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IMPACT ON REVENUE GENERATION OF OLIST ECOMMERCE COMPANY ON THE BASIS OF VARIOUS PRODUCT PARAMETERS

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

in

Information Systems and Technology

by

Trupti Sanjay Niwate

August 2021

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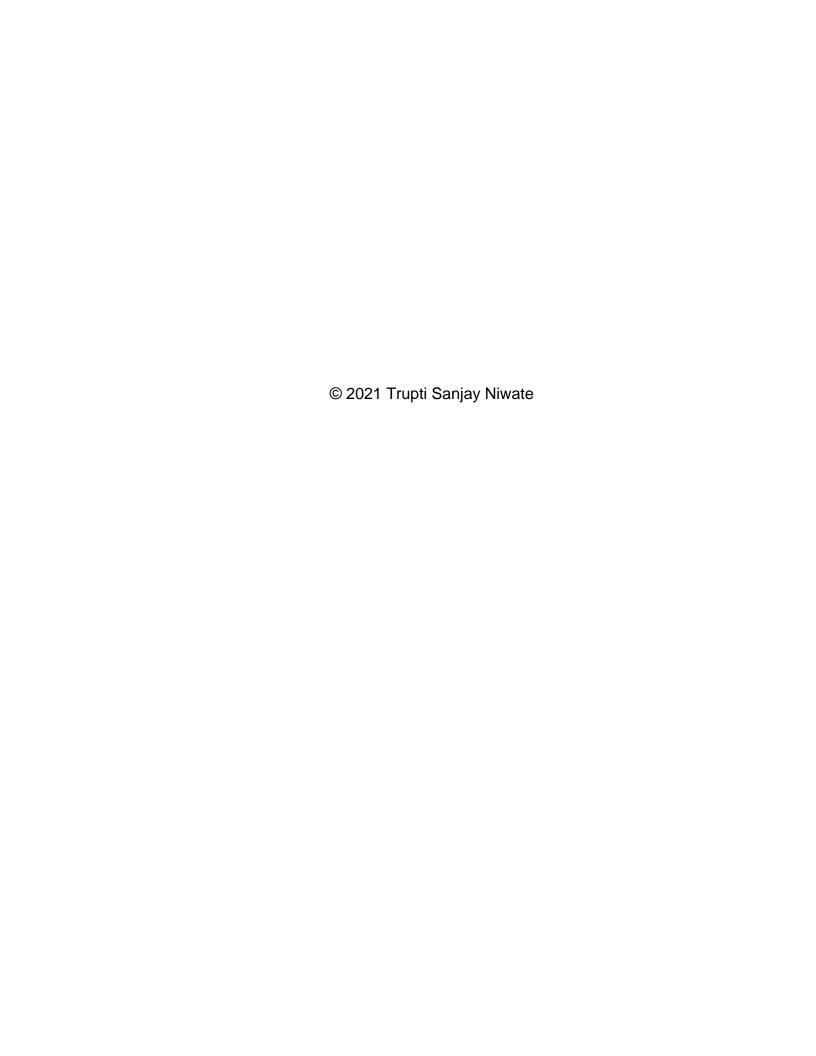
August 2021

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ABSTRACT

E-commerce business is the most trending business in the entire world.

Due to the COVID-19 pandemic, the global market of e-commerce is much more active than the traditional in-store market. Over the period, people used the internet more, which has incentivized them to shop online because it saves time and effort.

Specifically, in Latin America, the E-Commerce business is expanding at a tremendous rate. In particular, Brazil is a major business hub when we consider an e-commerce business since it has given a major impact on the world 's total e-commerce business. Olist, the main e-commerce company which helps other marketers to cater to consumers globally, has made a good impact in Brazil. The company has a better market capture in Brazil as compared to Amazon and Alibaba. Many companies throughout the world which work on the idea of helping other startup companies to reach the customers to the global market and Mirakl is a similar e-commerce company which is baked and operates in Paris. The major reason for selecting this company is that despite being a startup, Olist has evolved with great numbers throughout its 6 years of timespan. This company has made remarkable progress in Brazil where Amazon and other leading companies have not been accepted. The biggest investor Goldsman Sachs has currently invested in the company because of its revenue generation and expected future growth.

The analysis in this project emphasizes the revenue generation of the company based on various product parameters. The major impact on any company's revenue is created by its customers' reviews. It has been observed over a period that the new evolving companies have never been given focus, compared to all the e-commerce companies. Olist has given equal opportunity to all the startup companies to establish in the market and understand their product feedback through them. Although I have access to data sets from Amazon and Alibaba, I chose Olist for this project because the company: (1) is in an emerging market, (2) provides equal opportunity for all its partners to compete at a global scale, (3) focuses on the product and customers relationship relatively well, and (4) it has potential for growth in developing and developed economies at a global scale. The PowerBI tool was used to create a visualization for all the analyses. The major findings were: (1) the customers have given ratings above average for all the product categories, (2) There is an inverse relationship between product price and product rating, (3) The major customer base is in Brazil, eastern United States and some parts of Europe. The main conclusion is: (1) the company's revenue is generated through their product and customer's feedback, (2) being an emerging company with a small-time span, the company has made great progress in market penetration. It is recommended that the company should focus on the customer's reviews and rating so that they can understand the customer's needs and wants, the company should focus on products depending on the region where the customer belongs, also it should focus on the region

where there is less impact of Olist. Areas for further study could be different product parameters that could be added to the list over the period with respect to the region.

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CHAPTER ONE

PROJECT BACKGROUND

Introduction

The \$85 billion e-commerce business in Latin America is quickly expanding, with forecasts of \$116.2 billion by 2023 (Azevedo, 2021). To set up a business in Brazil someone is required to have an intimate knowledge of the local market (Brazil - Market Challenges, 2021). The largest e-commerce company in Brazil is Olist. Considering how large of a role Olist plays within this industry in Brazil, identifying factors that increase revenue within Olist may be applicable to other e-commerce companies in Brazil.

Olist is a Brazilian startup company founded in February 2015 by Tiago Dalvi as an agreement with a company created in 2007, a marketplace for handcrafted products. The company has a headquarters in Curitiba, Parana, and also has an office in Sao Paulo. It currently has 300 employees and 9,000 shopkeepers with 2 million unique consumers (Soluções de VENDAS Online e SERVIÇOS de e-commerce, 2021). Olist revenue was doubled in 2020 and currently in 2021 it is tripled (Azevedo, 2021). Olist provides the sellers and consumers to present in the market with ease to buy and sell the product.

Olist is an online e-commerce site aggregation platform that has been designed to facilitate direct sales on e-commerce sites. It provides the establishment of a platform for entrepreneurs with online retailers allowing them

to easily advertise and market their products while also assisting them in reaching out to a global audience. The company emphasizes the structuring of the product and focuses on service excellence for the tenants and the end consumers. To this day, it has invested in a sustainable and fair business model for everyone who is involved with them (Azevedo, 2021).

Business Model

The company was launched with the goal of assisting small merchants across the country in gaining market share through a SaaS (Software as a Service) licensing model for small brick-and-mortar enterprises (Azevedo, 2021). The traditional street-side business strategy of offering products and services to customers face-to-face in an office or store that the business manages, or rents is known as the brick-and-mortar business plan (Murphy et al., 2021). But some companies have diversified their business through both platforms; they are available through in-person stores as well as through the website to cater both markets. Although companies which are having in-person stores have to invest more money for the leasing of stores, store utilities, and store employees, they also prefer that the customers might buy products with impulse behavior when they see everything in person.

Problem Statement

The COVID-19 lockdown made the new normal, businesses and consumers bend towards the digital era, providing and purchasing more goods and services online, which had raised e-commerce's share of global retail trade

from 14% in 2019 to about 17% in 2020 (How COVID-19 triggered the digital and e-commerce turning point, 2021). Revenue is the income obtained by a company from its activities; the rate that revenue grows in a given period provides the potential for a company to "make money" and indicates how well an organization is achieving its strategic objectives (Revenue Growth Rate, 2019). Considering how important Olist is in the industry of Brazil as previously mentioned, the impact on revenue generation of the Olist e-commerce company based on various product parameters has been considered in this project. The dataset has information from 2016 to 2018 made by multiple marketplaces in Brazil. The multiple parameters are order status, price, payment and freight performance to customer location, and product attributes (Olist, 2018).

Purpose of Study

Digital penetration is on the rise with every passing year, as consumers get more comfortable buying online and businesses improve their e-commerce operations to deliver orders more swiftly and efficiently (Young, 2021). During the COVID-19 pandemic, people preferred to do their shopping online, which has impacted the growth of the e-commerce business. According to Digital Commerce 360 estimates, consumers spent approximately \$4.29 trillion online in a pandemic-fueled 2020, which is nearly 24% higher than the previous year's amount of \$3.46 trillion (Young, 2021). The pandemic has increased web penetration and it has increased up to 20.2% in 2020 (Young, 2021).

This project will emphasize the various parameters based on what the company should focus on, which product, at which sector, and according to which region they can generate revenue. BrightLocal's Local Consumer Review Survey reports that 91% of consumers within the age group of 18 to 34 believe online reviews are just as trustworthy as personal recommendations (Council, 2019). Product reviews and ratings are important for any e-commerce business as it helps to build trust and loyalty, and also describes what sets the product apart from others (The importance of product reviews and how to get them, 2016). By focusing on the appropriate location for their product, a company can boost their sales and retain them over time, resulting in a larger market share and increased revenue creation (Marketing mix: Place in FOUR P'S, 2019). Given the importance of product rating and region with revenue, these two parameters will be the emphasis in the following research questions:

Research Questions

- Is there any correlation between product rating and product type?
- Does the correlation between product rating and product type depend on other variants (price and location of customer)?
- Where has the company made maximum revenue based on the region?

CHAPTER TWO

LITERATURE REVIEW

Ecommerce Market

E-commerce, or electronic commerce, is a business concept that allows companies and individuals to purchase and sell commodities over the internet.

Traditional e-commerce markets include business to consumer, business to business, direct to consumer, consumer to consumer, consumer to business, and consumer to business (Bloomenthal, 2021).

The factors affecting marketing strategies are 4 P's. Those factors are People, Price, Product and Place. Companies' growth relies on these factors, which not only affect the company's growth but also it is the main reason for the company's revenue generation.

Product

The product decides whether it will hit the market or not. The product should be able to satisfy the consumer's needs. It should be well maintained and should be modified depending on the upcoming technical changes and the consumer's feedback.

Price

The product price should be calculated based on the target market and based on the market situation. If the product is highly priced then it might be difficult to cater to the target audience, and if the product is low priced then it

might affect the company's loss. Thus, it should be calculated so that it should act as a win-win situation for both the parties.

People

The people are considered the target audience of the company; they are the bread and butter for the revenue generation. It is necessary to understand the target market so that the company can cater to the market according to its needs and wants. The consumer's reviews and ratings decide how good the product is.

Place

The place is the area where the prospective buyer can look for their products and, when it comes to the company, it is the potential market where the company finds their target customers.

Nowadays people prefer the e-commerce market more than the general market and the numbers are increasing tremendously. In Brazil, 79% of the population used a shopping application on their phones at least once in the past year, and 76% made a purchase (Consumer's Day in Brazil, 2021). Brazil is a key player in the world market and it's the most influential country in Latin America. The Brazilian online market is far from saturation, as it's expected to grow 19% during the next year (Payments in Brazil and E-commerce Market).

The Marketplace of Olist Ecommerce Company

Olist set out to improve the online selling experience for Brazilian merchants in 2016. The entrepreneur identified an opportunity to construct middleware between marketplaces and merchants after noticing fragmentation across the top marketplaces and the integration barrier encountered by sellers. The company pioneered the "marketplace of marketplaces" strategy by allowing merchants to leverage the fragmented client base across all Brazilian marketplaces (http://www.degordian.com, 2020).

Market competitors of Olist are Klaviyo, omnisend, yotpo, mailchimp, freshmail, mailer lite, power reviews, and iterable. Companies like Amazon and Alibaba have already become global indisputable leaders in the e-commerce market. But the combined market share of both the companies was just 2% in the Brazilian market (D, 2020). Olist company's product gives merchants a way to manage product listings, logistics, and store payments by offering an improved sales experience through channels such as Mercado Livre, B2W, and Via Varejo (Brazil-based e-commerce marketplace integrator Olist raises USD 23 million, 2021). Olist is present on the websites of Mercado Livre, Walmart, B2W, Via Varejo, and Amazon, selling micro, small and medium-sized store products from various parts of the country and different segments (Povo, 2017). Also, in 2017, it has been predicted that the company may achieve its growth rate more than ten times through its business model (Povo, 2017).

The COVID-19 pandemic has forced consumers to move to the digital era of shopping through an online portal. Considering the current situation Olist companies have thought of expanding their business. After looking at the company's growth structure investors such as Goldman Sachs have started investing in the firm. Besides Goldman, Redpoint and SoftBank (9984.T) have invested in the company. Olist's investors include Valor Capital, Velt Partners, FJ Labs, Península Participacoes, and software and consumer investor Kevin Efrusy (Mandl, 2021).

Olist recently raised an additional \$23 million in a Series D round led by new investor Goldman Sachs Asset Management, bringing its total Series D funding to \$80 million (Tincello et al., 2021). Since 2015, Olist has raised more than \$126 million (Azevedo, 2021). Mirakl is a similar company in the market that is based in Paris, France, and provides the retailers to launch their marketplace and helps to manage their sales (Mirakl company Information, funding & investors, 2021).

CHAPTER THREE

RESEARCH METHODOLOGY

Secondary data analysis has been used too. The data has been collected from the Kaggle dataset. The data analysis has been performed on the dataset of year 2016 -2018.

Dataset Description

The overall data consisted of two different datasets. One dataset consisted of seller location with its longitude and latitude and the other dataset has various product parameters which has been explained below:

Product Category (Group)

This section consists of categories of various products which are the major focus of the customers. The various product categories are office furniture, books, musical instruments, air conditioning, arts, audio, auto, baby products, furniture, construction tools, games, computer accessory, drinks, electronics, fashion, home construction. Since the product categories were many we have grouped the products according to their product category type.

Agro Industry :agro_industry and commerce , industry_commerce and business.

Arts: arts, art and craftsmanship, cds_dvds_musicals, party_supplies and stationary.

Books: books_general_interest,books_imported,books_technical and cine_photo.

Construction:construction_tools_construction,construction_tools_lights, construction_tools_safety, construction_tools_garden and construction_tools_tools.

Electronics: air_conditioning, computers,computer_accessories, consoles_games, dvds_blu_ray, electronics, fixed_telephony, small_appliances, small_appliances_oven_and_coffee, tablets_printing_image and telephony.

Fashion: cool_stuff, fashion_female_clothing, fashion_bag_accessories, fashion_children_clothing, fashion_male_clothes, fashion_shoes, fashion_underwear_beach, fashion_sport, Health_beauty, perfumery, sports_leisure and watches_gift.

Furnitures: bed_bath_table, furniture_bedroom, furniture_decor, furniture_living_room, furniture_mattress_and_upholstery, garden_tools, kitchen_dining_laundary_garden_furniture, luggage_accessories and office furniture.

Home appliances: home_appliances, home_comfort, home_construction and housewares.

Musical Instrument: audio, music and musical instruments.

Security Services: security_and_services and signaling_and_security.

Review Score

This section consists of the rating of the products given from the customer's perspective. It has been scaled on five points, wherein one is the lowest and five is the highest.

Payment Value

This section tells us the total cost paid by any customer along with the shipping charges. That means the payment value is the summation of price and freight value. The freight value changes according to the location of the customer.

All the other parameters like seller location and customer location are defined by the name of the city and state. Product ID (Identification) has been defined by the seller according to the product category. The order status canceled, order status created, order status delivered, order status invoiced, order status processing, order status shipped, order status unavailable has been defined by 0 and 1, wherein 0 states ``No" and 1 state "Yes".

11

Visualization Tool

The data visualization has been performed on the Business Intelligence tool, PowerBI desktop. By using PowerBI we can connect multiple databases and can convert it into a desired model. This data model helps to build visuals and collections of visuals which can be shared as reports with other people inside the organization (Iseminger, 2021). By using PowerBI we can create a GIS (Geographic Information System) map too if we have the longitude and latitude of a certain location. All the analysis and visualization has been done using PowerBI desktop.

CHAPTER FOUR

ANALYSIS

In this section based on the analysis, the analysis questions are answered.

Average of Review Score by Product Category (Group)

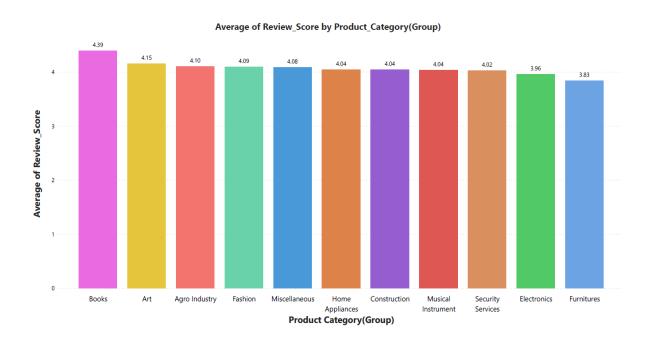


Figure 4.1 Average of Review Score by Product Category (Group) for the Year 2016 to 2018.

Figure 4.1 indicates that the product category of books has been highly rated by the customers over the entire three years of 2016 to 2018, whereas furniture has been rated lowest by the customers. But almost all the product categories have been rated above average, which we have considered as 3 and above.

Average of Review Score, Average of Price and Count of Product Category (Group)

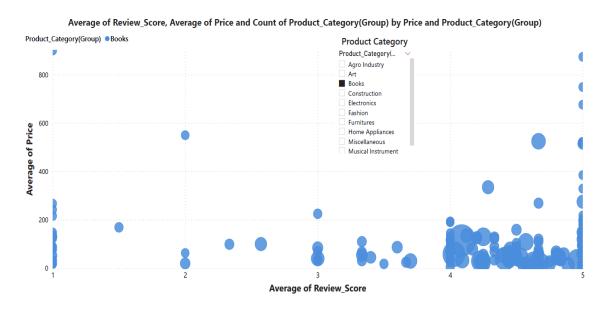


Figure 4.2 Average of Review Score, Average of Price and Count of Product Category (Group) by Price and Product Category (Group) with Slicer on Product Category Books.

Figure 4.2 indicates that the highly rated books are expensive and have good reviews from the customers. On the other hand, the cheapest books have been rated in the average range (average range 2.5 to 3.5 rating). But the maximum quantity of books is low priced and have been given rating more than 4.

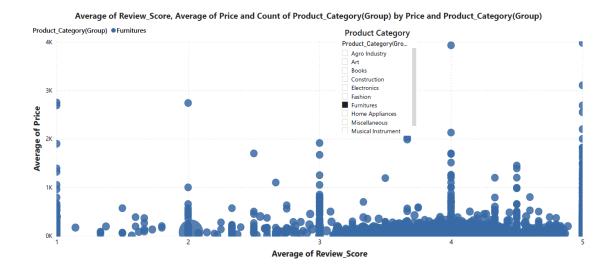


Figure 4.3 Average of Review Score, Average of Price and Count of Product Category (Group) by Price and Product Category (Group) with Slicer on Product Category Furniture.

Figure 4.3 indicates that the highly rated furniture is lower priced and the maximum number of customers have purchased the furniture which is lower priced. Also, the highly priced furniture has been accepted by customers and given a rating of 4 and 5. It has been observed that in the furniture category the highly priced products have also been given low ratings.

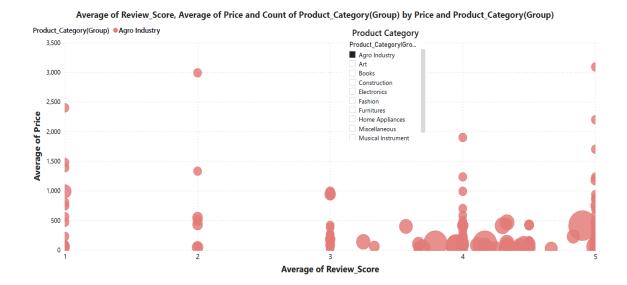


Figure 4.4 Average of Review Score, Average of Price and Count of Product Category (Group) by Price and Product Category (Group) with Slicer on Agro Industry.

Figure 4.4 indicates that the highest priced products have been rated low.

Most prices are above 3.95 in Average of Review Score and above 355.56 in

Average Price.

The maximum of the customers lies above average rating of the product, even if they have been priced low. It has been observed that there is a trend between the highest and lowest rating. The agro industry related products which have the highest and lowest rating in the same manner are equally priced. The target audience, however, is not high as compared to the other product categories.

Average of Review Score by Product Category (Group) and Customer State

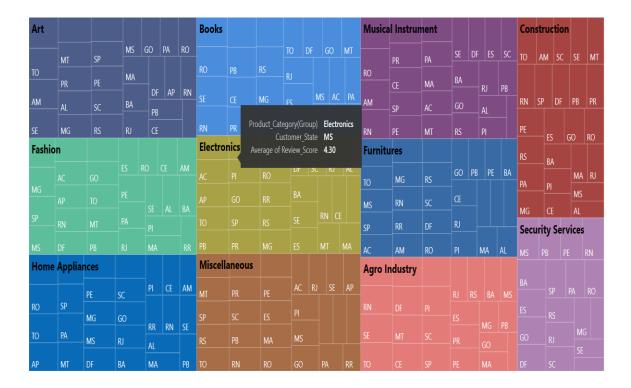


Figure 4.5 Average of Review Score by Product Category (Group) and Customer State showing High Rating.

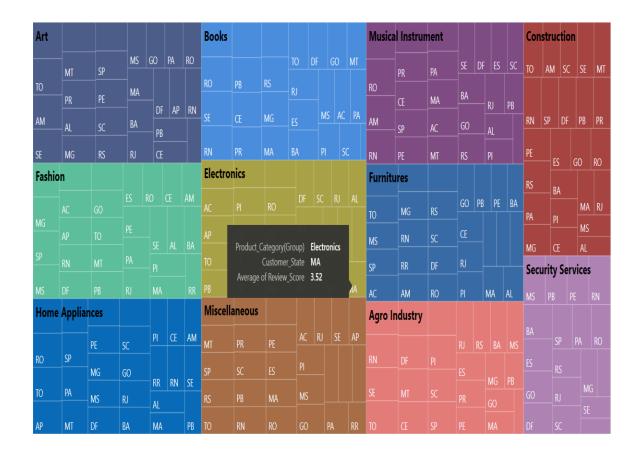


Figure 4.6 Average of Review Score by Product Category (Group) and Customer State showing Low Rating.

Figure 4.5 and Figure 4.6 indicate the different product categories rating analysis as per the region of customer. The highest rating of the state has been located at the top of every product category and the lowest customer state has been located at the end of the product category. For example, under electronics the highest rated customer state is MS which has a given rating of 4.30 (Figure 4.5) and the lowest rated state is MA which has a given rating of 3.52.

Payment Value by Customer Zipcode



Figure 4.7 Payment Value by Customer Zipcode with World Map

Figure 4.7 indicates the company's overall market capture. It has been seen that the company has catered almost globally. The major countries captured by the company are North America, South America, Europe, some parts of Australia and some parts of Africa.

On the basis of the analysis it has been observed that across all 14,994 Customer Zipcodes, Payment Value ranged from 16.97 to 109,759.5.

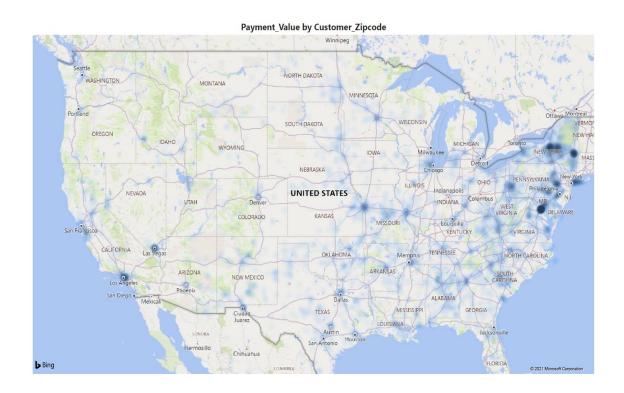


Figure 4.8 Payment Value by Customer Zipcode with United States.

Figure 4.8 indicates the customer region of North America. We can see that the majority of the customers are from Albany, Syracuse and the District of Columbia. Few customer bases are from Los Angeles, Las Vegas and are little spread all over the east.



Figure 4.9 Payment Value by Customer Zipcode with Brazil.

Figure 4.9 indicates the customer region of Brazil. We can see that the majority of the customers are spread in the southern part of Brazil. It can be seen that the major market of Olist is in Brazil.



Figure 4.10 Payment Value by Customer Zipcode with Europe.

Figure 4.10 indicates the customer region of Europe. We can see that the majority of the customers are spread in the region of Bulgaria, Spain, Switzerland, Hungary and Austria.

CHAPTER FIVE

RECOMMENDATIONS

On the basis of the analysis we have seen that customers have a higher rating towards the books category as compared to the other product category. It can be suggested that if the company focuses more on selling the books it can make more business, since it is the cheapest product category as well. Furniture is lowest in the customer's perspective as it has been given the lowest rating. If the company focuses on the customer's reviews and understands the reason behind the lower rating of the customer towards the furniture then the company will be able to understand the customer's needs easily. According to the rating it can be seen that the agro industry, fashion, miscellaneous and arts have a rating range from 4.08 to 4.10. Thus, the customers have given relatively more than average ratings for these products. According to the overall category of products ratings the majority of the product categories lie above average which has been considered as rating 4 and above. Thus, we can conclude that the company should focus on the lower rated products such as electronics and furniture to understand the reason behind the low product rating, so that they can improve on the product category.

On the basis of the above analysis we can conclude that the maximum number of customers have purchased furniture in the year 2016 to 2018 as compared to books and agro industry products if we compare it with the price module. And the rating of the customers lies between 3 to 4.8. There is an

inverse relationship between the price and rating when it comes to the furniture category.

When we consider the same analysis on the agro industry, it has been observed that the customer range is comparatively lower. The majority of the customers lie between low price and high rating regions. It can be seen that the customers who have high ratings and high prices are not many. It can be seen that few customers who have rated low have paid a higher price too. The best price is above 3.95 in Average of Review Score and above 355.56 in Average_Price.

On the basis of the analysis the majority of the customers lie in the low priced and high rating region. The customer range towards the high priced and low rating are less. Most Prices were above 4.34 in Average of Review Score and above 98.72 in Average of Price.

Through the analysis the company can easily understand the product category requirement according to the customer region and the region wise rating. The Olist company can figure out which state has to have maximum sale of the product category and which region is having the low product rating. On the basis of which the company can build their marketing technique to increase the sales towards the low focus region with respect to the rating. Through the customer state analysis, the company can easily identify which state they have to focus on more so they can understand the customer's needs and wants. Thus,

through this analysis the company can focus on the product improvement on customer state wise.

CHAPTER SIX

CONCLUSION

Brazil is the 14th largest country for the e-commerce market with a revenue of \$21 billion in 2020. With a population of 210 million consumers Brazil is the world's ninth largest economy at \$1.84 trillion based on the World Bank data (Azevedo, 2021). The pandemic has affected most of the countries and because of which the consumers have shifted towards the online shopping instead of the in-store market purchase. JPMorgan's 2020 e-commerce payment trend has found that the e-commerce market in Brazil has been growing at double digit rates since 2017, and is predicted to grow in excess of 9% annually through 2023, reflecting economic pressure caused by COVID-19 (Moeser, 2021).

Olist is an e-commerce company used to aggregate the marketplace of the startup companies to run their business smoothly without any problems. The company has a good market capture in Brazil , though it has its market capture in 180 countries. Due to the current pandemic situation the company has made good progress in revenue generation. Recently the company has launched series D with Goldman Sachs investment. Olist is creating a positive impact on the startup companies by giving them opportunities to cater the market all over the world.

Olist is a startup company founded in 2015 thus there was limited access for the data. The dataset available in Kaggle was only for three year (2016-2018).

Also, the company has started catering into the market thus it has a limited product portfolio. Thus, through the past impact on the revenue generation of the company, it has been predicted that the company might have done great work in market penetration and future growth during the COVID-19 pandemic.

Despite these limitations, according to the revenue analysis by using business intelligence tool powerBI we can conclude that the company can focus on the customer's perspective towards the rating of each product list, which can ultimately focus on the product's improvement. The analysis also focuses on the product categories with respect to the price and the review score of the customer. It has been observed that lower priced products have been rated high throughout the entire product categories. Thus, if the company focuses on the product's pricing strategy and makes product improvements on the basis of consumer opinion, the company can make better revenue and can increase the range of products under each category. Although the company has captured the global market, through a wide range of products it can capture the untouched region as well. The market and its customers decide the company's growth and its sustainability in the future. Thus, the company has to deliberately address the consumer's review and keep on modifying and changing the product range. Future work in this area may include identifying how relationships uncovered in this analysis may be applied to improve revenue within similar e-commerce companies in Brazil.

APPENDIX A: ABBREVIATION

ABBREVIATION	STATE NAME
SP	SAO PAULO
AC	ACRE
AL	ALAGOAS
AM	Amazonas
АР	Amapá
ВА	Ваніа
CE	Ceará
DF	DISTRITO FEDERAL
ES	ESPÍRITO SANTO
GO	Goiás
MA	MARANHÃO
MT	MatoGrosso
MS	MATOGROSSO DO SUL

MG	MINAS GERAIS
PA	Pará
РВ	Paraíba
PR	Paraná
PE	PERNAMBUCO
PI	PIAUÍ
RJ	RIO DE JANEIRO
RN	RIO GRANDE DO NORTE
RS	RIO GRANDE DO SUL
RO	Rondônia
RR	RORAIMA
SC	SANTA CATARINA
SP	SÃO PAULO
SE	SERGIPE
то	Tocantins

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