

# Alternative Data Sources for Modeling

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## Alternative Data Sources

- Vehicle information
- Credit information
- Allowable demographic information
- Enhanced homeowner fire rating data
- “Alternative” internal data
- Commercial insurance scores



## Vehicle Information



## Data

- R. L. Polk vehicle characteristics
- Highway Loss Data Institute vehicle data
- Crash test information
- Simulated crash information



## R. L. Polk Vehicle Data



- **Vehicle Characteristics**
  - **Body:** style, number of doors, weight,
  - **Engine:** cylinders, displacement,
  - **Performance:** engine displacement, weight, performance, payload capacity
  - **Additional:** ABS, anti-theft, base price
- **Obtaining the Data**
  - Append based on VIN
  - Data append
  - Obtain entire database



## Additional Vehicle Data

- **Highway Loss Data Institute**
  - Frequency and severity by make and model
  - Data available to HLDI companies
- **Crash Test Information**
  - National Highway Transportation Safety Administration
  - Insurance Institute for Highway Safety
  - New Car Assessment, Japan
  - Australian NCAP
  - Euro NCAP



Make & Model	Frontal New Rating <small>based on risk of head &amp; chest injuries</small>		Side New Rating <small>based on risk of chest injury</small>		Roll-over Resistance Rating
	Driver	Passenger	Front Seat	Rear Seat	
2004 Acura MDX 4-DR, AWD w/SAB	★★★★★	★★★★★	★★★★★	★★★★★	Five Stars
2004 Audi A8 Avant w/SAB	Not Tested	Not Tested	Not Tested	Not Tested	Five Stars
2004 BMW 323i 4-DR, AWD w/SAB	Not Tested	Not Tested	Not Tested	Not Tested	Five Stars
2004 BMW 323i 4-DR, AWD w/SAB	★★★★★	★★★★★	★★★★★	★★★★★	Five Stars
2004 Buick Rainier 4-DR, AWD w/SAB	Not Tested	Not Tested	Not Tested	Not Tested	Five Stars
2004 Buick Rainier 4-DR, AWD	★★★★	★★★★	N/A	N/A	Five Stars
2004 Buick Rainier 4-DR, AWD w/SAB	★★★★	★★★★	★★★★	★★★★	Five Stars
2004 Buick Rendezvous 4-DR, AWD w/SAB	★★★★	★★★★	★★★★	★★★★	Five Stars
2004 Cadillac Escalade 4-DR, AWD w/SAB	Not Tested	Not Tested	Not Tested	Not Tested	Five Stars
2004 Cadillac Escalade 4-DR, AWD w/SAB	★★★★	★★★★	Not Tested	Not Tested	Five Stars
2004 Cadillac Escalade EXT 4-DR, AWD w/SAB	★★★★	★★★★	Not Tested	Not Tested	Five Stars
2004 Cadillac ESV 4-DR, AWD w/SAB	★★★★	★★★★	Not Tested	Not Tested	Five Stars
2004 Cadillac MEX 4-DR, w/SAB	N/A	N/A	N/A	N/A	Five Stars
2004 Chevrolet 4-Door 4-DR, AWD w/SAB	★★★★	★★★★	Not Tested	Not Tested	Five Stars
2004 Chevrolet Silverado 4-DR, AWD	★★★★	★★★★	★★★★	★★★★	Five Stars
2004 Chevrolet Silverado 4-DR, AWD	★★★★	★★★★	★★★★	★★★★	Five Stars
2004 Chevrolet Suburban 4-DR, AWD w/SAB	★★★★	★★★★	Not Tested	Not Tested	Five Stars
2004 Chevrolet Tahoe 4-DR, AWD w/SAB	Not Tested	Not Tested	Not Tested	Not Tested	Five Stars
2004 Chevrolet Tahoe 4-DR, AWD w/SAB	★★★★	★★★★	Not Tested	Not Tested	Five Stars
2004 Chevrolet Trailblazer 4-DR, AWD	★★★★	★★★★	★★★★	★★★★	Five Stars
2004 Chevrolet Trailblazer 4-DR, AWD w/SAB	Not Tested	Not Tested	Not Tested	Not Tested	Five Stars
2004 Chevrolet Trailblazer 4-DR, AWD	★★★★	★★★★	N/A	N/A	Five Stars
2004 Chevrolet Trailblazer 4-DR, AWD w/SAB	★★★★	★★★★	★★★★	★★★★	Five Stars
2004 Chevrolet Trailblazer EXT 4-DR	Not Tested	Not Tested	Not Tested	Not Tested	Five Stars
2004 Chrysler Pacifica 4-DR, AWD	Not Tested	Not Tested	Not Tested	Not Tested	Five Stars
2004 Chrysler Pacifica 4-DR, AWD	★★★★★	★★★★★	★★★★★	★★★★★	Five Stars

## Simulated Crash Test Information

- Crashport simulates vehicle crashes, records crash information
  - Damage to vehicle
  - Injuries to occupants
- Insurer can use resulting injury/damage information for vehicle classification

## Design Sensitivity by Whiplash Phase



Source: "PARAMETRIC ANALYSIS OF VEHICLE DESIGN INFLUENCE ON THE FOUR PHASES OF WHIPLASH MOTION." Polat Sendur, PhD; Robert Thibodeau; John Burge – Crashport  
Allan Tencer, PhD – University of Washington



## Applications of Vehicle Information

- Custom symbols
- Adjustment to current symbols
- Additional rating factors



## Insurance Score



## Obtaining Credit Information

- Sources
  - Individual credit bureaus
  - Third party vendors
- Information Available
  - Individual credit information
    - Number of late pays
    - Number of credit cards available
    - Outstanding balances
  - Scores
  - Derived information (percent of available credit used, percent of accounts late, etc.)



## Application of credit information

- Rating
- Tiering/underwriting
- Marketing
- Enhanced modeling of insurance score impacts on renewal risks
- Custom insurance scoring



## Allowable Demographic Information



## Sources for Allowable Demographic Information

- ChoicePoint
- R.L. Polk
- Axciom
- Census Bureau



## Demographic Information Available

- Personal (age, employment, etc.)
- Lifestyle (cars, gardening, animals, life stage, etc.)
- Family (children, persons in household)
- Possessions (cars, homeowner, length of home ownership)
- Area statistics (population density, vehicle density)





## How demographic information is collected

- Self-reported
  - Warranty cards, surveys, etc.
- Public property records
- Purchase habits
- Demographic models
- Census projections



## Analysis of Demographic Information

- Additional or enhanced rating and tiering information
- Customer retention/attraction and
- Marketing
- Customer value



## Enhanced Fire Rating Data



## Enhanced Fire Rating Data

- Distance to Fire Station
- Brush fire zones mapping
- Append by providing physical address of property



## Data Returned

- Distance to Fire Station
  - Driving distance to responding fire department
  - Straight line distance to responding fire department
  - Fire station type
  - Name of the three closest fire departments
- Brush Zones
  - Defined brush zone
  - Distance from nearest brush areas



## Analysis of Fire Peril Data

- Enhancement to rating of the fire homeowners peril
- Perhaps could combine with an “urban/suburban/rural” mapping
- Better underwriting and rating of true brush fire risk



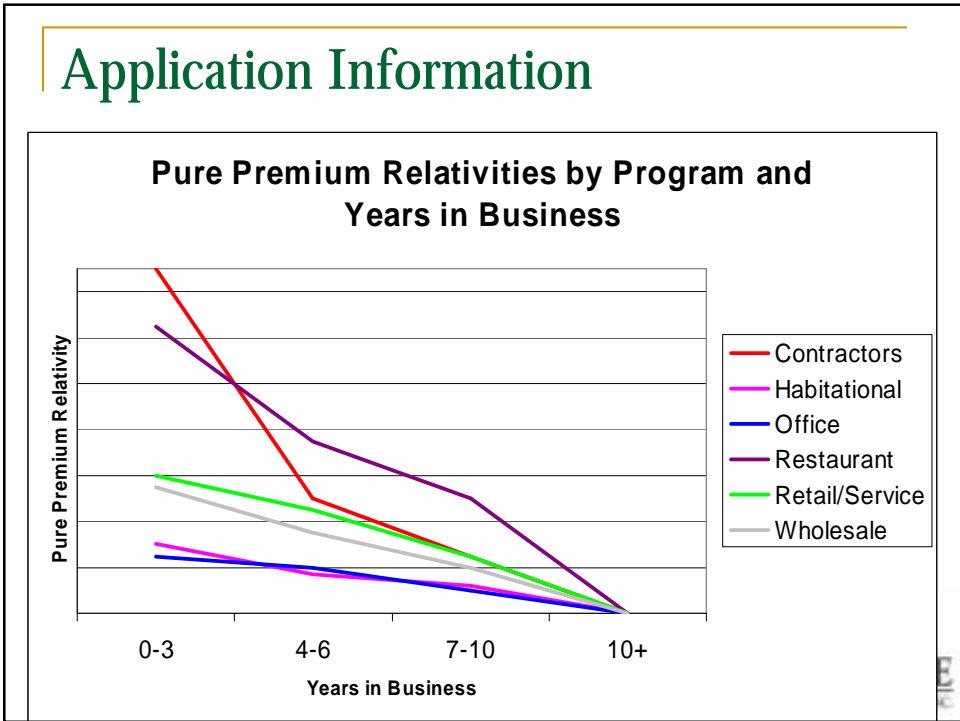
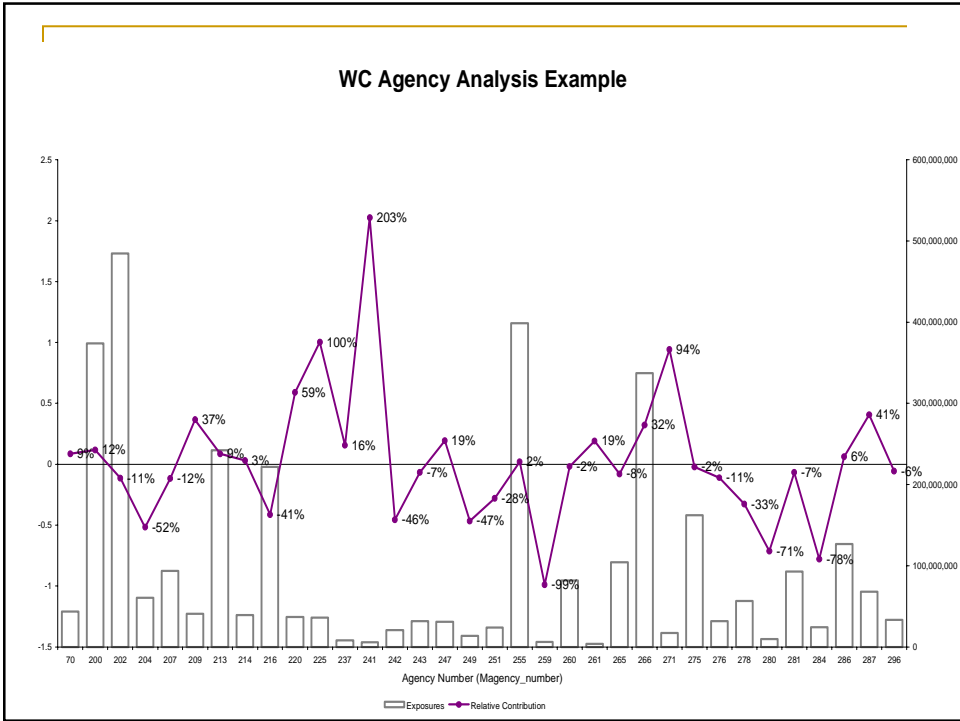
## Alternative Internal Data



## Alternative Internal Data

- Billing
- Agency
- Marketing
- Application
- Service providers





## Commercial Scoring Data



## External Commercial Information

- Federal bankruptcies
- Tax liens
- Judgment information
- VIN information on commercial vehicles
- Commercial vehicle accident information
- Business litigation information
- Professional licensing information



## Application of Commercial Information

- Enhanced commercial lines rating
- Commercial credit scoring
- Better commercial risk classification

