Recallable Defects in Vehicles: 2008-2018 Case Study

Implications for the Vehicle Service Industry

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The team

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Car enthusiast with a knack for API calling.

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Slide maker git pushing it to the limit.

The problem

Context

Although less vehicle recalls might sound good for consumers, vehicle dealerships and service partners rely on vehicle recalls for profitability. “Selling maintenance to customers is a really big thing for dealers because their profit really comes from selling parts and services more than selling new cars” (Glinton, 2014).

Questions

Have the number of recallable defects in vehicles increased, decreased, or remained steady over a 10-year span? Have the types of recall issues transformed over the 10 year-span?

Implications

Dealerships that rely on recallable defects as an income stream might be impacted by the outcome of our analysis. If the number of recallable defects have increased, dealerships might find increased profitability. However, if the number of recallable defects have decreased, dealerships might be adversely impacted.

Deep-dive analysis

By Make

-What were the number of recallable defects by make?

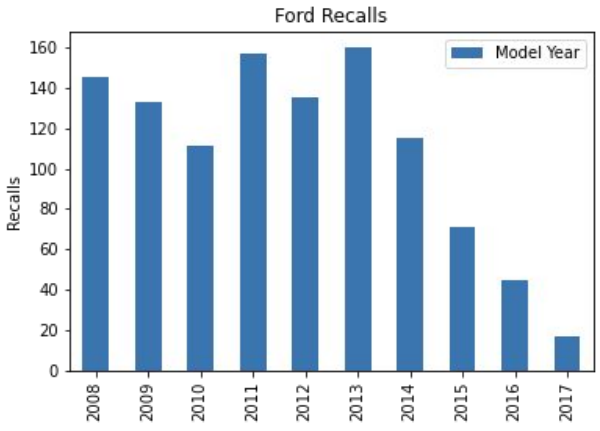
-Which top 5 makes had the most recallable defects?

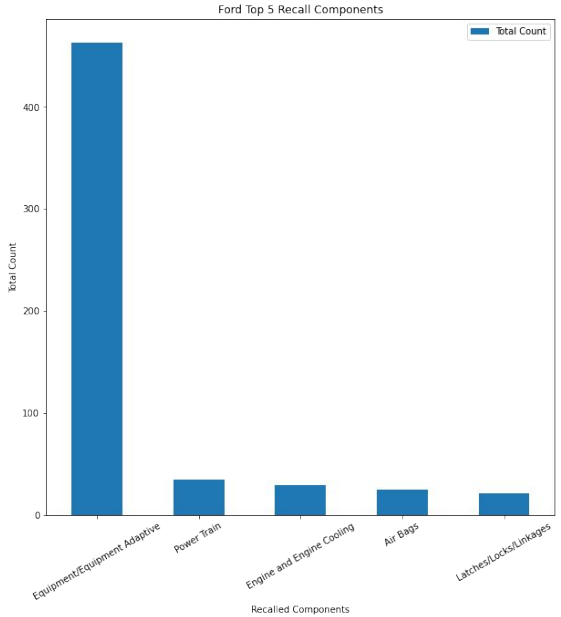
By Recall Component

-What were the top 5 recall components per make?

-Which makes had the most defects for the top 5 recall components?

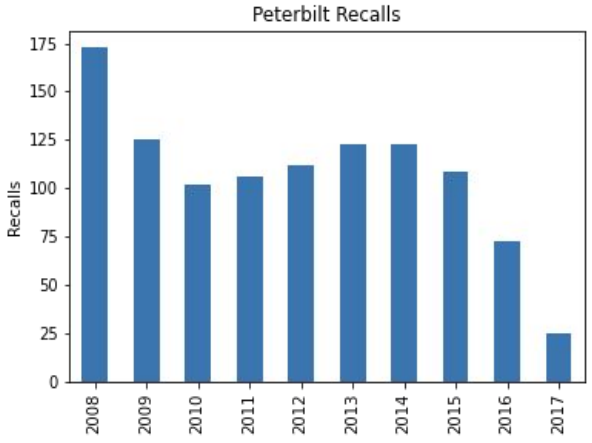
The top 5 makes with the most recalls & their top 5 recallable issues

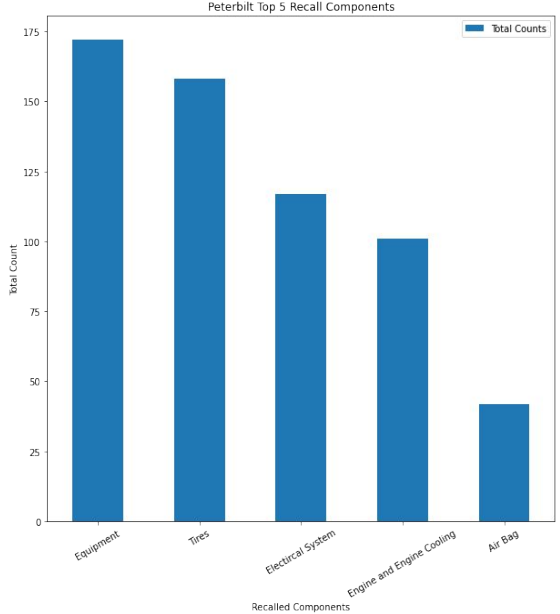




Ford

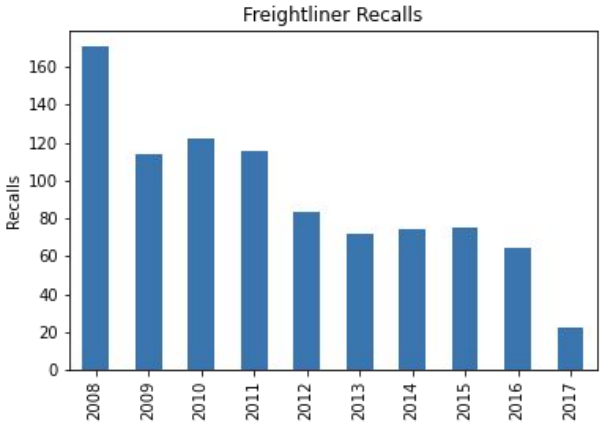
Ford’s recall trends demonstrate a slight reduction in recalls between 2008 - 2010, then a slight spike between 2011 - 2013 followed by a sharp reduction between 2014 - 2018. Overall, the number of recalls have trended downward. Their main drivers are related to Equipment issues.

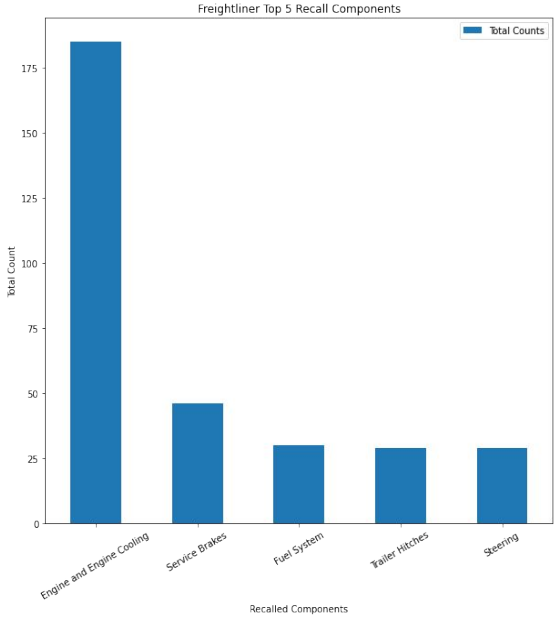




Peterbilt

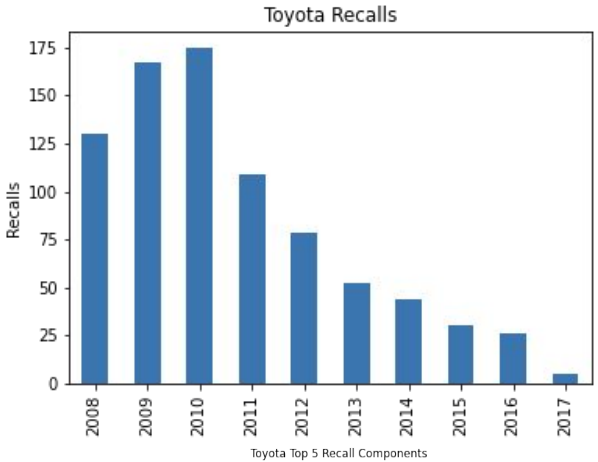
Peterbilt's recall trends demonstrate a sharp reduction in recalls between 2008 - 2010, followed by a slight spike between 2011 - 2014, and eventually another sharp reduction up to 2018. Overall, the number of recalls have trended downward. Their main drivers are related to equipment issues and tire issues.

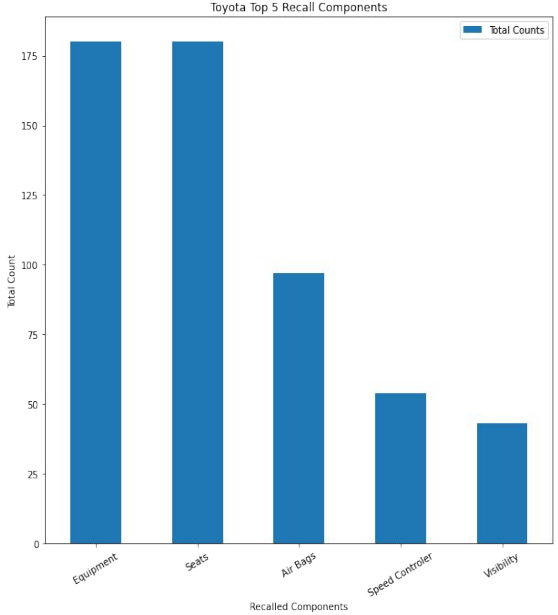




Freightliner

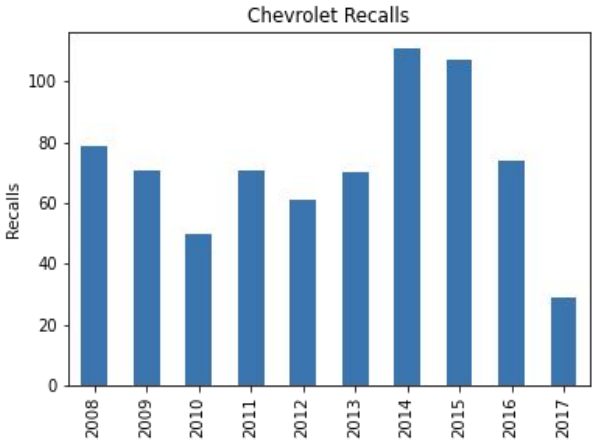
Freightliner's recall trends demonstrate a sharp reduction in recalls between 2008 - 2009, followed by another reduction between 2011 - 2012, and eventually followed by a sharp reduction between 2016 - 2018. Overall, the number of recalls have trended downward. Their main drivers are related to engine issues.

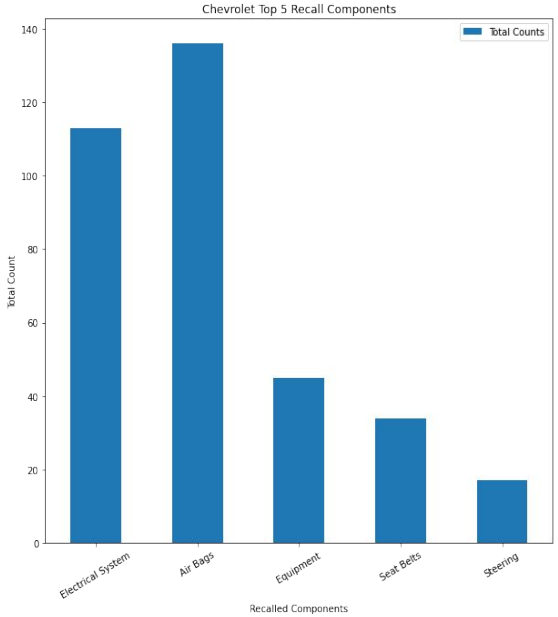




Toyota

Toyota’s recall trends demonstrate a slight spike in recalls between 2008 - 2010, followed by a sharp decline from 2011 onwards. Overall, the number of recalls have trended downward. Their main drivers are related to equipment issues and seat issues.

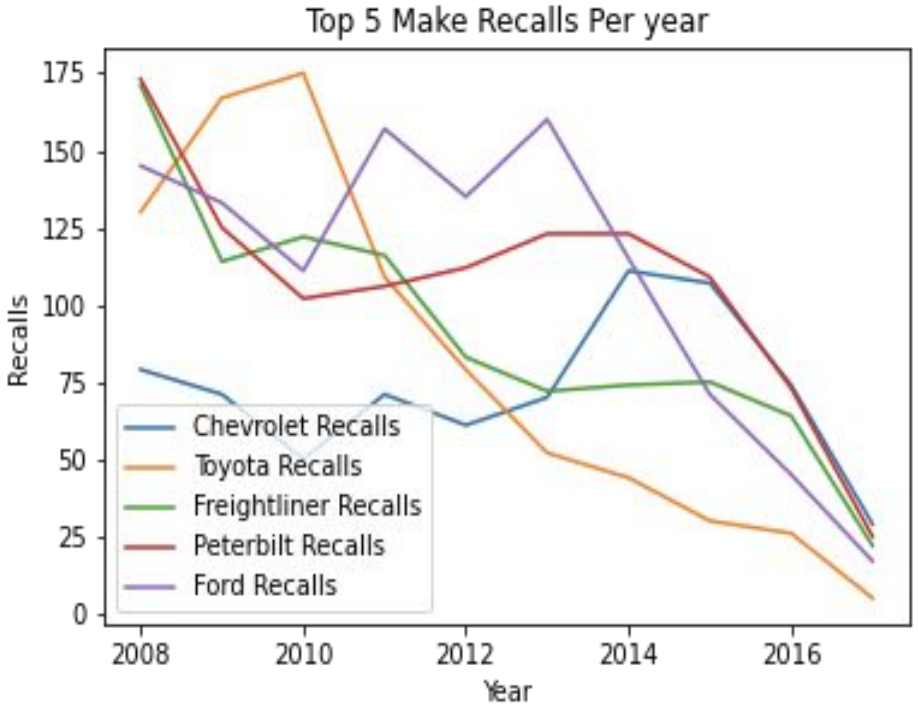




Chevrolet

Chevrolet's recall trends demonstrate a slight reduction in recalls between 2008 - 2010 with slight spikes through 2013, followed by a spike in 2014 and 2015, and eventually a sharp reduction between 2016 - 2018. Overall, the recall count has fluctuated but is trending downward. Their main drivers are air bag issues and electrical system.

Synopsis and Conclusion



Overall, the recall data demonstrates a sharp downward trend for the top 5 makes with the most recallable defects from 2014 onward. Of these makes, there were a total of 698 recalls (mean = 140) in 2008 and a total of 105 (mean = 20) in 2017. Although there were slight spikes for some makes between 2009 - 2013, the trend lines clearly show a reduction in recallable defects over the span of 10 years.

Conclusions

Our analysis does not imply that cars are safer now than they were in the past. Rather, the data demonstrates that the overall number of “recallable” defects decreased over time. Glinton (2014) mentions “most carmakers have lowered the bar for the kind of problems that'll have them sending you back to your local dealers.” The scope of this study did not evaluate the criteria for classifying recallable defects vs. non-recallable defects, therefore this data is insufficient to draw insights on overall vehicle safety. However, what we can conclude is that if NHTSA’s criteria changes to raise the bar, we might potentially have an increase in the number of recallable defects. Therefore, with what we have at this moment, car dealerships (who rely on recallable defects as a stream of income) may want to consider other streams of income based on the outcome of our analysis.

References

"Vehicle and Tire Recalls, 1967-Present." Published by NHTSA Office of Defects Investigation (ODI), Kaggle, National Highway Traffic Safety Administration, 7 Feb. 2017, www.kaggle.com/nhtsa/safety-recalls.

Glinton, Sonari. "As Carmakers Recall Vehicles, Dealers Might Make A Profit." NPR, NPR, 23 June 2014, www.npr.org/2014/06/23/324615178/as-carmakers-recall-vehicles-dealers-might-make-a-profit.