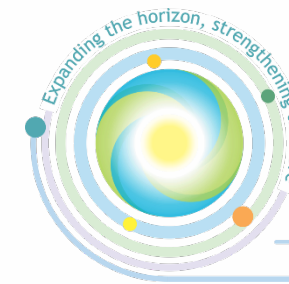




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**20th Global
Conference of Actuaries**
4th - 6th March, 2019 | Mumbai, India

Approach to Evaluate Impact of Auto Regulations 2017 - Insights from Invisibles

Speakers

Satya Sai Mudigonda

MSc, CPCU, PMP, Senior Tech Actuarial
Consultant & Hon. Professor

Sai Aditya T.V.S

Fellow Actuary

Session C5
5th March 2019

Agenda

Industry Statistics

MVA Amendments – Pricing and Reserving Uncertainties

Geography wise Relativities for Pricing

Impact Evaluation Approach

Variable Boundary Conditions

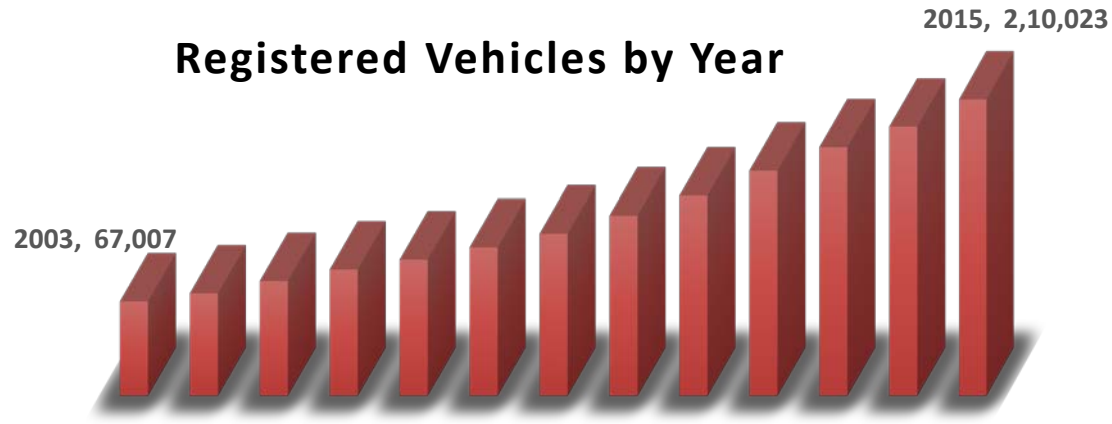
Impact Distribution

Appendix - Use of Technology

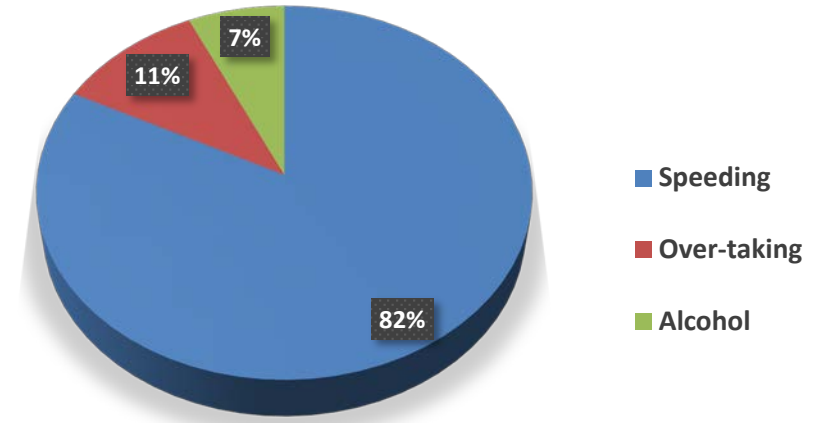


Industry Statistics

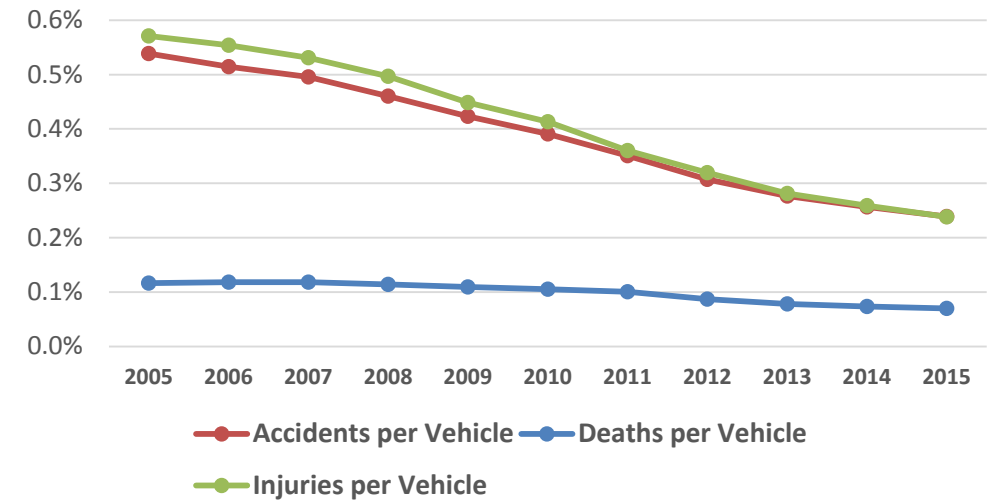
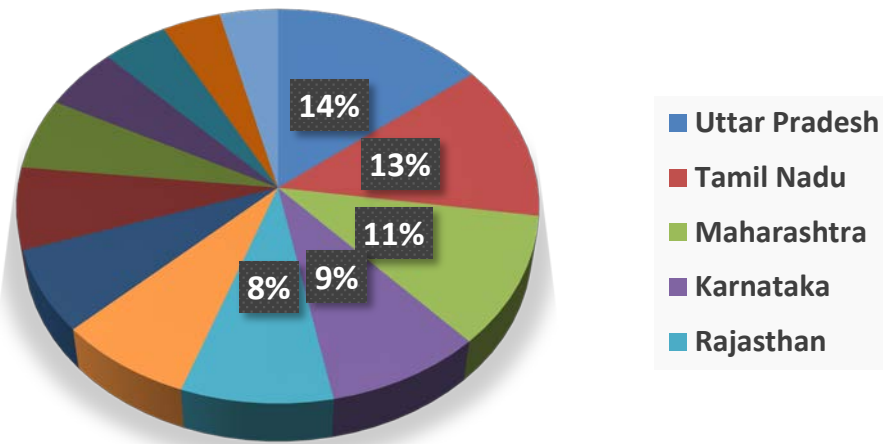
Registered Vehicles by Year



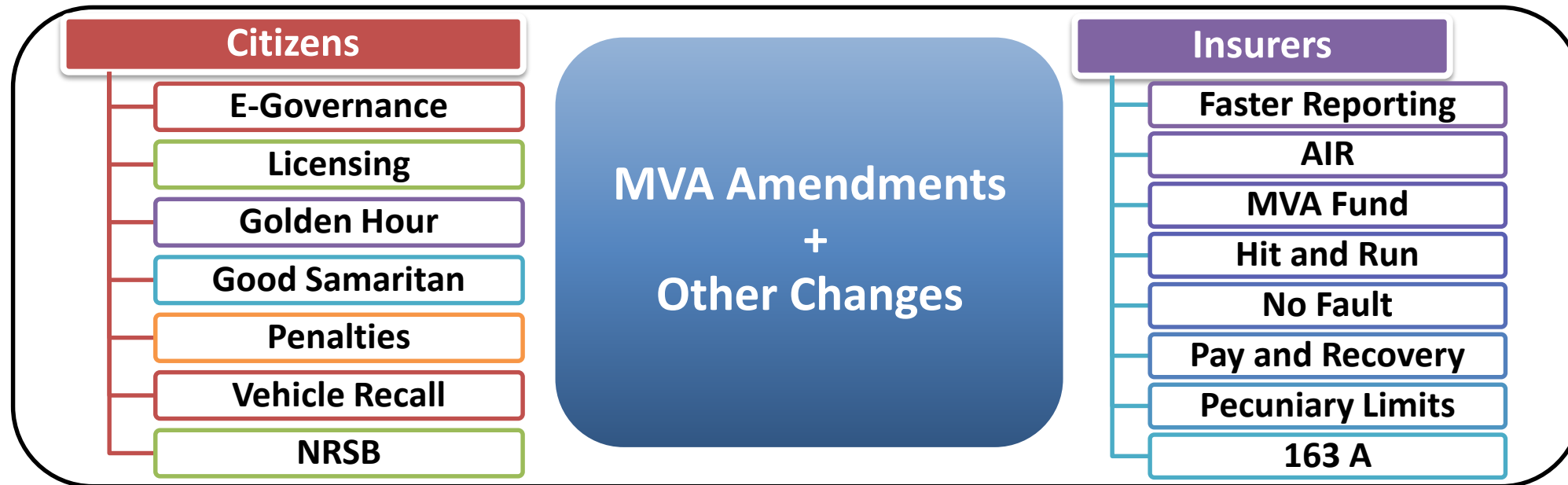
Leading Causes of Accidental Deaths



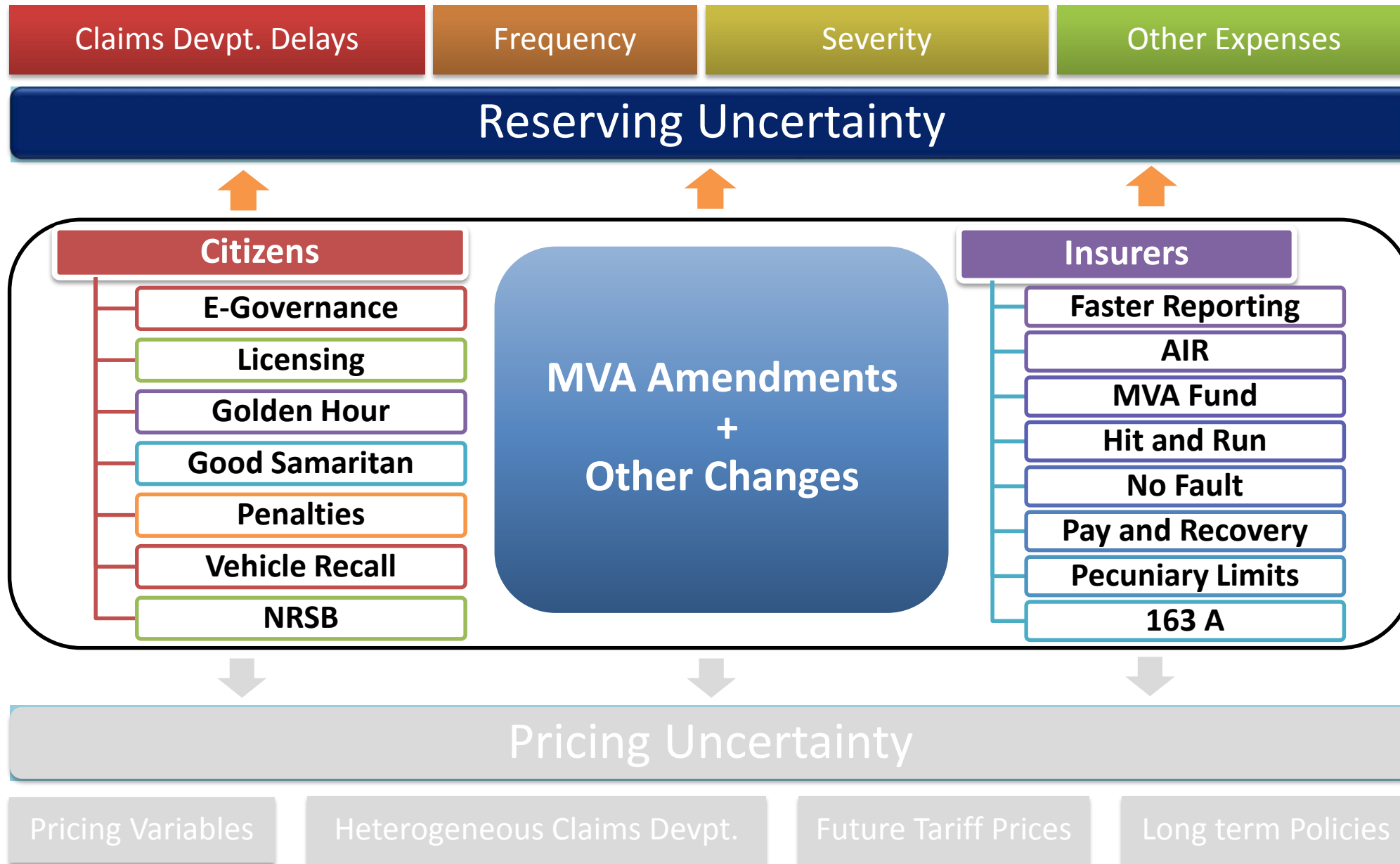
Top 6 States for deaths in 2015



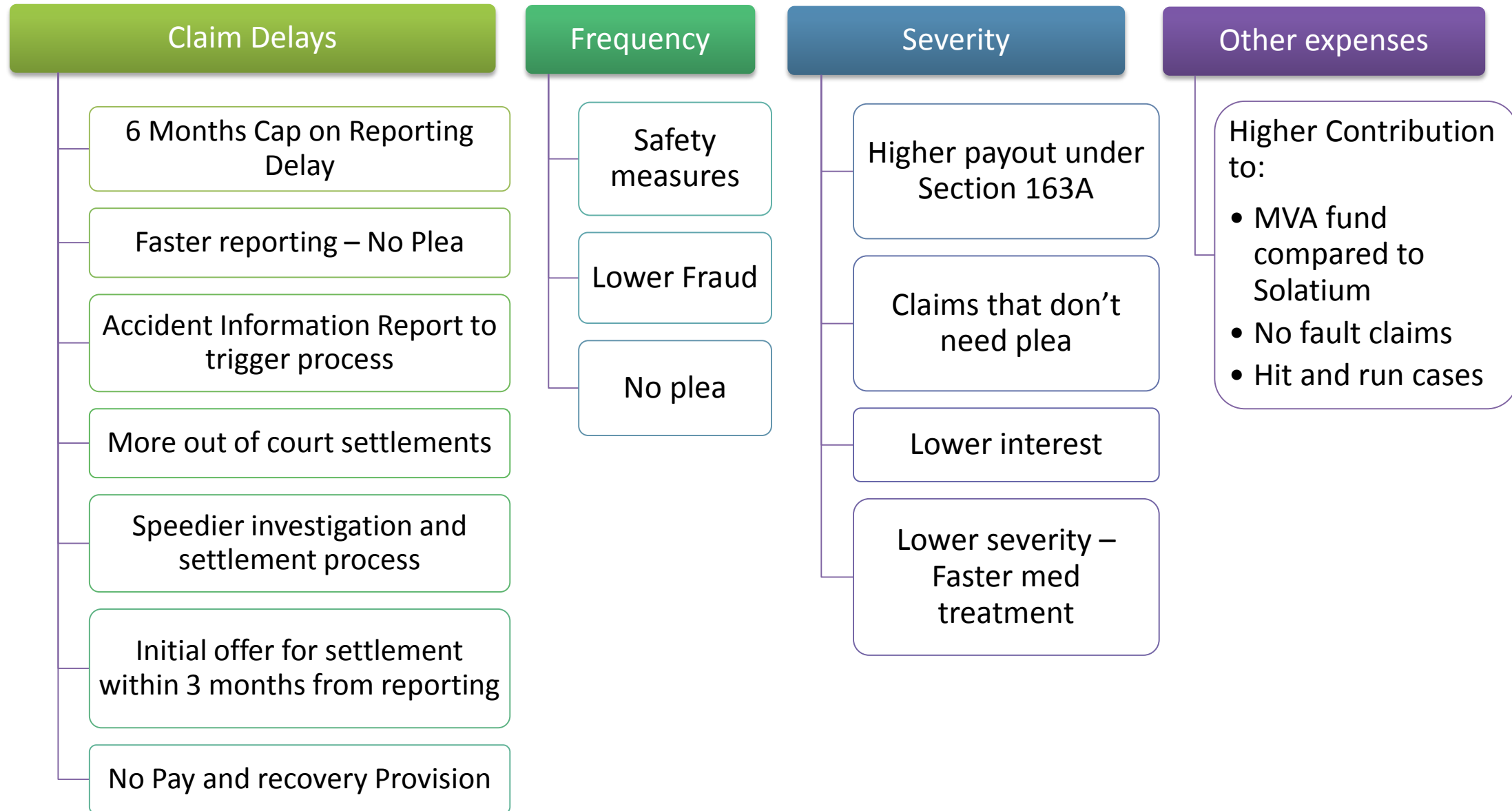
MVA Amendments



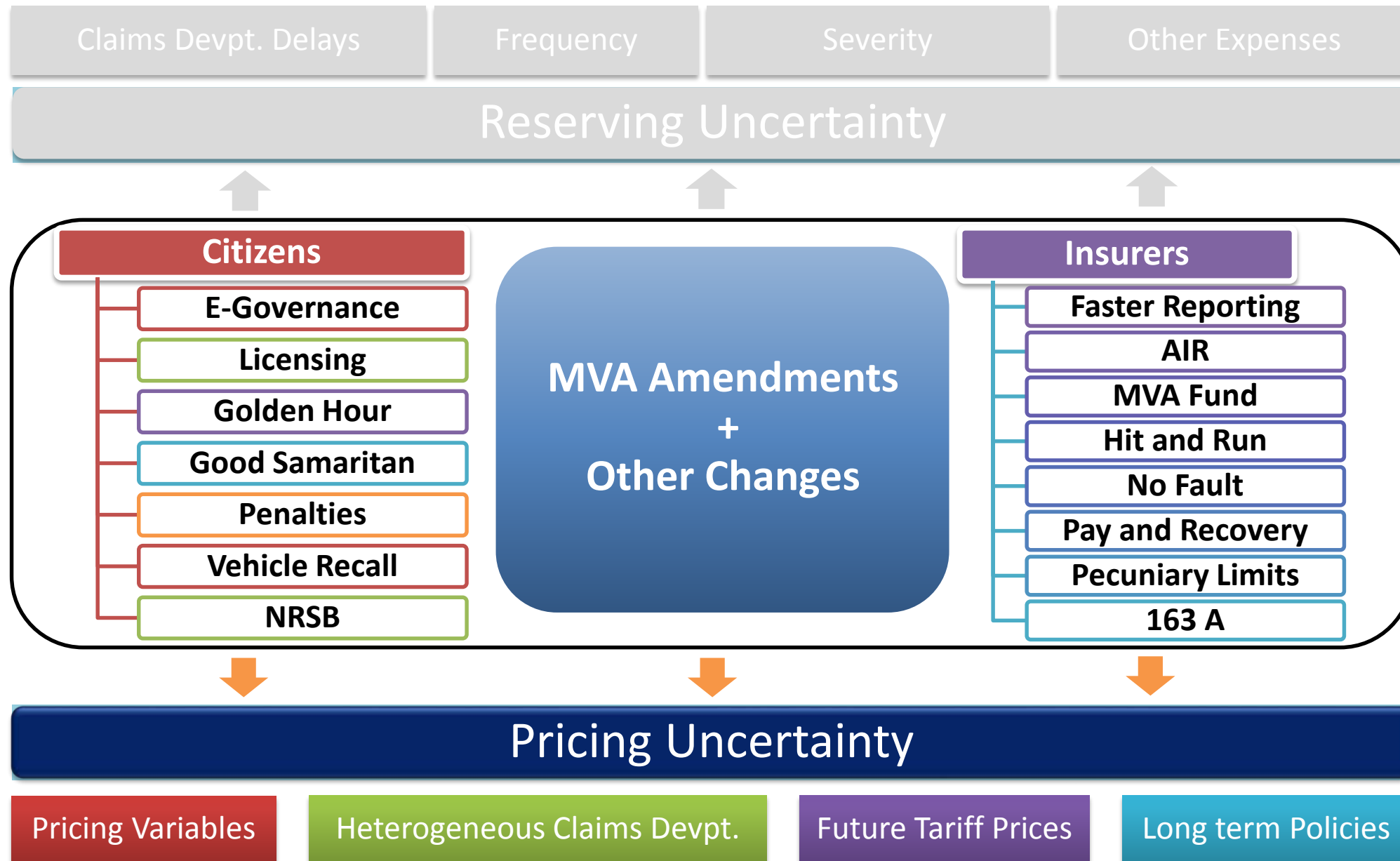
MVA Amendments - Reserving



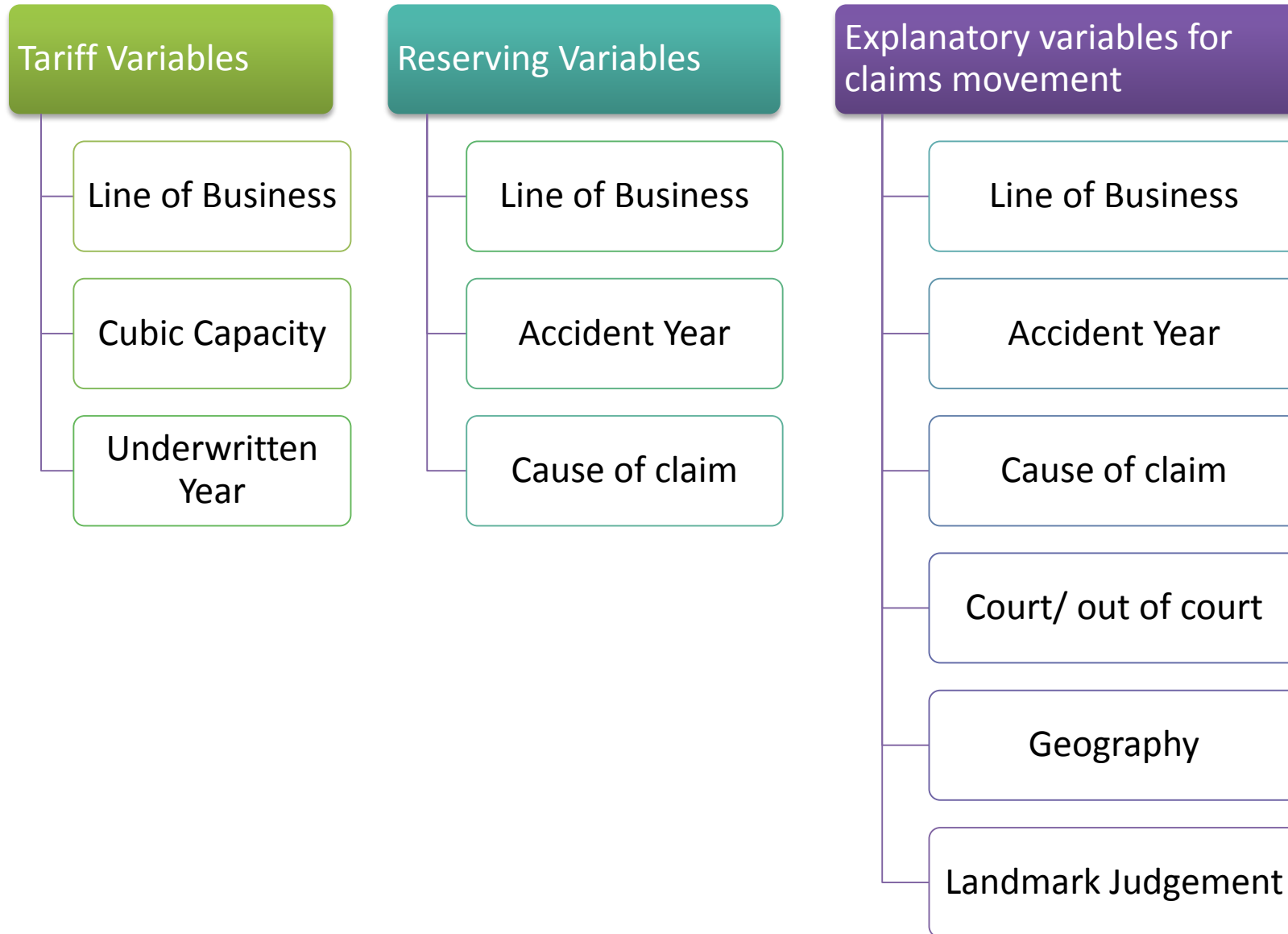
Reserving Uncertainty - Variables impacted



MVA Amendments - Pricing



Pricing Uncertainty - Variable heterogeneity



Example: Geography

Heterogeneous claims developments

Reporting and Settlement delays

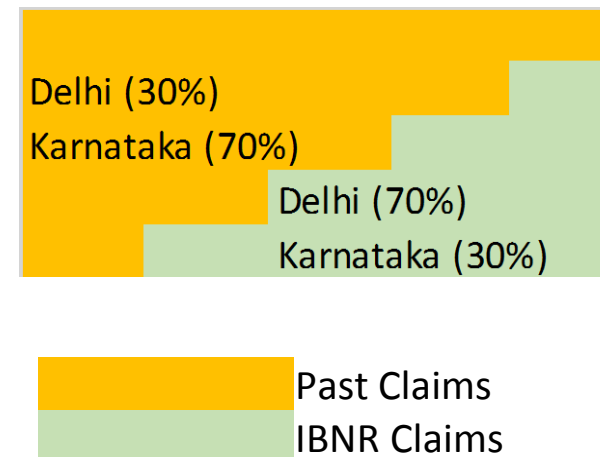
Modelling the waiting time

Reserving Variables

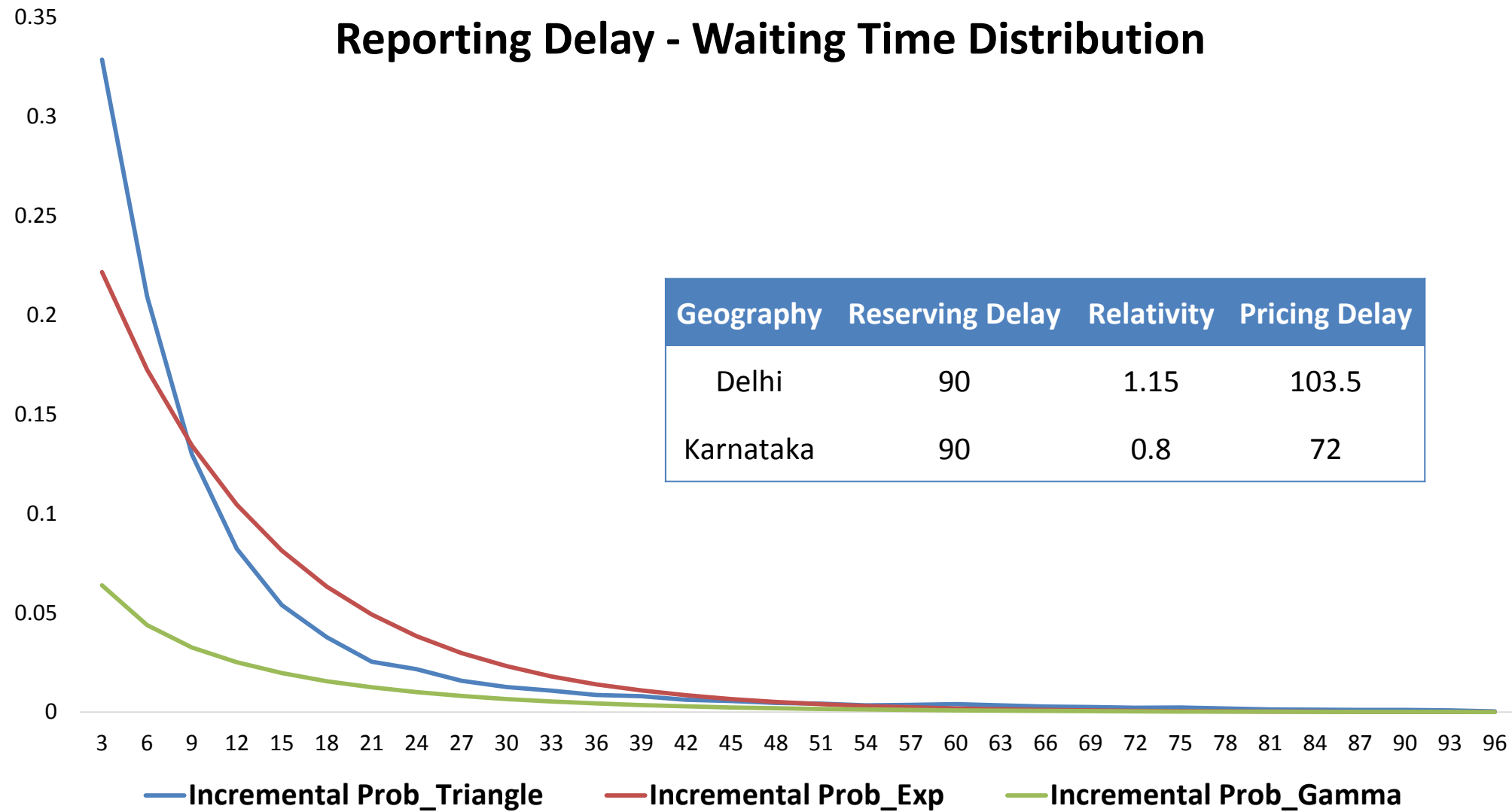
- Line of Business
- Accident Year
- Cause of claim

Explanatory variables for claims movement

- Line of Business
- Accident Year
- Cause of claim
- **Geography**



Geography wise Relativities for Pricing



Landmark Judgement

Sarla-Verma

- Future prospects to 15% for above 50 years

Pranay-Sethi

- Future prospects for Self-employed
- 10% increase every 3 years for non-pecuniary

Long term TP policies

Rate Guarantees

Syncing with OD

3 years for Car

5 years for TW



Impact Evaluation Approach

Identify Variables Impacted

Best Estimate Reserves

IBNR Allocation and Pricing Analysis

Define Boundary Conditions for Variables

Run Scenarios with Boundaries

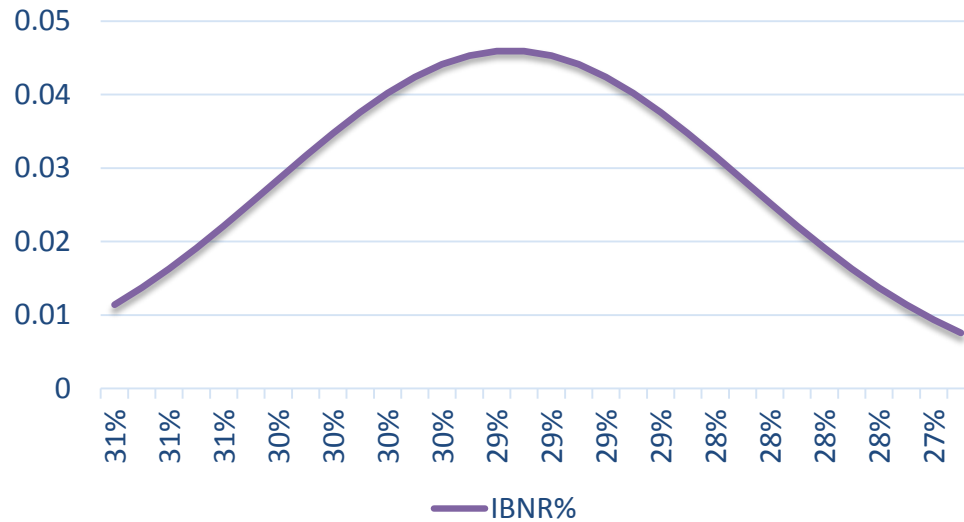
Variable Boundary Conditions

Variable	Min	Max
Reporting Delay	10% reduction in reporting delay	All claims are reported within 12 months
Settlement Delay - Court	10% reduction in overall settlement delay	All claims are settled within 4 years
Settlement Delay - Out of Court	10% reduction in overall settlement delay	All claims are settled within 2 years
Frequency	20% reduction in frequency	20% increase in frequency
Severity	10% increase in Severity	30% increase in severity
Other Expenses	10% increase in Severity	30% increase in severity



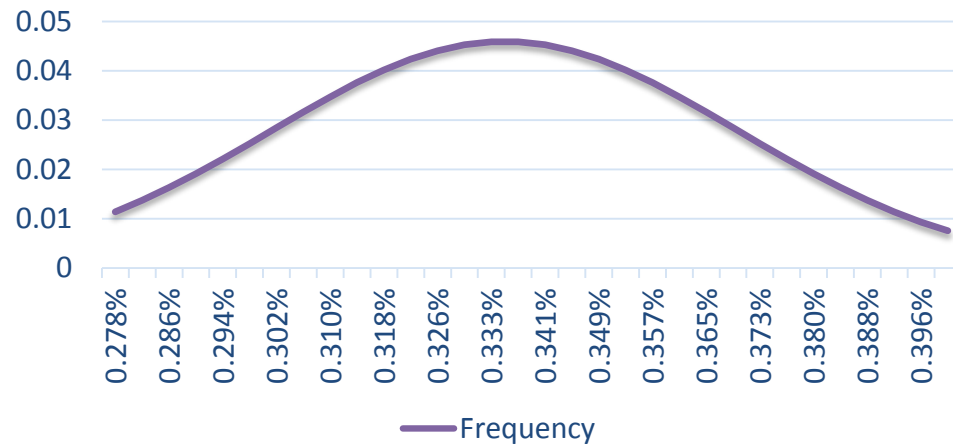
Impact Distribution

IBNR Distribution%

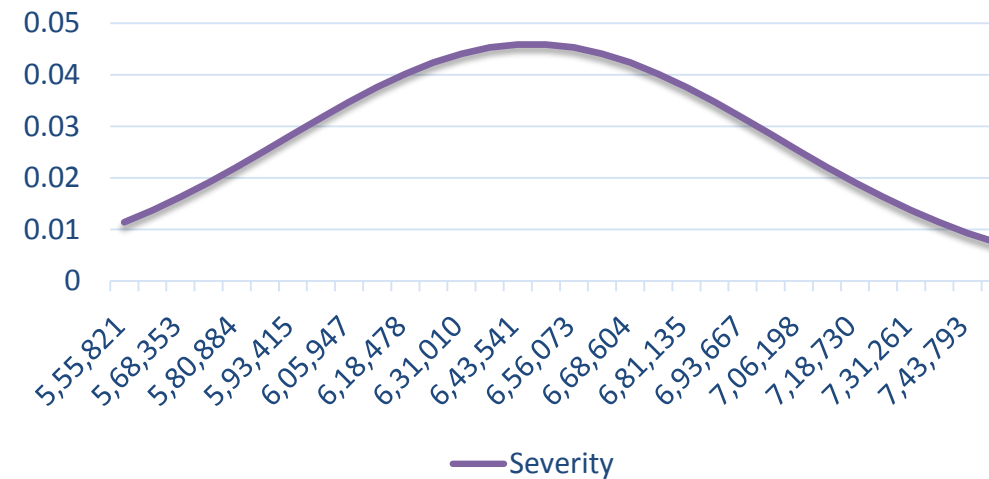


	IBNR%	Frequency	Severity
Current	39%	0.359%	4,35,995
Min	31%	0.288%	5,27,554
Max	27%	0.431%	7,36,831
Mean	29%	0.359%	6,32,192
Std	1.11%	0.037%	53,387

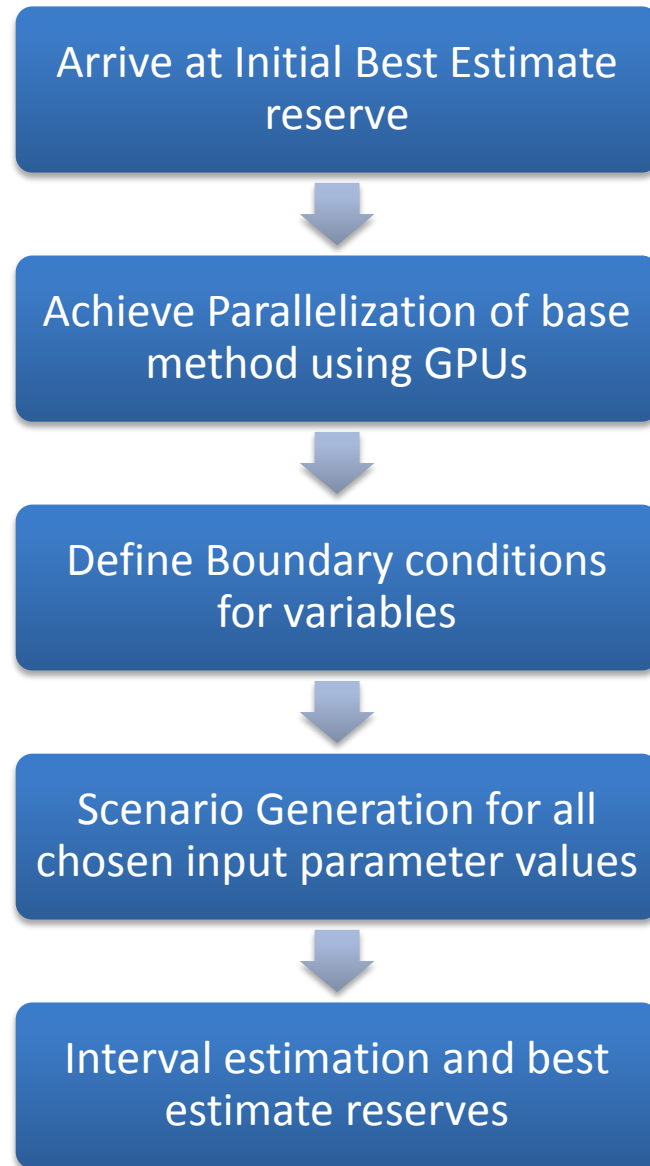
Frequency Distribution



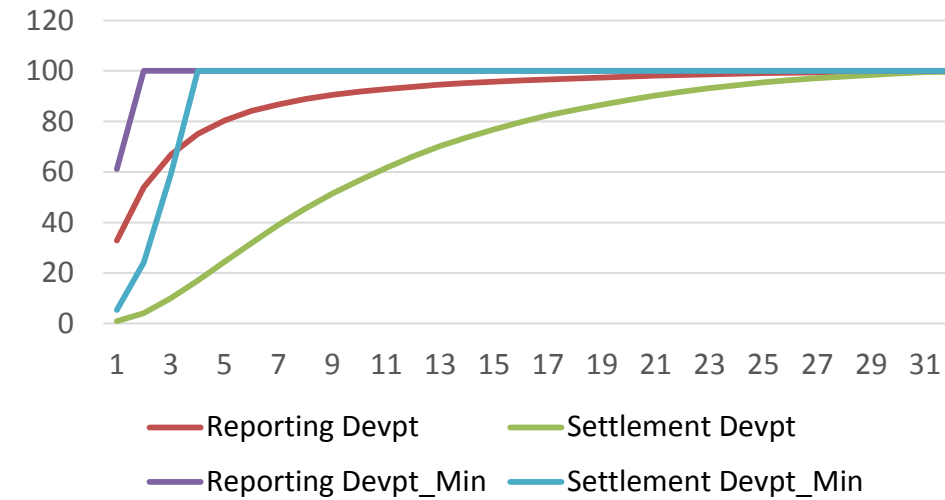
Severity Distribution



Appendix - Use of technology



Private Car – Deaths Count

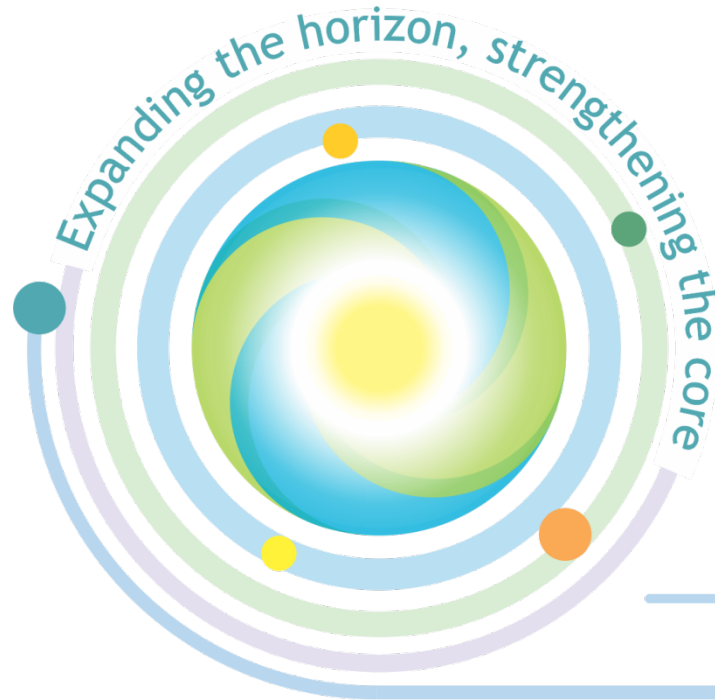


Size (in 1000s)	Serial Time (secs)	Parallel Time (secs)
3x3	21.0	0.5
5x5	89.0	1.1
10x10	711.0	3.9
15x15	2,430.2	8.3
20x20	5,578.9	14.9
25x25	10,857.8	26.9
30x30	18,764.3	43.2





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THANK YOU