

Assignment for 4ECQ402-
Exploring Business Data;

DVD Sales: Analysis of Performance



INTRODUCTION

DVD Sales is a company selling DVD players inside the UK. It is a large company with many shops all around the country. The locations of its shops can be divided into three regions of the UK (North, South, East). The company has been selling three different types of DVD players & has been launching advertising campaigns for each of the types in the year 2002.

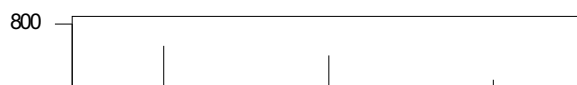
The aim of this part of the report (task 1) is to assess the performance of sales for the three different types of DVD players and analyse the affects of other factors that might have affected the sales. The performance of the company has been stored as a data in the PC and these data's will be the source of information for this report. 'Minitab' application system will be used to generate findings and calculations.

The relevant source of information used in this report will be;

- Regional Location of the individual outlets (North, South, East),
- Gender of manager in individual shops,
- The age of the manager in the individual shops,
- Price increase of the products in individual outlets from the year 2000,
- Average monthly advertising expenditure of individual outlet,
- Average annual sales of individual outlet for individual products,
- Total DVD player sales for individual outlet (Annually).

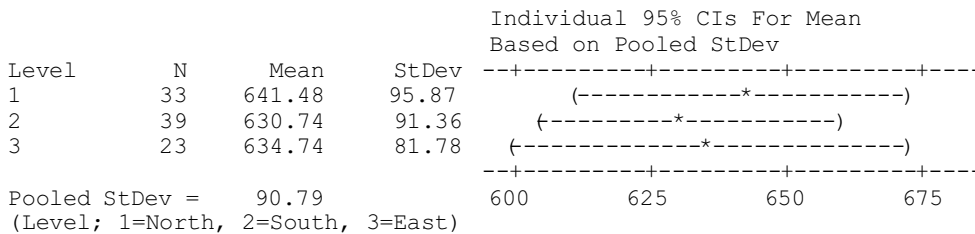
The second part of the report (task 2) involves presenting research on recent sales of DVD in the UK. Data and other relevant information for this task will be collected and presented using the EXEL program.

1. TASK 1



i. Distribution of the Total UK sales

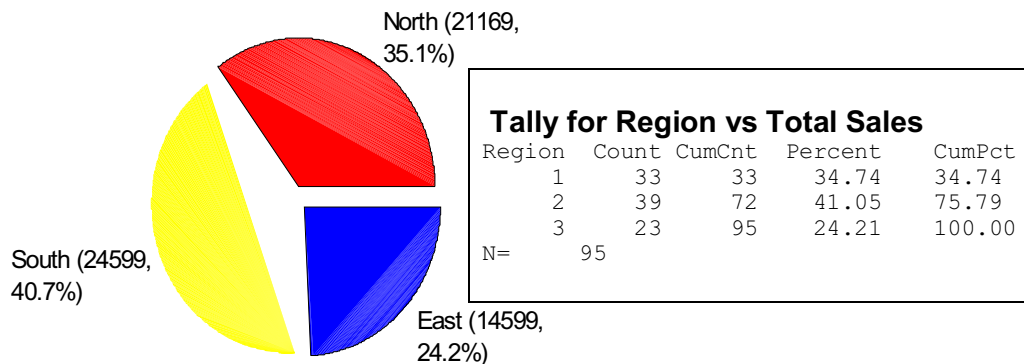
One-way ANOVA: Total sales versus Region



The box plot & the statistics displays that the mean distributions of sales for the three regions (North-641.48, South-630.74, East-634.74) are very close to each other, but not the same. North region is doing the best in terms of sales and south is doing the worst; but there is a bigger variety (variance) in sales for shops in east than the other two regions. This indicates that in the east region some shops are doing really well while the others are have bad sales.

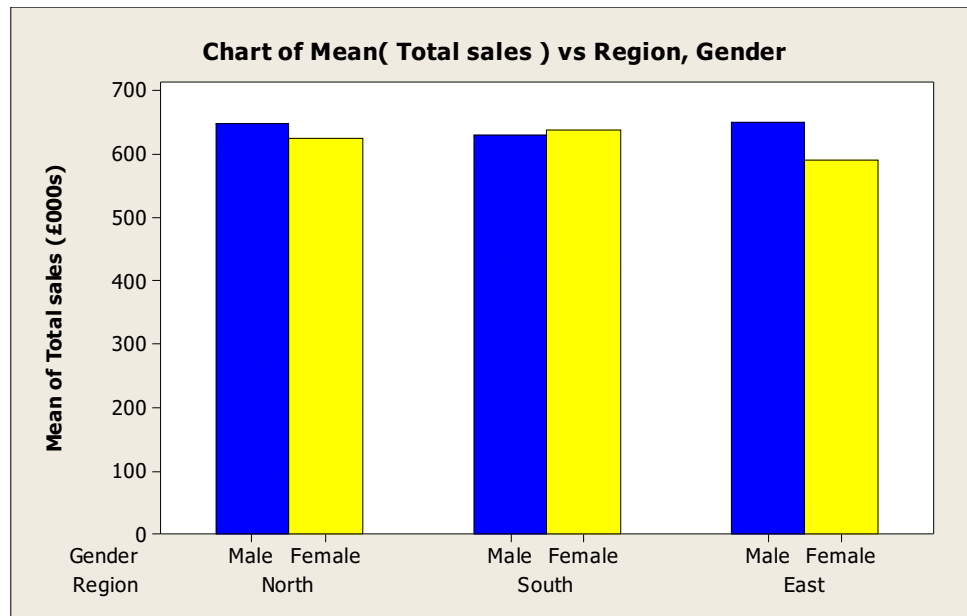
ii. Proportion of Total Sales in the three regions

Pie Chart of Region vs Total Sales



The total volume of sales made for each of the region has a very strong positive relationship to the number of shops there are in each region. North has 33 shops, south-39, east-23. The least number of shops are in the east UK and the most in the south UK.

iii. Gender of the managers affect on the Total sales



Gender	Count	CumCnt	Percent	CumPct
1	73	73	76.84	76.84
2	22	95	23.16	100.00
N=	95			

About a quarter of the managers of the stores are female. Their mean performance compared to that of the males is only better in the south, but they have a lower performance in the North and the east. These differences are not too great to have a significant. But on average the females seem to be doing worse, the company could look at this factor and try to improve this situation i.e. (training, recruiting male managers etc.)

iv. South Region: Relationship Between Gender and Sales of DVD Types

Descriptive Statistics:

Variable	Gender	N	Mean	Median	TrMean	StDev
Type 1 (	1	32	110.00	113.50	110.79	43.45
	2	7	115.4	124.0	115.4	37.2
Type 2 (	1	32	215.06	218.00	216.68	22.07
	2	7	216.00	214.00	216.00	21.56
Type 3 (	1	32	304.19	316.00	305.68	35.96
	2	7	306.1	316.0	306.1	40.7
Variable	Gender	SE Mean	Minimum	Maximum	Q1	Q3
Type 1 (	1	7.68	41.00	169.00	65.25	148.75

	2	14.1	64.0	164.0	73.0	148.0
Type 2 (	1	3.90	161.00	251.00	203.00	231.50
	2	8.15	195.00	248.00	197.00	243.00
Type 3 (	1	6.36	234.00	355.00	278.50	333.50
	2	15.4	232.0	359.0	289.0	337.0

This is a table showing the difference in the performance of male managers against females managers in the south region, it also shows how each gender performed in sales for the three different types of DVD players, from the data we can see that females managers have made better sales then the males (but not a lot better). The mean value for the sales of each DVD player is higher for females than males; this is not true for the other regions of the UK because in north and east, males have performed better then the female managers. The reason may be that females are more competitive because of the social differences in the south UK, therefore achieve better. This factor in the south could be taken account by the company and they may want to employ more female managers because the number of female managers is fairly low in the region (32male, 7female).

v. Relationship between Advertising and Total Sales

Regression Analysis: Total sales versus Advertising

The regression equation is: **Total sales = 374 + 0.266 Advertising**

Predictor	Coef	SE Coef	T	P
Constant	374.27	20.14	18.59	0.000
Advertisg	0.26630	0.01980	13.45	0.000

S = 52.74 **R-Sq = 66.3%** R-Sq(adj) = 65.9%

Unusual Observations

Obs	Advertis	Total sa	Fit	SE Fit	Residual	St Resid
6	873	478.00	606.75	5.83	-128.75	-2.46R
94	586	734.00	530.32	9.50	203.68	3.93R

The R-sq value is related to the correlation coefficient, if we take the sq root of the correlation coefficient we get the R-Sq value. The graph and the R-Sq value is 66.3%

indicates that there is a strong positive linear relationship with the amount spent on advertising and the total sales generated, this means that the more you spend on advertising the more revenue the shop will generate. This is a very important factor for the company, there is a much larger returns in terms of sales for the relatively small budget spent on advertising. This could indicate that the public will not be fully average of the products sold by the company if there is little advertisement, or the advertising strategy of the company is very affective.

vi. Affect of Price Increases on Total Sales

Regression Analysis: Total sales versus Price Increases

The regression equation is: **Total sales = 808.872 - 79.6935 Price Increases**

S = 54.4438 **R-Sq = 63.8 %** R-Sq(adj) = 63.4 %

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	484826	484826	163.565	0.000
Error	93	275663	2964		
Total	94	760489			

The graph clearly indicates that the more you increase the price of the players the less sales you will make (there is a negative linear relationship between the two variables). The R-Sq value is 63.8%, meaning that 63.8% of the total sales ca be explained by looking at the price increases, this indicates that the influence that one variable has on the other is very high. The reason for this high relationship between the two variables could be because of fierce competition from other firms, therefore a little increase in price could make DVD sales a lot less competitive, resulting in the loss of the customers.

vii. The Age of Managers effect on Total Sales

Regression Analysis : Total sales versus Mangers Age

The regression equation is: **Total sales = 118.205 + 16.8626 Mangers Age**

S = 72.3415 **R-Sq = 36.0 %** R-Sq(adj) = 35.3 %

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	273793	273793	52.3174	0.000
Error	93	486697	5233		
Total	94	760489			

The R-Sq value for the relationship of managers age and the total sales is 36%, this value indicates that the relationship is not very strong and reliable, but there is a tendency that the higher the age of the manager, the more revenues are made. This is an important assumption in the eyes of the company. If we examine the table and the analysis carefully we can see that the most sales (mode) were made by a manager who was 32 years old. This means the younger managers could also achieve high. There is a great variance in the performance of younger managers (between 25 to 35 yrs old), but the managers in the ages of 36 & 37 have a high performance in terms of sales and they are consistent (all of them achieved the high sales). The Company could take this into consideration and could decide to employ more managers above the ages of 35.

The histogram shows that the mode age of the managers employed is 30 and the graph is slightly positive skewed. This indicates that there are a lot younger managers in the company compared to the older managers, considering that the older managers are

better at generating higher revenues, the company might want to rethink its employment of managers in favour of the getting more older 'wiser' managers.

CONCLUSION

There is a clear indication that DVD Sales is a more male dominated company. Around 75% of the managers are male; this indicates that fewer females are given the chance to run the outlets. This could affect the performance of the company and the image of the company because the staff and the public might not have a nice impression of the company, especially the female ones, which might be the reason why female managers are doing better in the south region where the issue of sexual discrimination is more sensitive.

DVD sales in all the three regions are relatively similar, indicating that the market for DVD products is evenly distributed in the regions of the UK. But there is a bigger variance of sales in the regions of north and east. These two regions are much less densely populated compared to the south. Therefore there might be relationship between the location of the outlet in terms of population density and the sales generated (the more densely populated the more sales).

Price increases in the DVD players also have a highly significant affect in the sales, when prices go up the sales go down. This could indicate that the market is very competitive and the consumers are price aware and likely to choose the cheapest.

Advertising affects the revenue generated by of the outlets greatly; there is a strong relationship in that the more spent on advertising the higher the revenue. This indicates that the advertising has high consumer penetration and the advertising strategy of the company is successful.

RECOMENDATION

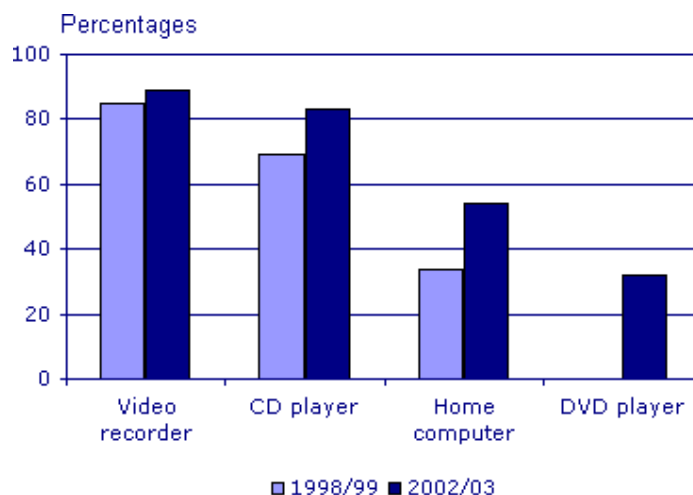
The company should bring more female managers to the company, this is likely to help the company image and make the females more competitive, and the first priority should be the south region of the country, because there the females are also performing better than the male managers. Also the company should try to employ managers that have an older age and more experience in the industry.

The company could move their outlets to a more densely populated town or city, especially in the north and the east region. Price increases are bad for sales, therefore the company should do more examining of their competitors and their prices of products in order to be more competitive.

More resources should be allocated to advertising and the planning of advertising strategy, more money should be spend and more regional customers should be exposed to advertising. The company could think about advertisements in the national scale (in national TV's and newspapers).

2. TASK 2

UK SALES ON DVD PLAYERS AND OTHER ELECTRONIC GOODS



Source of graph:

<http://www.statistics.gov.uk/CCI/nugget.asp?ID=868&Pos=5&ColRank=2&Rank=416>

The graph is about the Sales in DVD player and other electronic appliances in 2002/3 compared the sales in 1998/9. From the graph we can clearly see that the sales in all four of the goods have risen significantly in four years. But the sales in DVD players have risen the most compared to others. If we look carefully at the data in sales of DVD players we can see that the market for DVD products were non-existent in 1998/9. This shows that DVD products have been very successful from the day it was launched.

“Sales of DVD Videos were four times higher in 2000 (16.6 million) than in 1999 (4.05 million) according to figures released in January 2001 by the British Video Association (BVA)...The British public is embracing DVD Video like no other entertainment format before. DVD Video players continue to be the fastest selling consumer electronics format launch of all-time.”

Quote from: www.templatebusiness.com/marketing/surveys/SGS%20e-commerce%20100%20-%20Video-DVD.pdf

Sales in DVD Movies

United Kingdom	Percentages
Comedy	32
Action/adventure	20
Thriller	19
Drama	13
Horror	6
Children's/family	6
Science fiction	4

Source of table:

<http://www.statistics.gov.uk/StatBase/Expodata/Spreadsheets/D7186.xls>

The main purpose that the consumers buy DVD players is to watch movies. If we look at the table we can see that the most popular type of movies brought for the DVD

players is Comedy in 32% and the least in Science Fiction at 4%. Comedy is far the most popular movies type.

The graph below was formed using Microsoft EXEL;

