

Understanding Risks and Opportunities in the Future Vehicle Fleet

May 5, 2025



Matt Moore
Chief Insurance Operations Officer



Saving lives. Preventing harm.

IIHS-HLDI mission:

To reduce deaths, injuries and property damage from motor vehicle crashes through **research and evaluation** and through **education** of consumers, policymakers and safety professionals.

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IIHS and HLDI are wholly supported by these auto insurers and insurance associations

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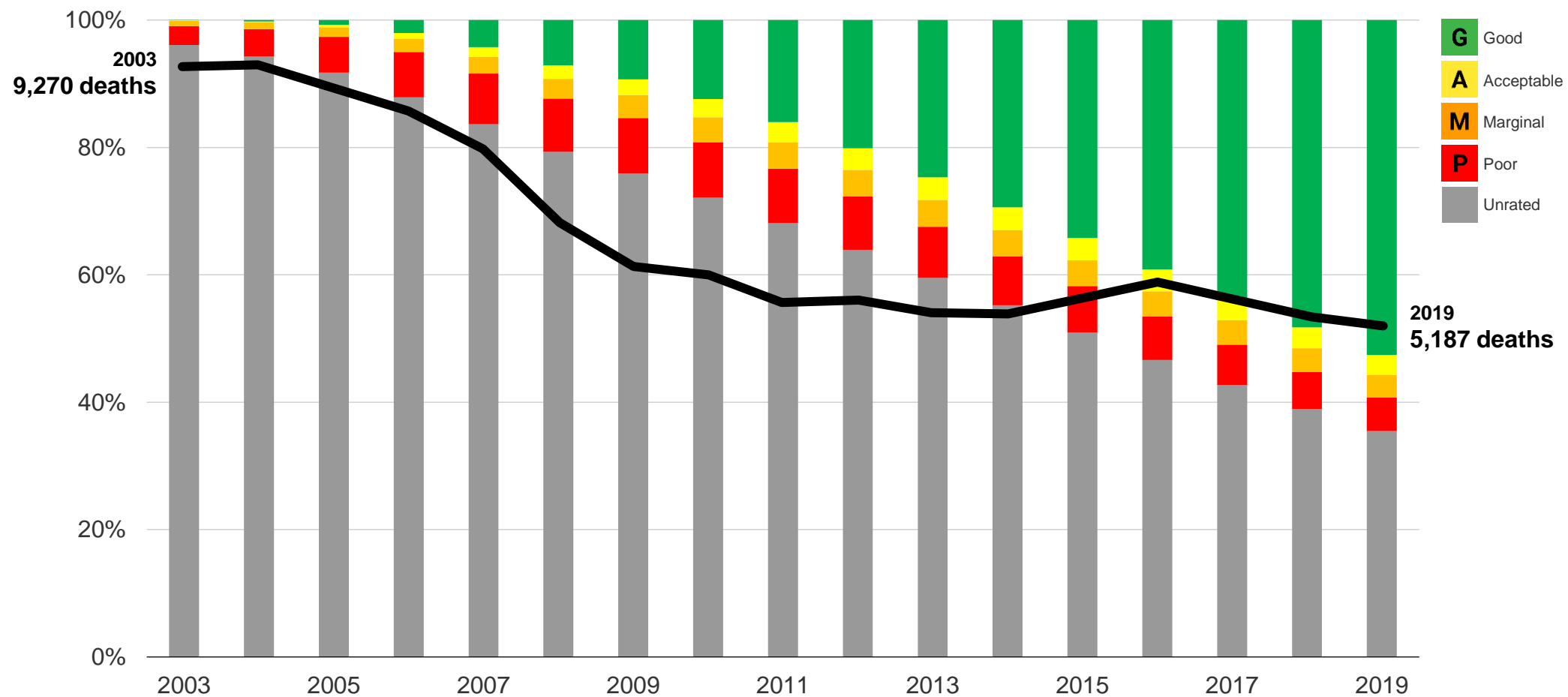
National General Insurance
Nationwide
NJM Insurance Group
Nodak Insurance Company
North Carolina Farm Bureau Mutual Insurance Company
North Star Mutual Insurance Company
Northern Neck Insurance Company
NYCM Insurance
Ohio Mutual Insurance Group
Openly
PEMCO Mutual Insurance Company
Plymouth Rock Assurance
Progressive Insurance
The Responsive Auto Insurance Company
Rider Insurance
Rockingham Insurance
Root Insurance Co
Rural Mutual Insurance Company
Safe Auto Insurance Company
Safeco Insurance®
Samsung Fire & Marine Insurance Company
SECURA Insurance
Selective Insurance

Sentry Insurance
Shelter Insurance®
Sompo International
South Carolina Farm Bureau Mutual Insurance Company®
Southern Farm Bureau Casualty Insurance Company
State Auto Insurance Companies
State Farm Insurance Companies
Stillwater Insurance Group
Swiss Reinsurance Company Ltd
Texas Farm Bureau Insurance
The Travelers Companies, Inc.
United Auto
United Insurance Group
USAA
Virginia Farm Bureau Mutual Insurance
The Wawanesa Mutual Insurance Company
West Bend Insurance Company
Westfield

Funding associations

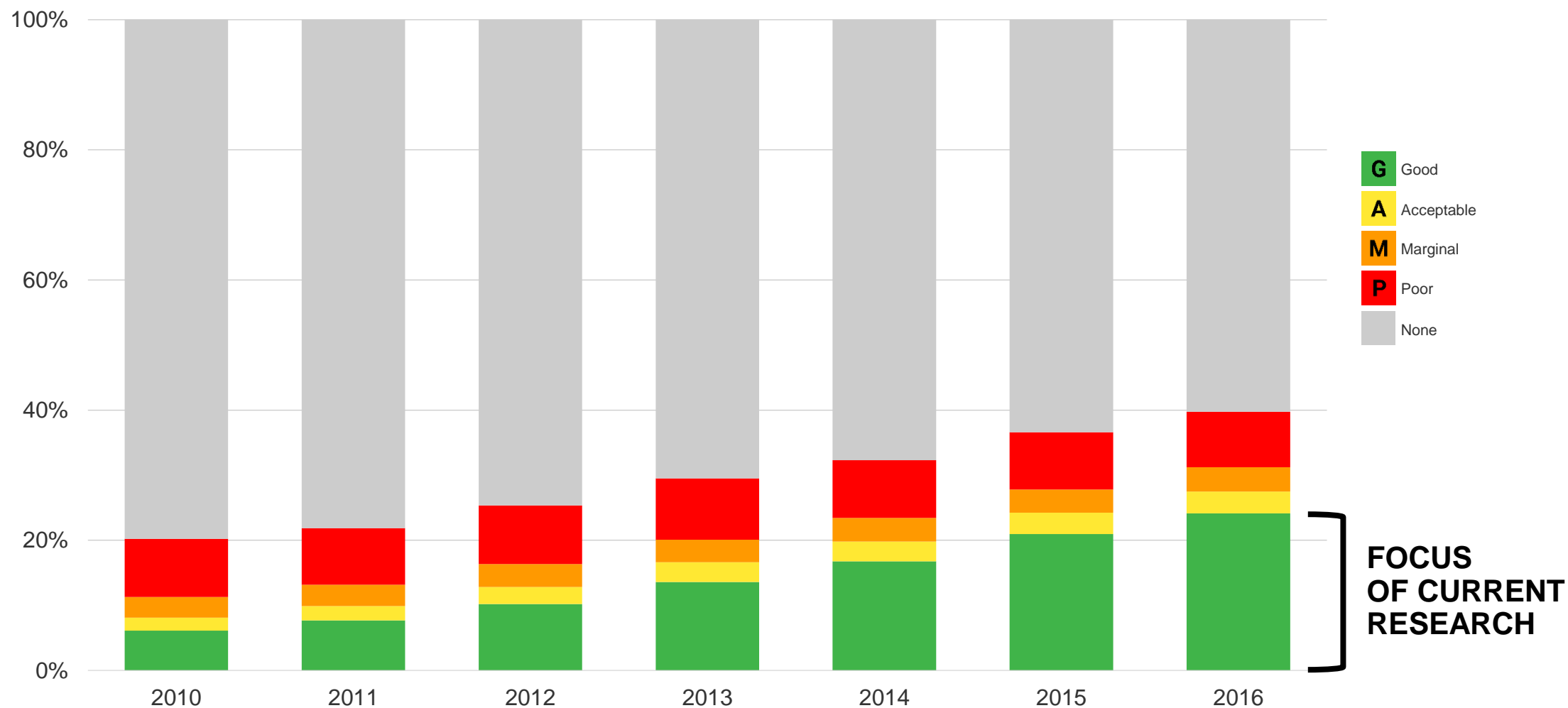
American Property Casualty Insurance Association
National Association of Mutual Insurance Companies

Side test ratings for registered vehicles



Side impact ratings: crash tests and field data

FARS passenger vehicle occupant fatalities – percent of vehicles with fatalities



Side impact 2.0



60 km/h impact



1,900 kg cart with suspension
Updated barrier face



G

Good

A

Acceptable

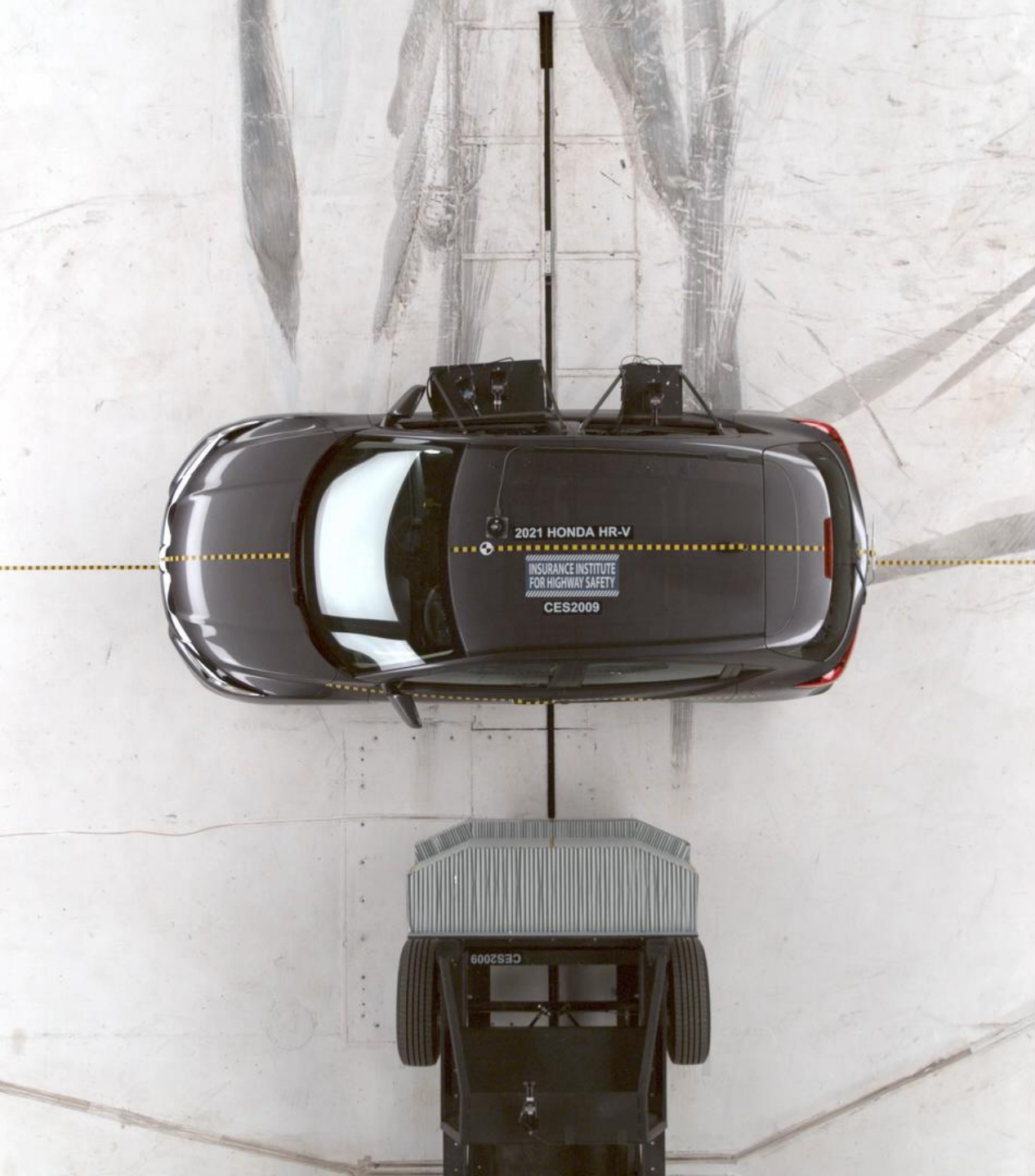
M

Marginal

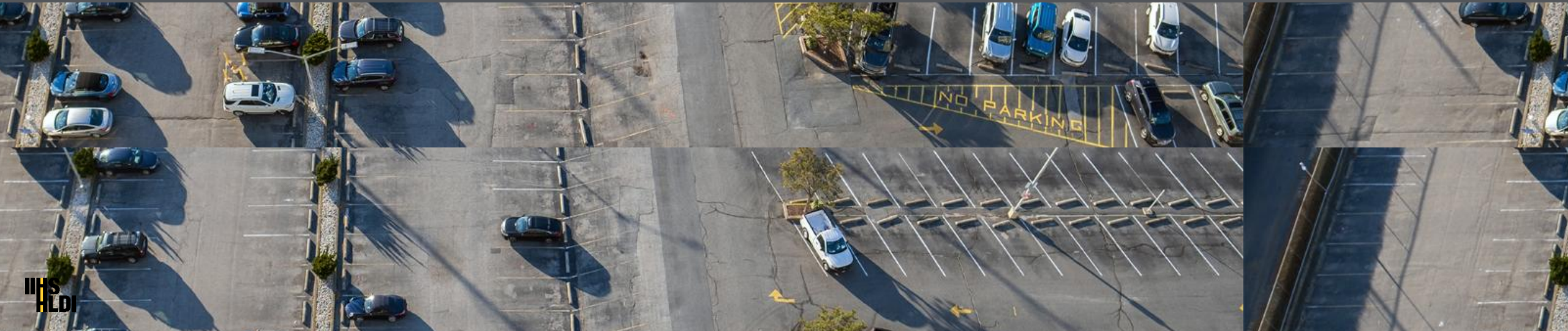
P

Poor

Ratings based on dummy injury measures, head protection and vehicle structure



Vehicle fleet characteristics

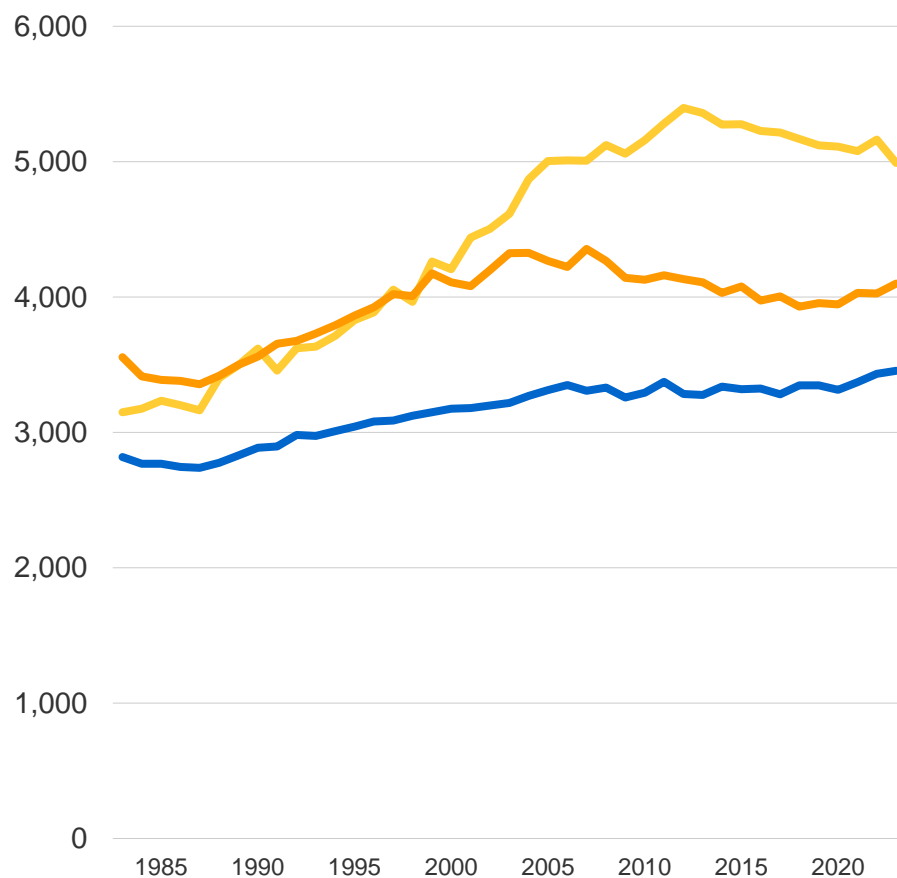


Changes in vehicle weight and horsepower

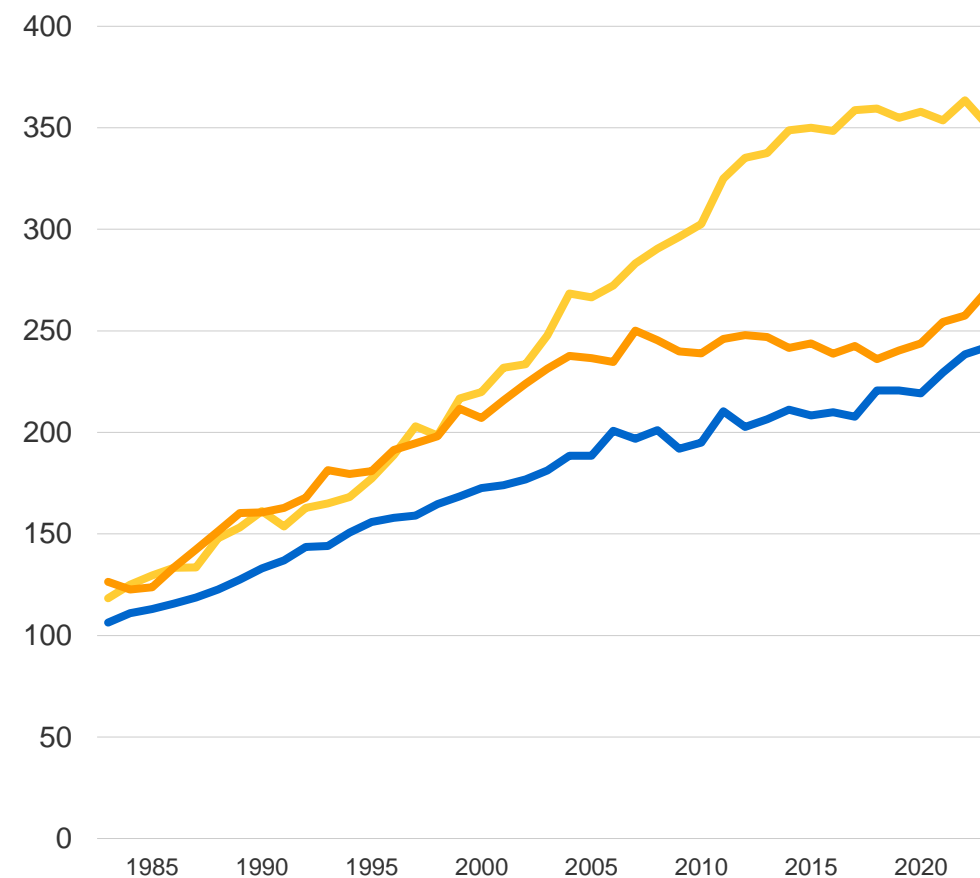
1983-2023 model years

Cars SUVs Pickups

Average curb weight in pounds



Average horsepower



Distribution of vehicles by type

1983-2023 model years



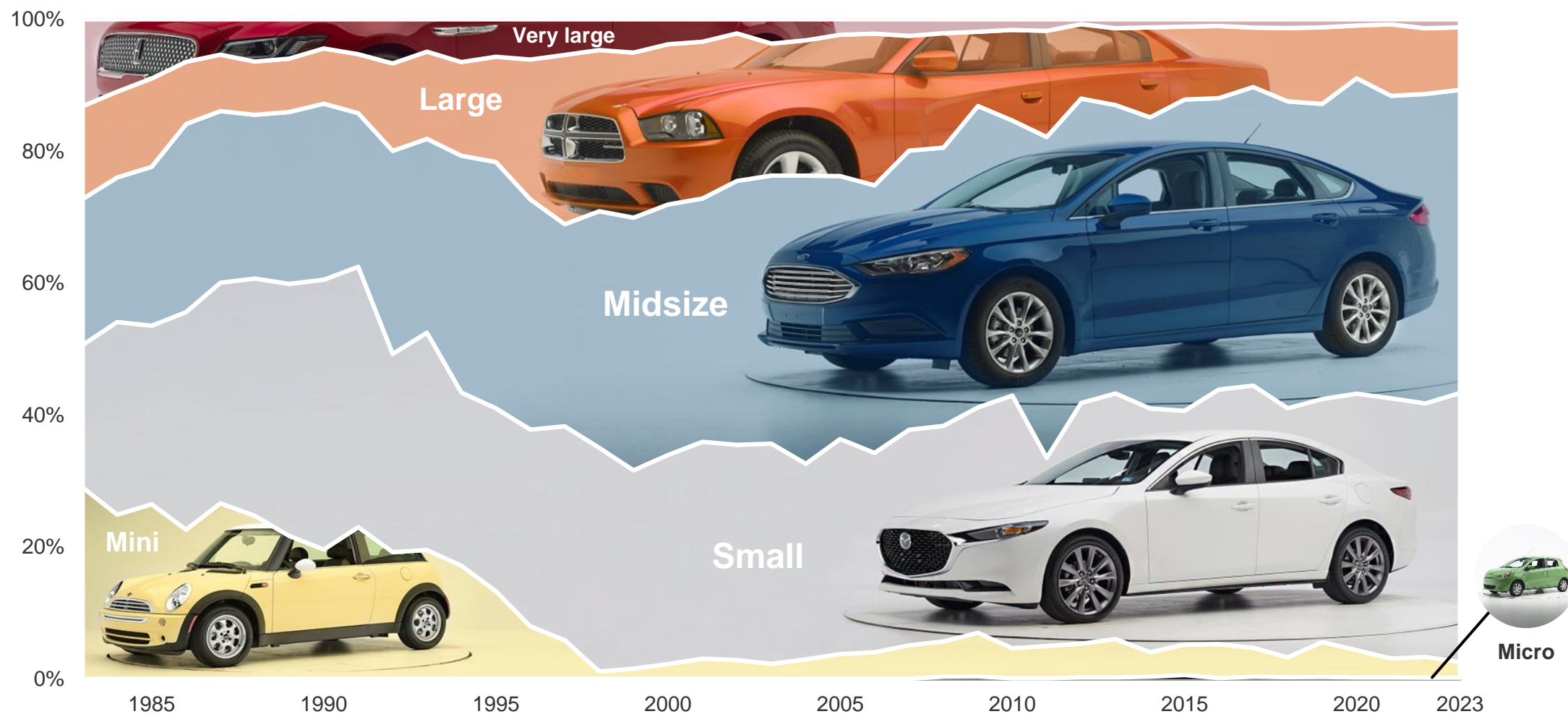
All passenger vehicles by drive type

1983-2023 model years



Distribution of passenger cars by size

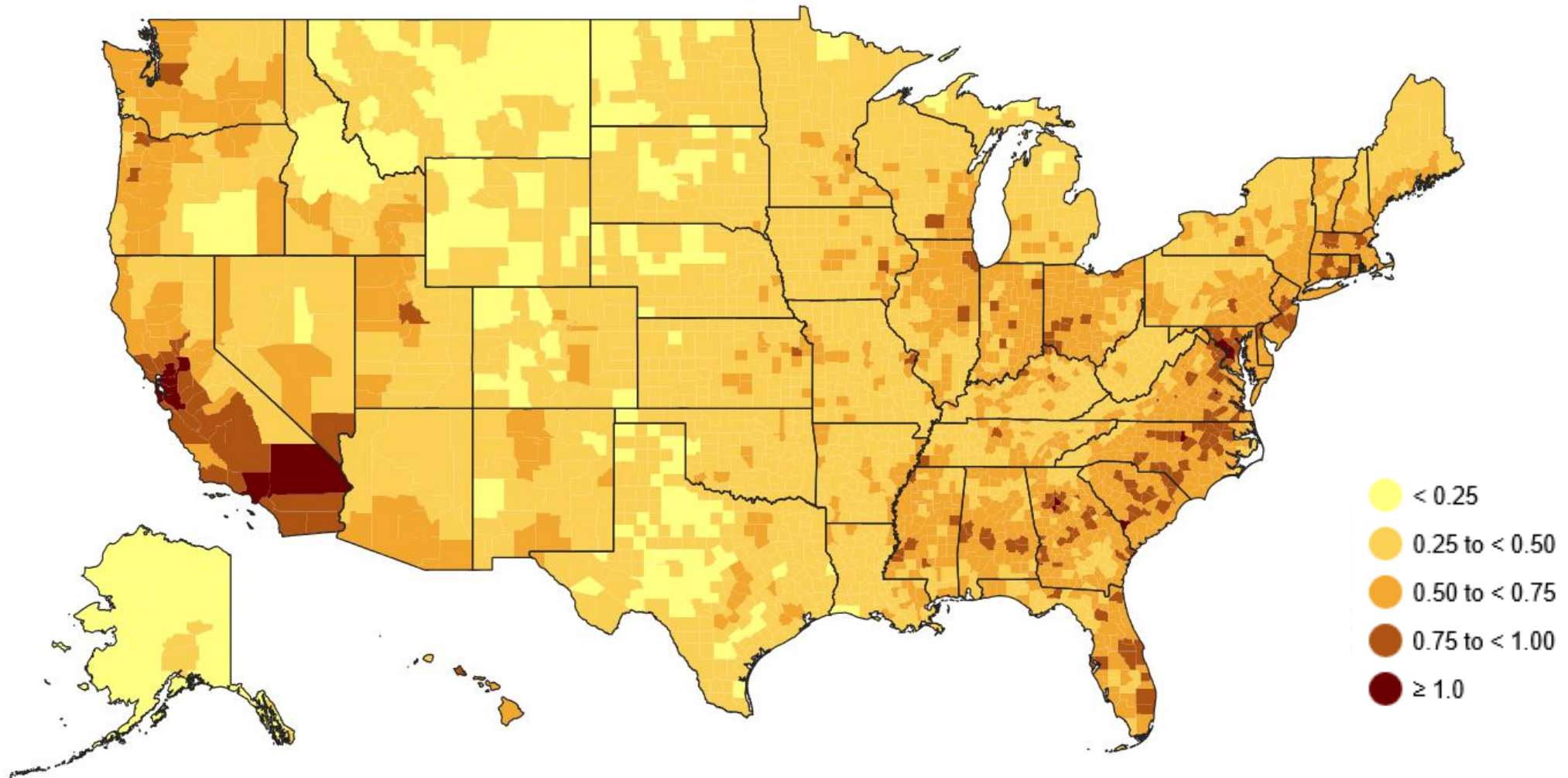
1983-2023 model years





Passenger cars relative to other vehicles

Collision exposure for calendar year 2023, model years 1981-2024



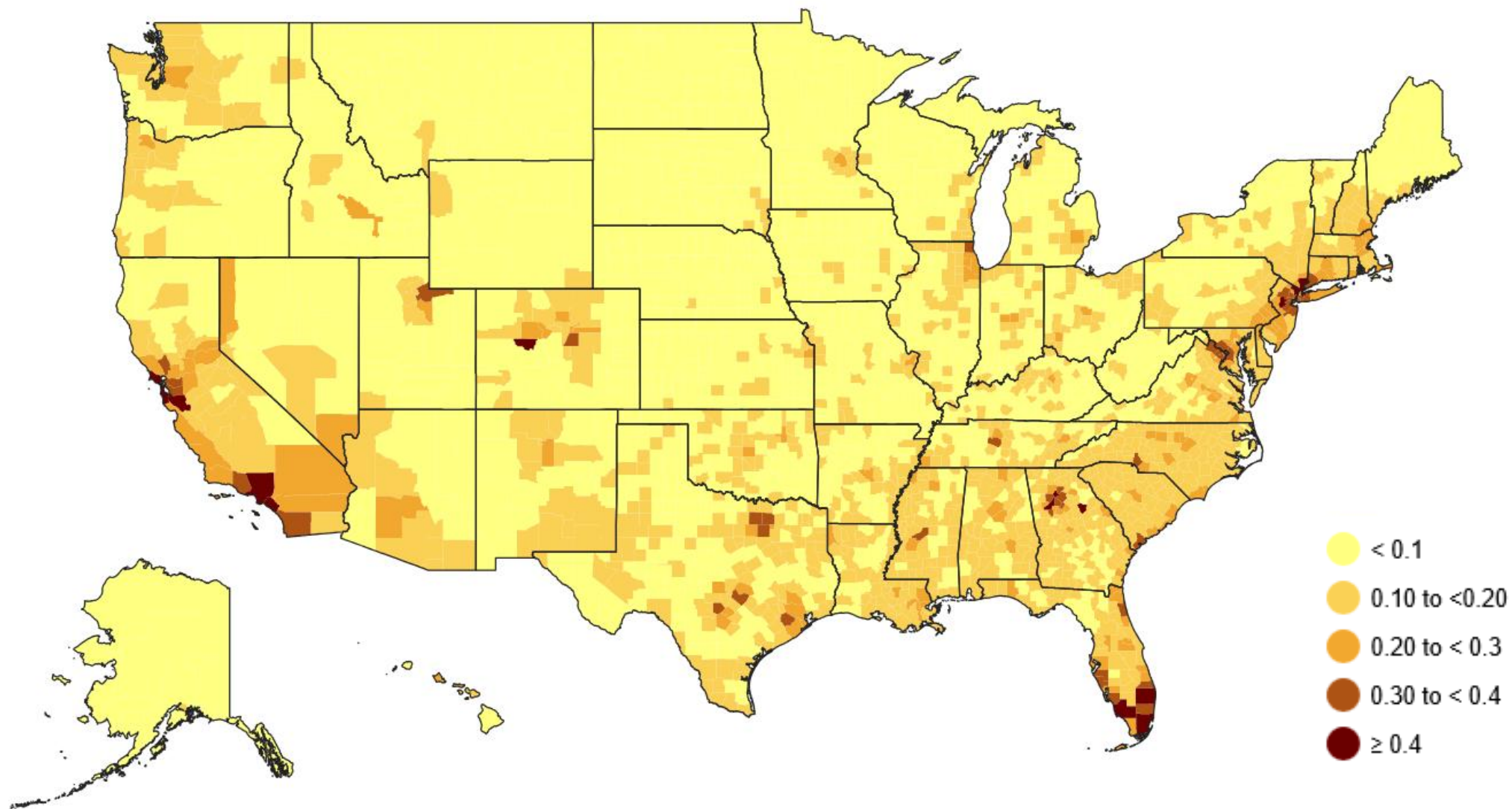
Distribution of cars by type

1983-2023 model years



Luxury vehicles and sports cars relative to other cars

Collision exposure for calendar year 2023, model years 1981-2024



BMW 8 series

1994



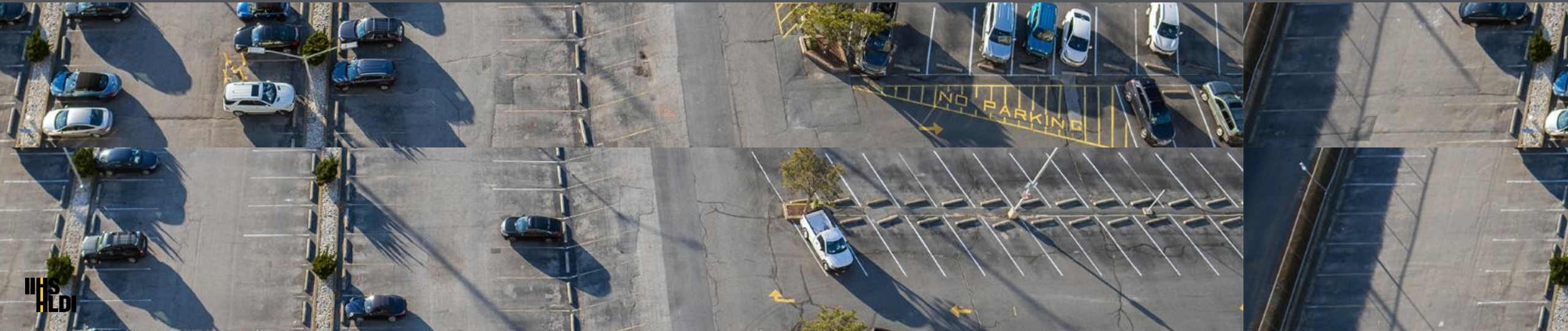
2023



| Series | Curb weight | Base price |
|-----------|-------------|------------|
| 840Ci 2dr | 4,123 | \$69,850 |
| 850Ci 2dr | 4,123 | \$88,500 |

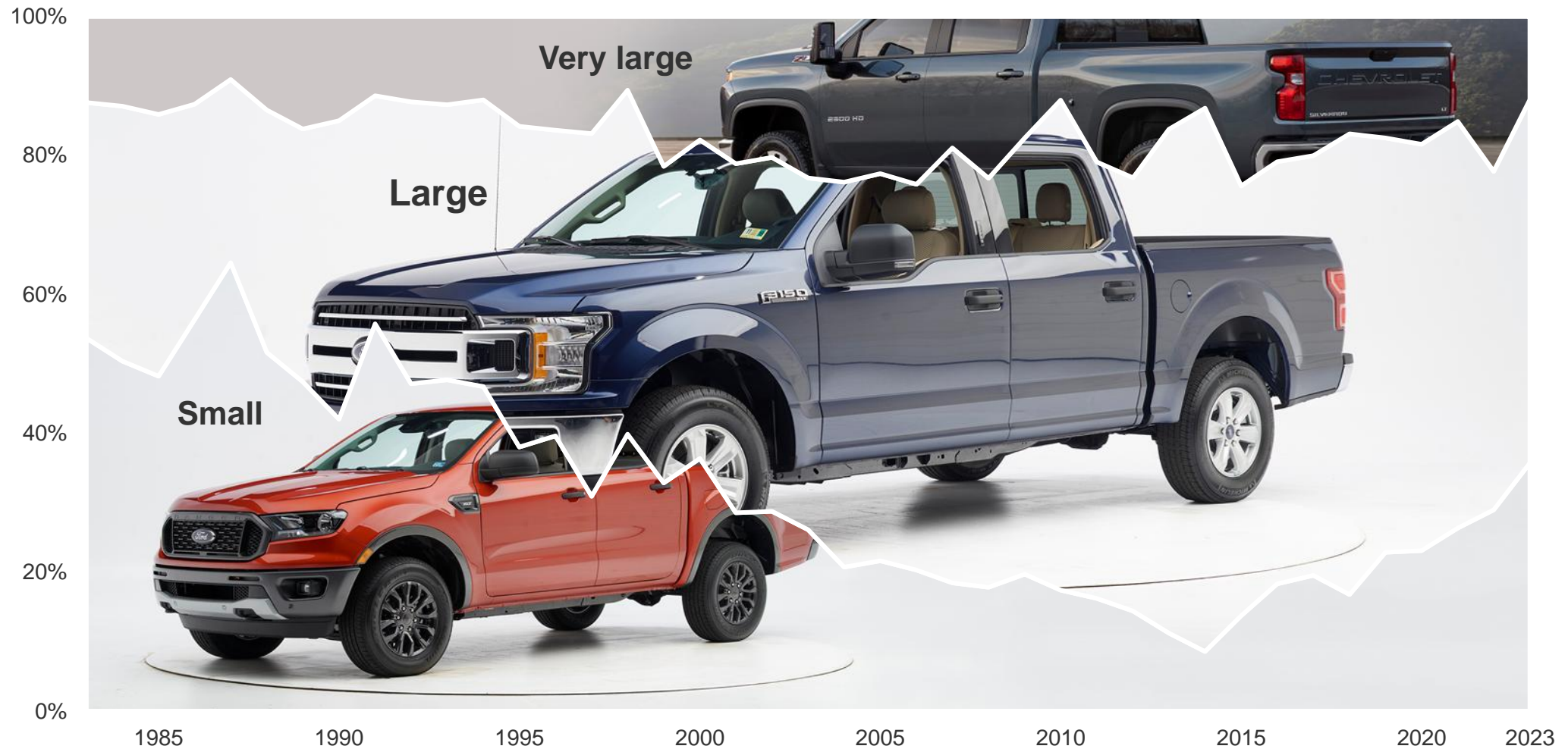
| Series | Curb weight | Base price |
|------------------------|-------------|------------|
| 840i 4dr | 4,180 | \$88,395 |
| 840i 2dr | 3,902 | \$88,495 |
| 840xi 4dr 4WD | 4,281 | \$91,295 |
| 840xi 2dr 4WD | 4,012 | \$91,395 |
| 840i convertible | 4,156 | \$98,095 |
| 840xi convertible 4WD | 4,266 | \$100,995 |
| M850xi 2dr 4WD | 4,427 | \$102,500 |
| M850xi 4dr 4WD | 4,696 | \$103,395 |
| M850xi convertible 4WD | 4,691 | \$113,095 |
| M8 4dr 4WD | 4,480 | \$135,995 |
| M8 2dr 4WD | 4,295 | \$136,095 |
| M8 convertible 4WD | 4,560 | \$145,695 |
| Alpina B8 4dr 4WD | 4,831 | \$145,895 |

Pickups



Distribution of pickups by size

1983-2023 model years



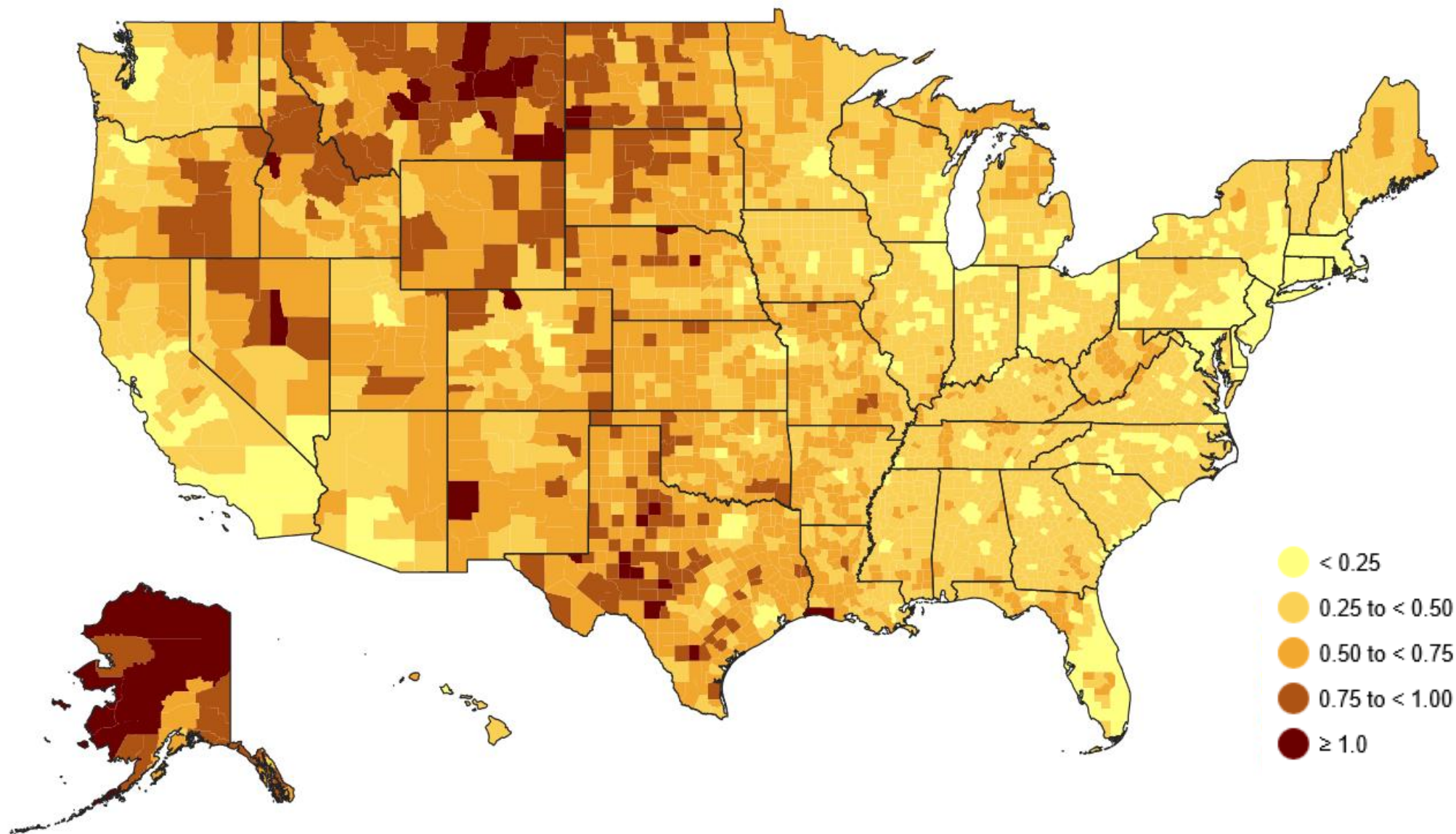
Pickups by cab type

1983-2023 model years



Pickups relative to other vehicles

Collision exposure for calendar year 2023, model years 1981-2024



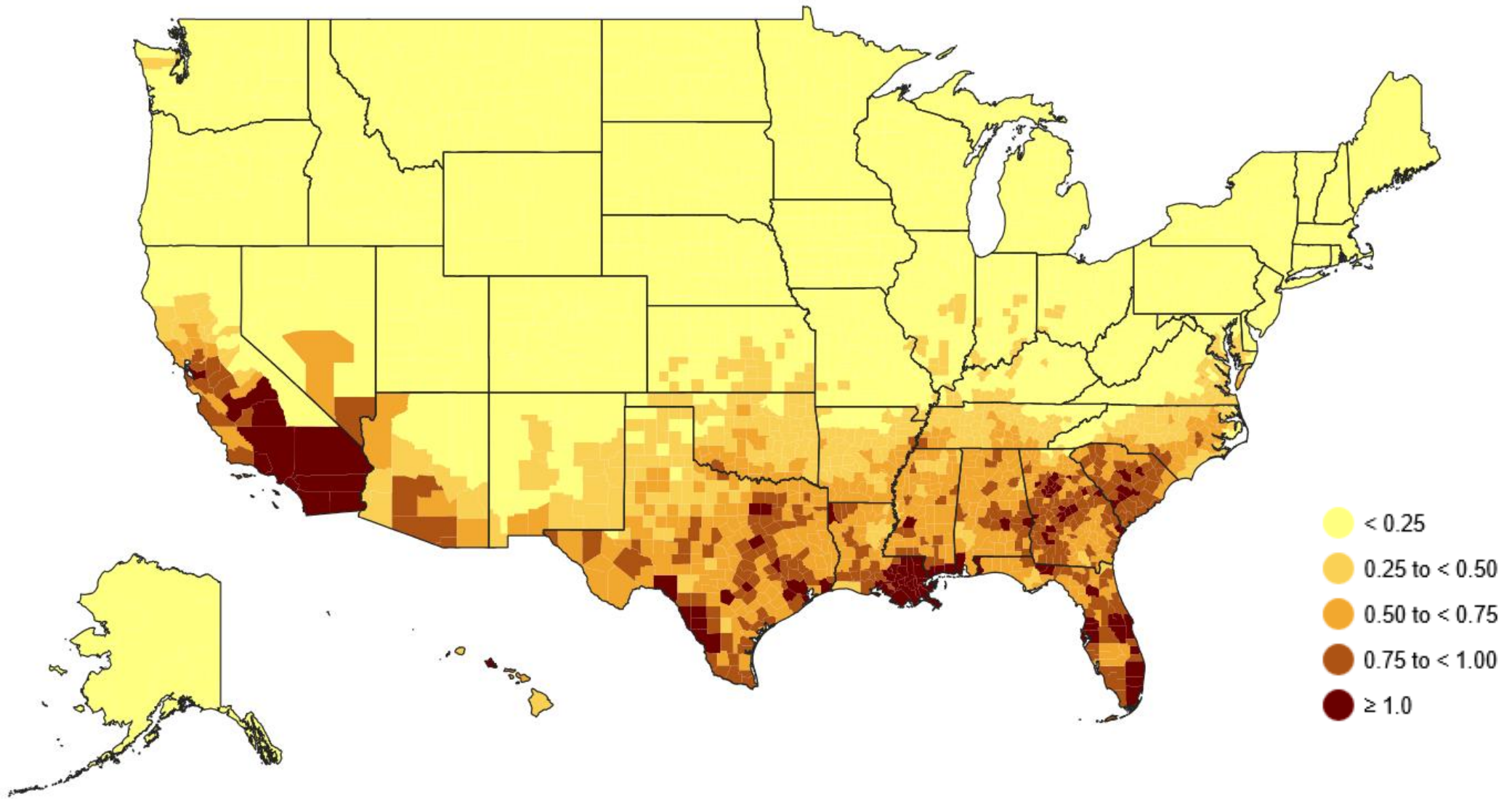
Pickups by drive type

1983-2023 model years

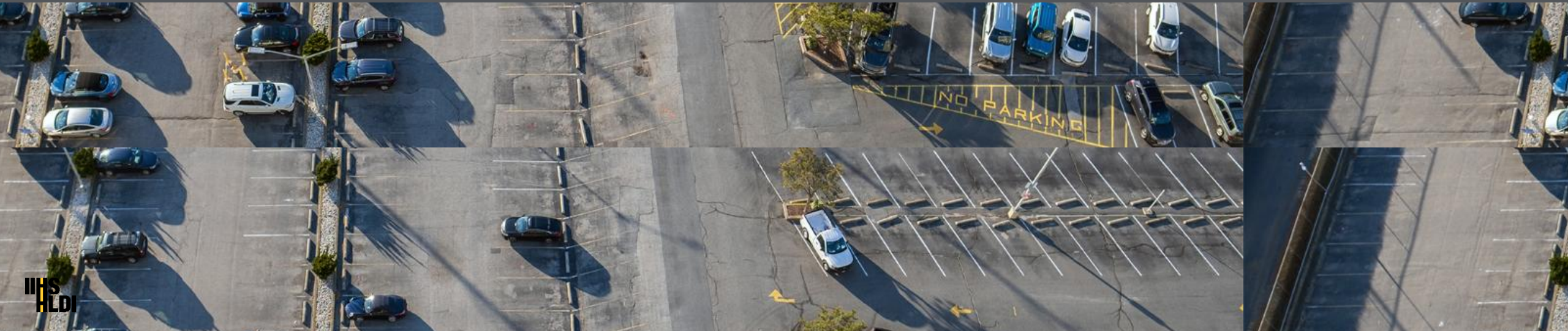


2WD pickups relative to 4WD pickups

Collision exposure for calendar year 2023, model years 1981-2024



SUVs



Distribution of SUVs by type

1983-2023 model years



Distribution of Lamborghini VINs by vehicle type

2010-23 model years



Distribution of Jaguars by vehicle type

2010-23 model years



Distribution of Porsches by vehicle type

2010-23 model years



Distribution of BMW VINs by vehicle type

2010-23 model years



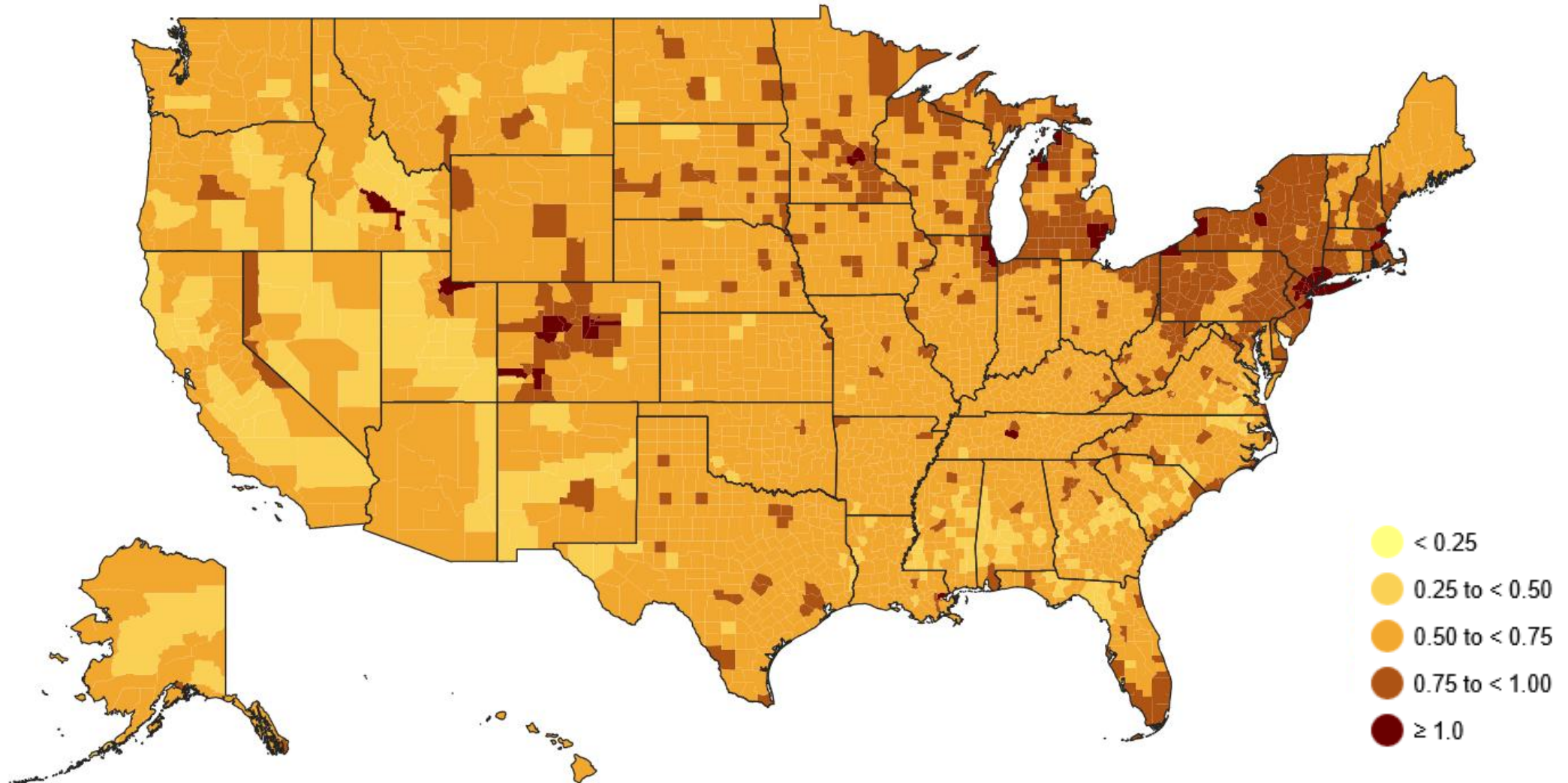
Distribution of Mercedes-Benz VINs by vehicle type

2010-23 model years



SUVs relative to other vehicles

Collision exposure for calendar year 2023, model years 1981-2024

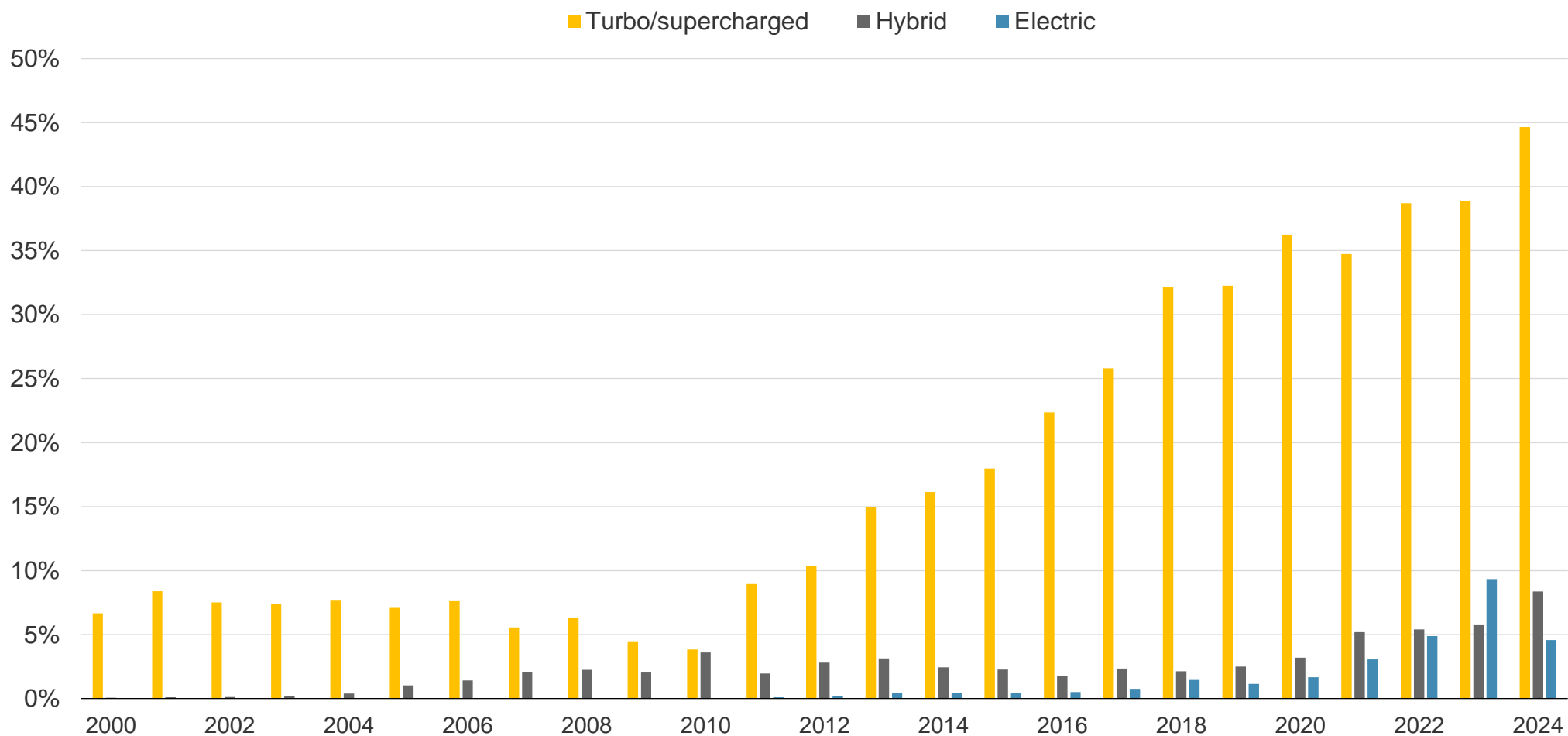


Powertrain changes



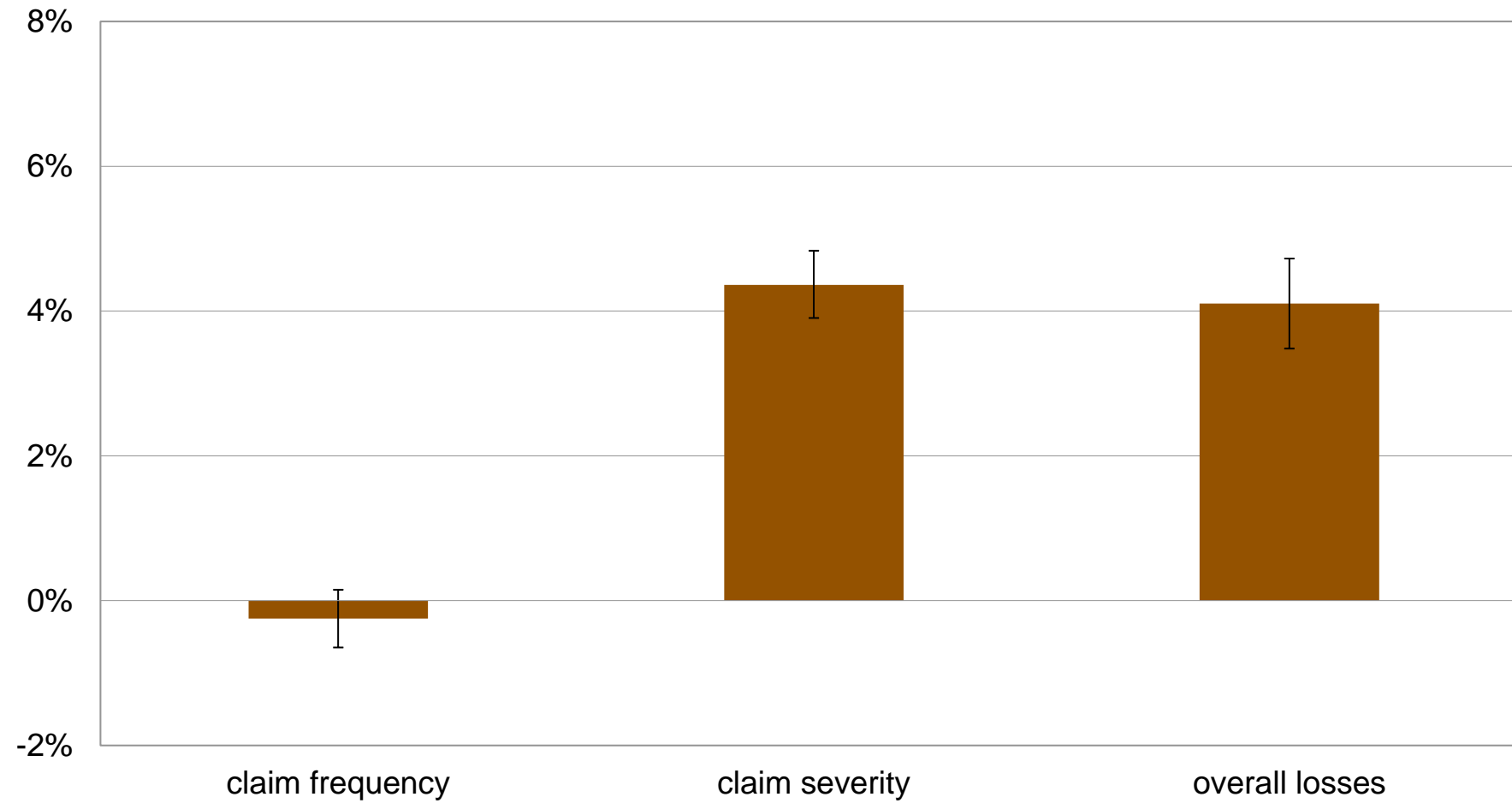
Proportion of vehicles with turbo/supercharged, hybrid or electric engines in 2024

By model year



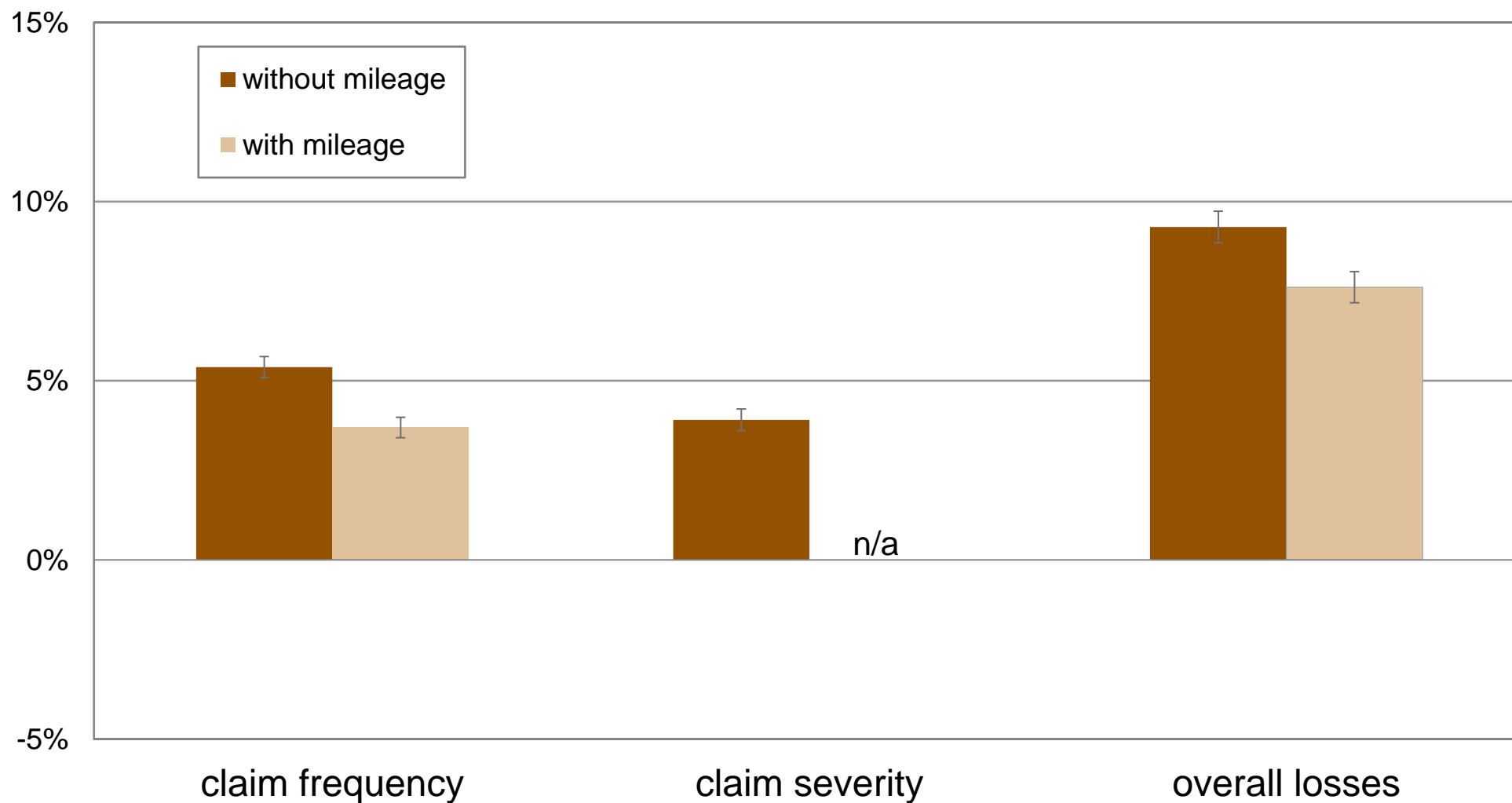
Turbo and supercharged engines

Collision losses

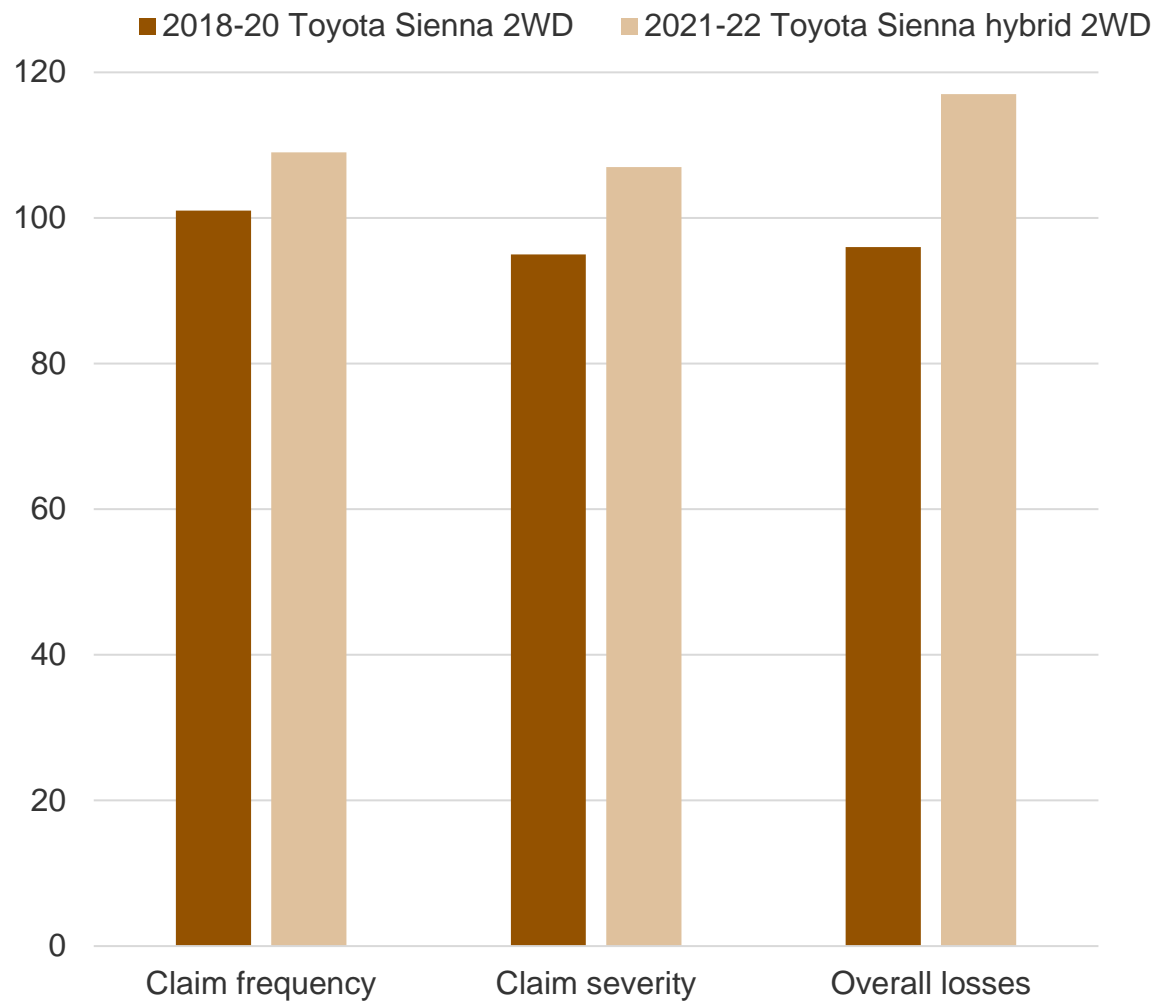


Estimated collision losses

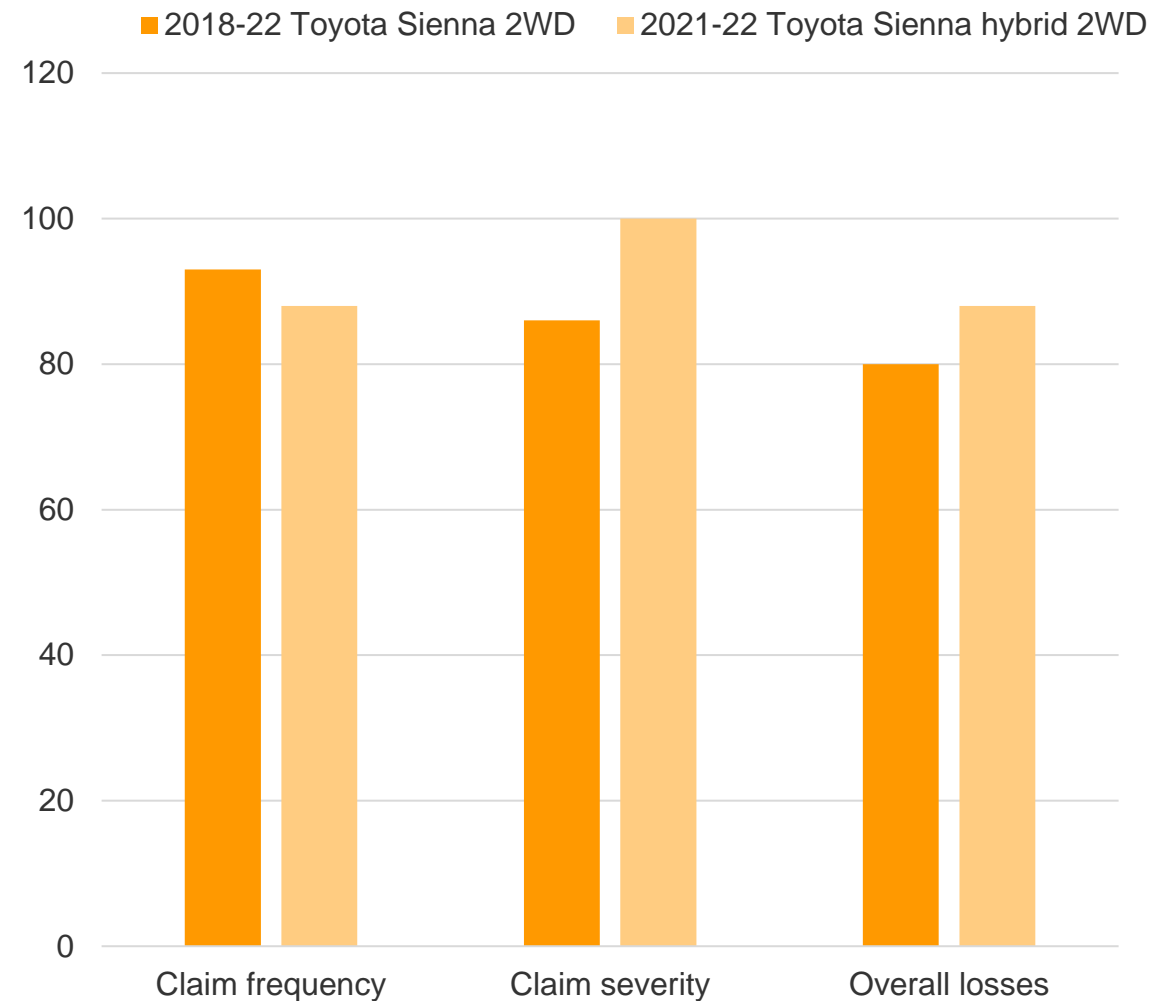
Hybrid vs. conventional - mileage data provided by CARFAX



Toyota Sienna 2WD relative collision and PDL losses



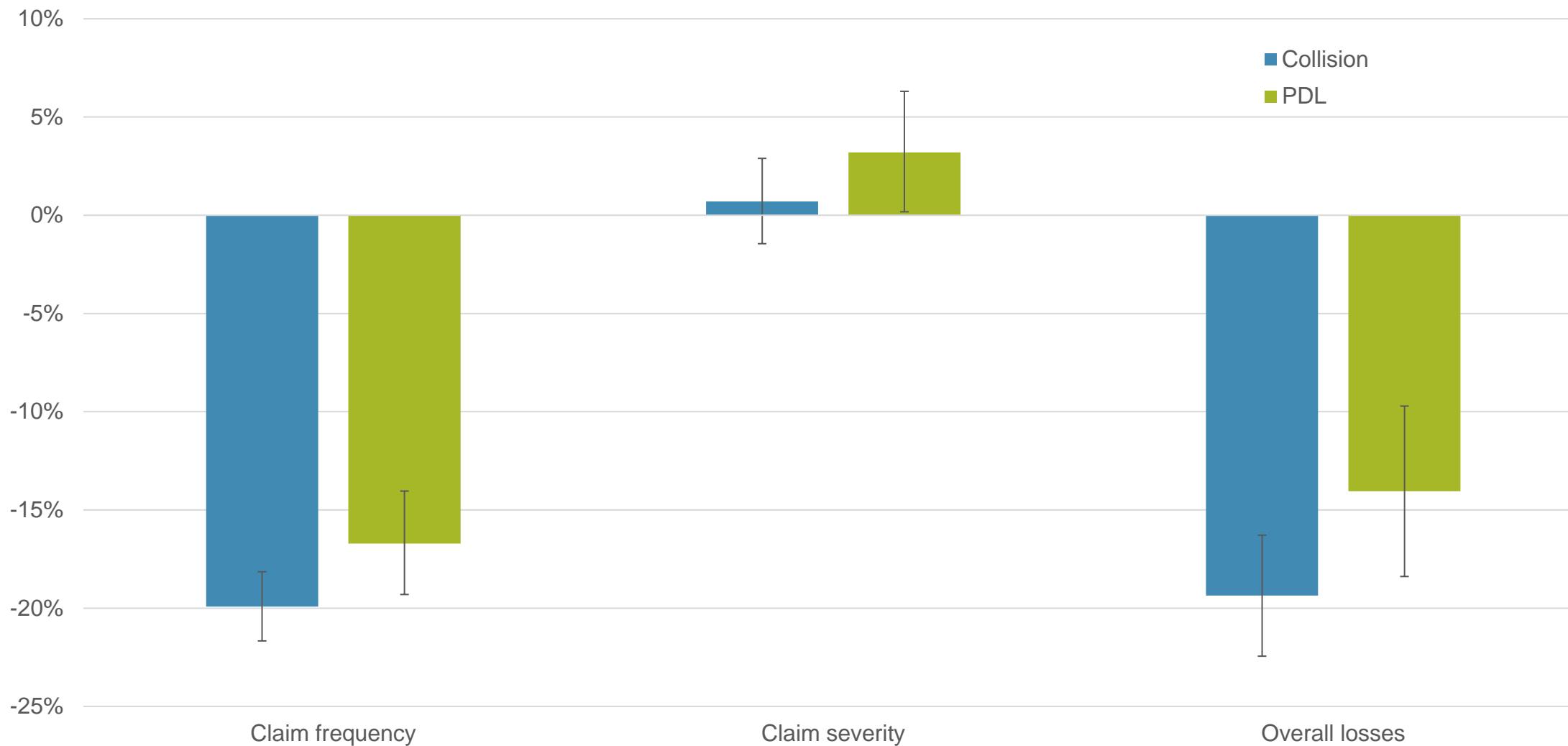
Collision



PDL

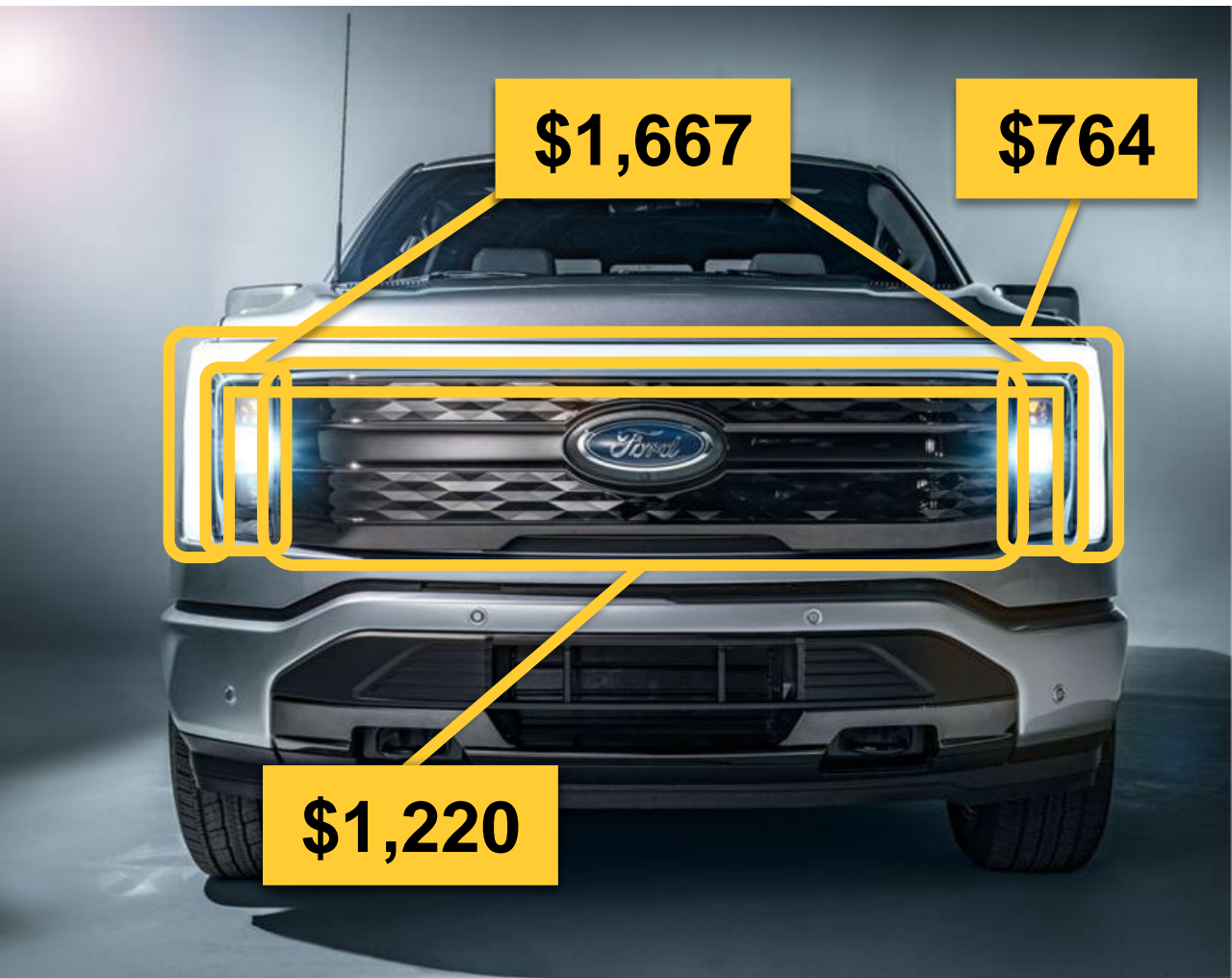
Estimated collision and PDL losses

Electric vs. conventional - mileage data provided by CARFAX



Ford F-150

Gas vs electric parts prices



GMC Hummer EV pickup



- ▶ 9,046 lbs. curb weight
- ▶ 1,000 horsepower
- ▶ 11,500 lb-ft torque
- ▶ Super Cruise
- ▶ Crabwalk
- ▶ Infinity roof with modular sky panels
- ▶ “Watts To Freedom” launches vehicle from 0 to 60 in 3 seconds.



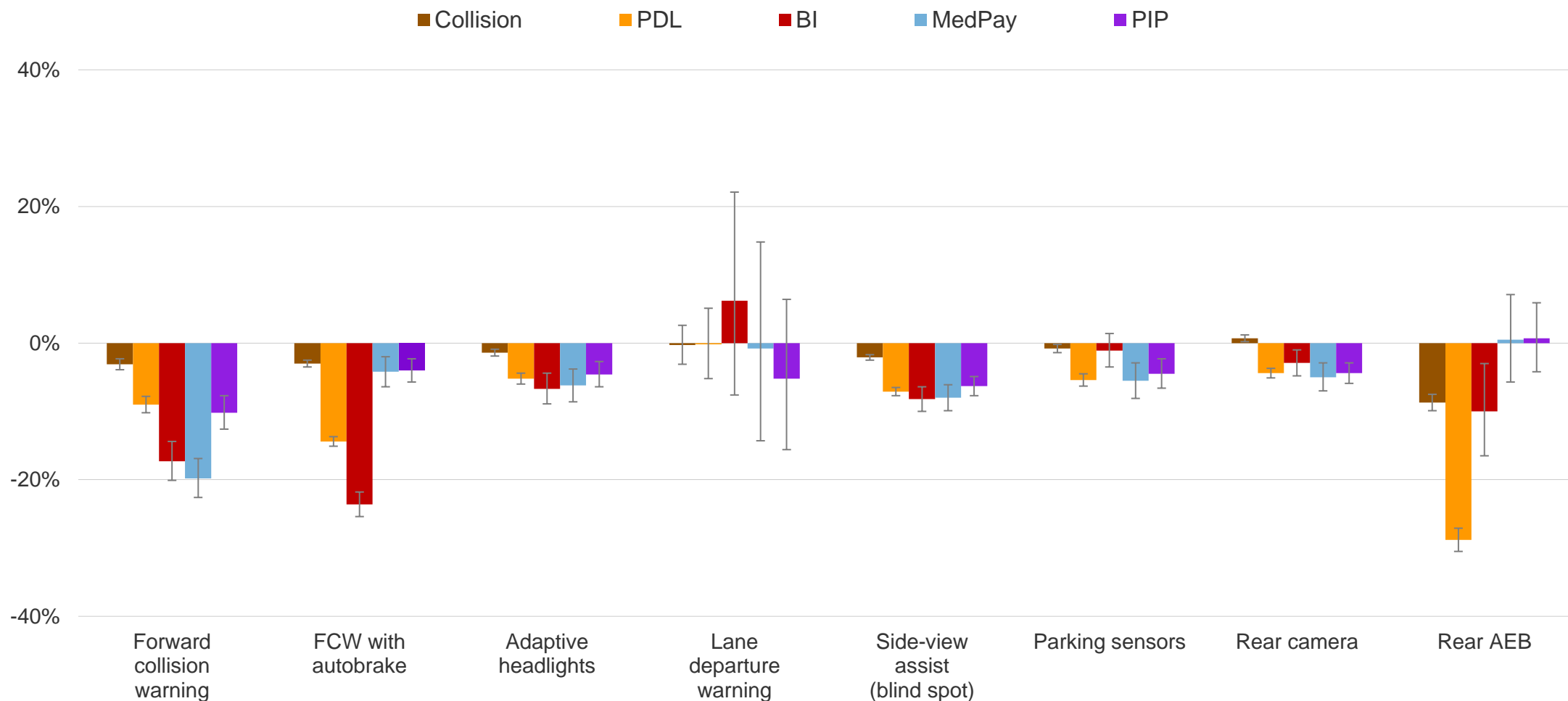
Available equipment shown throughout. Edition 1 SUV models shown throughout are preproduction and simulated models. Actual production models may vary.

Advanced Driver Assistance Systems

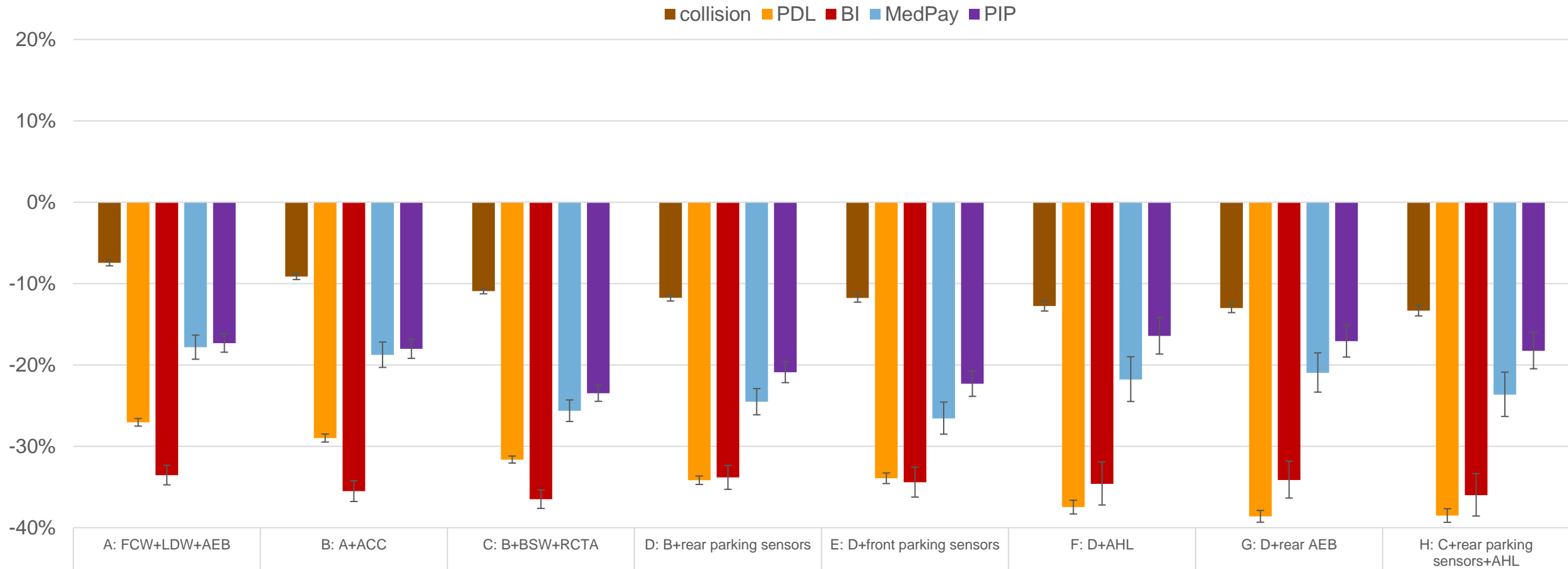


Summary of technology effects on insurance claim frequency

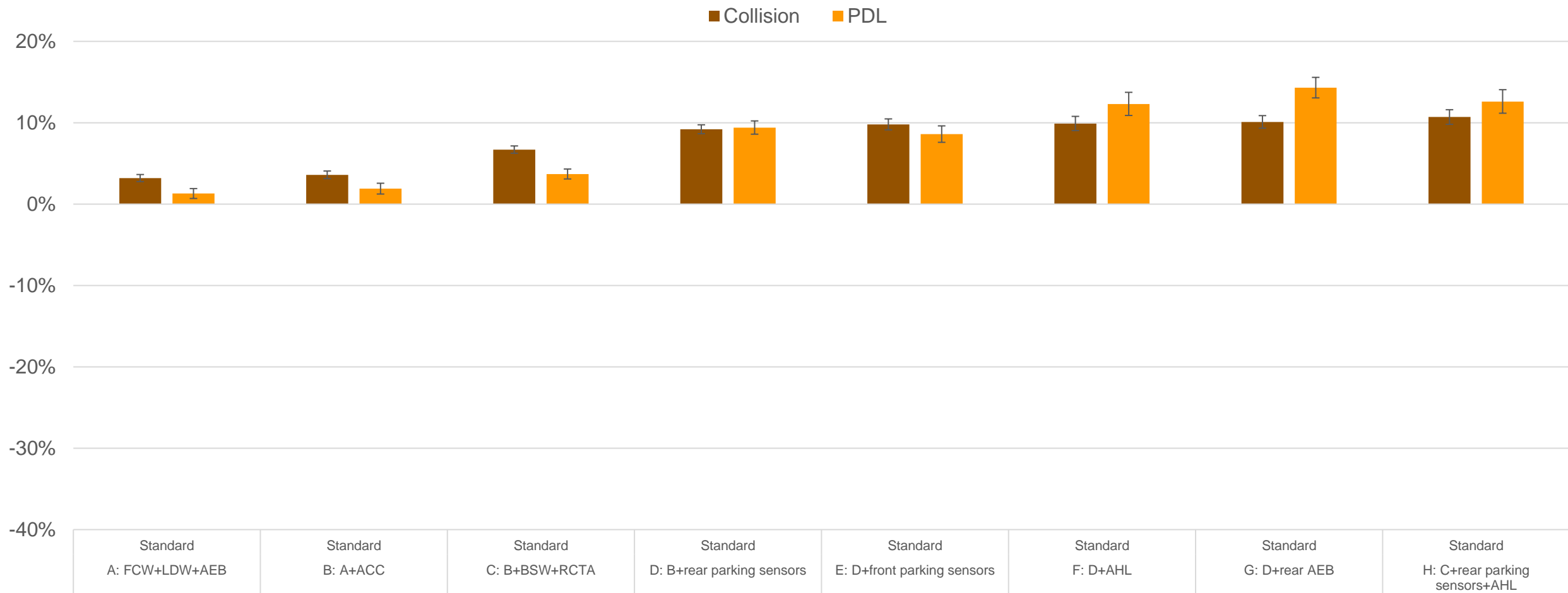
Results pooled across automakers



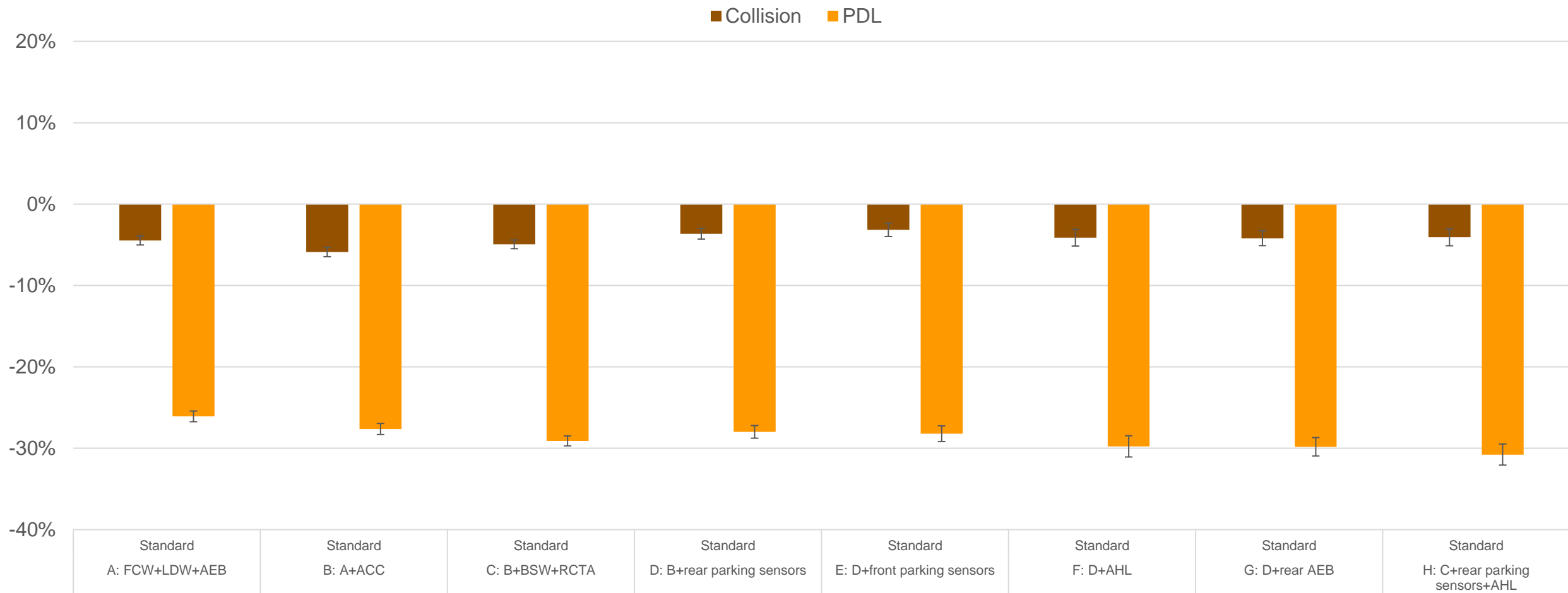
Estimated changes in injury-related claim frequency associated with ADAS bundles



Estimated changes in physical damage claim severity associated with ADAS bundles

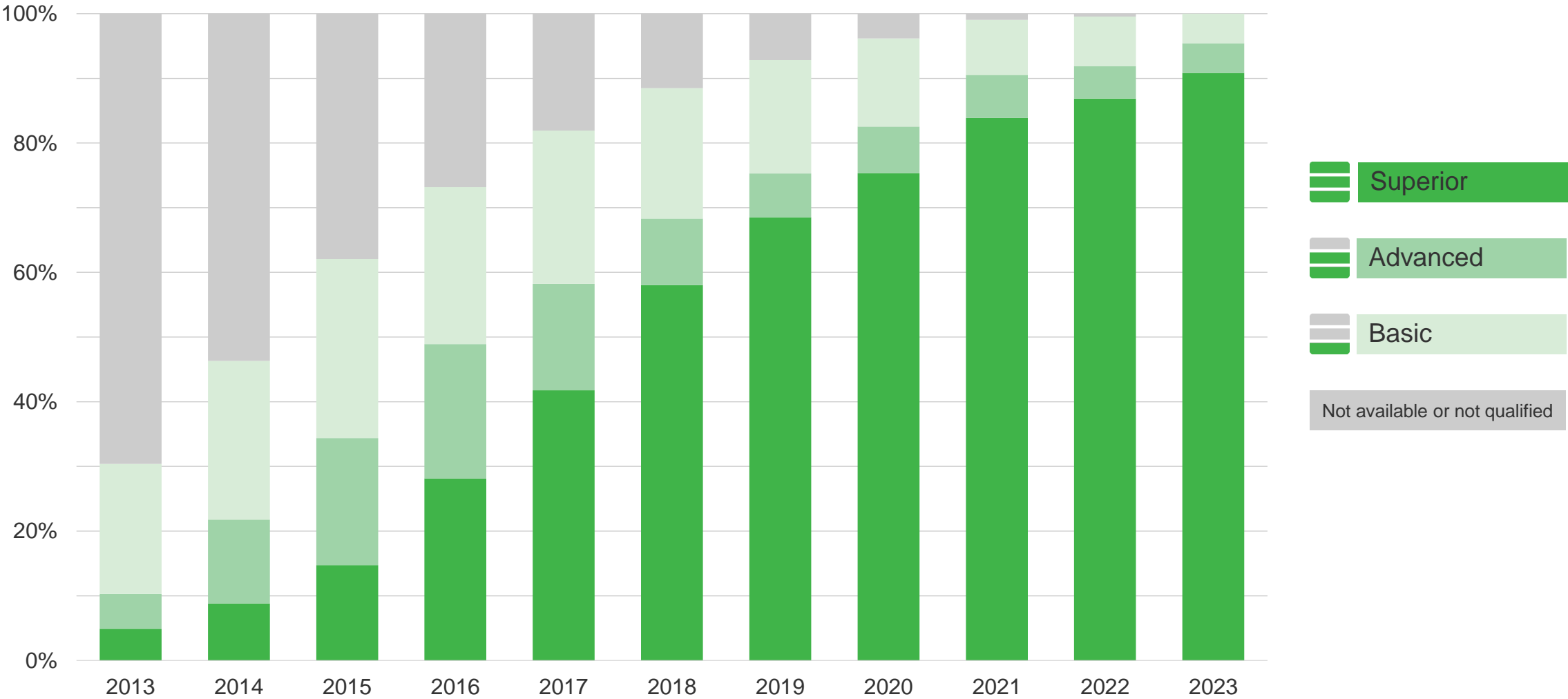


Estimated changes in physical damage overall losses associated with ADAS bundles



Front crash prevention ratings

2013-23 models





Police-reported rear-end crashes

59% occur on **30-45 mph** roads

Medium or heavy
trucks struck in

32%

of fatal
rear-end crashes



Motorcycles
struck in

11%

of fatal
rear-end crashes

Small SUVs

2023 Chevrolet Equinox



2023 Ford Escape

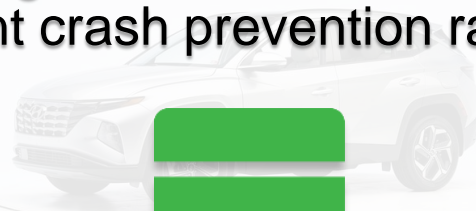


2023 Honda CR-V



Original vehicle-to-vehicle
front crash prevention rating

2023 Hyundai Tucson



2023 Jeep Compass



2023 Mazda CX-5



2023 Toyota RAV4



2023 Subaru Forester



Superior

2023 Toyota RAV4



2023 Volkswagen Taos





2023 Subaru Forester



Velocity 0.0 +363.9 Fwd
-0.7 Lat
0.000 TTC



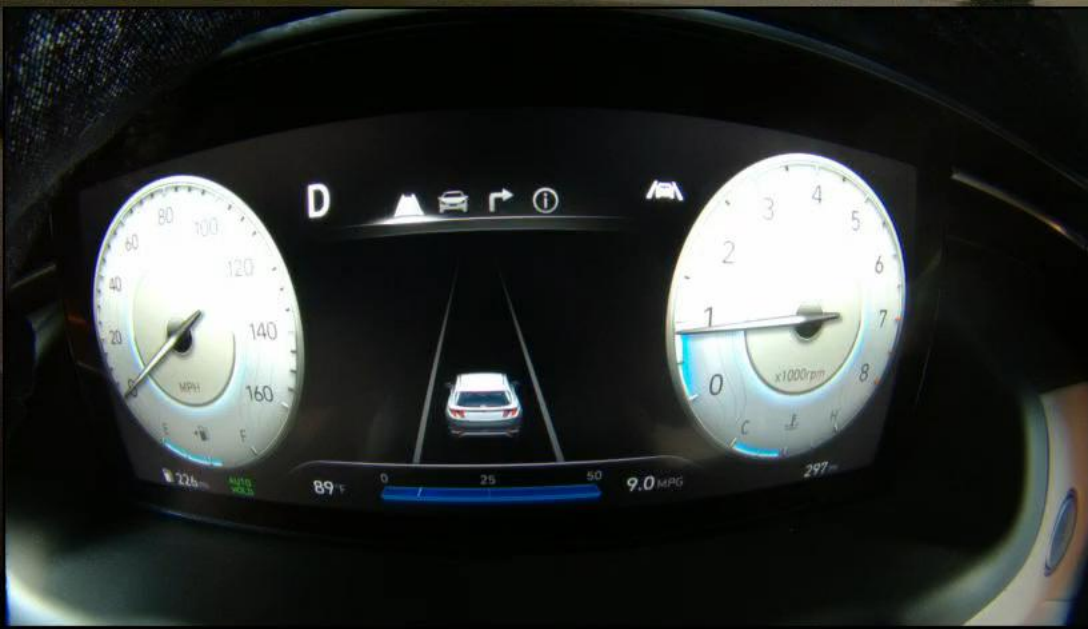
2023 Volkswagen Taos



Velocity 0.0
+335.9 Fwd
-0.1 Lat
0.000 TTC

IHS

2023 Hyundai Tucson



Velocity 0.0 +284.3 Fwd
-0.2 Lat
0.000 TTC



2023 Chevrolet Equinox



Velocity **+289.8** Fwd
0.0
+0.0 Lat
0.000 TTC





P

Chevrolet Equinox



M

Ford Escape



A

Honda CR-V



M

Hyundai Tucson



M

Jeep Compass

Ratings for small SUVs

G Good

A Acceptable

M Marginal

P Poor



P

Mazda CX-5



P

Mitsubishi Outlander



G

Subaru Forester



A

Toyota RAV4



P

Volkswagen Taos

IHS

2022 Subaru Forester



Recent front crash prevention release

Forward Collision Warning Criteria (2.1 seconds)



Are crash tests **BIASED?**



INSIGHT

Improving safety for women requires more than a female crash test dummy

By Jessica Jermakian
Senior Vice President, Vehicle Research, IIHS



How can different statistics all be true?

Women are 47% More Likely to Sustain Serious Injuries In Car Crashes Than Men

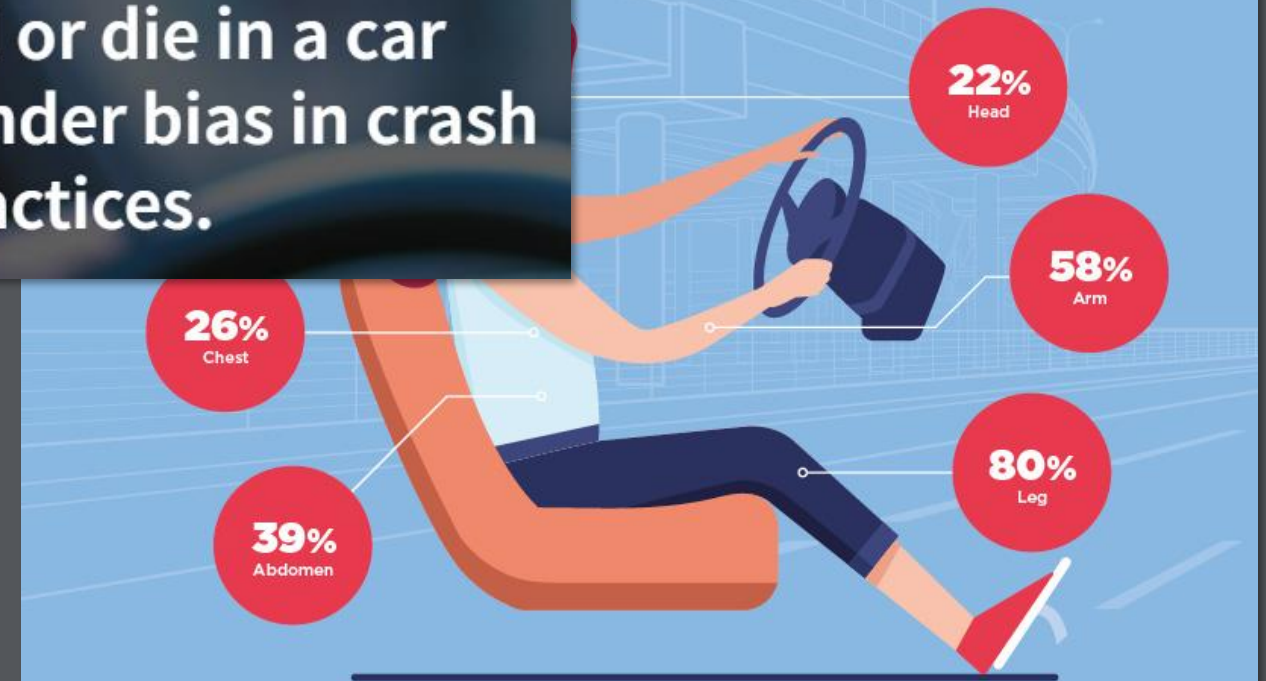
Women are **73% more likely** than men to be injured or die in a car crash because of gender bias in crash testing practices.

**17%
to 18.5%**

Women are 17-18.5% more likely than men to die in a vehicle crash because of outdated crash test standards.

Female Increased Risk Of Injury By Body Part

moderate injuries in a car crash compared to a male front passenger of the same age.

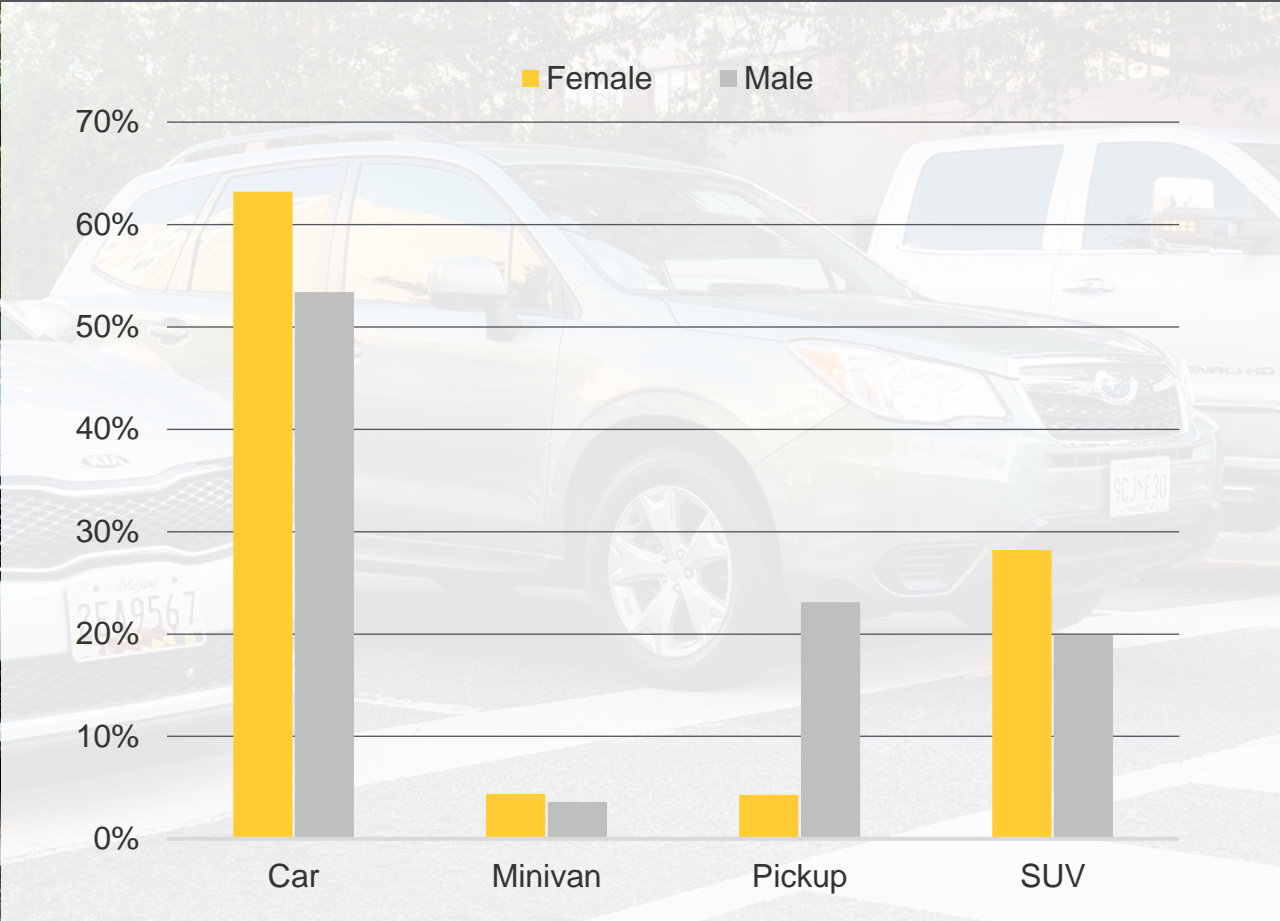


Source: NHTSA Injury Vulnerability and Effectiveness of Occupant Protection Technologies for Older Occupants and Women, 2013

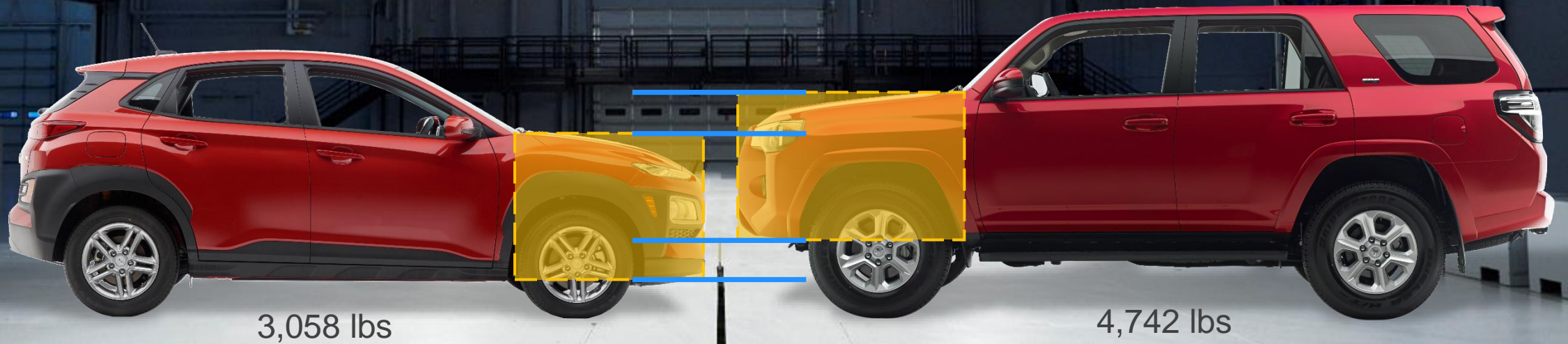
Men and women drive different types of vehicles



Crashes involving female or male drivers



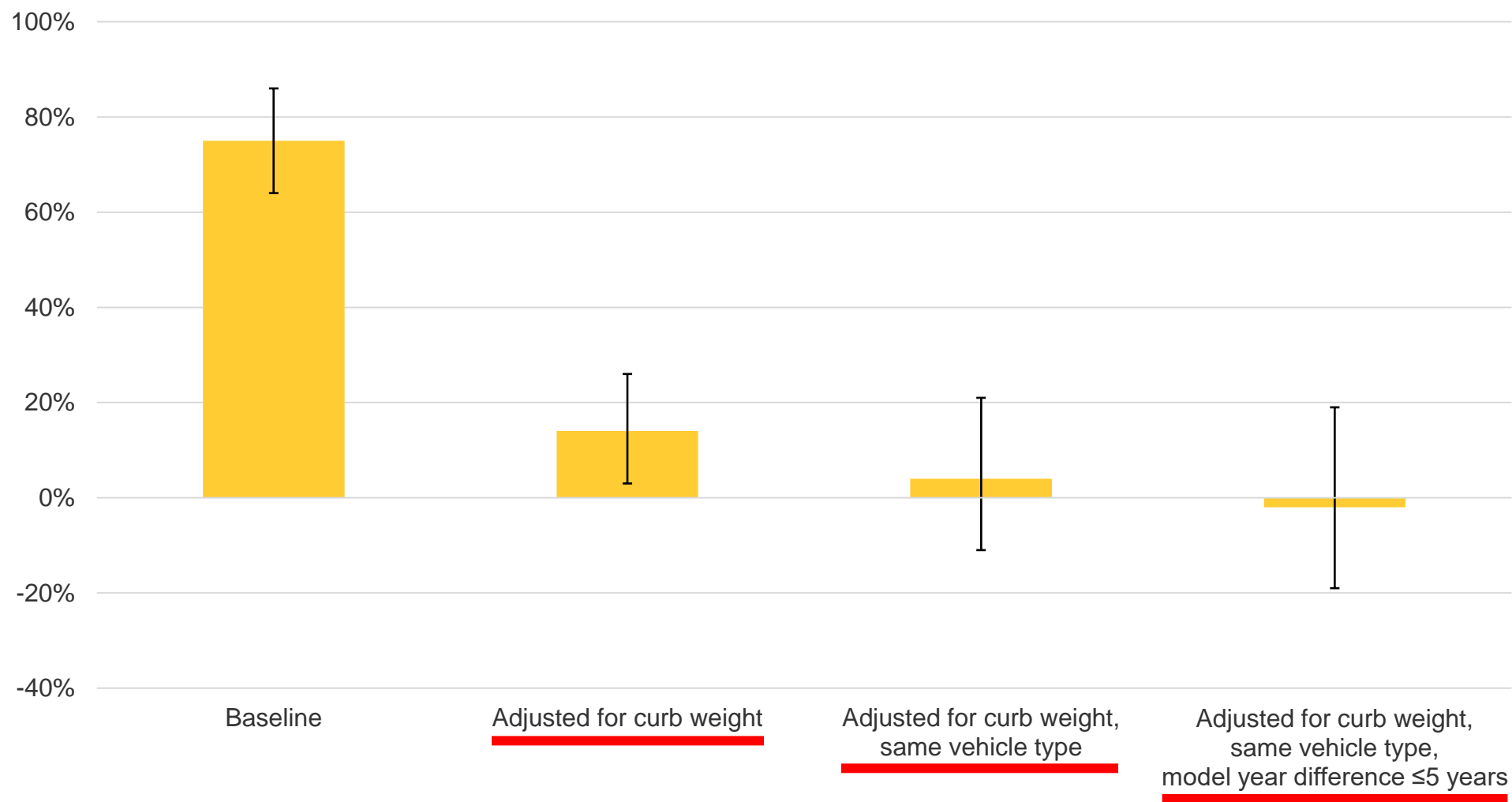
Women tend to drive smaller, lighter vehicles within a vehicle class



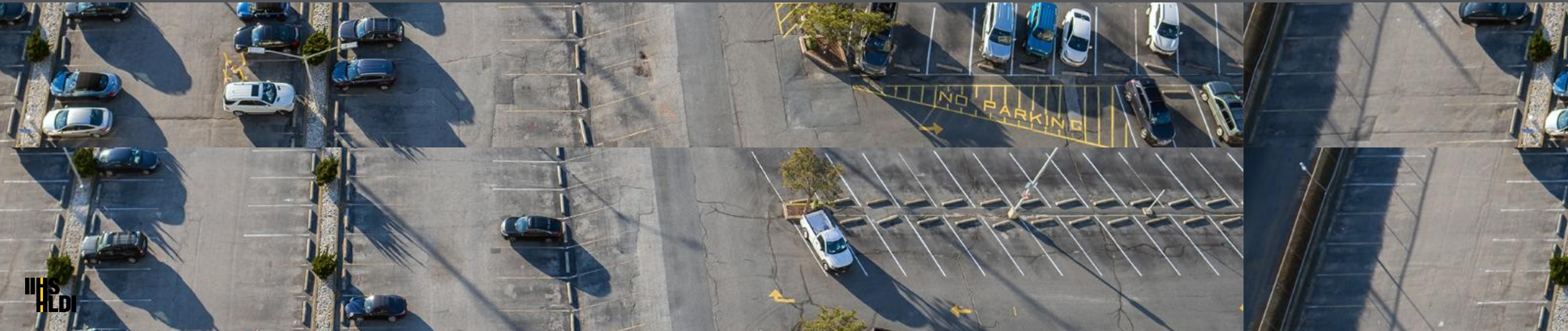
Men and women are in different types of crashes



Fatality risk in head-on crashes for females compared with males when we control for vehicle factors

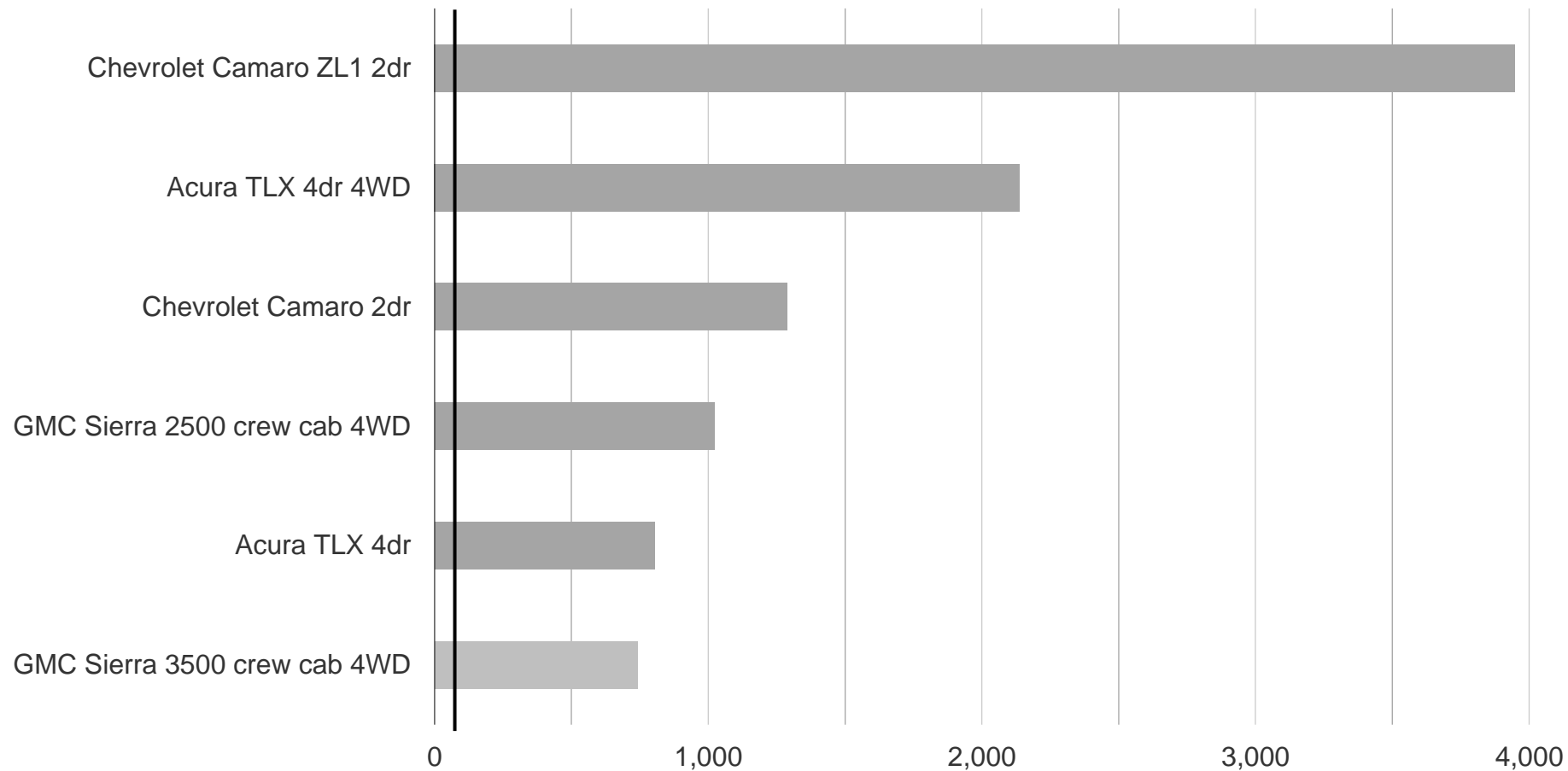


Vehicle theft



Highest whole vehicle theft claim frequencies

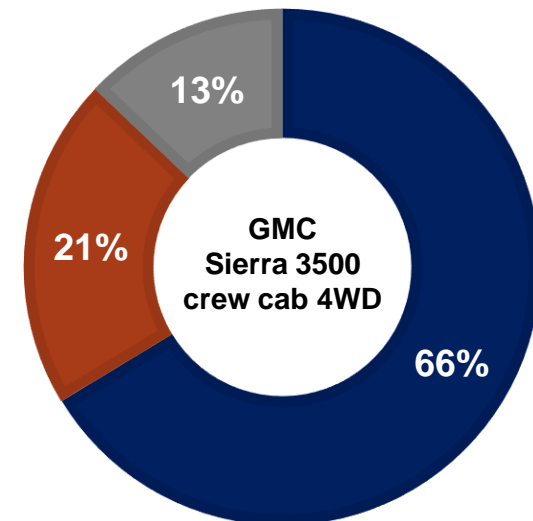
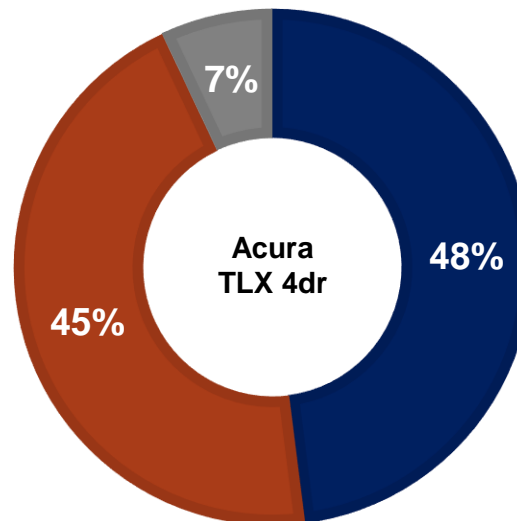
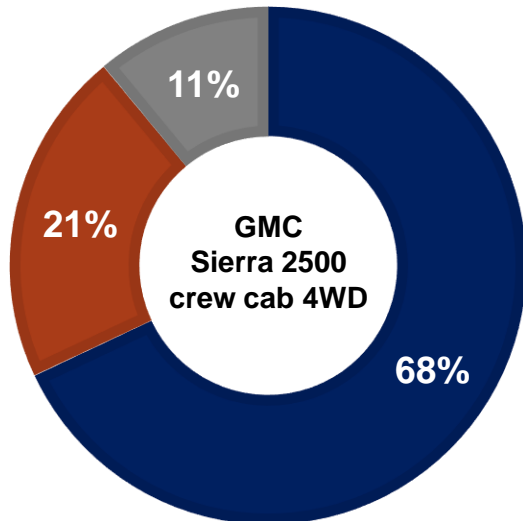
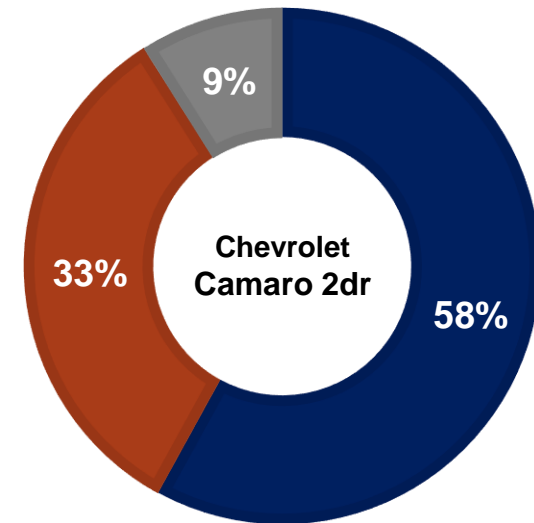
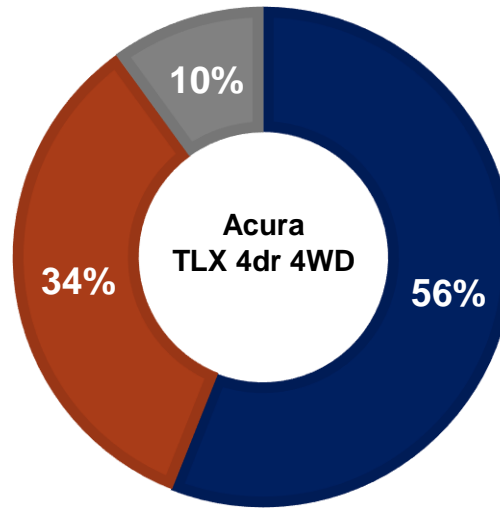
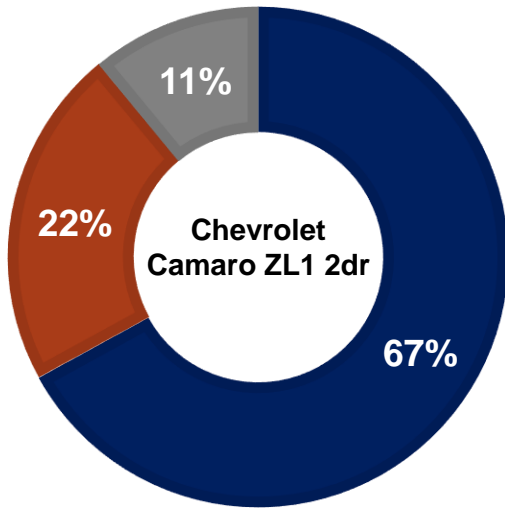
2022-24 passenger vehicles



= 0.45 claims per 1,000
insured vehicle years

Highest whole vehicle theft claim frequencies by gender

2022-24 model years



■ Male
■ Female
■ Unknown

Insurance Institute for Highway Safety
Highway Loss Data Institute

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See our webinar lineup
& register here



THANK YOU



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Chief Insurance Operations Officer

mmoore@hldi.org

