Pricing Analysis – Hastings Direct

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Introduction

7934

Total number of claims

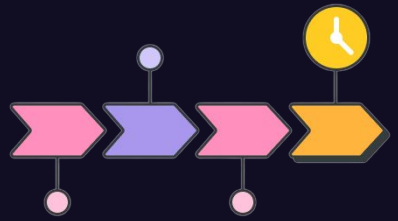
£2797.0

Average value of the claims without cap

£2589.7

Average value of the claims with cap

Before we continue



Policy years

- Data only shows policies started between **01/04/2018** and **31/03/2020**
- **2018** and **2020** only have partial data
- This makes it hard to make comparisons on a year by year basis.

To help this

- I have decided to categorise the policy started years into:
- **Year 1**: April 2018 → March 2019
- **Year 2**: April 2019 → March 2020

Yearly Trends

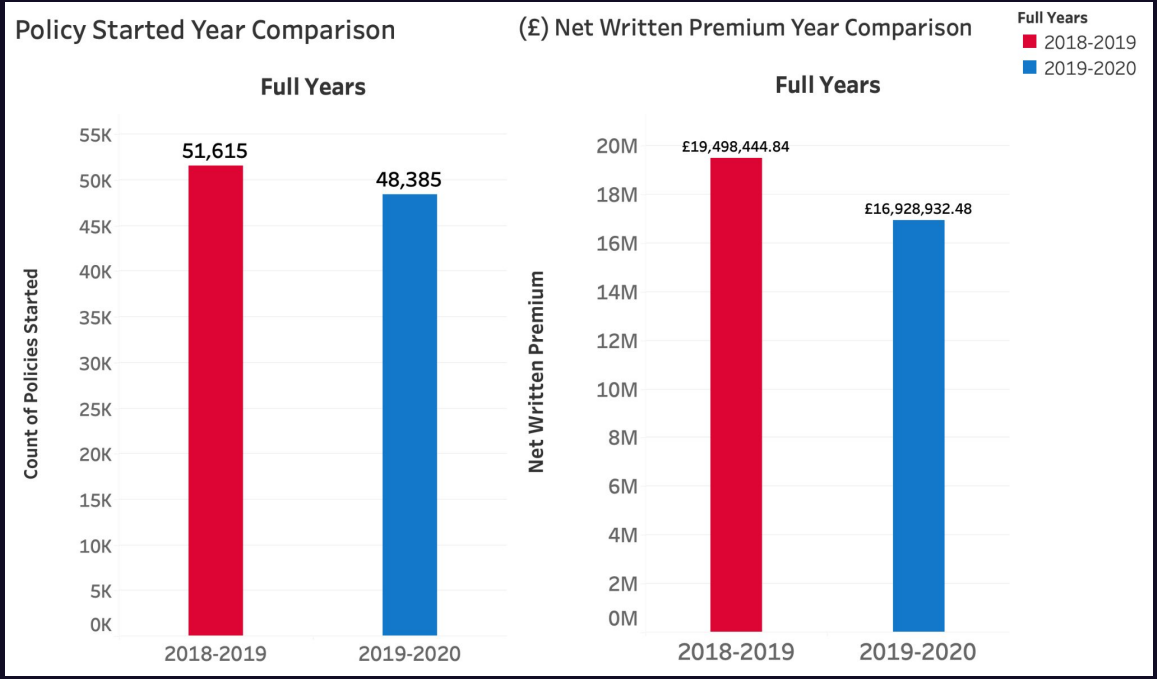


Figure 1: Number of policies started in year 1 and year 2

Figure 2: Total written premium in year 1 and year 2

- The graph in **figure 1** shows that in both years, there policies started around the 50k showing stability.
- The graph in **figure 2** shows written premium was around £18m mark.
- Overall, showing stability even with a slight dip.

Yearly Trends

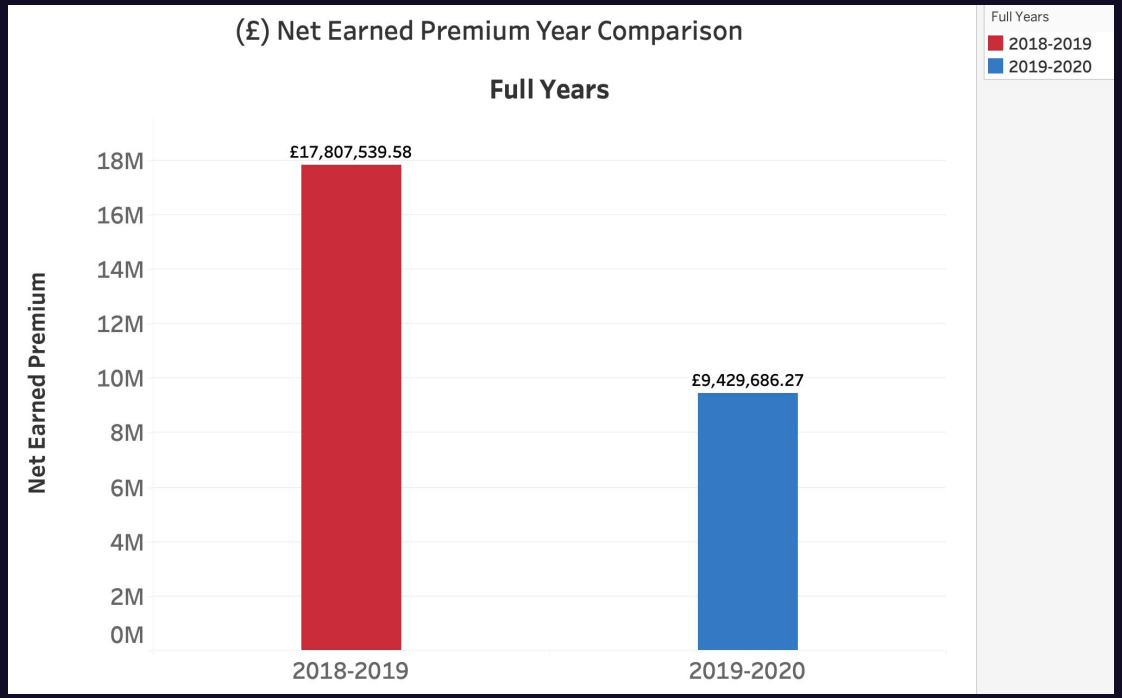


Figure 3: Total earned premium in year 1 and year 2

- The graph in **figure 3** shows that net earned premium dropped significantly.
- This data clearly indicates we are alarming more than half drop.
- Earned premium = written * exposure so let's look at exposure.

Yearly Trends

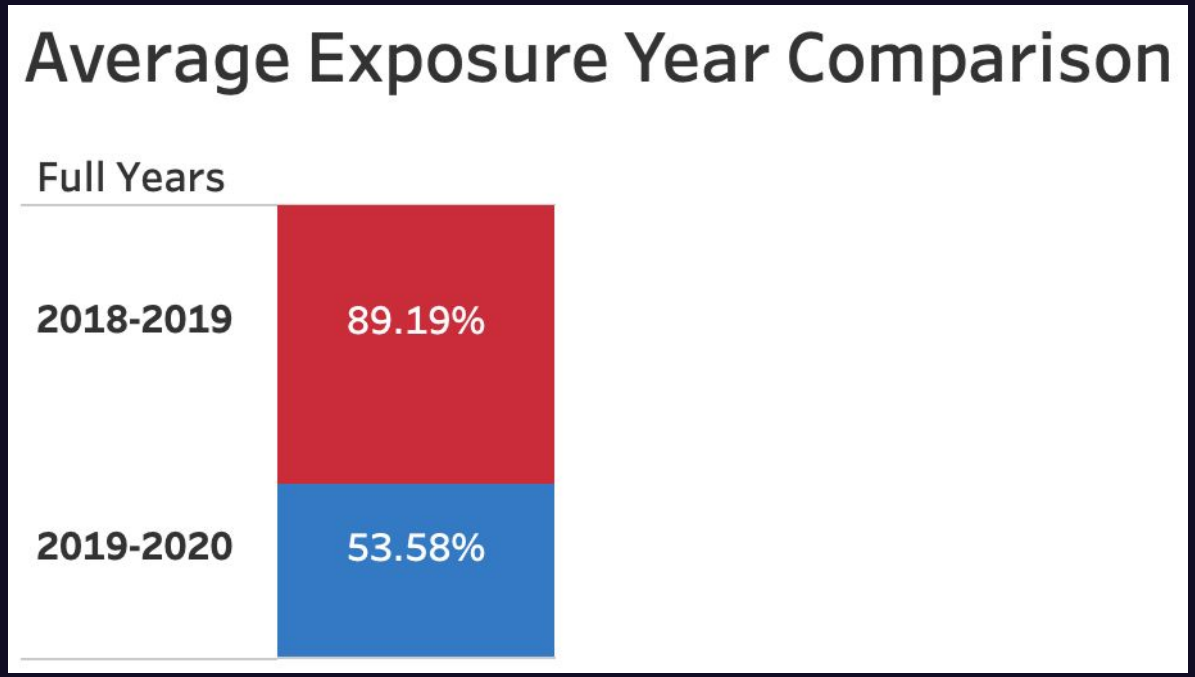


Figure 4: Average time customers stayed insured (Year 1 vs Year 2)

- This graph in **figure 4** indicates how much of the full policy the customer was exposed to.
- Year 1 to year 2 dropped significantly
- Why are customers not reaching their full policy year?
- Is it a simple nature of early policy?

Yearly Trends

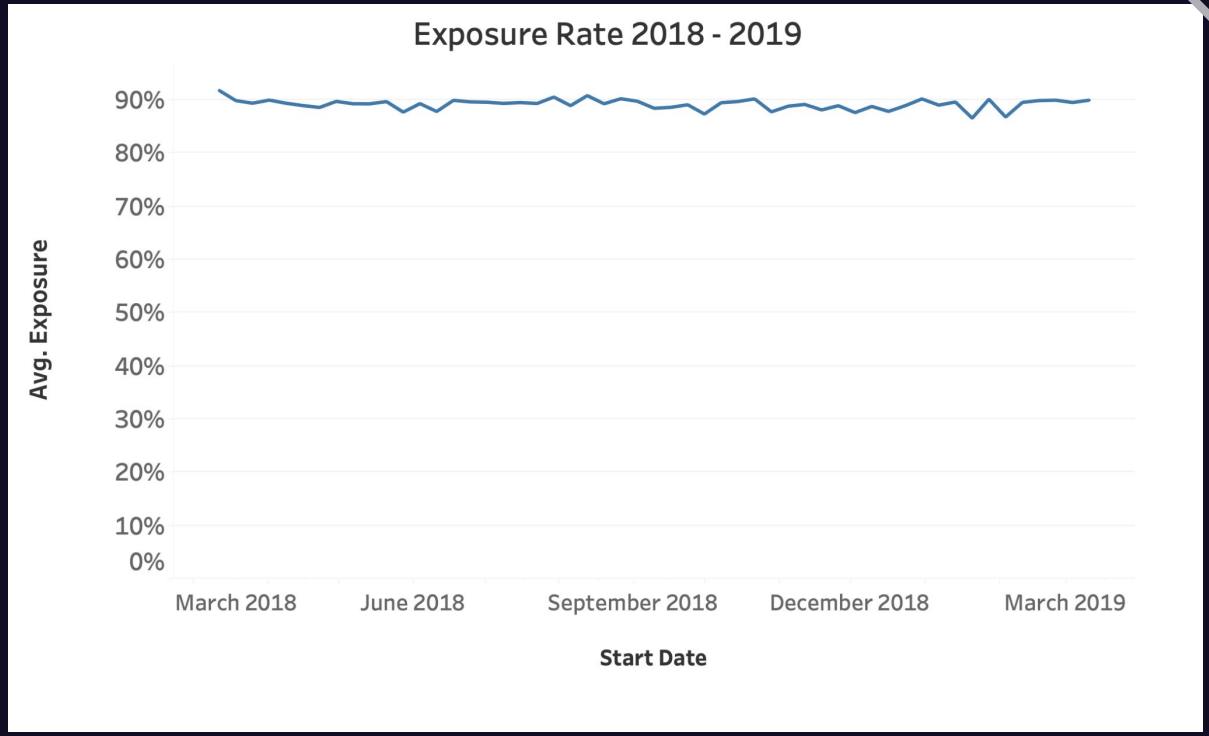


Figure 5: Average time customers stayed insured Year 1

- This graph in figure 5 indicates how much of the full policy the customer was exposed to in year 1.
- We can see a constant high exposure.

Yearly Trends

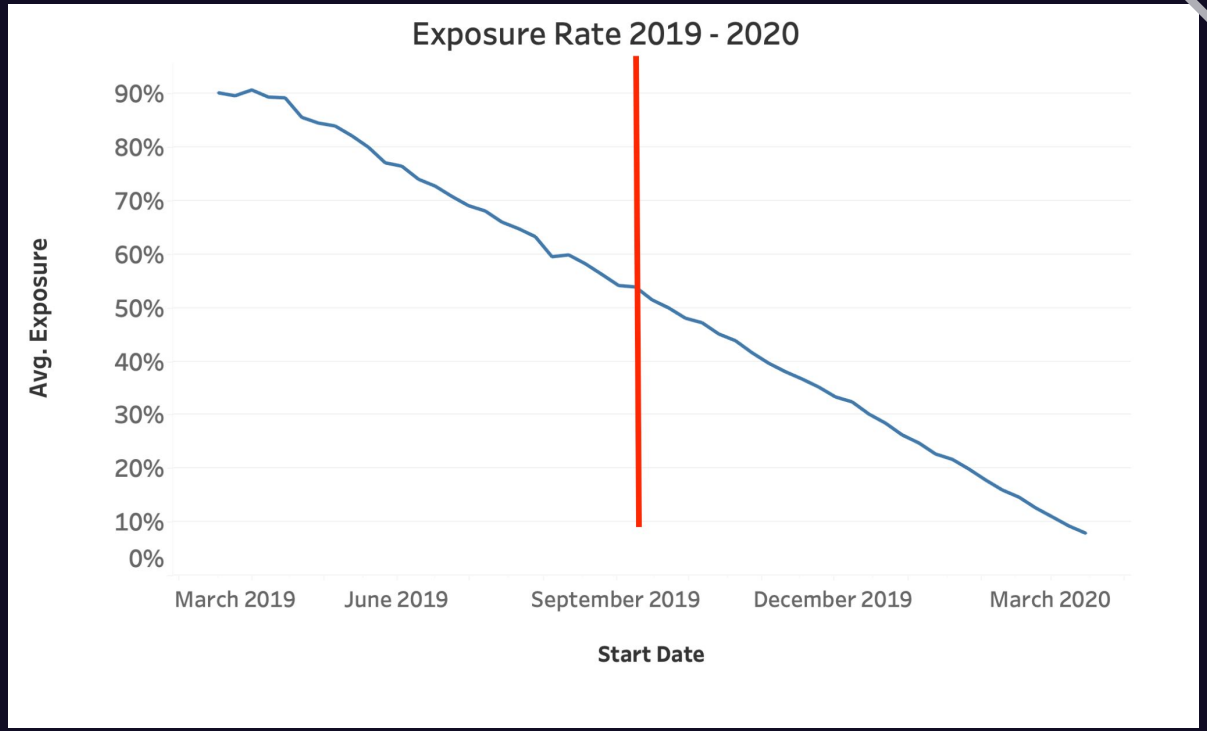


Figure 6: Average time customers stayed insured Year 2

- This graph in figure 6, is two half explanation
- Marked in the middle the cut off point.
- Why are customers before cut off not seeing full policy year?

Top 5 Predictors

Factor	Min Avg (£)	Max Avg (£)	Spread (£)	Median (£)
Vehicle Value	£0.1	£49,995.0	£49,994.9	£1,056.7
Vehicle Annual Mileage	£22.8	£35,166.8	£35,144.0	£937.2
Vehicle Age	£1,247.8	£12,484.1	£11,236.4	£1,315.1
Vehicle Make	£50.0	£8,573.3	£8,523.3	£866.4
Business Provider	£130.1	£6,159.9	£6,029.8	£916.3

Table 1: Factors with the biggest spread among claims

- Vehicle Value is the most important predictor, with claim size ranging from nearly £0 to ~£50k, reflecting how expensive vehicles lead to far higher repair or replacement costs.

- Annual Mileage, Vehicle Age, and Vehicle Make also show clear differences in claim size (spreads between £8k–£35k), highlighting that usage, age of the car, and manufacturer all influence average costs.

- Business Provider still shows a meaningful spread (~£6k), suggesting differences in how policies are underwritten or the customer base they attract.

Bottom 5 Predictors

	Avg (£)	Spread (£)	Median (£)
Entitlement	£2,727.0	£3,546.1	£819.2	£894.6
D1 Is Uk Resident	£2,992.6	£3,763.6	£771.0	£978.2
Overnight Location	£2,996.4	£3,752.6	£756.2	£826.5
Gender	£2,775.6	£3,304.3	£528.7	£797.3
Pncd	£2,806.1	£3,272.1	£466.0	£788.8

Table 2: Factors with the lowest spread among claims

- These factors (e.g. Gender, PNCD, UK residency) show very small spreads in average claim size, meaning they don't strongly influence the size of individual claims.

- Overnight Location and Entitlement also show limited variation, suggesting they may impact claim frequency more than claim severity.

- Overall, these fields are weak predictors of claim size and add little value compared to stronger factors like Vehicle Value or Mileage.

Missing Data

Field	Missing (%)
Is Capped Incurred	92.58%
Incurred	92.58%
Capped Incurred	92.58%
Property Damage Count	92.58%
Bodily Injury Incurred	92.58%
Accidental Damage Incurred	92.58%
Property Damage Incurred	92.58%
Theft Incurred	92.58%
Windscreen Incurred	92.58%
Bodily Injury Count	92.58%
Accidental Damage Count	92.58%
Windscreen Count	92.58%
Theft Count	92.58%
Primary Car Colour	16.26%
Transmission	0.78%
Vehicle Make	0.78%
Region	0.14%
Net Earned Premium	0.02%
Licence Test Date	0.01%

- All **capped incurred** columns show ~ 92.6% missing values
- They are missing when when a claim doesn't happen. That's expected and not a real issue.
- These were filled with 0's if no claims are made.

Other Missing Fields

- **Net Earned Premium** is small in % but important financially Even though it's only 0.02%, these rows could raise profitability
- **Other categorical fields** were missing at quote stage, so I treated them as 'Missing' categories.

Figure 7: How much information is missing for each category

The dataset as a whole

- **Dummy dataset** – provided for the test, so results show approach rather than real outcomes
- **Time period** – covers 2018–2020, but 2018 and 2020 are only partial years
- **Volume of claims** – 7,934 in total, enough for patterns, but some small groups are unreliable
- **Exposure** – Year 2 exposure incomplete as later policies hadn't fully developed by the 30/09/2020 cut-off
- **Missing data** – most incurred fields empty when no claims, some categorical gaps, very small gaps in premium
- **Missing columns** – IPT and commission were missing from data. No insights drawn.
- **Outliers** – odd values like negative vehicle age, extreme mileage, and unrealistic driver ages were corrected
- **Overall:** The dataset is suitable for pricing analysis, but is best viewed as a proof of concept; conclusions should be treated with caution.

Section - 02

Quote Price

Final Quote Price - £102.50

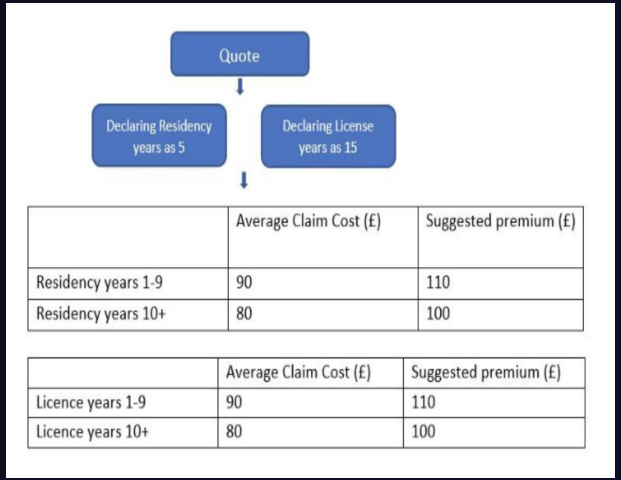
- Residency (5 years) → claim cost £90
- Licence (15 years) → claim cost £80
- Together, this implies a baseline claim cost of ~£85.

- Licence years is a stronger predictor of risk

- Adjusting towards licence weight, I set the effective claim cost at £82.50.

- Hastings typically loads ~£20 above claim costs

- Final Quote Recommendation: £102.50 – fair to the customer, consistent with Hastings' pricing principles.



	Average Claim Cost (£)	Suggested premium (£)
Residency years 1-9	90	110
Residency years 10+	80	100

	Average Claim Cost (£)	Suggested premium (£)
Licence years 1-9	90	110
Licence years 10+	80	100

Section - 03

Micro mobility

E-Cargo Bike Insurance

Micro Mobility

Opportunity Size

- The UK micro mobility market is projected to reach USD 20.89 billion by 2035.
- TfL Cargo Bike Action Plan aims to make cargo bikes a leading option for last-mile urban freight.
- TFL predicts 17% of van kilometres in central London could be replaced by 2030 .

Pros and Cons

- **Booming Market** – TfL projects 17% of van miles could be replaced by cargo bikes by 2030
- **Customer need** – SMEs and logistics firms with high-value bikes (£3k–£10k) require protection.
- **High theft risk** – Especially in London and dense urban areas, where bike crime is already a major issue.
- **EAPC* saturation** – Market for EAPCs is already crowded, meaning Hastings must carefully differentiate.

EAPC = Electrically Assisted Pedal Cycle

E-Cargo Bikes

Best/Worst Risk Areas

- **Low-crime postcodes** with secure storage and CCTV.
- **Corporate bikes** used for organised deliveries rather than casual use.
- Urban centres with **high theft rates** and **limited secure parking.**
- **Small businesses without risk controls**.

Hastings Link

- Leverage motor **expertise and reputation**
- **First-mover edge –** Hastings to capture SMEs early before the market scales.
- **Business Insurance –** Hastings should initially target business use cargo bikes (£3k–£10k)
- **Competitive pricing –** Rivals charge £300–£400 annually; Hastings could undercut.

References

- **Reports & Articles**
  - TfL (2023). Cargo Bike Action Plan.
  - TfL (2023). London's first Cargo Bike Action Plan launched.
  - Market Research Future (2025). UK Micro Mobility Market.
  - Pedalsure (2025). Cargo Bike Insurance.
  - eBay UK (2025). Electric Delivery Cargo Bike.

- **Images**
  - Schaeffler (2025). Cargo bike press release image.
  - Westbury, R. (2021). Insurance policy image.
  - Hastings Direct logo – via X (2025).
  - Nulab (2025). Project timeline graphic.

THANKS!

Github repo:
https://github.com/KemalYukselir/hastings-task

Commit History:
https://github.com/KemalYukselir/Hastings-Task/commits/main/

Tools Used:
Google Slides, Python, Tableau