

2020 Bruin Actuary Case Competition

Team 11

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Agenda

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04

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Background

Model

Strategy

Results

Conclusion

Background

Block Dental's Issues

Aggressive
Expansion



Flexible Renewal Policy



Losing Profit

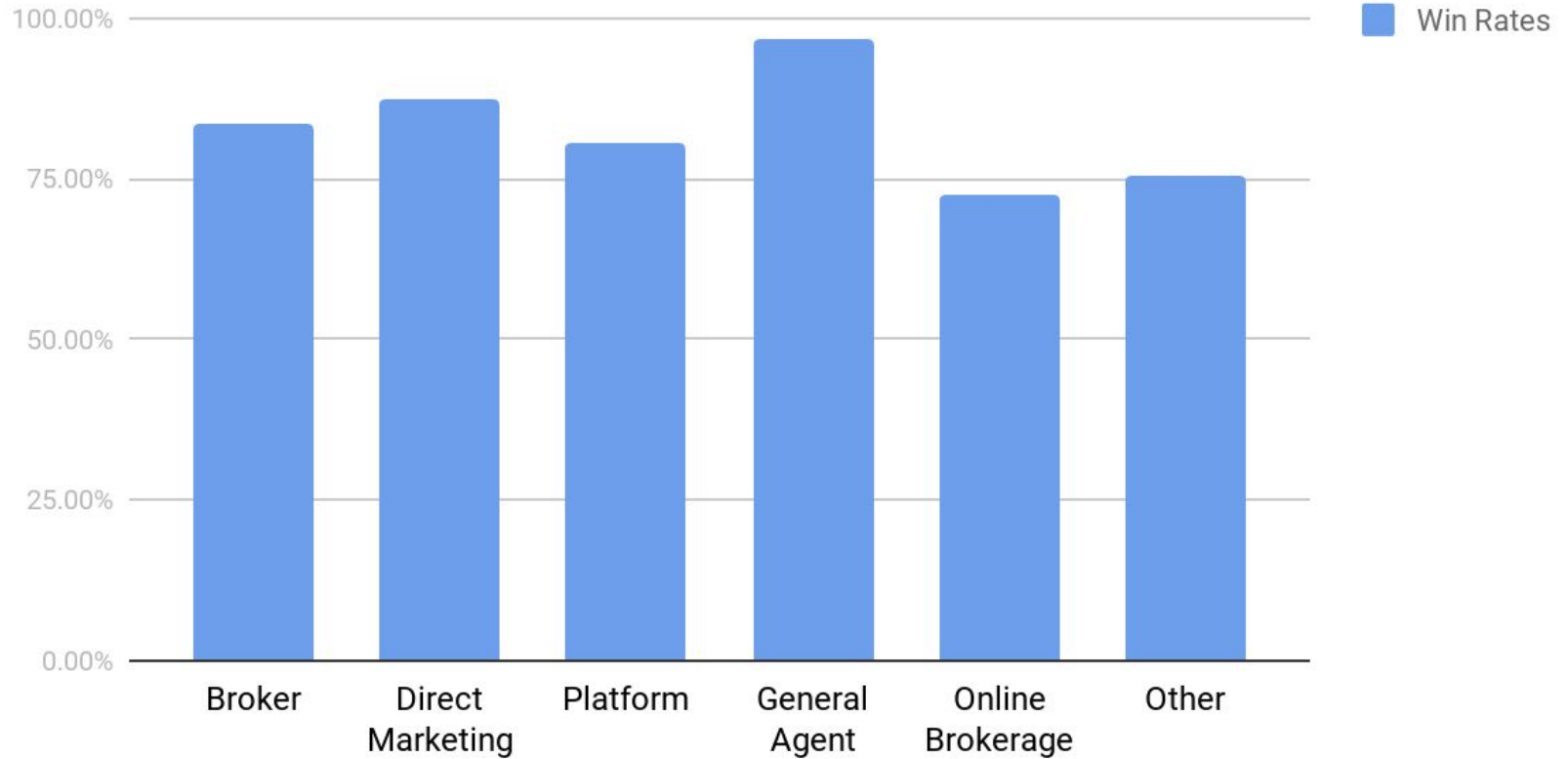


Higher Loss Ratio

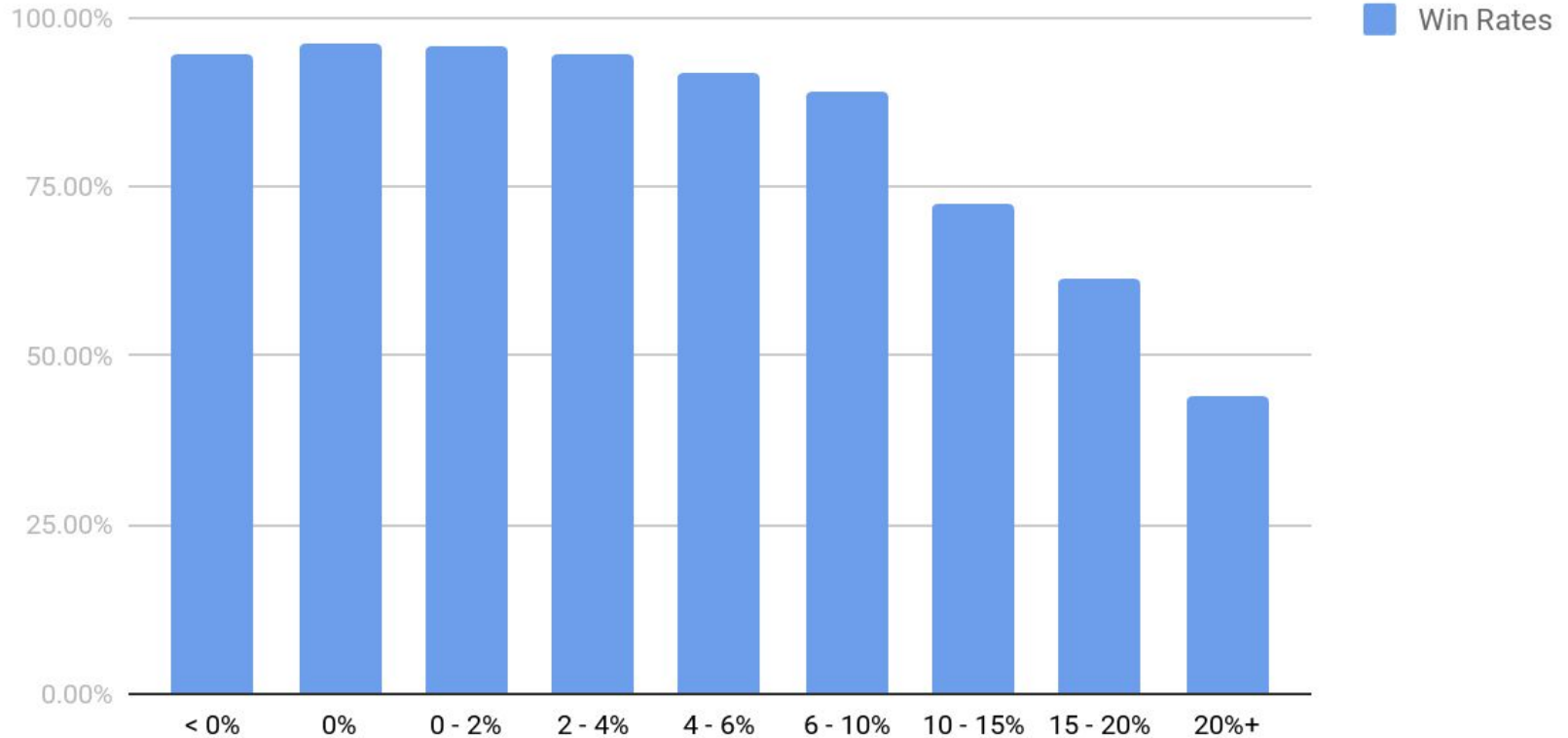
Goals

- ❑ Develop new rate increase plan
- ❑ Estimate how many clients we retain
- ❑ Build a LR model considering two factors

Factors Considered: Channel

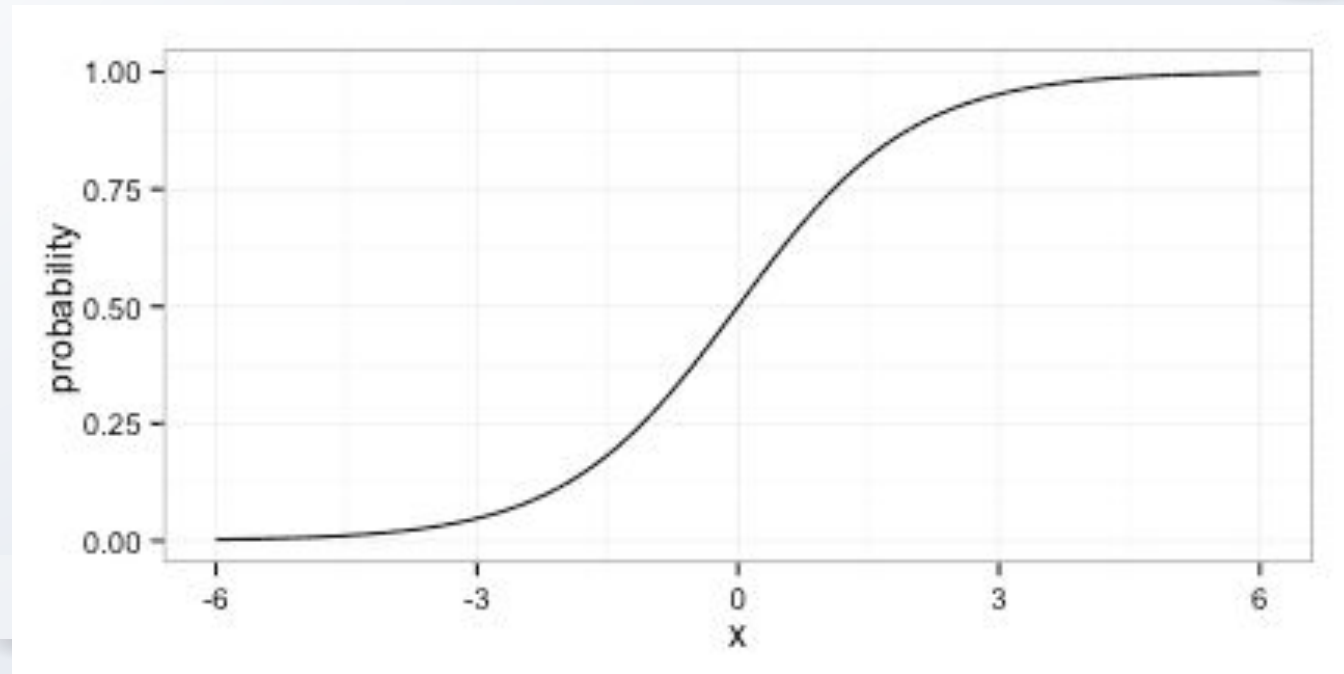


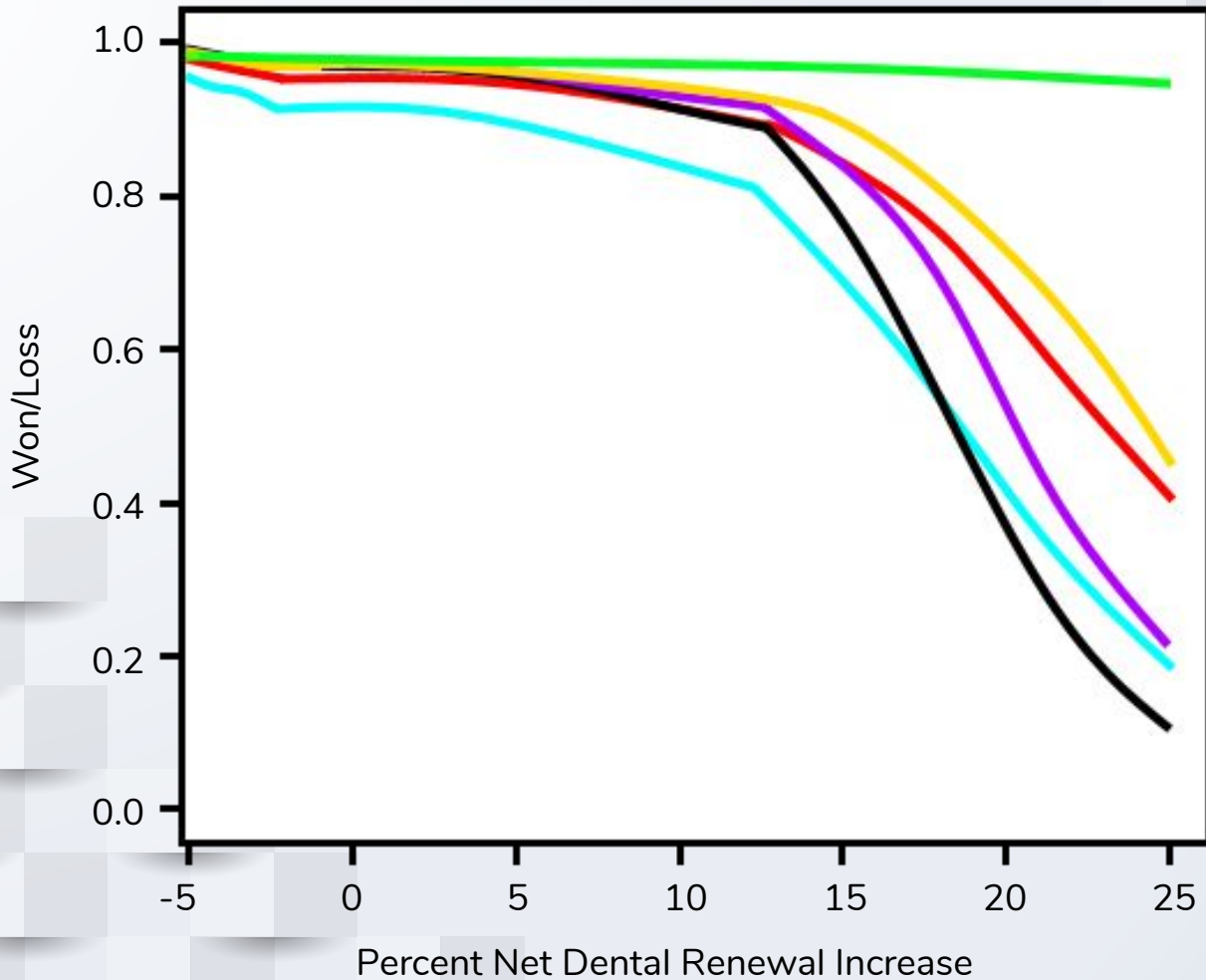
Factors Considered: Net Dental Rate Increase



Model

Logistic Regression





Legend

- General Agent
- Direct Marketing
- Broker
- Platform
- Online Brokerage
- Other

Strategy

Assumptions



Small Company:
Retain Clients



Clients React
Similarly for 3 years

75%



Profitable at 75% LR

What Are Some Options?

Maximize Revenue



Maximize Profit



Revenue Strategy



| LR Bands | Rate Increase Year 1 | Rate Increase Year 2 | Rate Increase Year 3 |
|------------|----------------------|----------------------|----------------------|
| (0,25] | 10% | 10% | 10% |
| (25,50] | 10% | 10% | 10% |
| (50,75] | 10% | 10% | 10% |
| (75,100] | 10% | 10% | 10% |
| (100,150] | 10% | 10% | 10% |
| (150,9999] | 10% | 10% | 10% |

Profit Strategy



| LR Bands | Rate Increase Year 1 | Rate Increase Year 2 | Rate Increase Year 3 |
|------------|----------------------|----------------------|----------------------|
| (0,25] | 5% | 5% | 5% |
| (25,50] | 5% | 5% | 5% |
| (50,75] | 5% | 5% | 5% |
| (75,100] | 10% | 10% | 10% |
| (100,150] | 15% | 15% | 15% |
| (150,9999] | 15% | 15% | 15% |

Results

Revenue Strategy



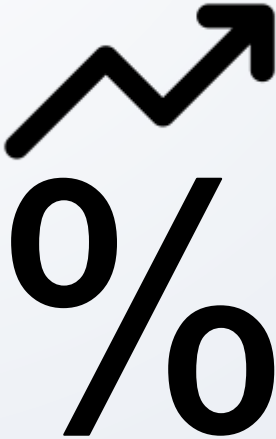
| | Year 1 | Year 2 | Year 3 |
|----------------|----------------|----------------|----------------|
| Total Premiums | \$ 106 million | \$ 108 million | \$ 110 million |
| Total Claims | \$ 85 million | \$ 79 million | \$ 73 million |
| Loss Ratio | 0.80 | 0.73 | 0.66 |

Profit Strategy



| | Year 1 | Year 2 | Year 3 |
|----------------|----------------|----------------|----------------|
| Total Premiums | \$ 103 million | \$ 103 million | \$ 103 million |
| Total Claims | \$ 81 million | \$ 72 million | \$ 64 million |
| Loss Ratio | 0.79 | 0.70 | 0.63 |

Rate Increase Maximum



Large Rate Increases

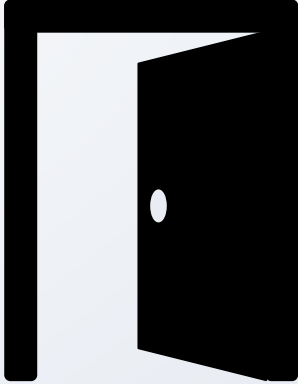


Scare Clients Away

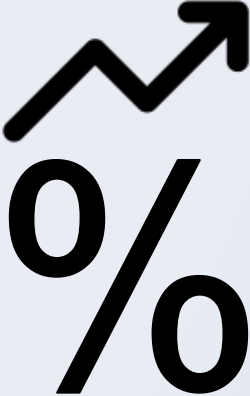


10% Max Increase

Adjustment: Rate Increase for Low LR Bands

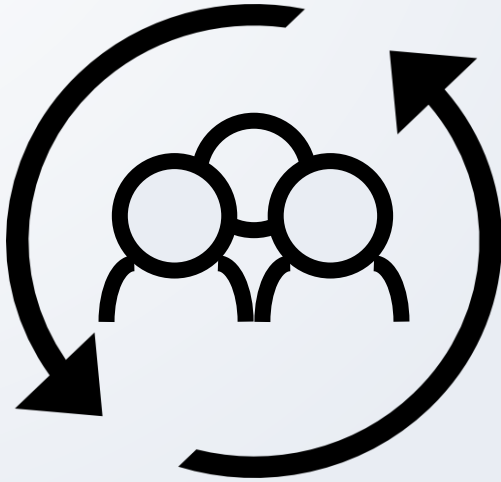


New Clients



7-8% Average in 3 Years

Adjustment: 75-100 LR Band



Under Target Loss Ratio:
Retain More Customers



Lower Rate Increase

Our Strategy



| LR Bands | Rate Increase Year 1 | Rate Increase Year 2 | Rate Increase Year 3 |
|------------|----------------------|----------------------|----------------------|
| (0,25] | 3% | 4% | 5% |
| (25,50] | 4% | 5% | 6% |
| (50,75] | 5% | 6% | 7% |
| (75,100] | 6% | 7% | 8% |
| (100,150] | 10% | 10% | 10% |
| (150,9999] | 10% | 10% | 10% |

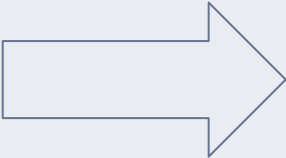
Conclusion

Loss Ratio: Next 3 Years

| | Year 1 | Year 2 | Year 3 |
|----------------|----------------|----------------|----------------|
| Total Premiums | \$ 105 million | \$ 105 million | \$ 106 million |
| Total Claims | \$ 86 million | \$ 80 million | \$ 74 million |
| Loss Ratio | 0.82 | 0.76 | 0.70 |

Client Retention

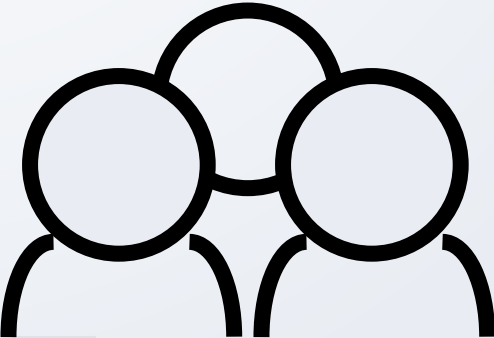
80.6 % of Clients Retained



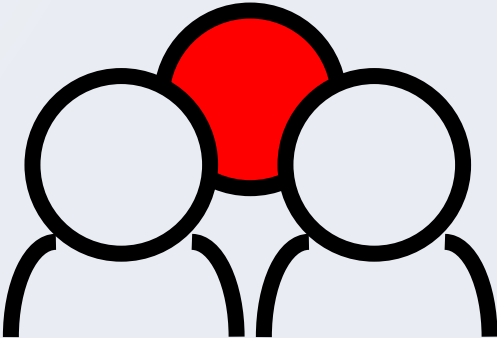
$$\frac{3923}{4866}$$

Clients Retained

Weaknesses In Our Model/Strategy



New Clients



Individual Client Differences



Other Factors

Ways to Further Reduce Loss Ratio



Stricter Claim Processing



Better Underwriting

Thank You