospital	458	398	< 0.01
Dental care	376	316	< 0.01
Homeopathy/alternative medicines	359	306	< 0.01

Source: survey data

➔ Separating the products by buying them from different firms would be cheaper for the insured
➔ There is no evidence of bundling