



Pricing Strategies for Risk Products

“Risk Stratification”



Outline

- ***The Range of Options***
- Some Examples
- Practical Considerations
- Conclusions



The Range of Options

Unit Rated

- One rate for all lives

Age Rated

- Rates vary by age

Gender Rated

- Rates vary by age
- Rates vary by gender

Smoker Rated

- Rates vary by age
- Rates vary by gender
- Rates vary by smoker status

Preferred

- Rates vary by age
- Rates vary by gender
- Rates vary by smoker status
- Rates vary by BP, BMI, etc.



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An Example

- Consider an “insurance buying population” of 8 lives
- One life falls into each of the following cells

Age	Male		Female	
	Smoker	Non-smoker	Smoker	Non-smoker
35	1	1	1	1
50	1	1	1	1

- Each life buys a five-year level premium term assurance with a face amount of \$ 1 000.



An Example (cont.)

– Smoker Differentiated Rates

Age	Male		Female	
	Smoker	Non-smoker	Smoker	Non-smoker
35	1.54	0.93	1.23	0.79
50	6.51	3.75	4.81	2.67

Total Prem
= 22.24

– Gender Differentiated Rates

Age	Male	Female
35	1.24	1.01
50	5.13	3.74

Total Prem
= 22.24

– Age Differentiated Rates

Age	Rate
35	1.13
50	4.44

Total Prem
= 22.24

– Unit Rate

Age	Rate
All	2.78

Total Prem
= 22.24



An Example (cont.)

So what difference does stratification make if the total premium remains unchanged?



An Example (cont.)

**Consider a 35 year-old female
non-smoker
(Life A).**



An Example (cont.)

– Smoker Differentiated Rates

Age	Male		Female	
	Smoker	Non-smoker	Smoker	Non-smoker
35	1.54	0.93	1.23	0.79
50	6.51	3.75	4.81	2.67

– Gender Differentiated Rates

Age	Male	Female
35	1.24	1.01
50	5.13	3.74

– Age Differentiated Rates

Age	Rate
35	1.13
50	4.44

– Unit Rate

Age	Rate
All	2.78



An Example (cont.)

**Consider a 50 year-old male
smoker
(*Life B*).**



An Example (cont.)

- Smoker Differentiated Rates

Age	Male		Female	
	Smoker	Non-smoker	Smoker	Non-smoker
35	1.54	0.93	1.23	0.79
50	6.51	3.75	4.81	2.67

- Gender Differentiated Rates

Age	Male	Female
35	1.24	1.01
50	5.13	3.74

- Age Differentiated Rates

Age	Rate
35	1.13
50	4.44

- Unit Rate

Age	Rate
All	2.78



An Example (cont.)

Summary

	Life A	Life B
Smoker Rated	0.79	6.51
Gender Rated	1.01	5.13
Age Rated	1.13	4.44
Unit Rated	2.78	2.78

Life A = 35 year-old Female Non-smoker

Life B = 50 year-old Male Smoker



An Example (cont.)

Looking at it differently, suppose there are only 2 companies in the market.

*One uses Smoker Rated pricing
The other uses Age Rated pricing*



An Example (cont.)

– Company 1

Age	Male		Female	
	Smoker	Non-smoker	Smoker	Non-smoker
35	1.54	0.93	1.23	0.79
50	6.51	3.75	4.81	2.67

– Company 2

Age	Rate
35	1.13
50	4.44

*4 of the 8 lives get a better deal from Company 1.
In total, Company 1 receives premiums of \$ 40.70 (\$ 8.14 for 5 years)
and expects to pay claims of \$ 40.70.*



An Example (cont.)

– Company 1

Age	Male		Female	
	Smoker	Non-smoker	Smoker	Non-smoker
35	1.54	0.93	1.23	0.79
50	6.51	3.75	4.81	2.67

– Company 2

Age	Rate
35	1.13
50	4.44

*4 of the 8 lives get a better deal from Company 1.
In total, Company 1 receives premiums of \$ 40.70 (\$ 8.14 for 5 years)
and expects to pay claims of \$ 40.70.*

*4 of the 8 lives get a better deal from Company 2.
In total, Company 2 receives premiums of \$ 57.40 (\$ 11.48 for 5 years)
and expects to pay claims of \$ 70.45.*



A Second Example

Change the product to a five-year level premium endowment providing \$ 1 000 on maturity or prior death.



A Second Example (cont.)

	Term Plan		Endowment Plan	
	Life A	Life B	Life A	Life B
Smoker Rated	0.79	6.51	200.30	202.36
Gender Rated	1.01	5.13	200.38	201.85
Age Rated	1.13	4.44	200.42	201.60
Unit Rated	2.78	2.78	201.01	201.01

Life A = 35 year-old Female Non-smoker

Life B = 50 year-old Male Smoker



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Practical Considerations

- Are the relevant tests readily available?
- What are the costs of the relevant tests?
- What level of stratification is appropriate for the given distribution channel / target market?
- What level of stratification is appropriate for the given product?
- What level of stratification is used by other companies in the market?



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Conclusions

- The company offering the most stratified pricing will generally attract the best quality of life.
- Discounts for “good” lives means loadings for “poor” lives.
- Stratification is more significant for risk products.
- Stratification is more significant for distribution channels with a high level of advice.
- Stratification is more significant for sophisticated target markets.
- Practical considerations such as availability of tests can impact on the degree of stratification used in a market.
- A company should weigh the additional underwriting efforts and costs against the benefits of stratification.

