

Executive Summary

- Central Europe is the best performing region in terms of profit. Canada, Central and Northern Asia have extremely high potential. Africa and EMEA are the most reliable. Caribbean is the worst performer.
- Asian-Pacific's high potential is held back by high shipping cost, occupies 4 of 7 (total - 18) regions with the highest shipping cost. Same applies to Europe, especially Central EU: claimed to be the best performer, also has the highest average shipping cost. Some countries suffer from their geographical location, especially in Africa.
- A representative example of APAC country, China, most likely, has a reasonable opportunity to decrease average shipping cost by improving the maritime shipping logistics, as the country itself has sufficient facilities in the form of ports.
- Tables are the only loss-making (on average) item category, it requires attention and, possibly elimination from the market. Technology is a great item for the market generating highest average profits, especially in developed regions, opportunity to sell more copiers there to repeat huge success in US is at hand. Office items are a reliable item, compensating moderate average profits with high volume of orders.
- Canada has a solid chance to significantly boost items in each order, if they introduce discounts. Africa and EMEA have poor discount politics, they need to be reworked to find balance.

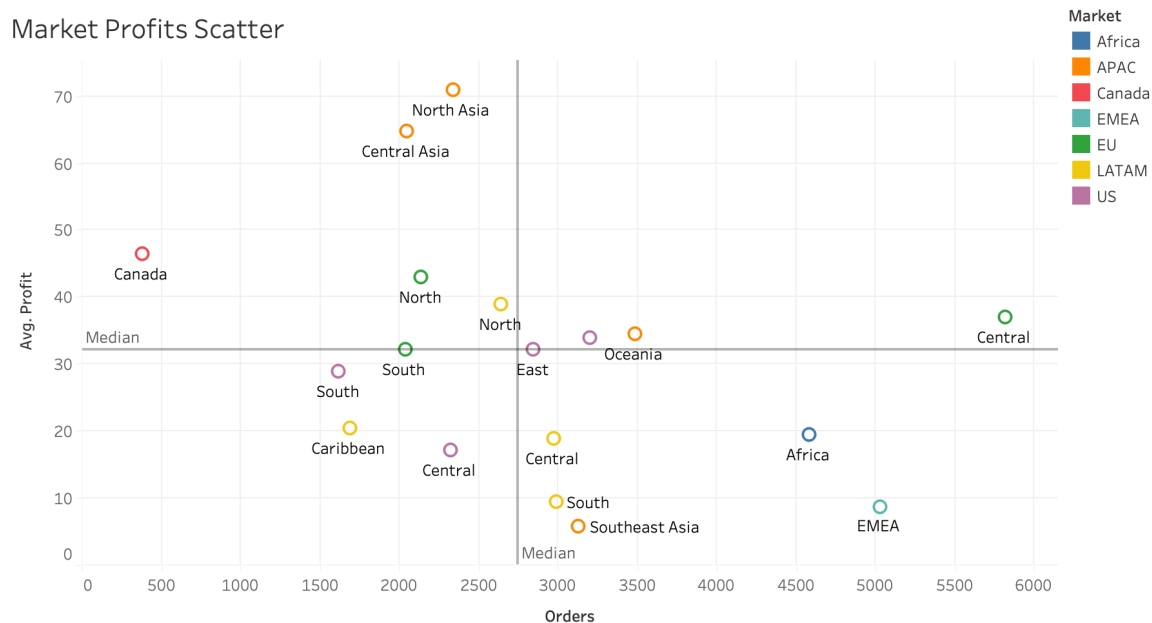
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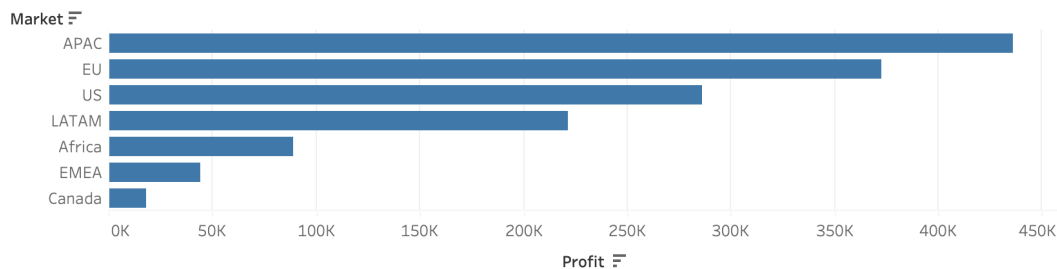
Regional Profits Analysis

As a whole this report focuses on regional profits based on other factors and possible interpretations or answer to questions arisen during research.

In this section I have taken a look at general profits, based on the geographical location of the orders. This also helps to grasp general understanding of what is going on and what to consider and take a closer look at.



Total Market Profits



Here I have plotted a scatter of average order profits of each region in each market on the activity in each region (number of orders), each dimension is separated by median values to ease interpretation. The histogram below represents ordered total profits in each market.

The graph above provides a great visualization, describing the balance of the regions' profitability and order volumes. A well-performing region should have good significance in both, and bad-performing - vise-versa.

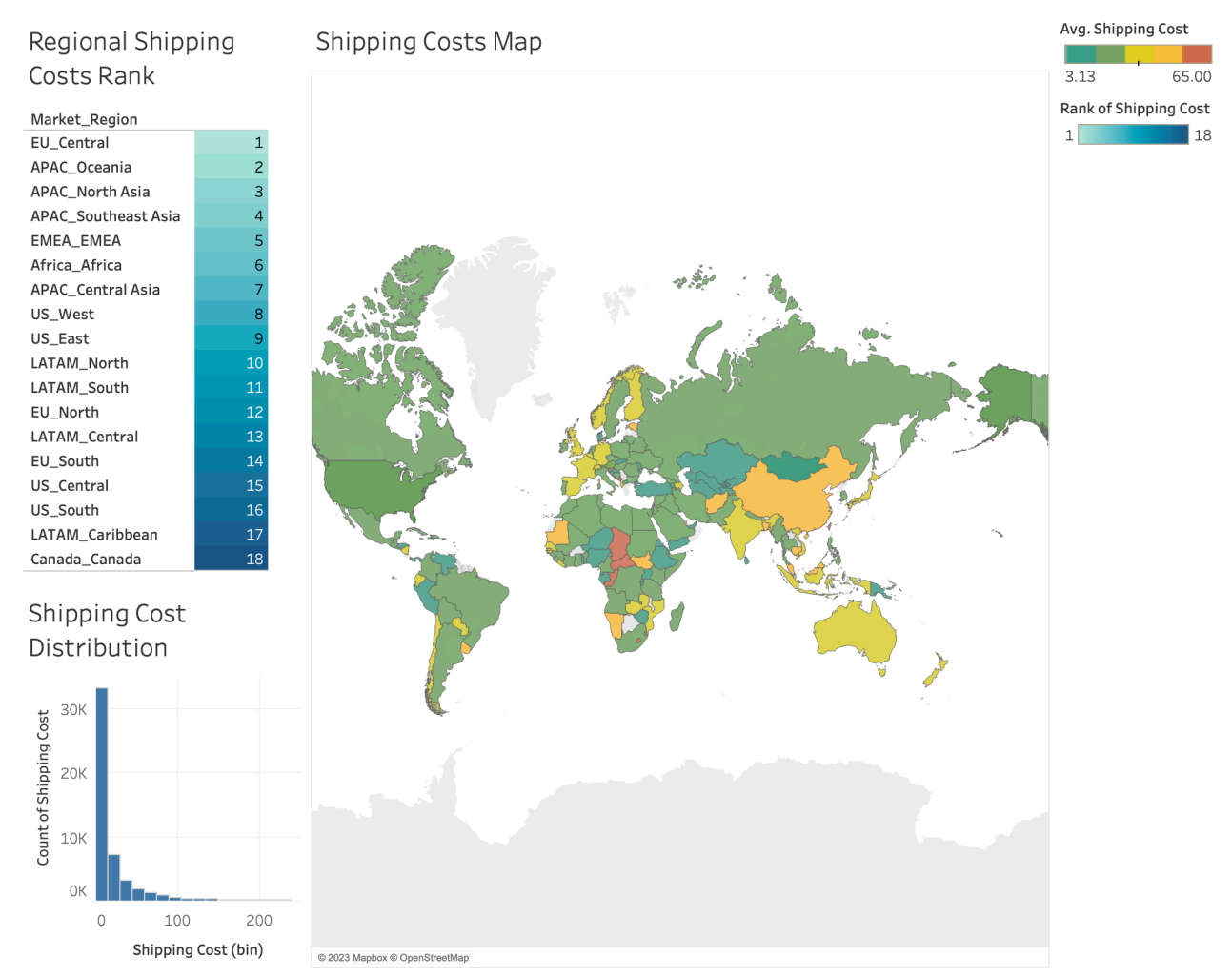
The medians separate regions into four quarters:

- Bottom-left** quarter represents regions which perform poorly in both metrics: low average profits show that the orders which actually occur in those regions are not as valuable as others and, perhaps, the managerial branch should pay attention towards other regions. Otherwise, to improve performance in those regions, wide-scale and ambitious business model rework there is essential.

- Presence of South and Central us is surprising, given the fact that bottom histogram suggests US is the third most profitable market, however the explanation for this phenomena is given in the following sections.
- Caribbean is unanimously the worst performing region in both metrics.
- **Bottom-right** quarter accounts for regions which has high order volume and low profitability. They can be classified as reliable as even though they return lower average profits, the company may still rely on these regions as they provide significant volumes to compensate. To undermine the performance there has to occur something really out of order. Managers may look to increase average profits, however they can already rely on their stability.
 - Africa and EMEA have enormous order volume. To some extent, it can be explained by the size of those regions, however, they still nearly double the median, so they can be considered extremely reliable, despite the fact that they are 3rd and 2nd least profitable, respectively.
 - Even though East US is in this quarter, it truly belong to top-right quarter, away by just 0.01 from it.
- **Top-left** quarter shows regions with high average profits and low order volumes. These regions have high potential, as customers have high purchasing power, so by improving on delivering the volumes the total profits can sky-rocket. Managers need to take a closer look at these regions and look for ways to increase volume.
 - Central and North Asia provide towering profits, doubling the median.
 - Canada shows solid profits, however their order volumes are the lowest overall.
- **Top-right** describes the best regions, performing great in both metrics. These are the regions that the managerial staff should prioritize and do best to maintain.
 - Central Europe by far provides the highest volume of orders overall, perhaps the most important region.
 - East (not in this quarter, yet very close) and West US account for most profits of US compensating for other US regions.

Worldwide Shipping Costs Analysis

Another major factor to evaluate performance and improvement perspectives is shipping cost. In combination with research above, this section will help to conclude possible solutions to improving profit performance.



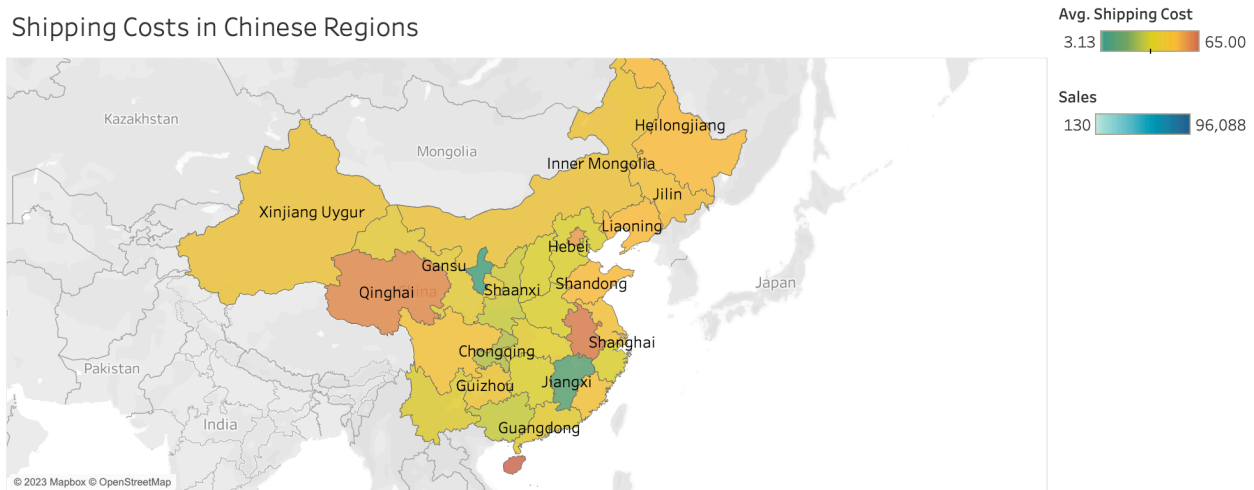
Here I have constructed a shipping cost heat map, this will help to determine anomalies in certain regions.

- What immediately strikes the eye is that what we concluded to be the most important in terms of profit region - Central Europe, also has the highest average shipping cost which can be noticed both in the rank and heat map. Perhaps, the managers should look for ways to reduce these costs, taking into account that Central EU has the highest order volume. So this, in fact, could increase profits drastically.
- Another point is that Asian market also struggles with high shipping costs. Its regions take up a big portion of the top of the ranks: 2, 3, 4, 7. Also, considering that we previously established Central and North Asia as having extremely high profit potential, a decrease in shipping costs will make them even more attractive.
- Some African countries have extraordinary costs, mainly Central and Southern, but it might be due to harsh geographical conditions.

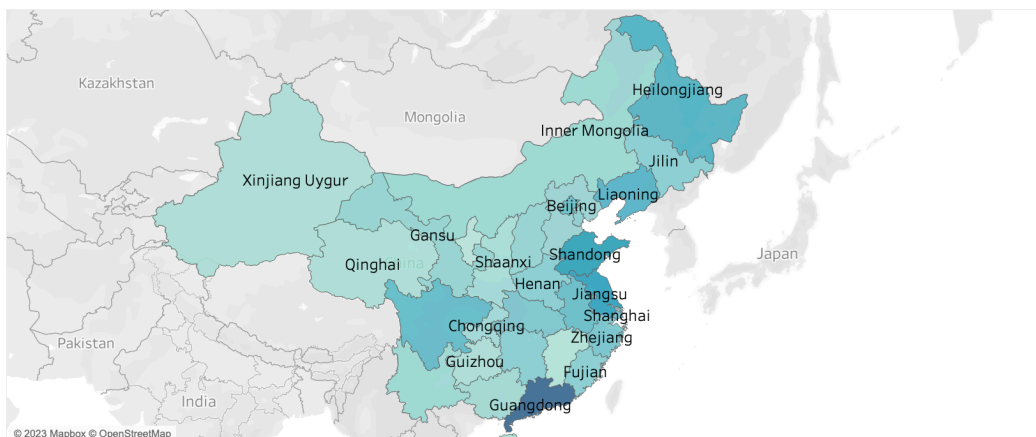
Chinese States: A Closer Look

To develop a better understanding and possibly provide a solution to Asian shipping cost issue raised in the segment above, I took a closer look at an example of Asian country, namely China and how this issue applies state-wise.

Shipping Costs in Chinese Regions



Sales in Chinese Regions

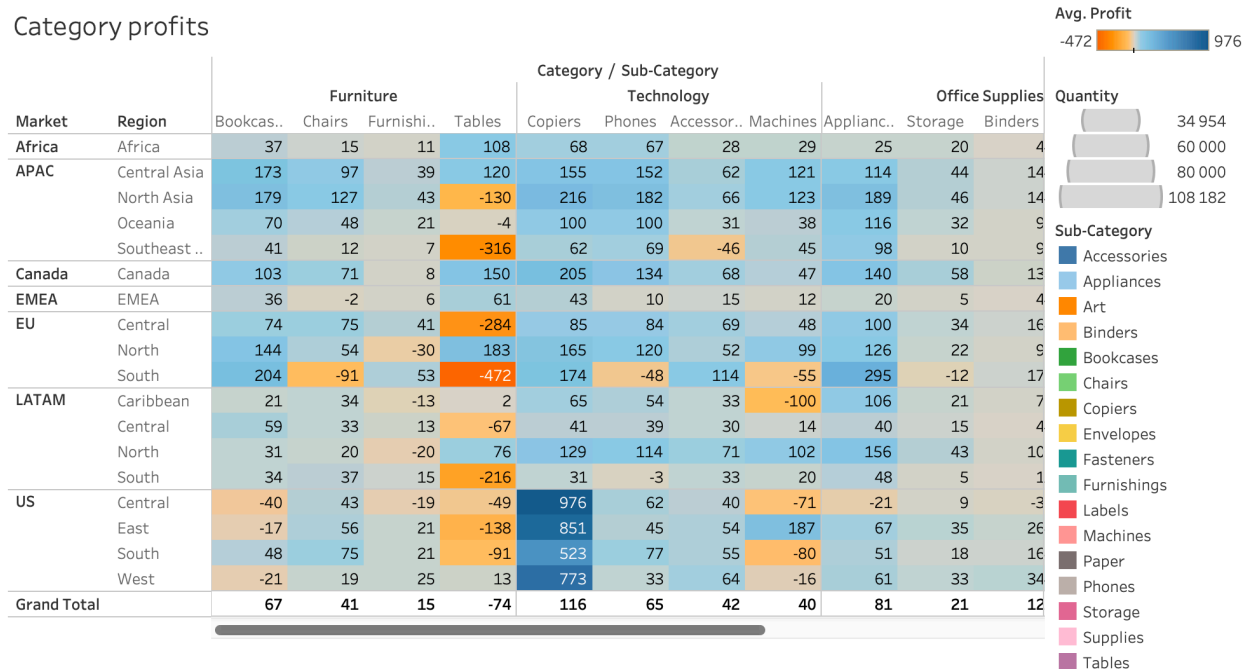


What we can notice, here is that the greatest amount of sales occurs in the coastal states of China. Therefore, managers should focus on improving shipping in those states. It is quite surprising that the best states in terms of shipping cost are central and southern. This may imply that maritime shipping is not as efficient as it could be, and since China has some well known large ports with high traffic, namely Shanghai, Hong Kong, Shenzhen and others. More continental states do not post as nearly as many orders, so measures above should be enough.

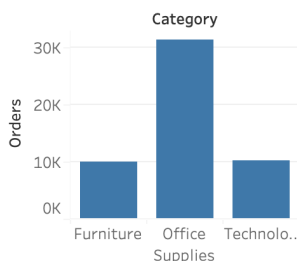
Category Profits Analysis

Next, I took a look at how item categories and subcategories affect the average profits. In this section we will research what categories increase the performance and what categories undermine it.

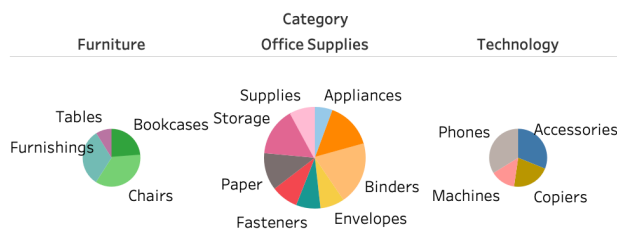
Category profits



Distribution of Orders



Order Categories Chart



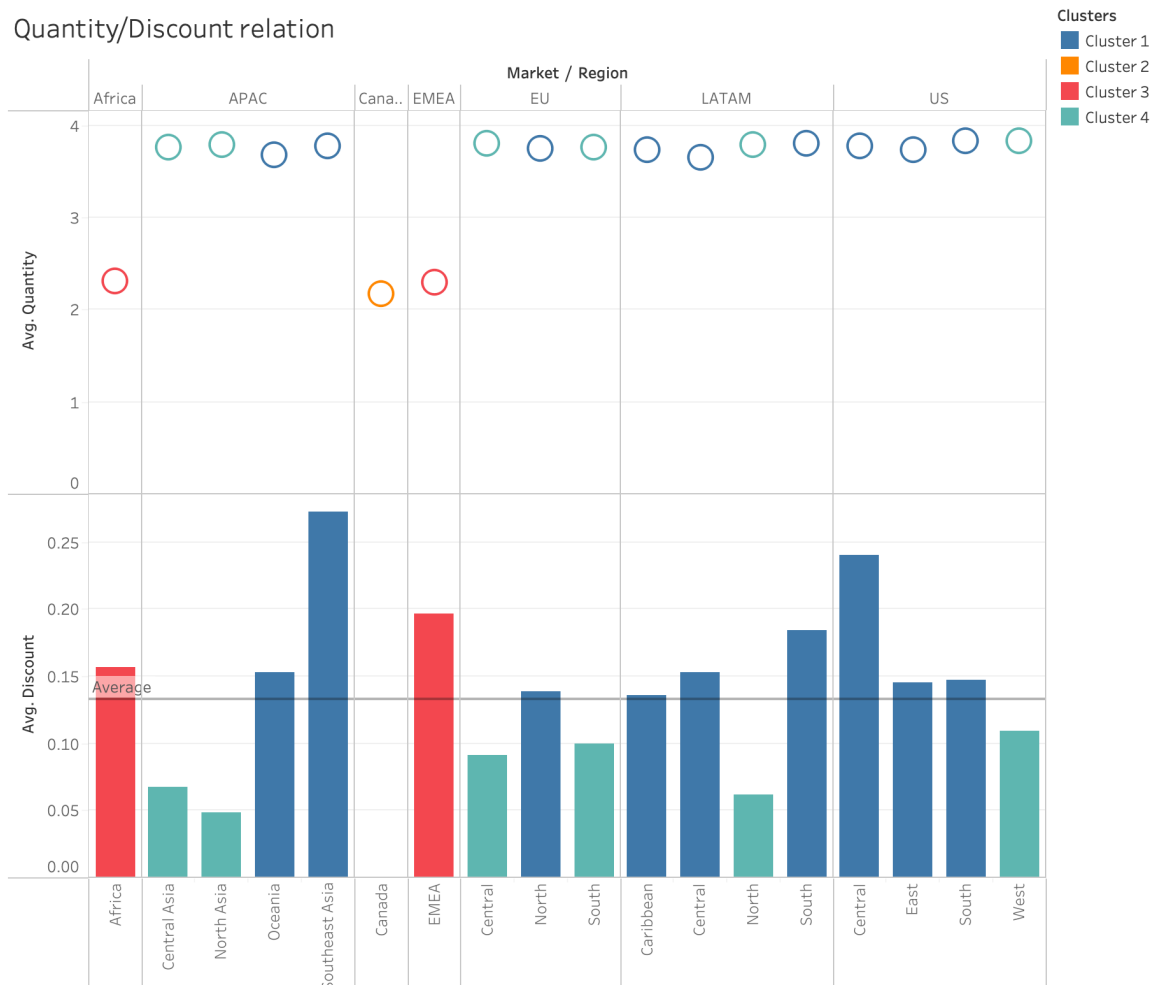
Here we have a table of average profits for each region. It should tell us what items are in demand and where or, conversely, what items consumers do not really need.

- Office supplies are the most balanced category as does not show any anomalies in profits, only thing we can really conclude is that the appliance market significantly outperforms other subcategories. Also, items in this category are mostly cheap, so it is normal that they show moderate average profit, it is compensated by high order volume.
- Technology items perform greatly showing strong profits in most of subcategories.
 - Nevertheless, machines are very unprofitable in most US regions, yet in the East they, actually, have the highest average profit overall. Given that US is not that big of a market in terms of geographical space, perhaps, managers would benefit if they found out what is causing such an anomaly.
 - Another anomaly, an extremely significant one, is how profitable copiers are in each US region. Copiers are usually in demand where there are a lot of offices, so, managers may look into how they can bring this effect on similar regions such as Canada, Europe, Northern and Central Asia.

- Notice how more rural regions such as Africa, EMEA, most of LATAM do not show such profitability as other regions, may be that they have a lot less demand, so it would be better to cut back on some of the orders.
- Furnitures is a mixed bag when it comes to average profits. Only bookcases and chairs show stability to some extent.
 - Tables are extremely loss-making in nearly half region, so it may be sensible to heavily cut down on these items to increase stability.
 - Also, furnishing performs poorly as well, loss-making in nearly third of the regions, however, they are not that significant, so this point may not be as important as others.

Discount Politics: A Discussion

What should be considered as well are discounts, an instrument which can significantly boost demand at the expense of a percentage of profit. Here we will discuss the discount politics for each region and whether they are efficient.



Here we compare the quantities of items per order with mean discounts for each regions. The goal was to find relation between them. The most interesting observation here is how every region averages almost 4 items per order, when Africa, Canada and EMEA have just above 2.

To get a better grasp of this graph, I have separated them into 4 separate clusters, which came out fairly well and intuitive. The clusters are as follows:

1. Regions with above average discounts and high items per order. This cluster represents regions which are not bad at their state, the only thing would be to slightly decrease discounts, as they probably missing out on some profit because of that, and they can afford to do as they have high demand.
2. High-potential regions: low items per order, below-average discounts. These regions would benefit from raising discounts, as it would boost demand and items per order, creating more volume. The only region here is Canada, which does not have discounts at all, so this remedy should be very successful.
3. Problem regions, which already provide customers with high discounts, but they still do not buy enough per order. This is a tough situation, because any action in the discount policies may be detrimental, but the current state is bad as well.
4. Good regions: high items per order, low discounts. These are good «as is» and have an optimal balance between 2 parameters. No action needed.

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