

Risk Pricing and the Nash Equilibrium

Joshua Wykle, FCAS Vermont Mutual Insurance Company





1

The Prisoner's Dilemma Golden Balls

| | Split | Steal |
|-------|---------------|----------|
| Split | £6,800 | £13,600 |
| | £6,800 | £0 |
| Steal | £0 £13,600 | £0 £0 |





In the Real World







3rd Party Data Telematics Internet of Things **Building Characteristics** Fraud Models **Credit Scoring** Crime Data/Models Vehicle History Scoring License Plate Recognition Hurricane/Storm Models





The Prisoner's Dilemma

Risk Pricing

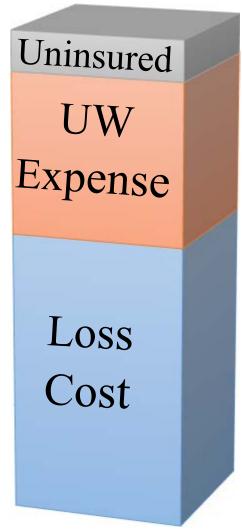
| | No Data | Data |
|---------|------------------------------------|------------------------------------|
| No Data | \$1000/ 1000 \$1000/ 1000 | \$ 840/ 1240 \$1000/ 1000 |
| Data | \$1000/ 1000 \$ 840/ 1240 | <pre></pre> |





Competitive Markets Should:

- Decrease insured losses
- Decrease insurance expenses
- Increase availability of insurance







Risk Pricing (Data) Should:

- Decrease insured losses
- Decrease insurance expenses
- Increase availability of insurance

♦ Or, be uncostly.





Case Studies:

✤ UBI

- Territory
- Vehicle History Score
- Loss/Violation History
- Protection Class

- Decrease insured losses
- Decrease insurance expenses
- Increase availability of insurance
- Low Cost (or Free)





The Prisoner's Dilemma Golden Balls - A New Paradigm

| | Honest | Liar |
|-------|------------------|----------------|
| Split | £6,800 £6,800 | £13,600 £0 |
| Steal | £0,800 £0 | £0 £0 £0 |



