4. Analyzing enterprise data for all the companies:

i. Company Highest Revenue:

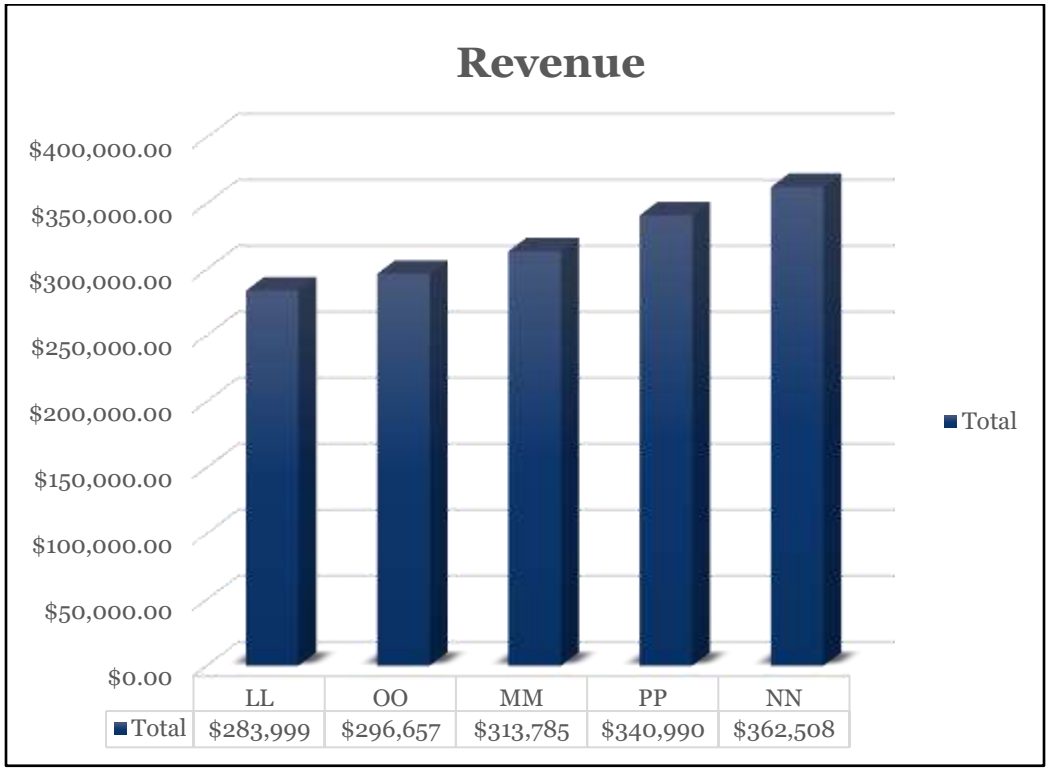

Figure: 1 Company highest revenue

The company with the highest revenue among **LL, MM, NN, OO**, and **PP** is **NN**, with a revenue of **$362,508.81**. Therefore, **NN** had the highest revenue among the listed companies.

The company with the greatest revenue is shown in the above bar chart figure 1. Revenue is shown in the chart in descending order. By the end of round three, business NN had the strongest revenue, according to the first visual, which showed the patterns of all the companies that were studied. Therefore, the following figure that displays the total income of all firms is supported by this. Our company OO comes fourth place in the ranking. Having a high revenue is a key operation strategy for achieving the goal of high competitor value. The corporation with the largest revenue, on the other hand, did not win the game since their sales margin is not high enough to create profits and income. As a result, determining the best strategy is critical.

ii. Dairy product highest revenue

The dairy product milk earned the largest revenue for Company **PP**. The total income is **$95,936.94.**

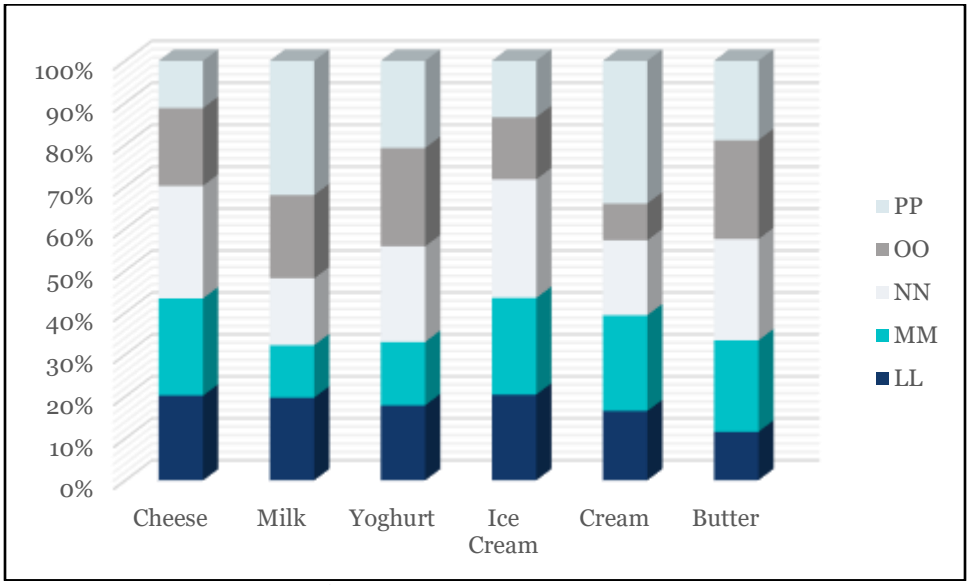

Figure: 2 Highest revenue for dairy products across all company.

Figure 3 chart illustrates the total net values for various dairy products across different regions, providing an insightful overview of their financial performance.

At the peak of revenue stands the Cheese category, boasting a substantial total net value of $345,300.46. It's followed closely by Milk, which accumulates $299,506.31, showcasing its significant contribution to the company's earnings. Yoghurt and Ice Cream both command respectable figures, securing $240,916.24 and $210,719.77, respectively, while Cream and Butter present solid, albeit slightly lower, net values at $218,777.79 and $282,720.65, respectively.

Across the regions LL, MM, NN, OO, and PP, each product's performance varies. Notably, NN demonstrates the highest cumulative net value of $362,508.81, followed closely by PP at $340,990.01. Conversely, LL registers the lowest total net value of $283,999.62 among the regions.

Sum of NET_VALUE				Winning Team		
Row Labels	**LL**	**MM**	**NN**	**OO**	**PP**	**Grand Total**
Cheese	$69,822.15	$79,992.00	$92,667.80	$63,980.23	$38,838.28	$345,300.46
Milk	$59,053.00	$37,388.00	$47,847.25	$59,281.12	$95,936.94	$299,506.31
Butter	$32,779.86	$61,563.00	$68,244.94	$66,658.48	$53,474.37	$282,720.65
Yoghurt	$43,108.51	$36,400.00	$54,956.00	$56,458.05	$49,993.68	$240,916.24
Cream	$36,182.26	$49,891.00	$39,173.32	$19,098.17	$74,433.04	$218,777.79
Ice Cream	$43,053.84	$48,551.00	$59,619.50	$31,181.73	$28,313.70	$210,719.77
Grand Total	**$283,999.62**	**$313,785.00**	**$362,508.81**	**$296,657.78**	**$340,990.01**	**$1,597,941.22**

Figure: 3 Highest revenue for each dairy product across all companies.

iii. Company that sold the most expensive dairy product:

The most expensive dairy product “cheese” was sold by NN.

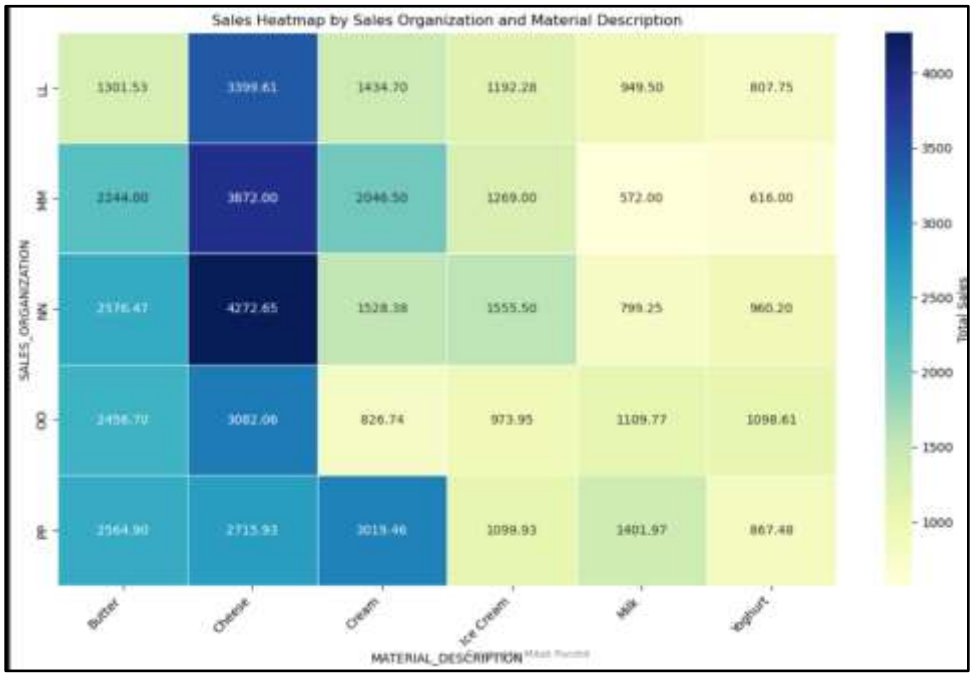

Figure: 4 Heatmap for the Company that sold the most expensive dairy product

The figure, a Heatmap for the Company that sold the most expensive dairy product, visually encapsulates the pricing landscape of various dairy products across different companies or teams. Each cell in the heatmap corresponds to a specific dairy product and seller, with color intensity representing the price range. By examining the heatmap, viewers can readily identify the intersection where the most expensive dairy product, such as "cheese," is sold, with the distinctive color in that cell indicating that the company or team labeled as "NN" holds the top position as the seller of the highest-priced cheese. This graphical representation offers a swift and intuitive insight into the comparative pricing dynamics of dairy products, highlighting the leading entity in terms of selling the most expensive item.

iv. Company that sold the most quantity:

In the provided Marimekko map, the information indicates that the company denoted as "PP" stands out as the leader in selling the most quantity of dairy products. The map likely visualizes the distribution of sales across different companies, and the distinct proportions within each block represent the quantity of dairy products sold. By analyzing this map, viewers can identify "PP" as the top-performing company in terms of sales volume. Additionally, the answer specifies that the most sold product for this company is "Milk," suggesting that within the product portfolio of "PP," milk is the primary contributor to its substantial quantity of sales. The Marimekko map, with its segmented blocks and proportions, serves as a comprehensive visual representation, aiding in the swift interpretation of both the leading company and its highest-selling dairy product.

Company that sold the most quantity: PP
Most sold product for the company: Milk

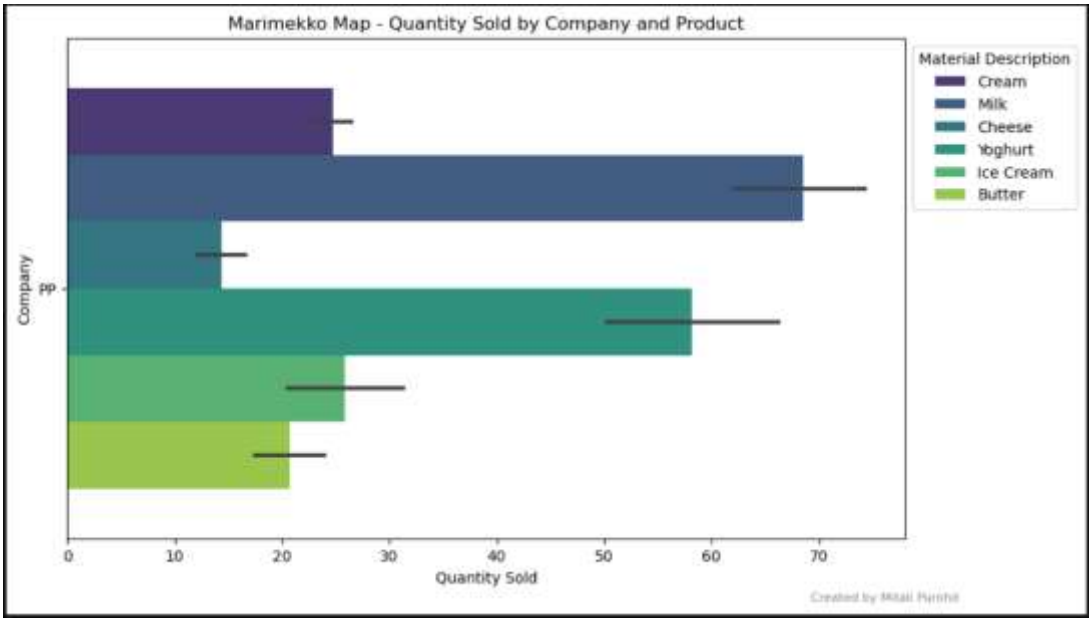

Figure 5:Marimekko Map - Identifying the Leading Company in Sales Volume

v. Analyzing the Best-selling dairy product in region wise

MATERIAL_CODE	(Multiple Items)
AREA	North
SALES_ORGANIZATION	(All)
Row Labels	**Sum of QUANTITY_DELIVERED**
Milk	6774
Yoghurt	4161
Ice Cream	2958
Butter	2466
Cheese	1666
Cream	1471
Grand Total	**19496**

Milk sold the most in the North with 6774.

MATERIAL_CODE	(Multiple Items)
AREA	South
SALES_ORGANIZATION	(All)

Row Labels	**Sum of QUANTITY_DELIVERED**
Yoghurt	4334
Milk	3939
Butter	2773
Ice Cream	2030
Cream	1899
Cheese	1361
Grand Total	**16336**

Yoghurt sold the most in the South with a quantity of 4334.

MATERIAL_CODE	(Multiple Items)
AREA	West
SALES_ORGANIZATION	(All)

Row Labels	**Sum of QUANTITY_DELIVERED**
Milk	5273
Yoghurt	4047
Cheese	3334
Ice Cream	1626
Butter	1558
Cream	1147
Grand Total	**16985**

Milk sold the most in the West with a quantity of 5273.

MATERIAL_CODE	(Multiple Items)
SALES_ORGANIZATION	(All)

Sum of QUANTITY_DELIVERED	**Column Labels**			
Row Labels	**North**	**South**	**West**	**Grand Total**
Milk	6774	3939	5273	15986
Yoghurt	4161	4334	4047	12542
Butter	2466	2773	1558	6797
Ice Cream	2958	2030	1626	6614
Cheese	1666	1361	3334	6361
Cream	1471	1899	1147	4517
Grand Total	**19496**	**16336**	**16985**	**52817**

Milk sold the most in Total with quantity of 15986.

vi. Warehouse cost charges and shipping cost charges during the game:

FS_LEVEL_2	Operating Expenses
FS_LEVEL_1	Income Statement
COMPANY_CODE	OO

Row Labels	Sum of AMOUNT_INV	Sum of AMOUNT
Shipping costs	-1800	1800
Grand Total	**-1800**	**1800**

1800 EUR is charges for shipping for team O. Team O has 0 charges for warehousing.

FS_LEVEL_2	Operating Expenses
FS_LEVEL_1	Income Statement
COMPANY_CODE	(All)

Row Labels	Sum of AMOUNT_INV	Sum of AMOUNT
Shipping costs	-16400	16400
Warehousing Costs	-9600	9600
Grand Total	**-26000**	**26000**

16400 EUR is charges for shipping costs and 9600 EUR is charges for warehousing costs. Total expenses for all teams are 26000 EUR.

vii. Correlation between Price and Revenue:

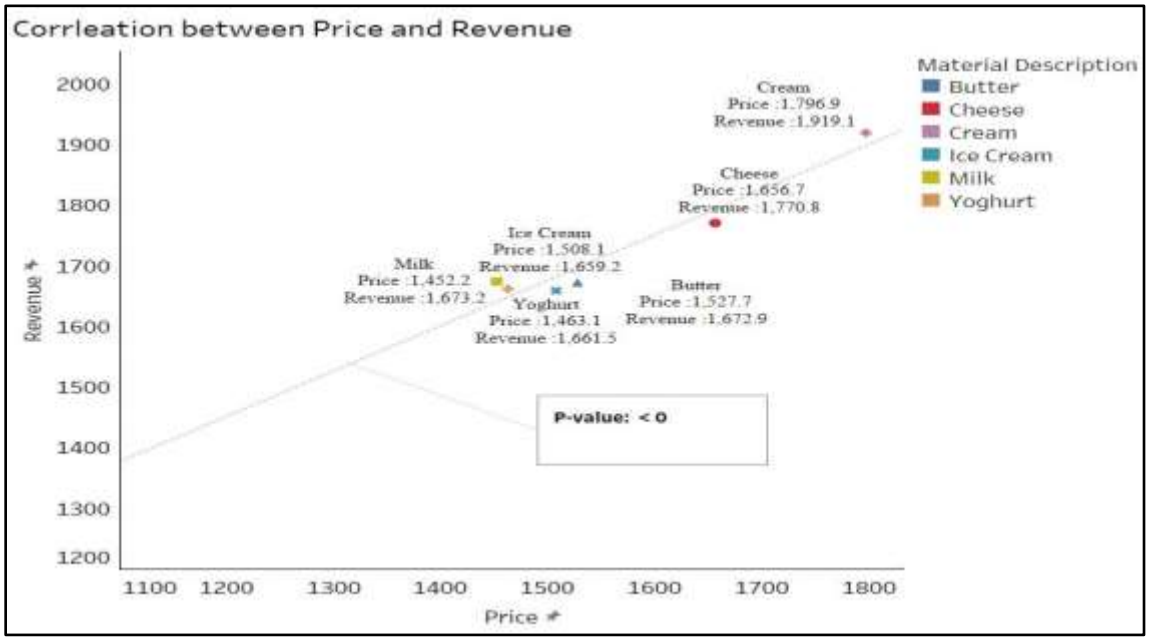

Figure: 6 correlations between Price and Revenue for all company

From the figure :6 We can see the correlation is statistically significant, explaining a high proportion of the variability in Net Value based on the linear relationship with Avg. Cost. The R-squared value is 0.938492 indicates, in the average Net Value is explained by the **linear trend model**. This coefficient indicates that, on average, for each unit increase in Avg. Cost, the predicted Net Value increases by 0.747426.
The t-value of 7.81231 and a p-value of 0.0014489 suggest that this **coefficient is statistically significant**.

Correlation between price and Revenue for our company OO:

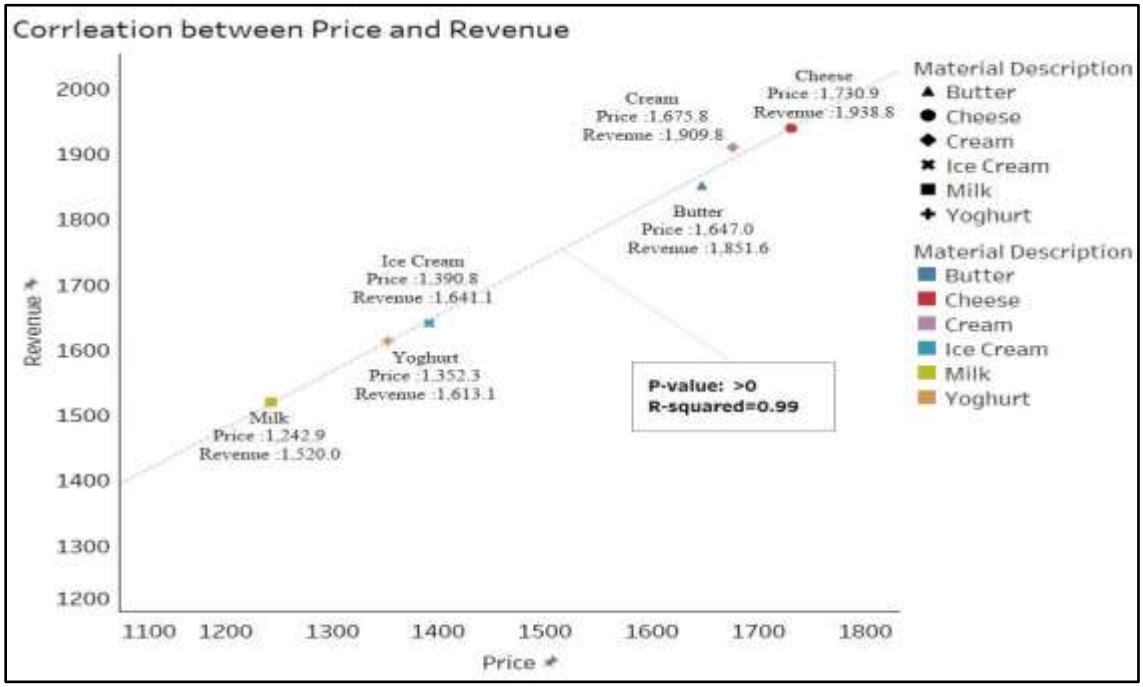

Figure: 6.1 correlations between Price and Revenue for company OO

Scatter plot is used to show the correlation between the Price and Revenue. Shape and Color differentiate the different products. The Tread Line is used to show the correlation between the Cost price and Revenue earnings in all three rounds and in all three regions for our company OO.

The above scatter plot Figure 6.1 and Trend Line indicate (figure: 4) that we have a **linear regression** model and there is a **positive linear correlation between "Avg. Cost" and "Avg. Net Value,"** with a coefficient of 0.866795 (p-value < 0.0001). The intercept term is also significant (p-value = 0.866795). The **R-squared is 0.99** indicates very strong relationship between the variables.

Avg. Net Value=0.866795×Avg. Cost+439.812

The **positive sign of the coefficient suggests a positive linear relationship** between Avg. Net Value and Avg. Cost. The Value 0.866795 represent the slope of regression line and indicating that, on average, for each unit increase in cost, net value increases by 0.866795. In regression analysis, a low p-value typically suggests that the variable is a significant predictor of the response variable.

viii. Correlation between Price and Income:

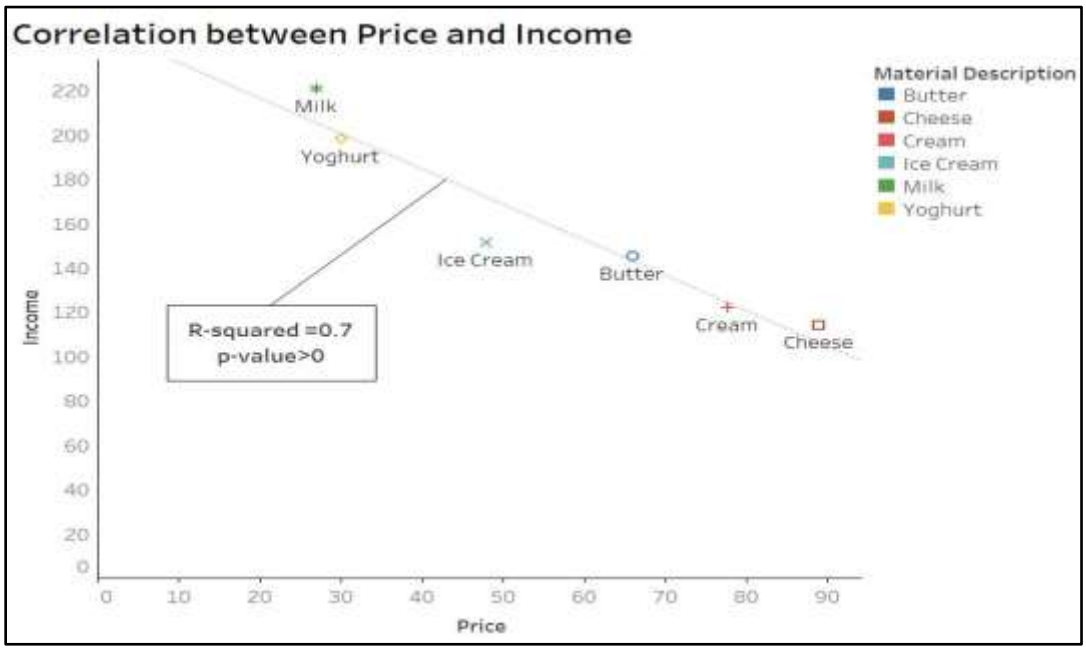

Figure: 7 correlations between Price and Income for all company

The correlation is statistically significant, explaining a high proportion of the variability in the average Contribution Margin based on the **linear relationship with Avg. Net Price**.

Avg. Contribution Margin = -1.59993*Avg. Net Price + 248.665

The negative coefficient for Avg. Net Price suggests a negative impact on Contribution Margin as Net Price increases. Both the Avg. Net Price term and the intercept are statistically significant, contributing significantly to the model. When calculating for all the company, we can see that Milk and Ice cream deviates from the trend line. The margin coefficient is -ve because not all the company had good profit and high profit margin.

Correlation between Price and Income for company OO:

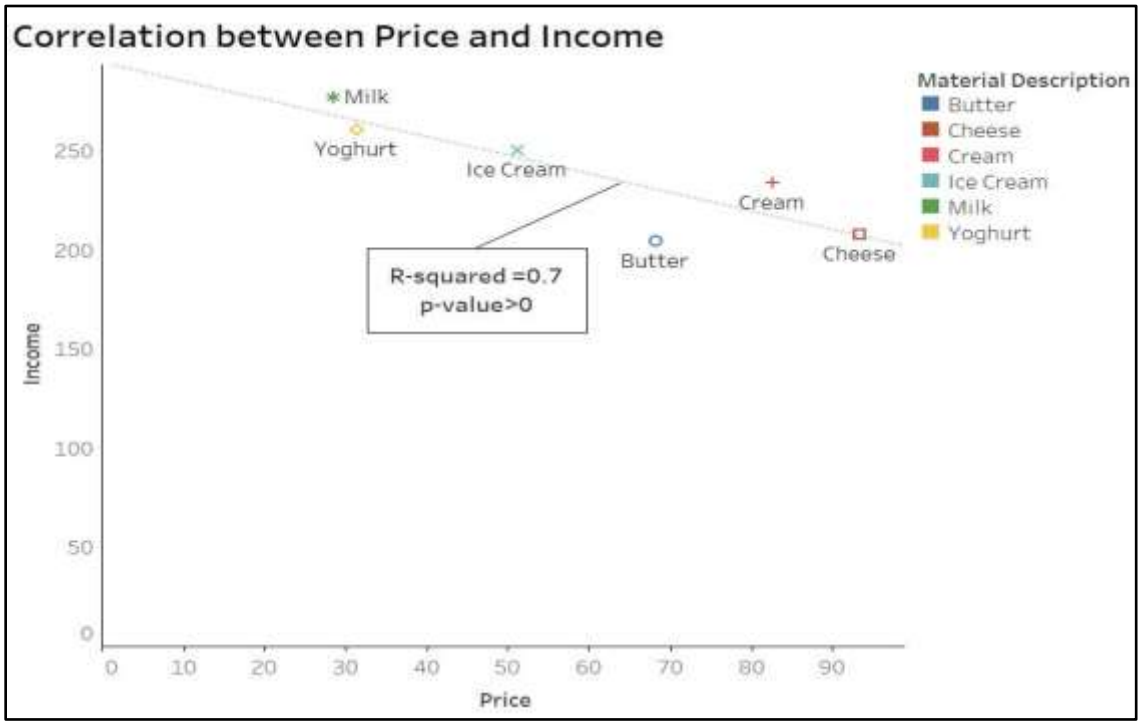

Figure: 7.1 correlations between Price and Income for company OO

Scatter plot is used to show the correlation between the Price and Income. Shape and Color differentiate the different products. The Tread Line is used to show the correlation between the Cost price and Revenue earnings in all three rounds and in all three regions for our company OO.

The above scatter plot and Trend Line indicate (figure :7.1) that we have a **linear regression** model and there is a **Negative correlation between "Avg. Net Price" and "Avg. Contribution Margin,"** with a coefficient of 0.0270467 (p-value < 0.0001). The intercept term is also significant (p-value = 0.0270467), representing the starting point of net value when cost is zero. The **R-squared is 0.7** indicates moderately **strong relationship between the variables.**

Avg. Contribution Margin = -0.936831*Avg. Net Price + 294.616.

The coefficient for "Avg. Net Price" is −0.936831which indicates negative relation ship.

This coefficient indicates that, on average, for each unit increase in Avg. Net Price, the Avg. Contribution Margin decreases by −0.936831.