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## Innovations in Vehicle Ratemaking: Utilizing Vehicle History Data

Glenn Hofmann  
VP Analytics, TransUnion  
[ghofman@transunion.com](mailto:ghofman@transunion.com)

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## Survey

What was the **MOST RECENT** highly predictive piece of data introduced in personal auto insurance rating? When?

What will the **NEXT** highly predictive piece of data be?



## Agenda

- **Current state of vehicle pricing**

- Vehicle History Data
- A Word on Mileage
- Relevance of Non-Mileage Vehicle History Data
- TransUnion Vehicle History Score
- Predictive Power for Rating (All the Lift Charts)
- Insurance Uses of Vehicle History Score
- Summary



## Vehicle pricing lags in sophistication but is improving

Current State in Vehicle Rating	TransUnion Solution
<p><b>Most carriers use industry standards</b></p> <ul style="list-style-type: none"> <li>Vehicle Age, Symbols, Usage, Mileage</li> </ul> <p><b>Gaps</b></p> <ul style="list-style-type: none"> <li>Limited differentiation from carrier to carrier</li> <li>Insufficient segmentation at Make/Model/Model Year level</li> <li>Self reported mileage and usage is unreliable.</li> </ul> <p><b>Telematics data is emerging</b></p> <ul style="list-style-type: none"> <li>Accurate measure of how a vehicle is driven</li> </ul> <p><b>Issues</b></p> <ul style="list-style-type: none"> <li>Costly to gather, analyze &amp; implement</li> <li>Consumer privacy issues</li> </ul>	<p><b>Vehicle history data from Carfax</b></p> <ul style="list-style-type: none"> <li>Damage history</li> <li>Mileage history</li> <li>Ownership history</li> <li>Usage history</li> <li>Title history</li> </ul> <p><b>Vehicle Score that enhances current Pricing Structure</b></p> <ul style="list-style-type: none"> <li>Can be used in addition to Symbol and Vehicle Age</li> </ul> <p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>Tied to a vehicle providing greater segmentation, beyond Make/Model/Model year</li> <li>In addition to pricing, can be used in Underwriting to reject certain low frequency/high severity risks <ul style="list-style-type: none"> <li>Salvage auction vehicles, previous severe frame damage, branded title, etc.</li> </ul> </li> </ul>



## What is “traditional” data in vehicle pricing in insurance?

Cars of the same Year, Make, Model and Trim level receive the same relative price.



VIN 1	2010	Honda	Accord – Ex V6	Base Premium - \$500
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VIN 2	2010	Honda	Accord – Ex V6	Base Premium - \$500
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VIN 3	2010	Honda	Accord – Ex V6	Base Premium - \$500
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## What is “traditional” data in vehicle pricing in insurance?

Cars of the same Year, Make, Model and Trim level receive the same relative price.



*One Owner  
Clean Title  
Low Mileage*

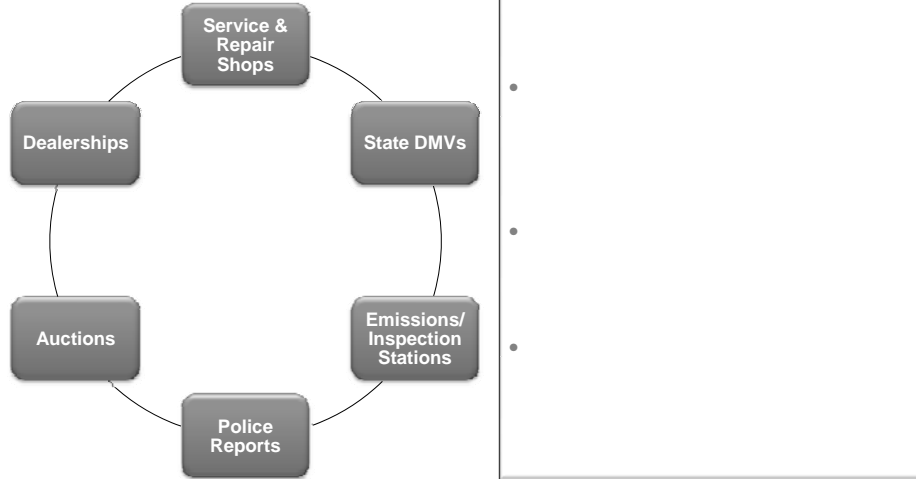


*Multiple Owners  
Severe Frame Damage  
Branded Title*

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## How is the vehicle history data collected?



Is any of this information predictive of insurance loss?



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## Mileage Survey ... Be Honest

Who among you reports a HIGHER mileage to your auto insurer than you are driving?

Who among you reports ACCURATE mileage to your auto insurer?

**The rest of you are in good company!**

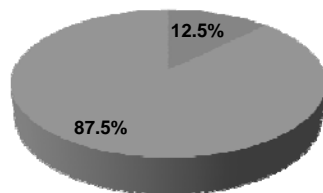


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## Self-reported mileage is highly unreliable in Insurance

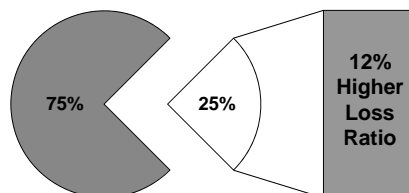
According to CARFAX, only **1 out of 8 drivers** that drive more than 21,000 miles report it to the insurance carrier

- Accurate Mileage
- Reported Lower



**25% of drivers** have 6,000 or more annual miles than reported. Their **loss ratio is 12% higher** than average

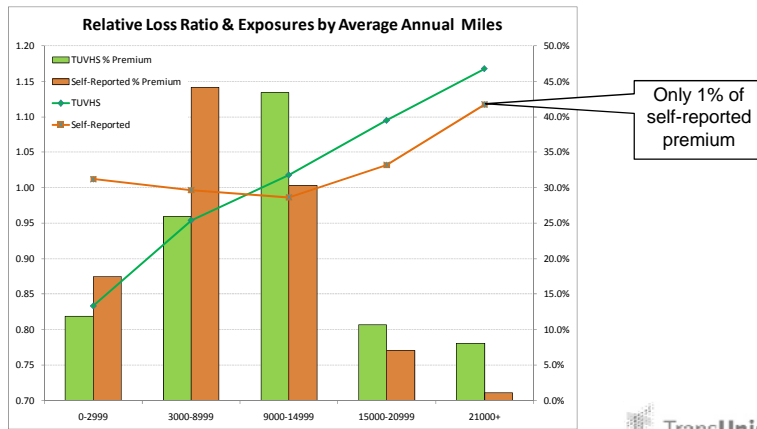
- Accurate Mileage
- Reported Less by At Least 6,000 Miles



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## Self-reported vs. TU-estimated mileage as predictor

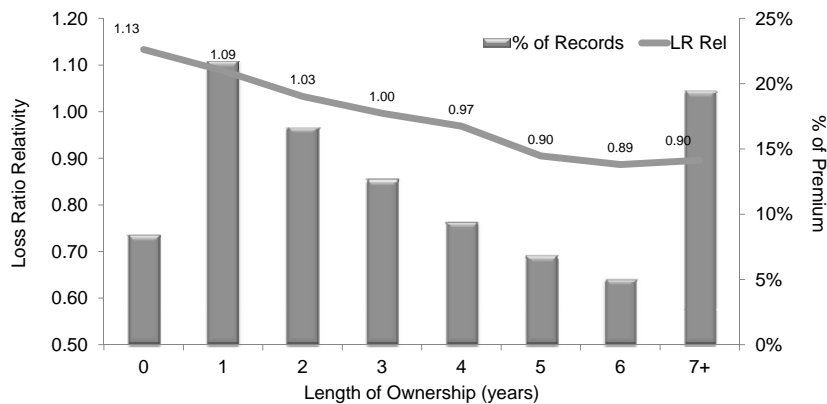
- Self-reported mileage does not differentiate risk
- TransUnion-estimated mileage is sharply predictive  
(based on Carfax readings with complex TU logic)



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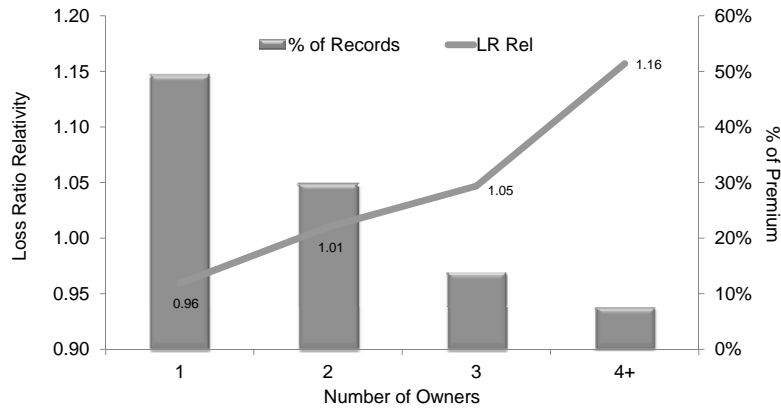
## Vehicles owned for long periods have better loss results



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## Vehicles with many former owners have poor loss results

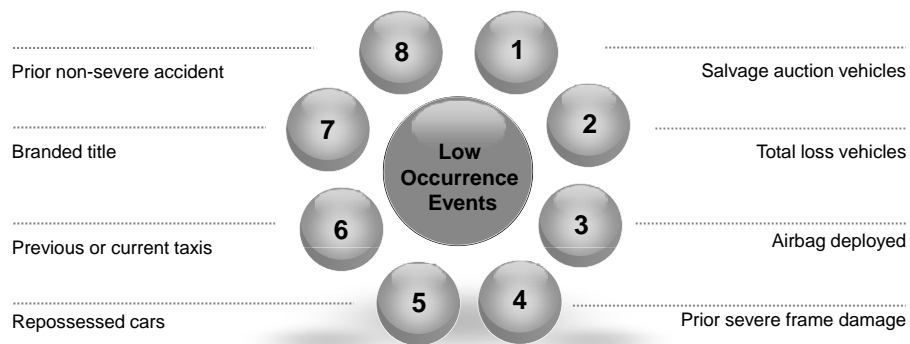


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## Many low occurrence events are predictive of future loss

These events occur on a small percentage of cars, and associate with trends that are difficult to identify without a very large book of business



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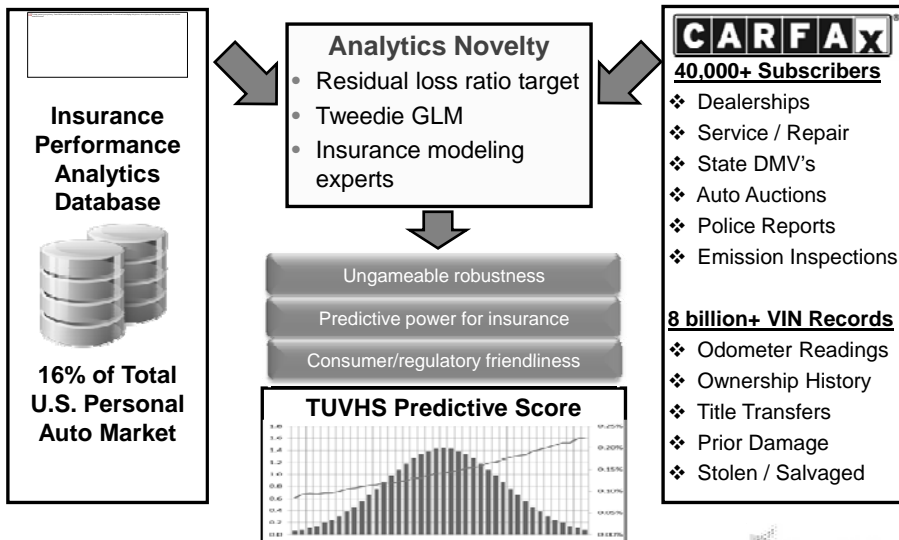
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## Highlights of TransUnion Vehicle History Score



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## Vehicle Score as Differentiator

Adding a vehicle history score to traditional vehicle pricing allows carriers to further segment risk.

	<b>VIN 1</b>	<b>2010</b>	<b>Honda</b>	<b>Accord – Ex V6</b>	<b>Vehicle Score - Excellent</b>	<b>Adjusted Premium - \$400</b>
		<b>Original Owner</b>		<b>Low Mileage</b>		<b>Clean Title</b>
	<b>VIN 2</b>	<b>2010</b>	<b>Honda</b>	<b>Accord – Ex V6</b>	<b>Vehicle Score - Average</b>	<b>Adjusted Premium - \$500</b>
		<b>Original Owner</b>		<b>Average Mileage</b>		<b>Non Severe Damage</b>
	<b>VIN 3</b>	<b>2010</b>	<b>Honda</b>	<b>Accord – Ex V6</b>	<b>Vehicle Score - Poor</b>	<b>Adjusted Premium - \$600</b>
		<b>Multiple Owners</b>		<b>High Mileage</b>		<b>Reported Stolen Vehicle</b>

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## Correlation with Symbols and Credit

What is the correlation between Vehicle History Score and the new Verisk RiskAnalyzer Symbols?

**0.009 Comp / -0.004 Coll**  
(score built to complement existing Symbols)

What is the correlation between Vehicle History Score and credit-based insurance risk score?

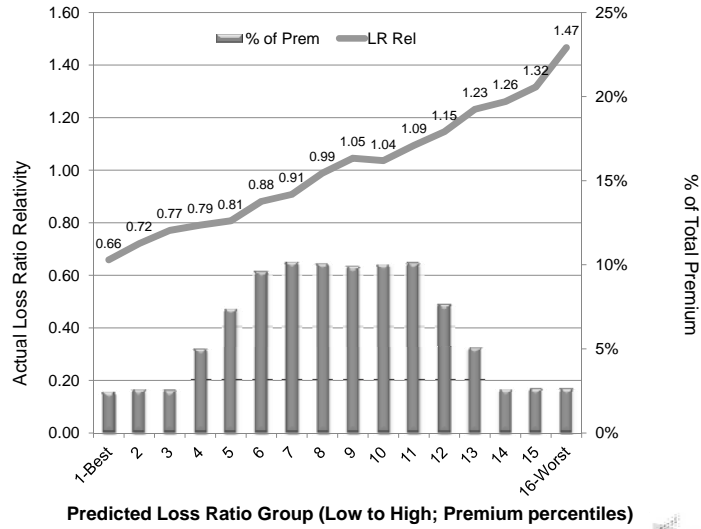
**0.088**

**Vehicle History Score finds net-new segmentation!**

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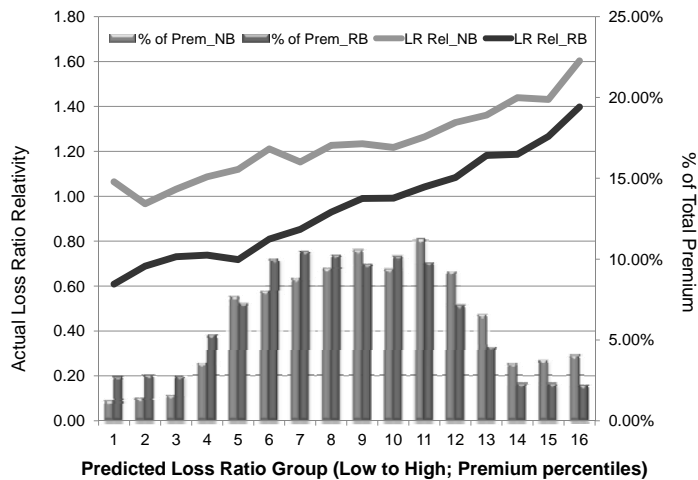
## A vehicle history score demonstrates substantial segmentation



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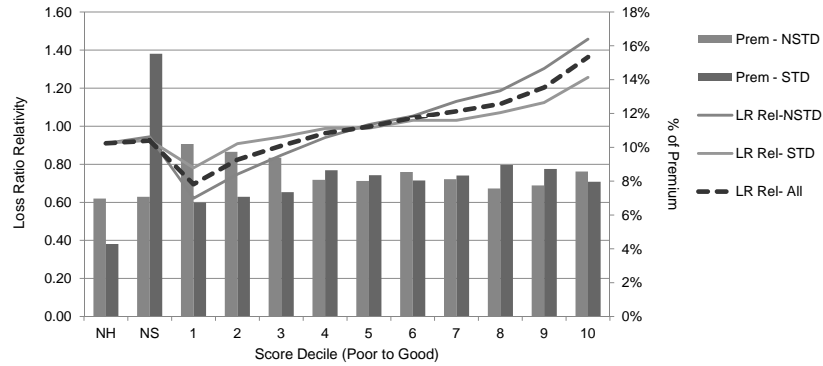
## The score segments both new and renewal business



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## Independent carrier validations have shown Vehicle History Score to be predictive



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## Vehicle History Score is designed to be implemented at the point of quote

- Rating or Tiers
  - Add the score to symbol filings
  - Add a “vehicle history” variable to their rating structure
  - Use the score in their tier determination logic
- Company Placement & Underwriting
  - Carriers that utilize a multi-company tactic can use the score to place policies into the appropriately priced company
  - Use a “Yes/No” filter to underwrite a percentage of risks out of their program to improve loss results.

To gain the full benefit of the data, it needs to be utilized during the quoting process, to maximize segmentation and the customer experience

- Renewal re-underwriting
  - Vehicles that have significant deterioration in scores
  - Retention measures for vehicles with significant improvements



## Summary

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It is available from TransUnion for retro-active testing and in real-time production.

Three large carriers are currently implementing.



## Contact

Glenn Hofmann

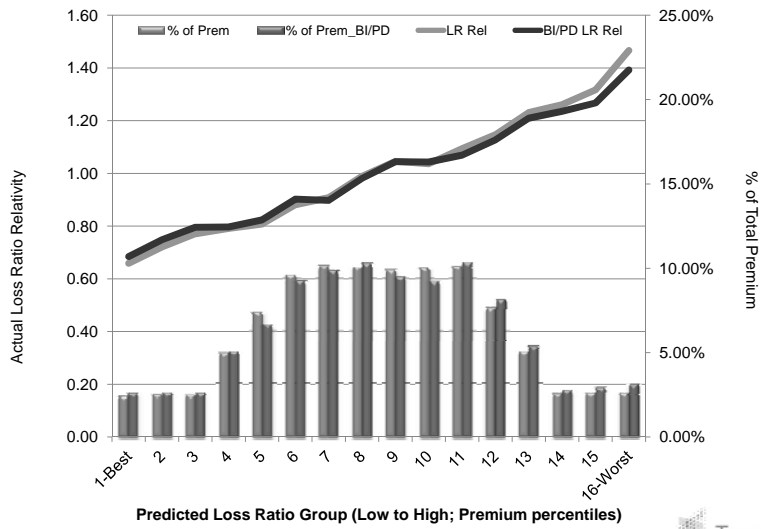
VP Insurance Analytics, TransUnion

[ghofman@transunion.com](mailto:ghofman@transunion.com)



## Appendix

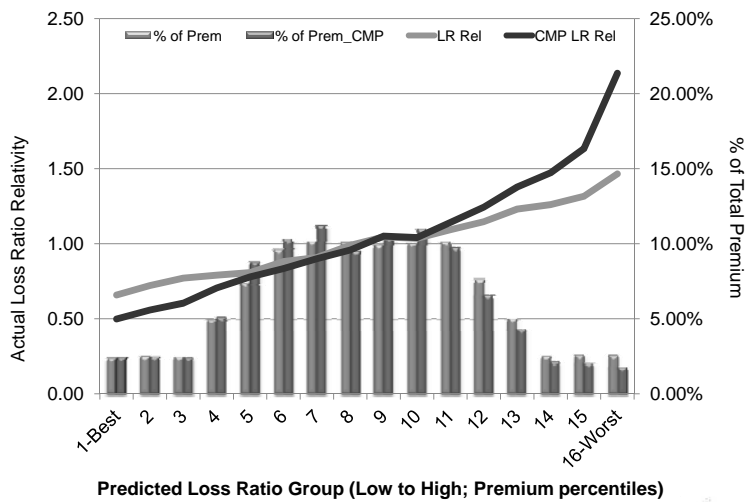
## The information works well on liability coverages



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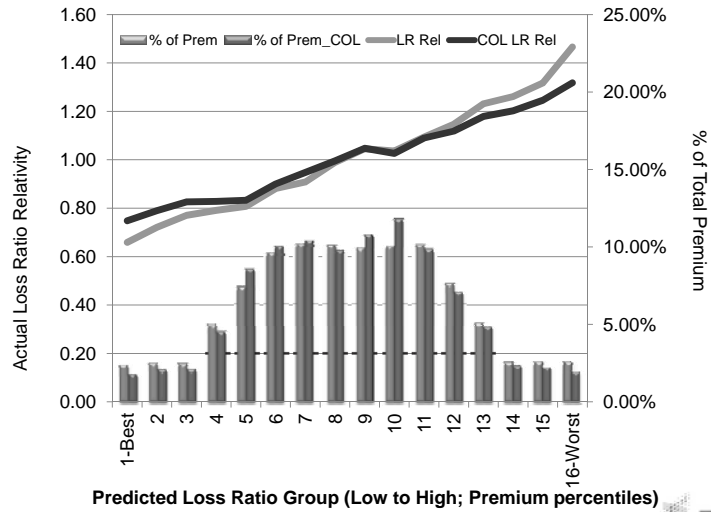
## The score works remarkably well on COMP coverage



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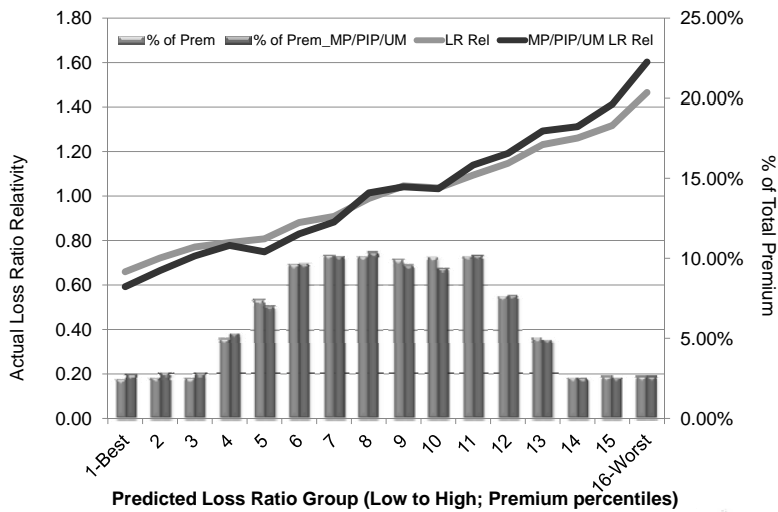
## Collision coverage has less, but still substantial, lift and segmentation



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## The score also works well on ancillary coverages, including PIP



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