

Olist Seller Analysis

Background

Olist is a Brazilian e-commerce company that helps small businesses sell goods to customers. 📧

The customers can then leave reviews for their orders from the sellers. ★

Due to poor reviews (and some other factors), some sellers end up costing Olist quite a bit of money. 👎

How can olist minimize these costs ?

🌟 This analysis used the **public Olist dataset**, which contains data for 100k+ orders from 2016-2018

Olist should remove the worst performing sellers from its platform 😬



Notice the huge cost! Our goal is to:

- find which sellers are contributing the most to the cost
- identify criteria for removing sellers

Which sellers should be removed? 🤔

use just one criteria:

- Total accumulated loss for Olist from that seller is -450 BRL or more 💰

Analyzing Sellers whose Cost > Revenue

Revenue 😎

Olist gets \$ from sellers due to receiving:

- 10% of sale price per order
- 80 BRL per month subscription fee

Cost 😞

Olist loses \$ from sellers due to:

- Bad customer reviews 👎
- IT costs 💻

NOTE For this analysis, we make two assumptions:

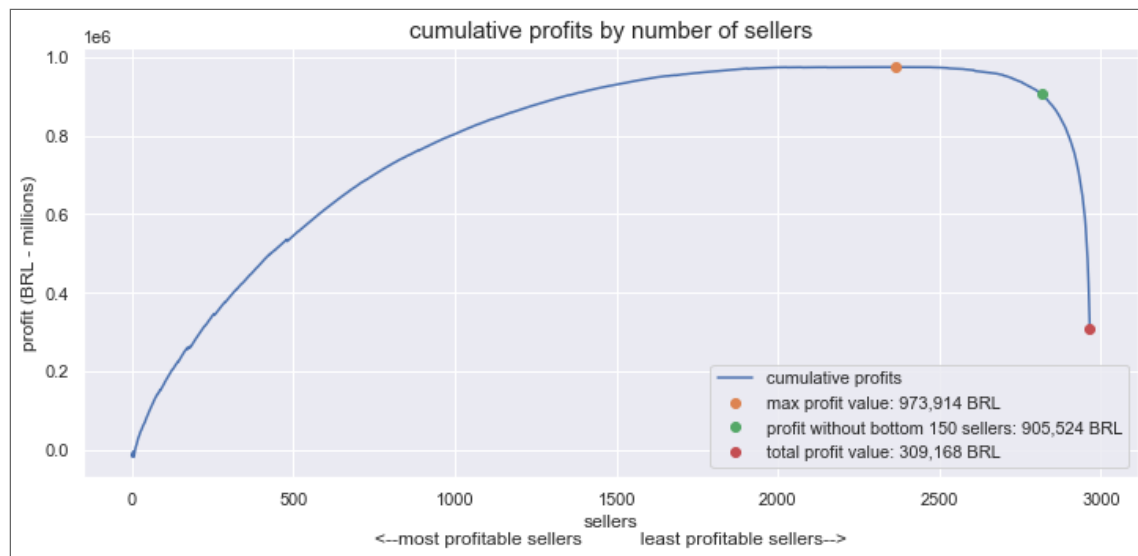
- each poor review costs Olist the following:



- IT costs are proportional to the square root of the number of orders:

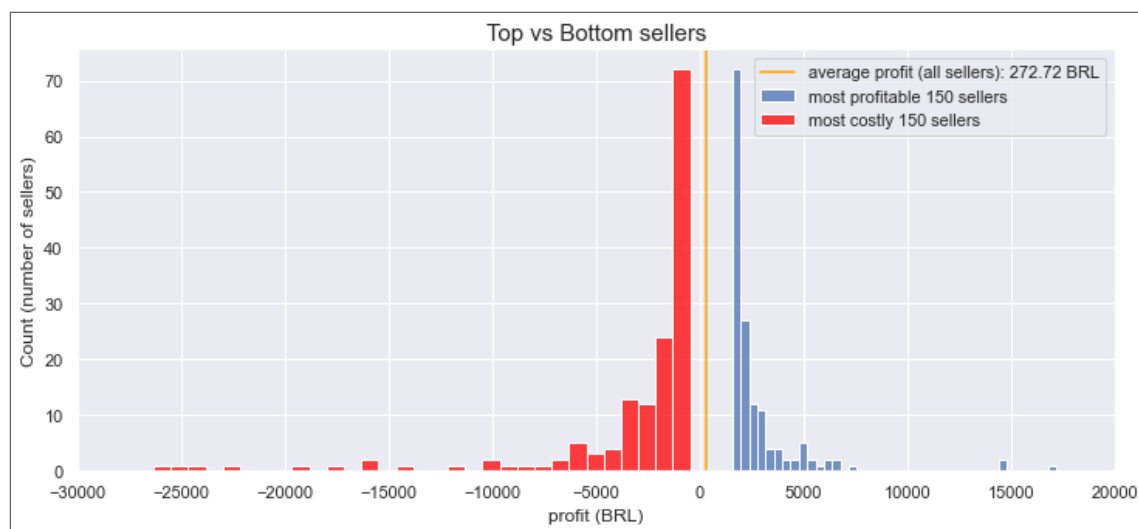
$$\text{total IT costs} = \sqrt{\text{total number of orders}} = 500,000 \text{ BRL}$$

With these assumptions, we can calculate the profitability of each seller, and sort them from most profitable to least profitable



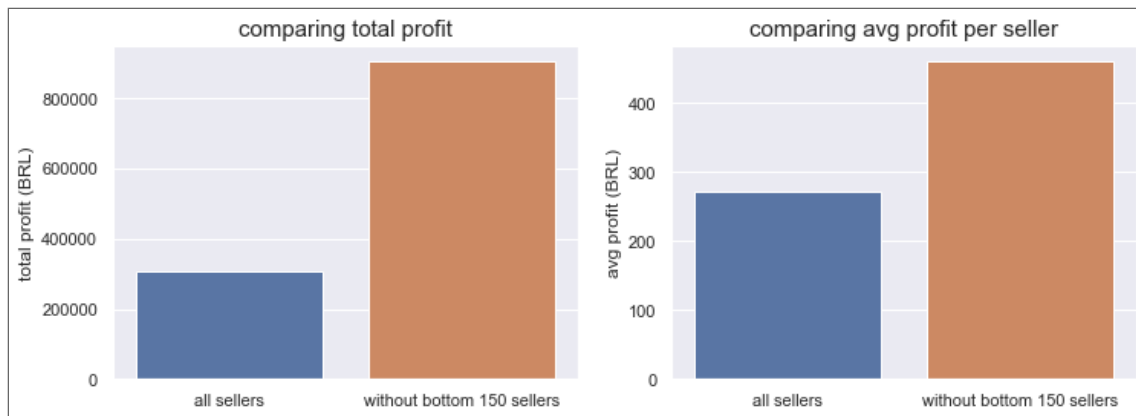
- All the sellers to the right of the orange dot are unprofitable sellers for Olist
- The bottom 150 sellers (5% of all sellers) account for about 90% of lost profits 🤯
- The profit cutoff for the bottom 150 sellers is about -450 BRL 📉

Here's a look at the profit outliers



SHOULDN'T WE CUT ALL SELLERS WITH A NET LOSS (I.E. WHOSE COSTS FOR OLIST EXCEED THEIR REVENUE)? 🤔

🙅 No! We don't want to punish new sellers or low-order sellers, as this could negatively impact Olist's reputation and future sellers



without the bottom 150 sellers, Olist could have saved nearly 600,000 BRL in costs associated with review scores and IT 🤖

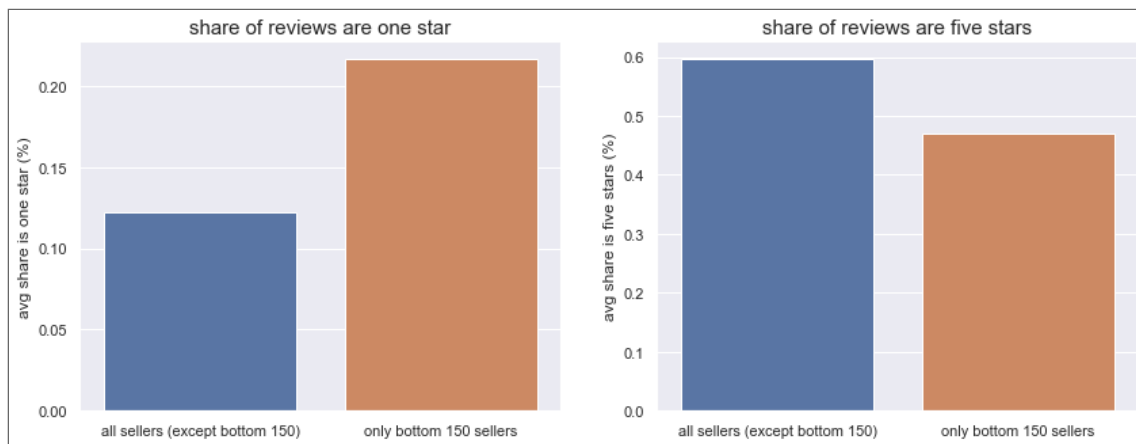
By removing any seller whose net loss reaches -450 BRL, Olist can minimize the affect of those costs

By setting the limit at -450 BRL (and not 0 BRL), Olist can avoid unfairly removing the following sellers who may have a small net loss:

- new sellers
- low-order sellers
- well-established sellers with an insignificant net loss

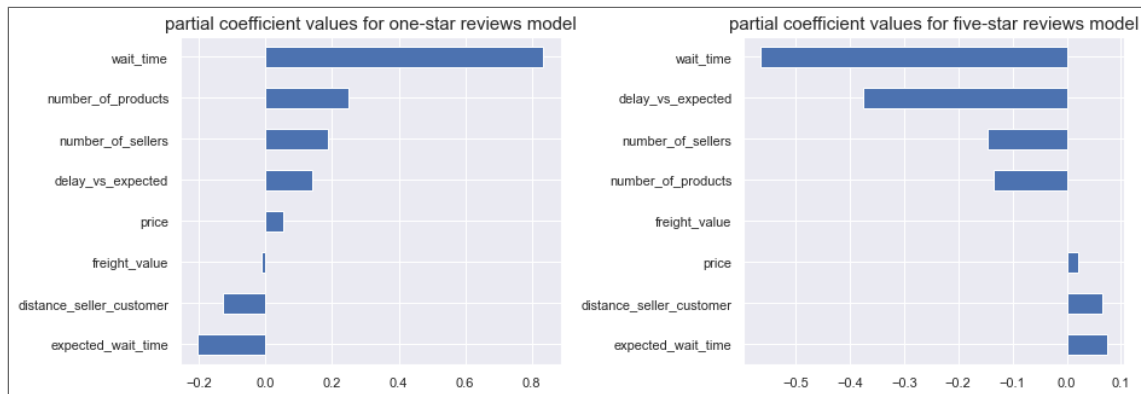
Analyzing the bottom sellers

The bottom 150 sellers have more one-star reviews and fewer five-star reviews than other sellers



- Almost 22% of all reviews for the bottom 150 sellers are one star reviews - nearly 10% more than other sellers
- Almost 60% of all reviews for most sellers are five star reviews. For the bottom 150 sellers, it's about 47%

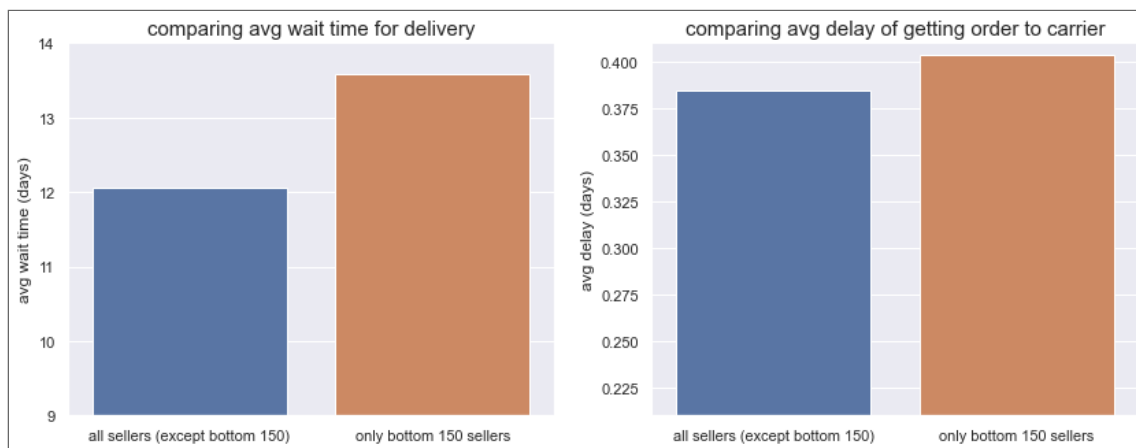
By creating logistic regression models for orders that received reviews of one star and five stars, we can see which features were most important for determining the score 🧐



- For one star reviews, the total wait time for delivery was much more influential than the other features at indicating a one-star review
- For five star reviews, delay of the expected wait time was quite influential in preventing a five-star review (in addition to the total wait time)





So basically ...

The shorter the wait time for delivery, the less likely the order will receive a one-star review, thus preventing costs associated with poor reviews



- the average wait time for delivery from the bottom 150 sellers is 1.5 days slower than the rest of the sellers 🕒
- the average delay of getting the order to the carrier is 0.02 days (about half an hour) slower for the bottom 150 sellers 📦

Recommendations

- Olist should remove sellers with a net loss of -450 BRL or more 
- Risky sellers should be identified as soon as possible using the following criteria:
 - their cost for Olist outweighs their revenue 
 - share of one star reviews is 20% or more 
 - average wait time for delivery is 13.5 days or more 
- Once a risky seller is identified, they can receive support from Olist to help increase their share of 5 star reviews and decrease the wait time for delivery 