



What We Know About Current Crash Avoidance Technologies

Reaching Zero Crashes: A Dialogue on the Role of Current
Advanced Driver Assistance Systems

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Crashes relevant to 4 crash avoidance systems

FARS and GES, 2004-08

	all	injury	fatal
front crash prevention	1,165,000	66,000	879
lane departure prevention	179,000	37,000	7,529
side view assist	395,000	20,000	393
adaptive headlights	142,000	29,000	2,484
total unique crashes	1,866,000	149,000	10,238

Front crash prevention



Three flavors of automatic emergency braking

Speed reduction in 12 and 24 mph tests

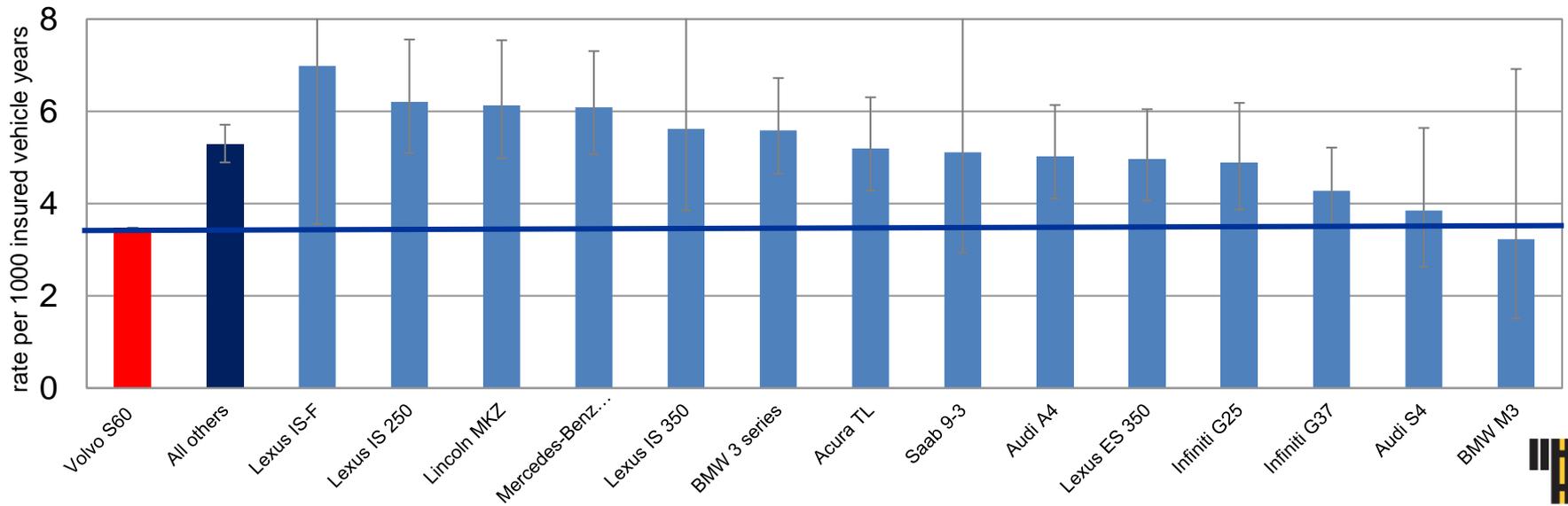
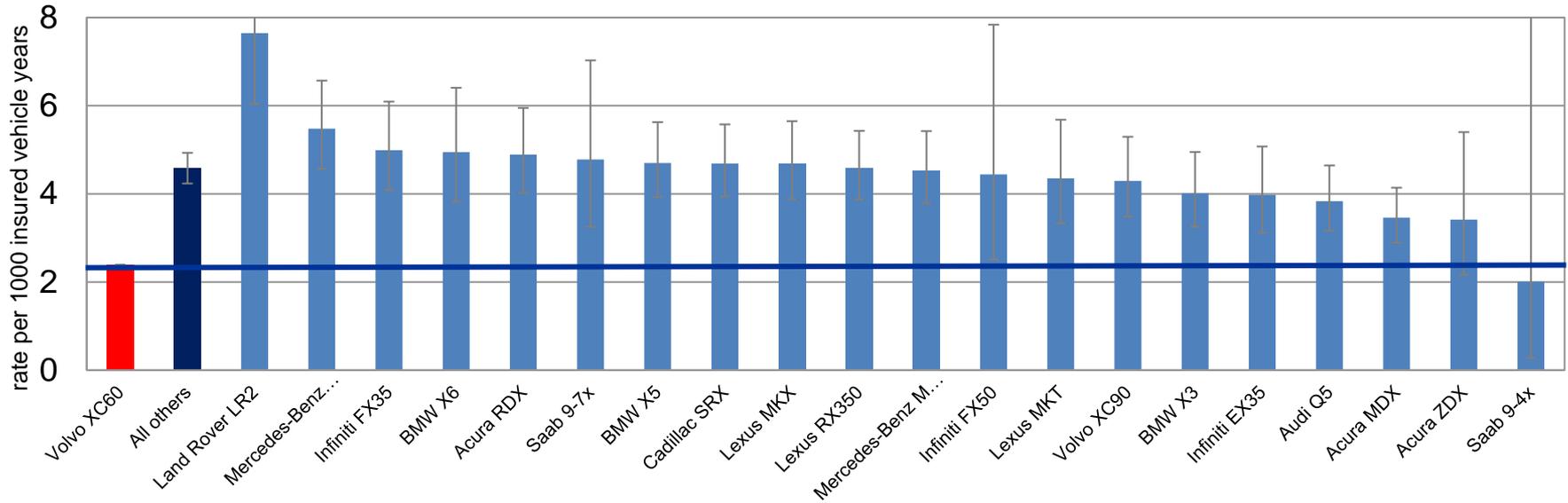
Volvo S60
2 point advanced

Dodge Durango
3 point advanced

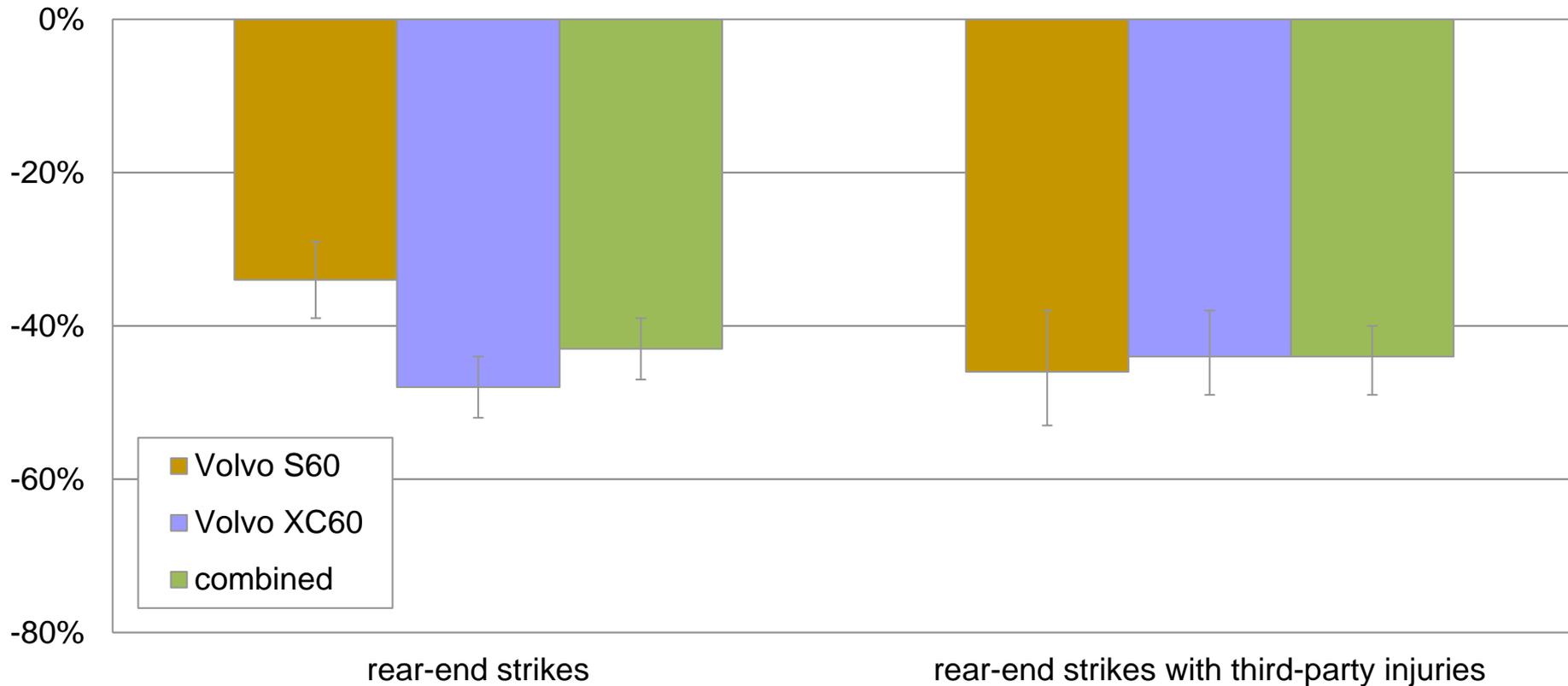
Subaru Outback
6 point superior



Rates of rear-end crashes for City Safety vs. other midsize luxury cars and SUVs

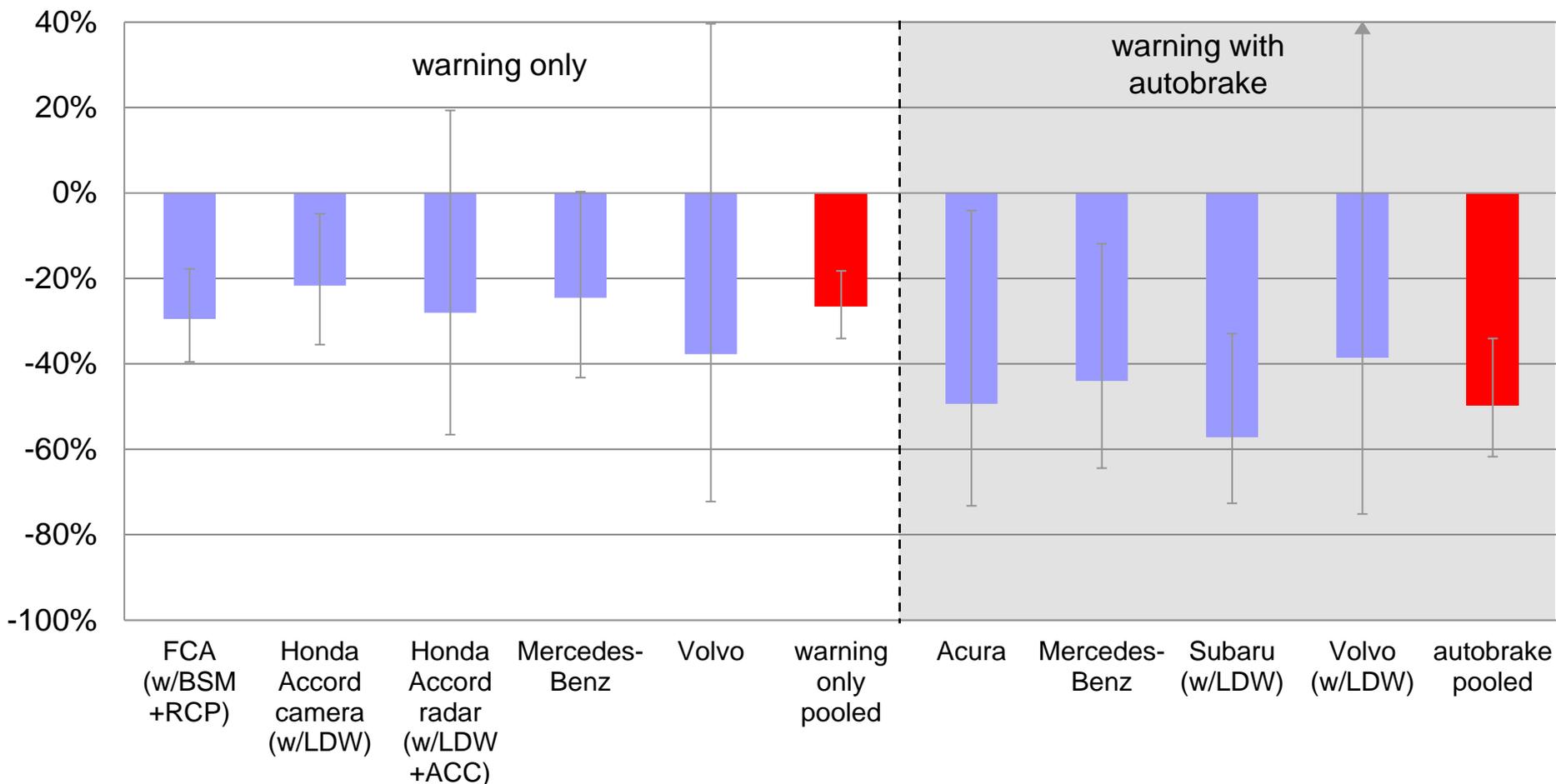


Percent difference in crash rates by crash type, Volvo S60 and XC60 vs. other midsize luxury cars and SUVs



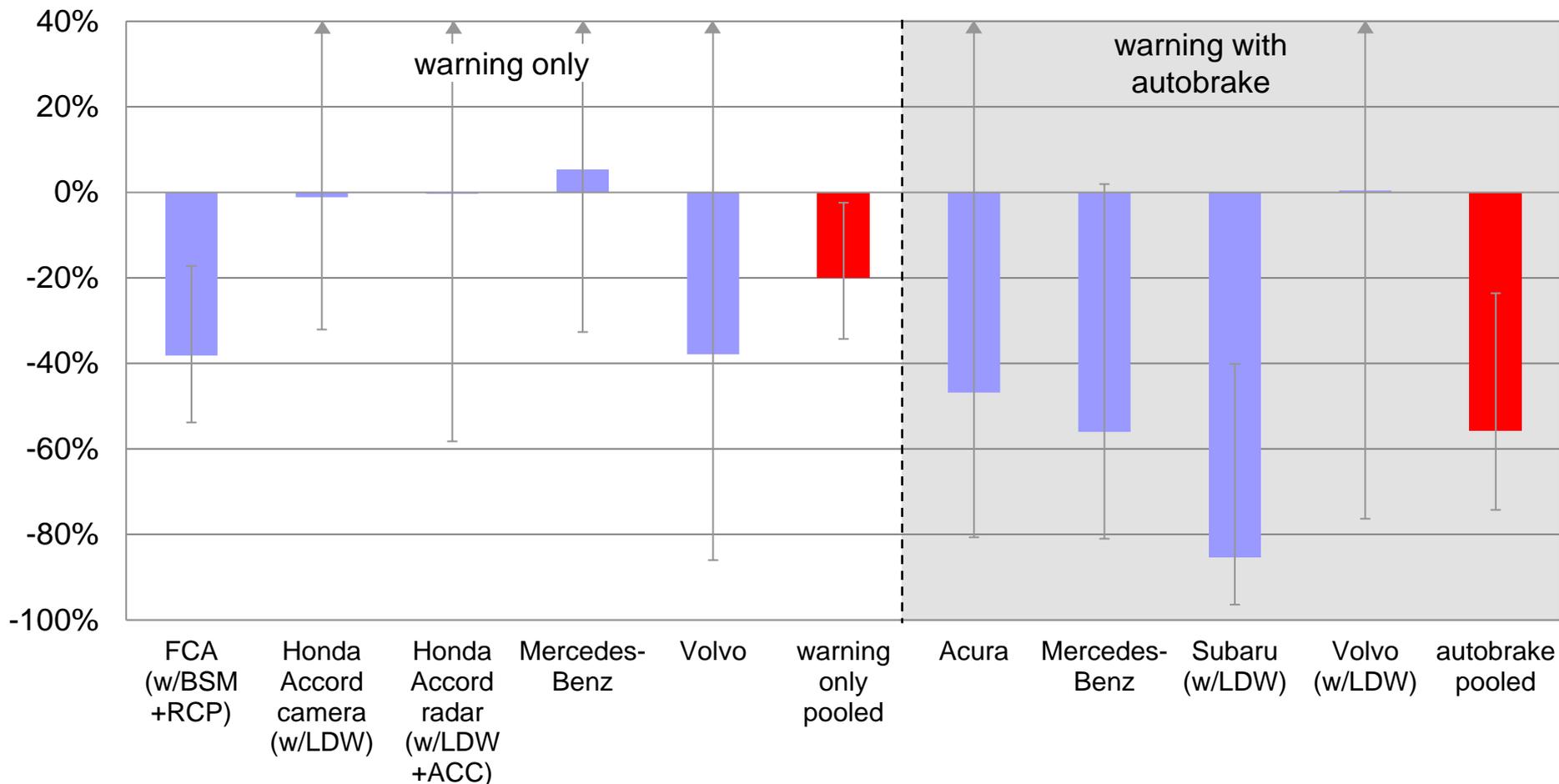
Front crash prevention systems are preventing rear-end crashes

Percent difference in crash rates – with FCP vs without



Front crash prevention systems are preventing injuries in rear-end crashes

Percent difference in crash rates – with FCP vs without



Front crash prevention effectiveness is reduced on slippery roads

**2014
Infiniti Q50**



Speed reduction

7 mph

**2015
Subaru Legacy**



6 mph

**2014
Volvo S80**



4 mph

Lane departure prevention

Driver use of lane departure warning

Honda vehicles observed in dealer service area

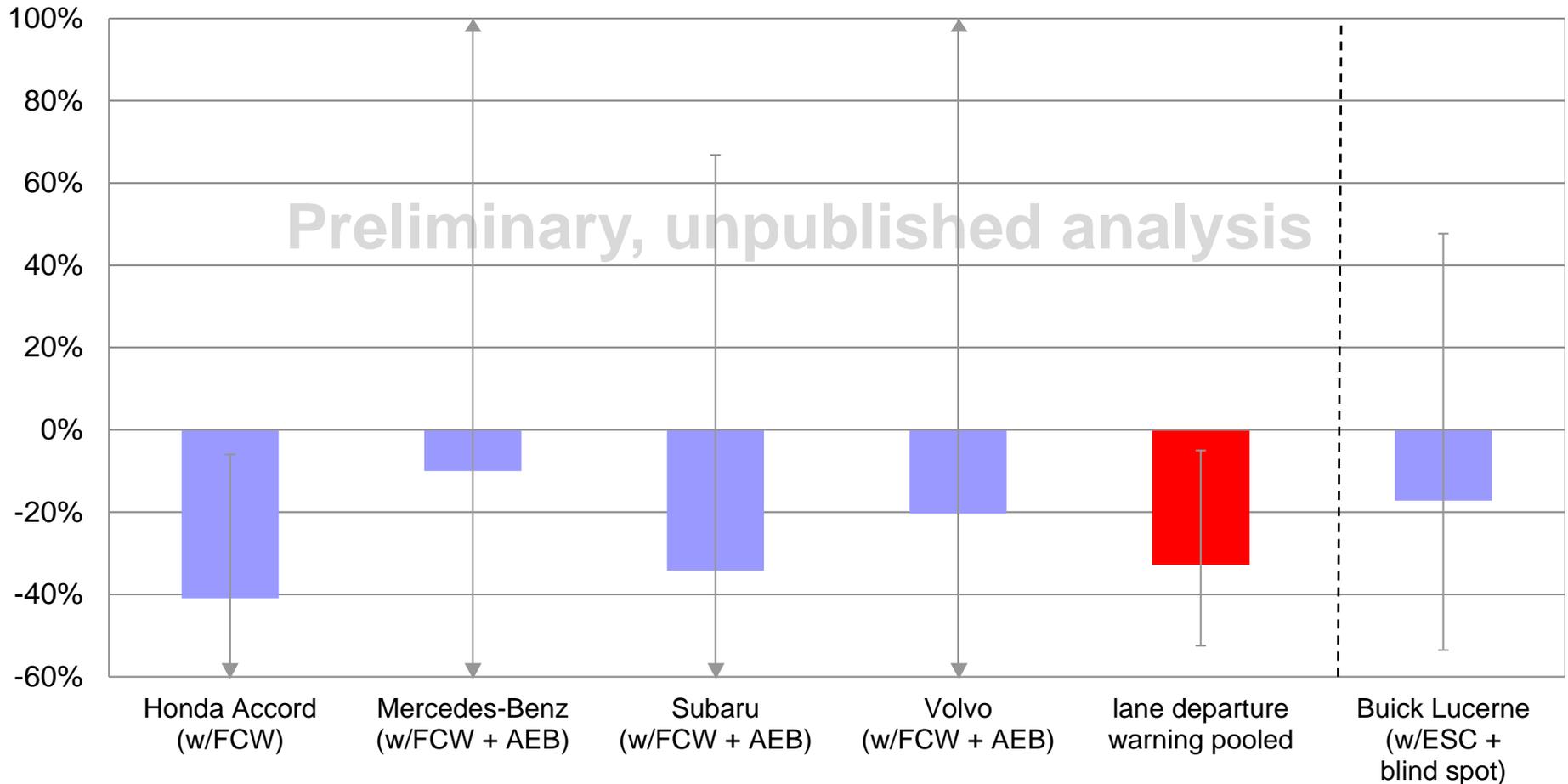


LDW turned on

	percent of vehicles with system activated
Accord	40 (n = 139)
CR-V	33 (n = 6)
Odyssey	25 (n = 120)
total	32 (n = 265)

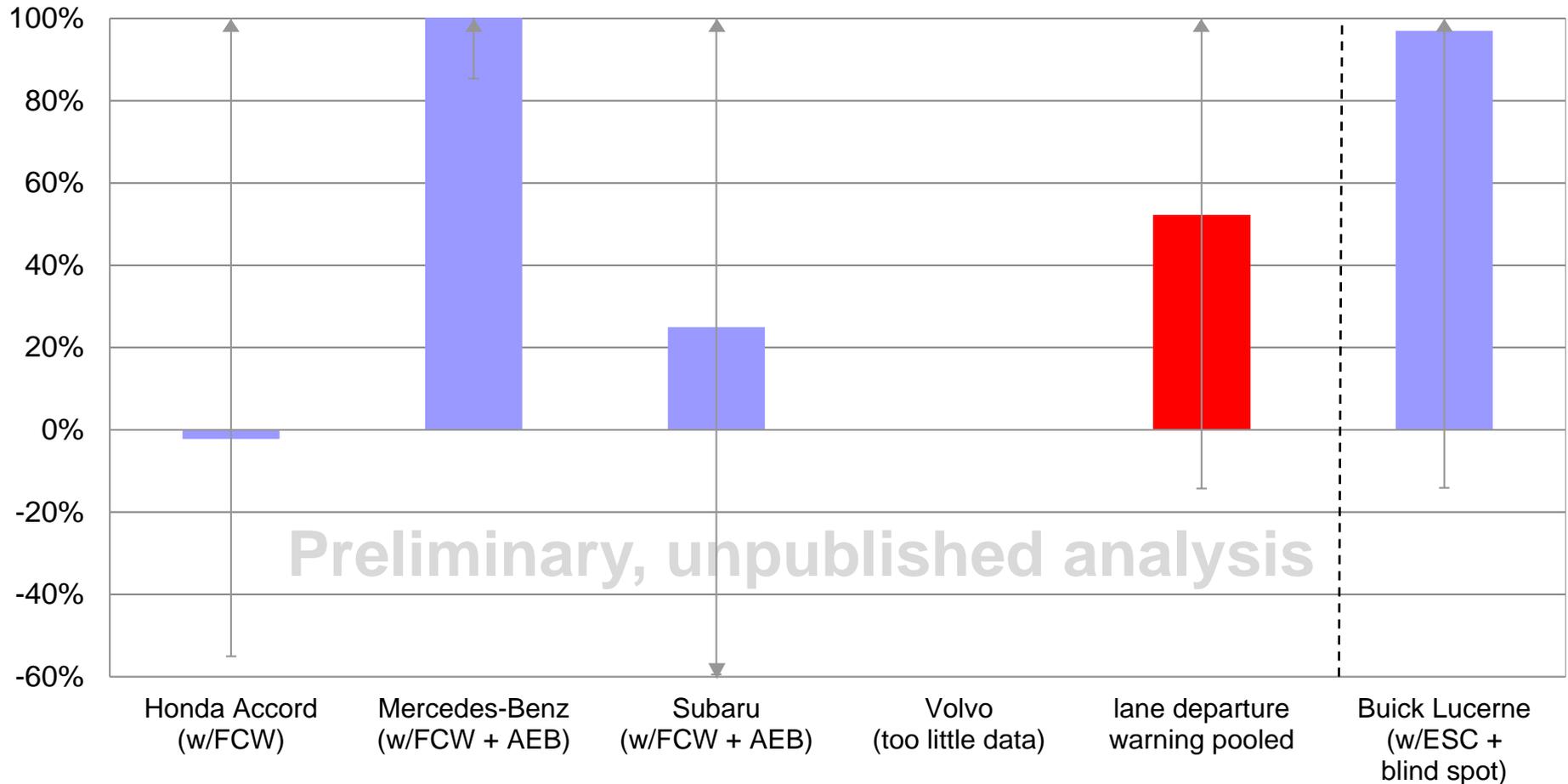
Lane departure warning systems may be preventing single-vehicle run-off-road and head-on injury crashes

Percent difference in crash rates – with LDW vs without



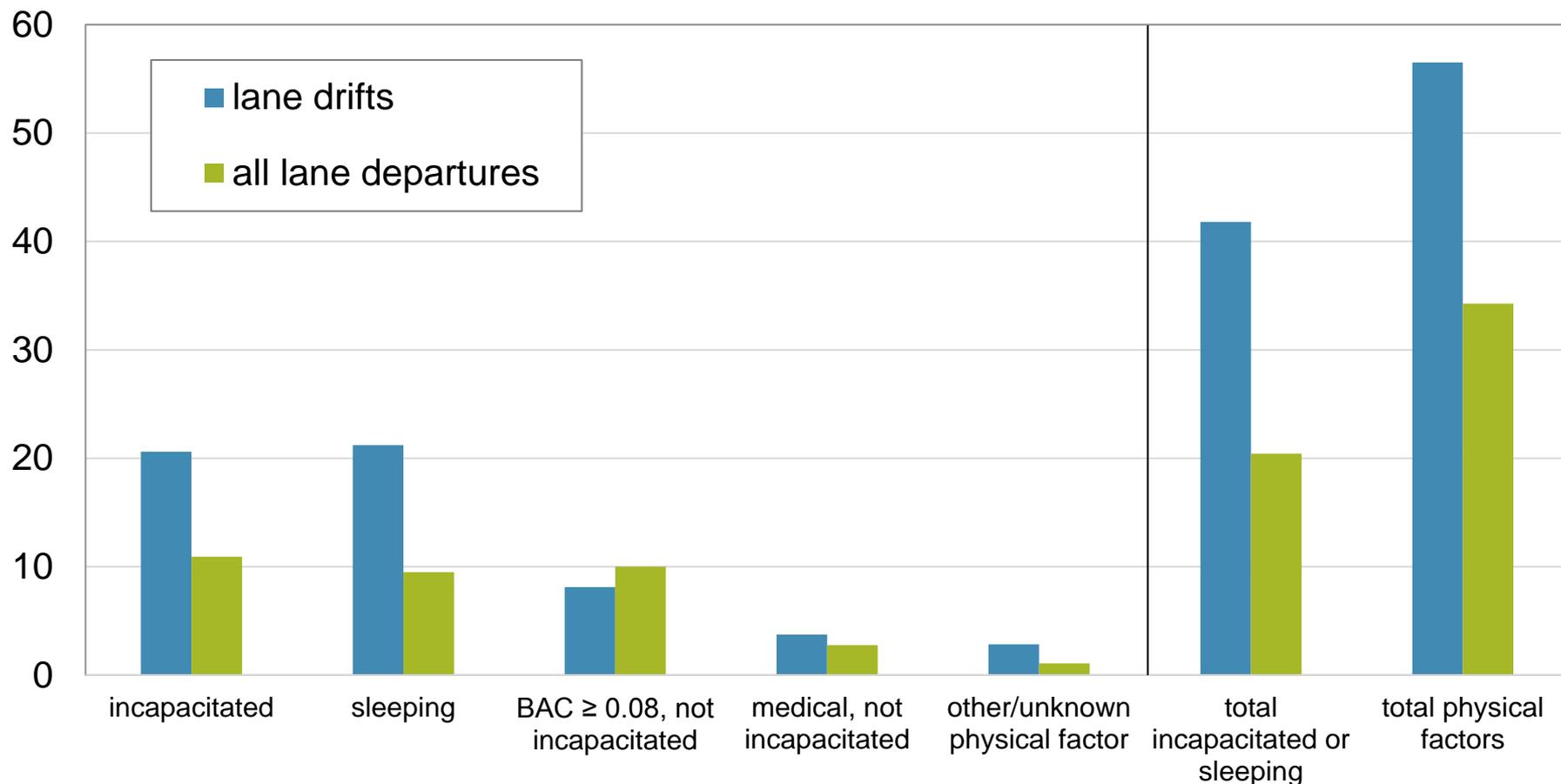
Effects of lane departure warning systems on sideswipe injury crashes, with no prior lane change

Percent difference in crash rates – with LDW vs without



Forty percent of drivers may not be able to respond to lane departure warnings

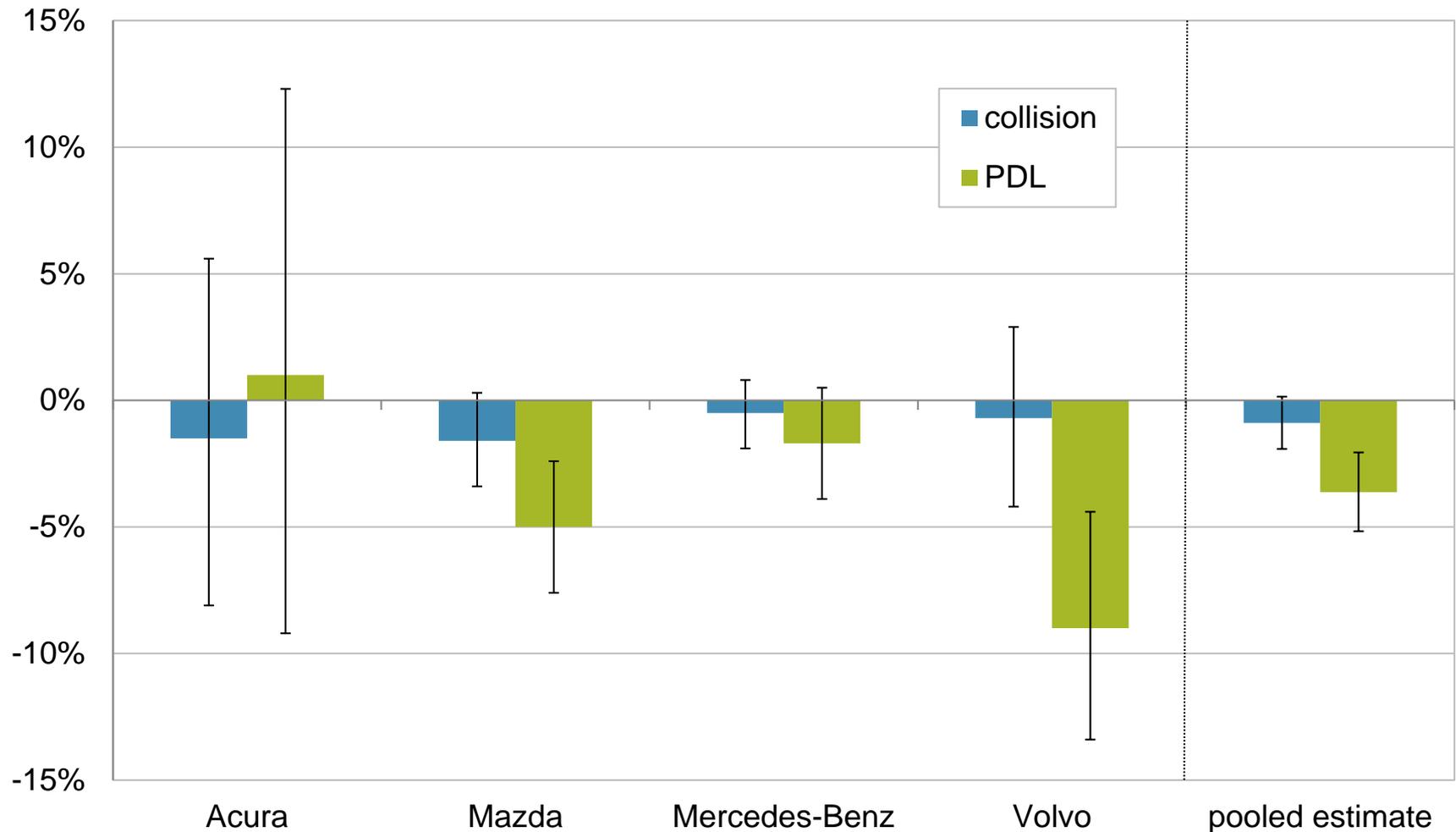
Weighted percent of crashes with serious injury or fatality



Advanced headlights

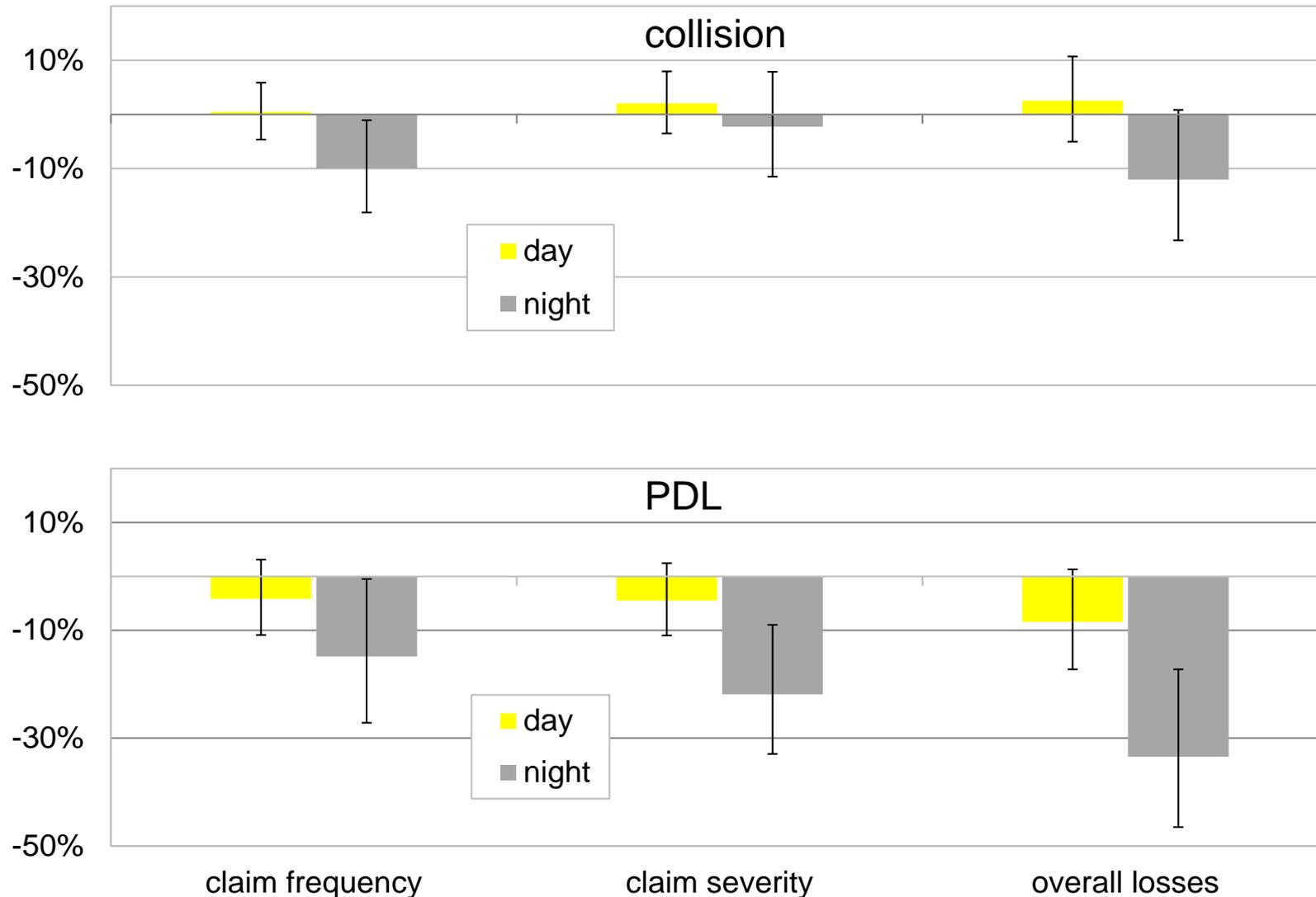
Adaptive headlights are preventing crashes

Changes in collision and PDL claim frequency by manufacturer



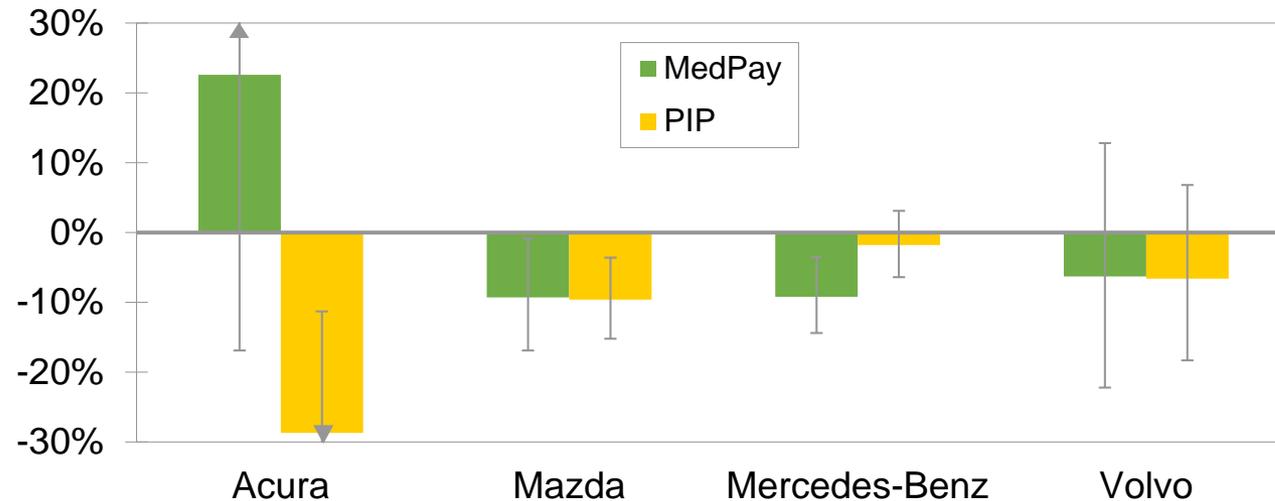
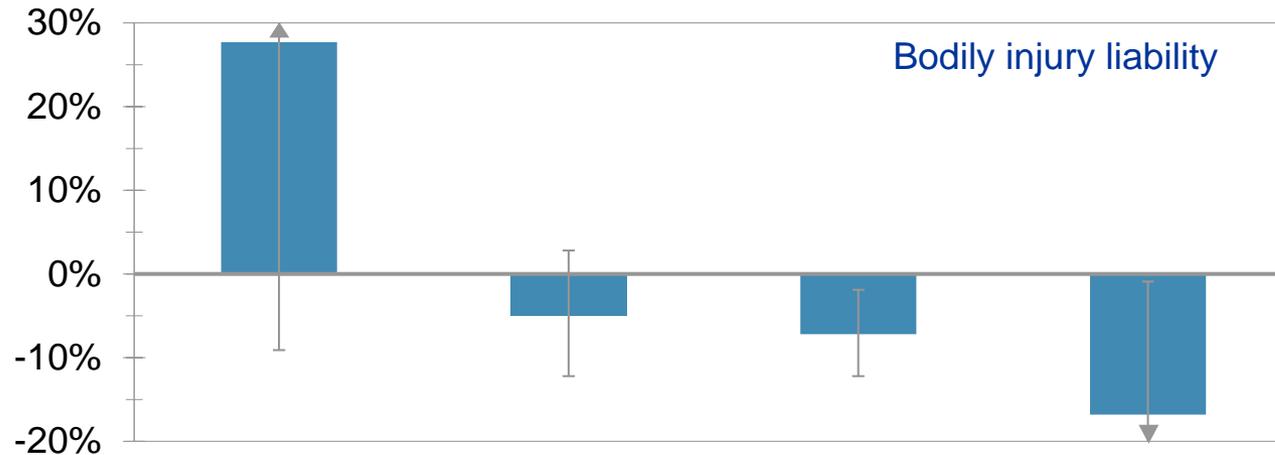
Adaptive headlights prevent nighttime crashes

Effect of Mazda AFLS on insurance losses by time of day



Adaptive headlights

Change in claim frequency

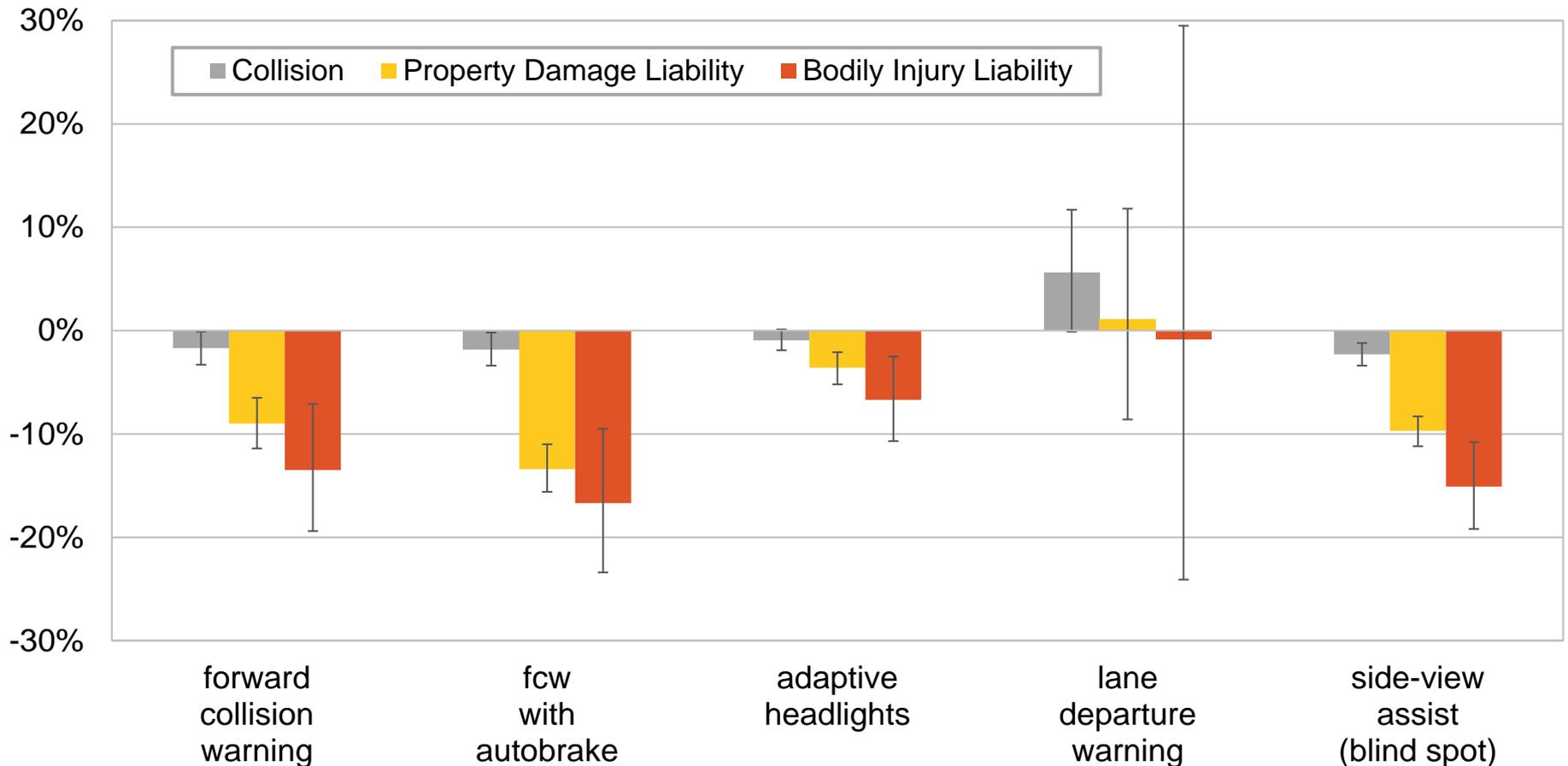




Are crash avoidance technologies preventing insurance claims?

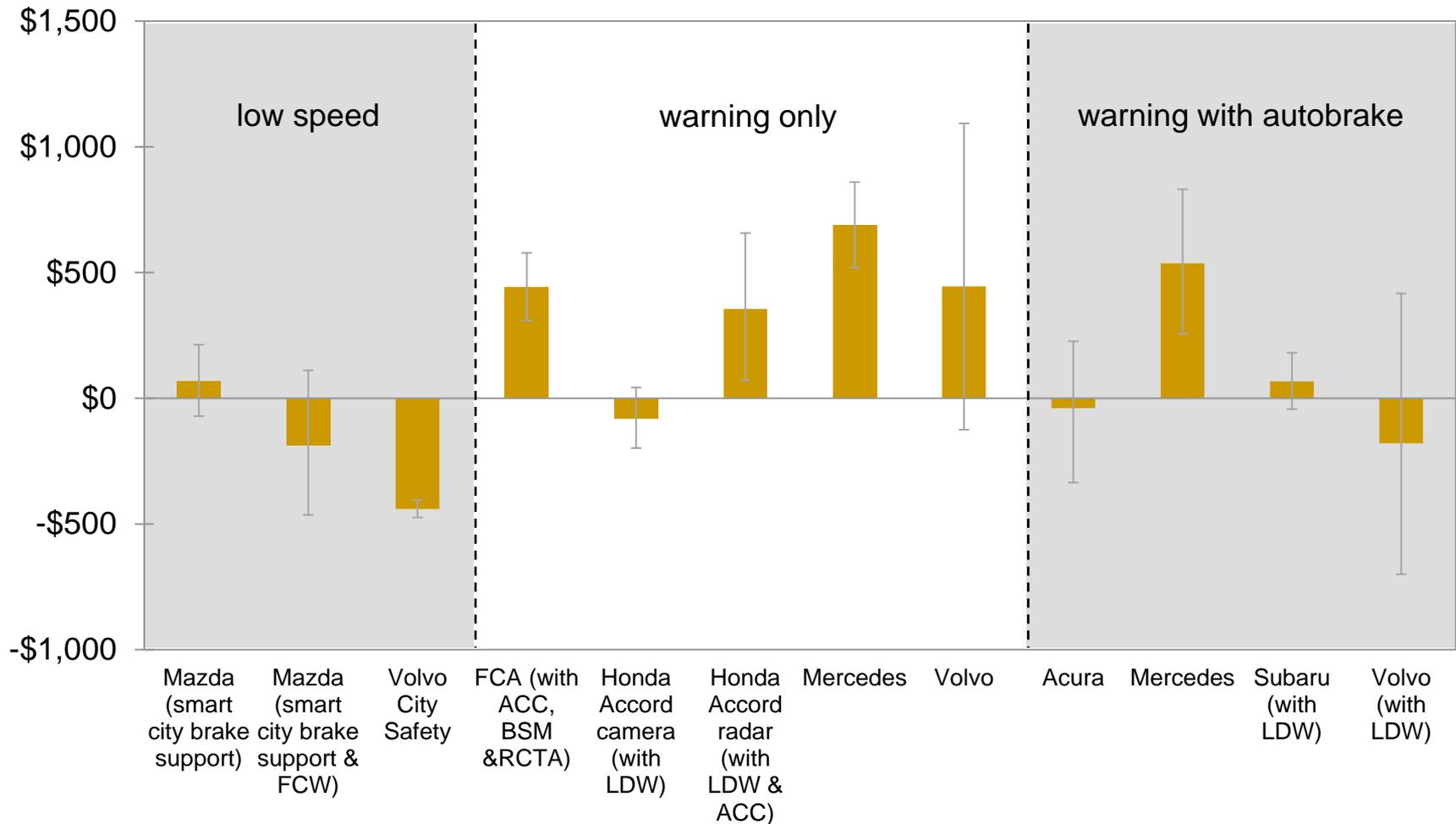
Summary of technology effects on insurance claim frequency

Results pooled across automakers



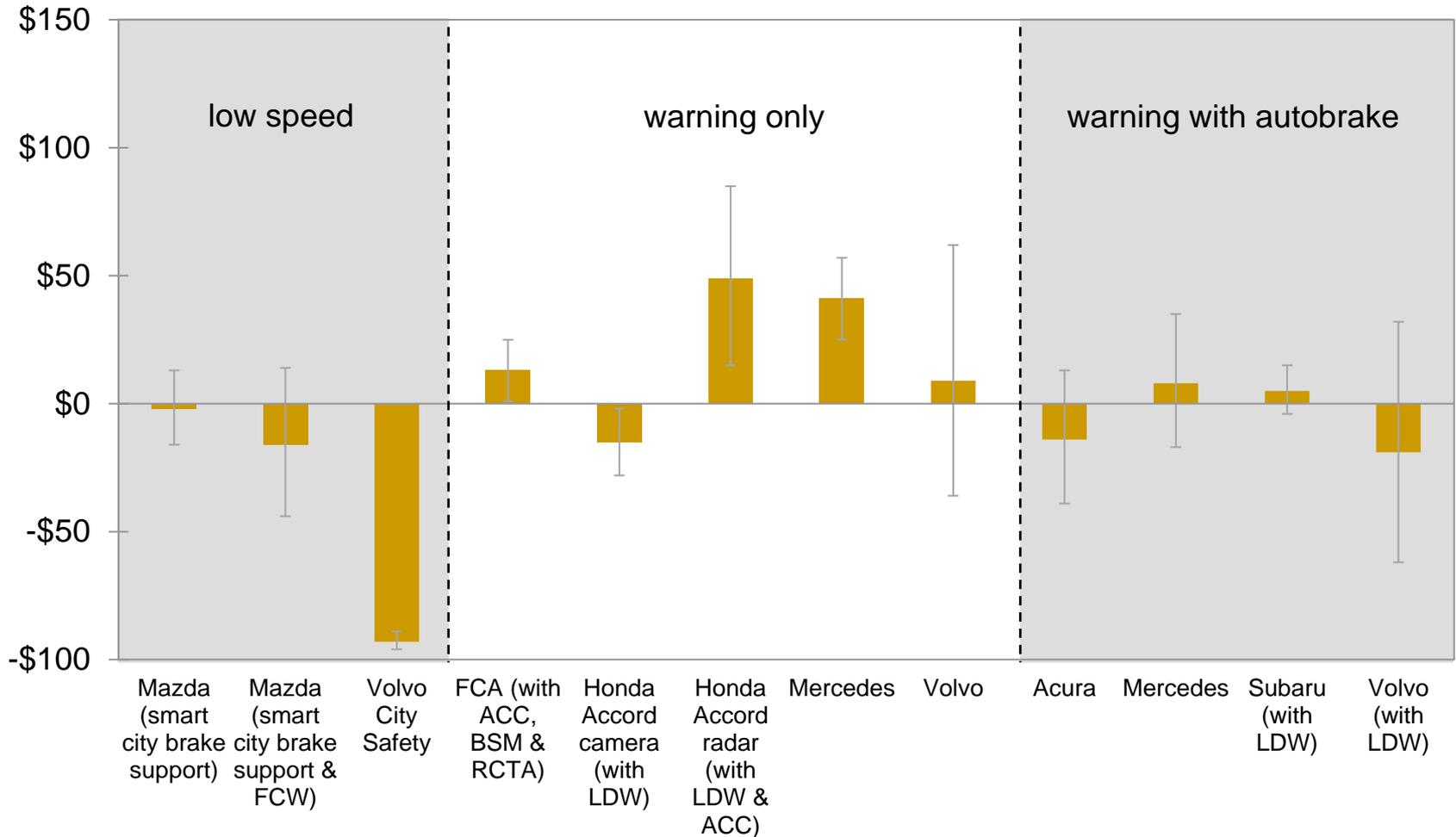
Front crash prevention systems

Change in collision claim severity



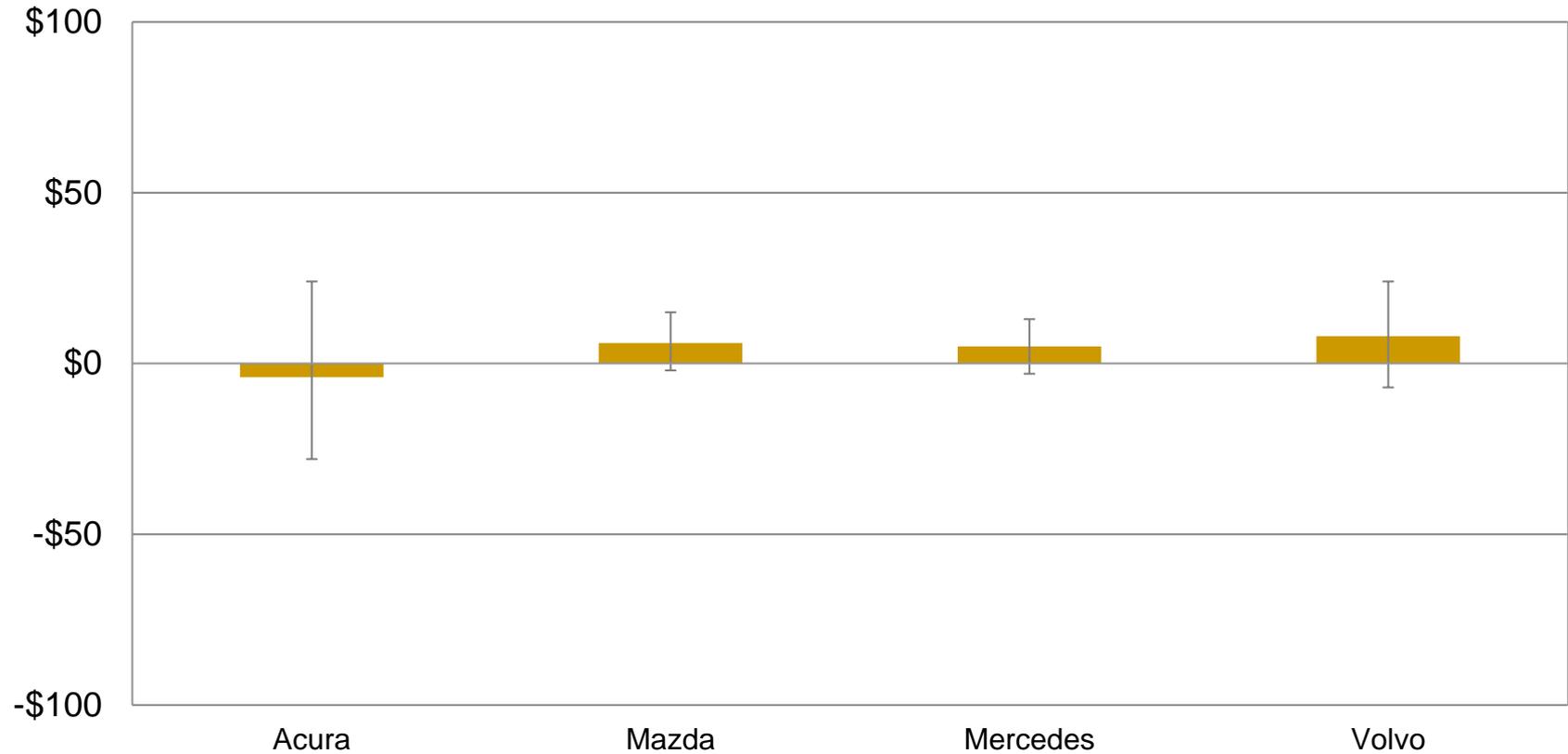
Front crash prevention systems

Change in collision overall losses



Adaptive headlights

Change in collision overall losses





Insurance Institute for Highway Safety
Highway Loss Data Institute

More information and links
to our YouTube channel
and Twitter feed at iihs.org

iihs.org

References

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- ▶ Effectiveness of forward collision warning and autonomous emergency braking systems in reducing front-to-rear crash rates, Cicchino, J.B., IIHS August 2016
- ▶ Prevalence of driver physical factors leading to unintentional lane departure crashes, Cicchino, J.B.; Zuby, D.S., IIHS August 2016
- ▶ Observed activation status of lane departure warning and forward collision warning of Honda vehicles at dealership service centers, Reagan, I.J.; McCartt, A.T., *Traffic Injury Prevention* 2016
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 - Volume 32, numbers 1, 7, 8, 22, 33
 - Volume 33, numbers 18, 19, 23, 26