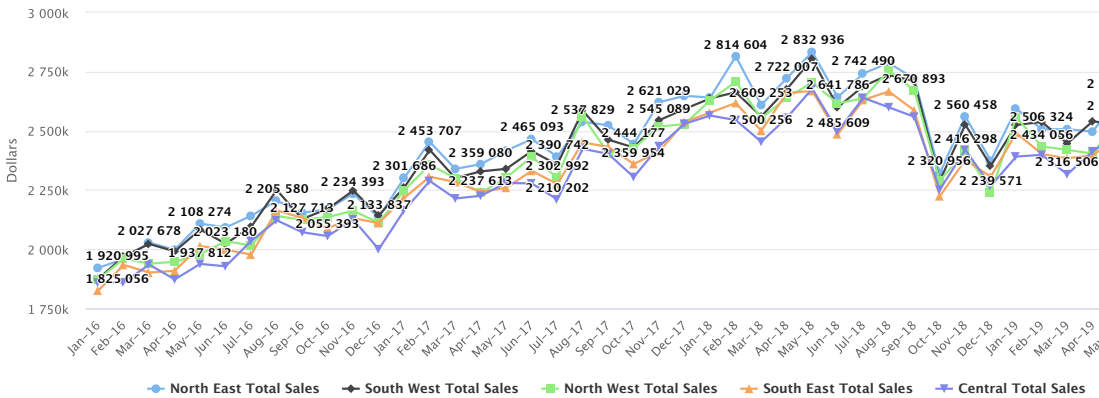




# McDonald's Sales Report

MONTHLY DATA ANALYSIS

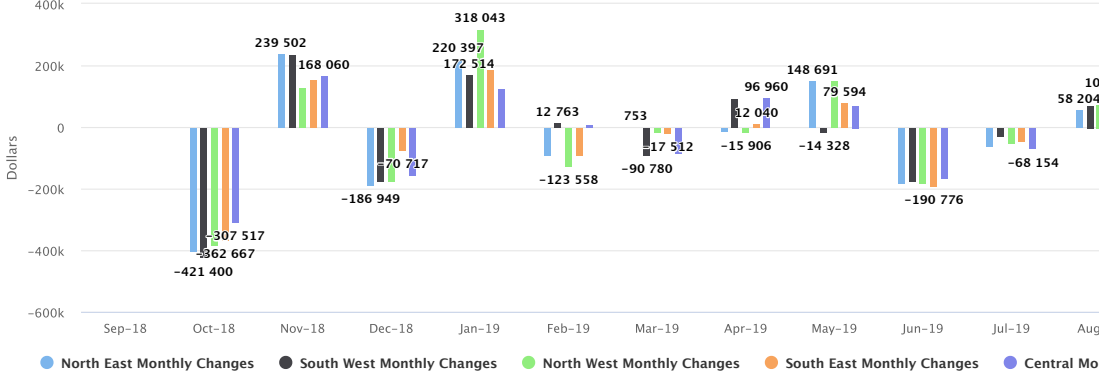
What is the Sales Trends on McDonald Products in Those 5 Regions? (Jan. 2016 -- Sep. 2019)



By looking at the line chart of monthly total sales of those 3 products at the 5 locations you provided, what we find first is that, in general, from 2016 to 2019, North East region is where our products are consumed by customers the most while the Central region is where our products are least consumed by customers. Therefore, in order to expand our profits, we should devote our energies more into the North East region to win more favors from them.

Also, one alerting thing from the above plot is that, in all those locations, after **October 2018** which is exactly the time when Burger King introduced the Impossible Burger, the sales of our products seems to decrease in an immediate speed but not lasting. To justify this kind of view, let's see another graph.

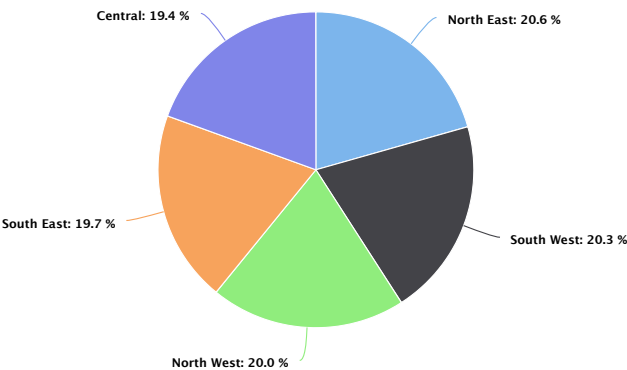
What Happened After the "Incursion" of Impossible Burgers? (Oct. 2018 – Sep. 2019)



The bar chart above indicates that after the introduction of Impossible Burger from Burger King (Oct 2018), the sales of McDonald in all 5 regions had a shocking decrement in that month. However, such decrement did not last for a long time: in the later months (Nov 2018 – Sep 2019), we can see that the sales varied a little bit. Therefore, we can conclude that the influences brought by the Impossible Burger would, in fact, threatened the profits of McDonald at the very start. However, such competition will not cause McDonald always in an adversary position.

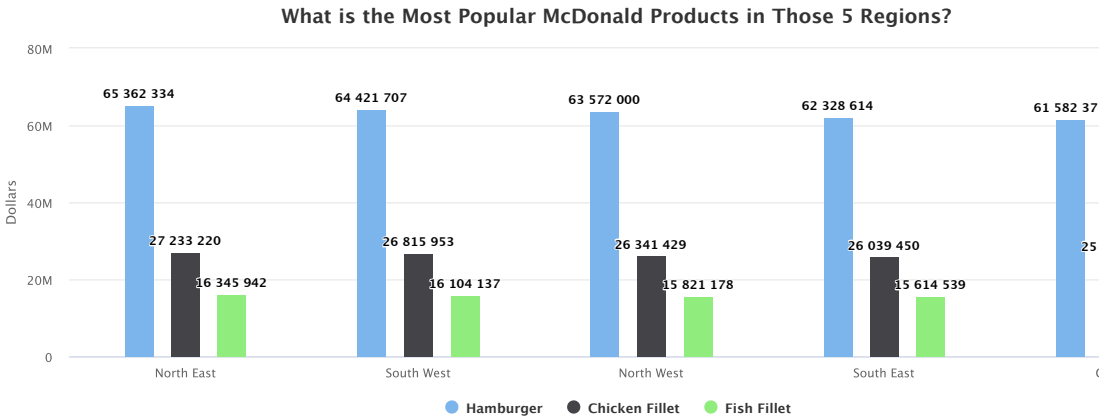
One lesson from those sales data is that, it would be good for McDonald to come up with innovations to boost the sales from customers when other competitors provide some new strategies in marketing. But McDonald should also not be too panic since the negative effects brought by competitors will not last for too long. The market will finally balance the trends on customers in chasing for something innovative.

Which Region Contributed the Most in Average Sales of Those McDonald Products?



After exploring the average sales contributions on McDonald Products from those 5 regions, we noticed that, overall, 5 regions contributed almost the same but North East region contributed a little bit higher (20.6%) on average. Therefore, after seeing the proportions on sales contributions, we concluded that there's no big necessary to treat those regions separately. But our target market should be put on North East region since they are slightly higher in average sales contributions.

In order to see what kind of products McDonald should invest more, or which products are popular in those 5 regions, let's see the graph below.



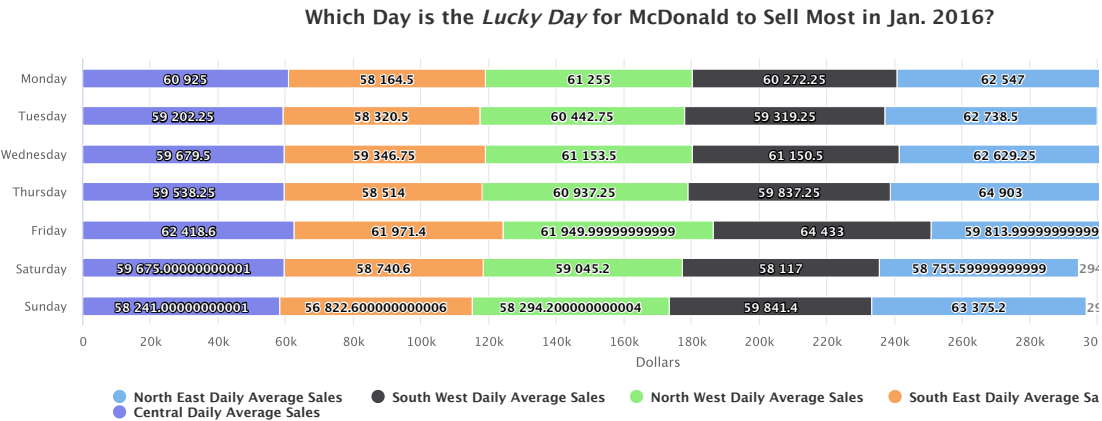
**SURPRISE!** In all 5 regions, the sales in McDonald Products shared the same trends. In all 5 regions, Hamburger is the most popular, Chicken Fillet the second, and Fish Fillet the last. Therefore, to expand market, McDonald can do some innovations on Hamburgers. Combining the conclusion we obtained from above plot — North East contributed the most to the sales, we suggest McDonald to do some innovation experiments on hamburgers in North East region, to see how customers will react. And since the preference on those 3 products is similar in those 5 regions, how customers acted in North East region will probably react the same in the remaining 4 regions.

Thus, as boss you can see, the monthly data from Jan. 2016 to Sep. 2019 helped us:

- 1) realize that the Impossible Burger indeed threatened McDonald's Products a lot in the month when it was introduced (Oct. 2018). However, such threat did not last for a long time and our almighty market helped us go back to the normal track of sales;
- 2) North East is where we should put our focus more on since this region contributed the most to our sales. At the same time, the remaining 4 regions (South West, North West, South East and Central regions) should not be ignored when we consider expanding your market;
- 3) Hamburger is the most popular product among the 5 products you provided to us. Therefore, McDonald needs to come up with more ways in selling hamburgers.

To explore more on the micro, or daily trends in our sales of products, we switch to the daily dataset from Jan. 2016.

JAN. 2016 WEEKLY SALES ANALYSIS



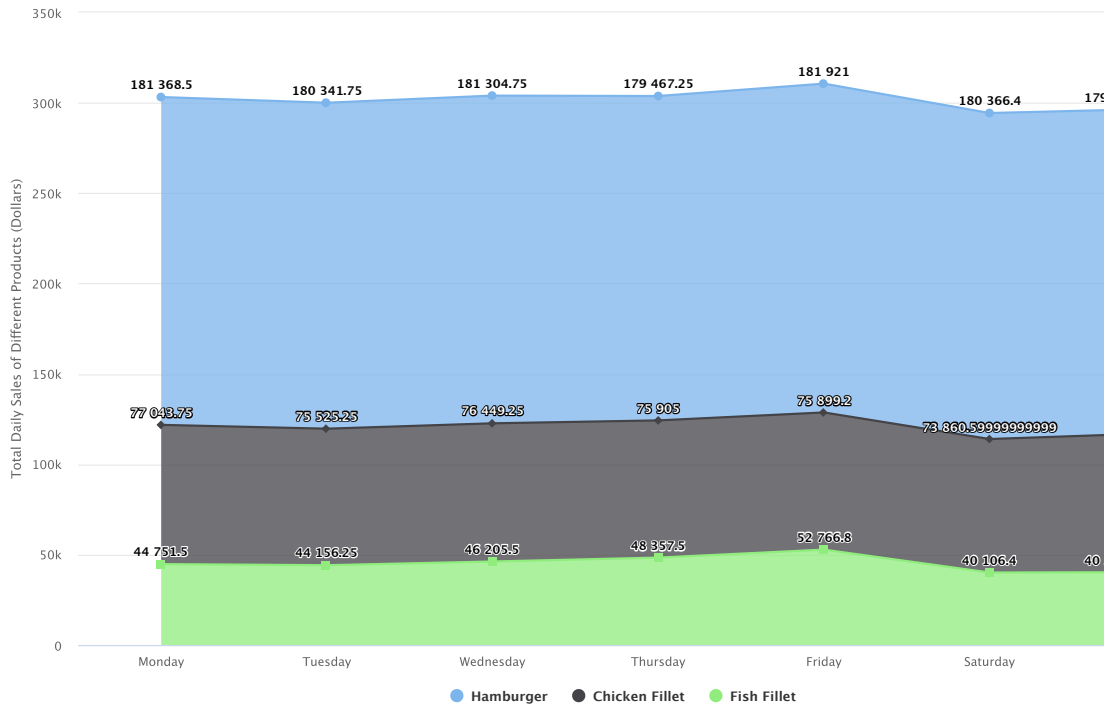
Since in Jan. 2016, the number of days is different (Monday to Thursday occur 4 times, while Friday to Sunday occur 5 times). Therefore, we decide to normalize the total sales of products for better comparison.

This stacked bar chart helps us understand that Friday is McDonald's *Lucky Day* in sales. All 5 products were sold the most on Friday.

Also, this chart suggests us that in Jan.2016, from Monday to Thursday and Sunday, North East remained as the biggest contributor for McDonald's products sales. However, one interesting finding is that, on Friday and Saturday, North East was not the first contributor for sales.

Therefore, McDonald needs to consider strategies in selling products in different regions according to the days on a week.

## What is the Influence of Days on Sales of Individual Products on Jan. 2016



Next, we explore the above area plot to discover how days within a week will influence the sales of those 3 products. The first discovery is that Hamburger was the most popular product among the three (As the area in the graph shows) Also, the graph matches what we found above -- Friday is the day when sales reached maximum;

Another interesting finding on this plot is that after the increment on Friday, both Hamburger and Fish Fillet suffered a huge decrement on daily average product sales while Chicken Fillet had a slight decrement on daily average product sales; After such decrements, only Hamburger continued to decrease in sales while the other two started to increase their sales; Thus, McDonald needs to be wary about the sales strategies on Fish Fillet and Hamburger since their changes in sales varied a lot. Also, pay special attention to Hamburger, even if it was the main contributor to McDonald's revenue, its sales are unstable since they had trend in decrements.

As a conclusion, as boss you can notice that, the daily sales information suggested us that:

- 1) McDonald could treat Fridays as a point when it could expand its market since the data suggests that the sales will maintain high at that day.
- 2) Even if Hamburgers are the most popular choice among customers, Hamburgers' sales are elastic (as its changes in sales varied a lot in those days). Therefore, McDonald should be careful about it.
- 3) North East region is still McDonald's target market.

NOTES: Any issues with this report, please contact [michelleliu1027@gmail.com](mailto:michelleliu1027@gmail.com)



1. the github code sources link:

<https://github.com/michelleliu1027/michelleliu1027.github.io.git>

2. Please visit this report through browser:

<https://michelleliu1027.github.io/>