

CHAPTER IV

ANALYSIS OF DATA

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CHAPTER - IV

ANALYSIS OF DATA

This chapter deals with the analysis of data and findings. The Tax administration practice was analysed by the effectiveness level of employees of Commercial Taxes Department in Kerala. For this, 350 employees were selected from the Commercial Taxes Department by applying the multi – stage stratified random sampling method and the primary data were collected by using a structured interview schedule analysed and interpreted with the following statistical techniques.

- Percentage analysis
- Two – way ANOVA
- MANOVA Model
- Multiple Discriminant Analysis (MDA)
- Correlation
- Simple Linear Regression Model
- Multidimensional Scaling (ALSCAL Model)

Before entering into the data analysis the profile of the employees selected for the study is given.

4. 1 Profile of the employees

Depending on the socio economic background, the opinion expressed by the employees about effectiveness of Tax administration in the department may vary. For this purpose the following nine aspects related their socio economic profile were collected and analysed. They are given below.

- Gender
- Designation
- Academic & Professional Qualification
- Number of years of experience in the CTD

- Number of years of experience in the present position
- Placement mode
- Mode of transfer
- Present working district
- Preferable district to work

4.1.1 Gender classification by category

Table No. 4.1
Distribution of different categories of employees by Gender

		Gender		Total
		Female	Male	
Designation	Top level employees	54 51.4%	51 48.6%	105 100.0%
	Middle level employees	100 54.1%	85 45.9%	185 100.0%
	Lower level employees	22 36.7%	38 63.3%	60 100.0%
	Total	176 50.3%	174 49.7%	350 100.0%

The table above explains that the Gender - wise sample in different categories Commercial Taxes Department is almost same. It shows that (Table No.4.1) in the total sample of 350 (100%) employees, 174 (49.7%) are male employees and 176 (50.3%) are female employees. Out of the 105 Top level employee, 54 (51.4%) of them are female and 51(48.6%) of them are male employees. The total of 185 middle level employees, 100 (54.1%) of them are female and 85 (45.9%) of them are male respondents. Under lower level employees, 22 (36.7%) of them are female and 38 (63.3%) of them are male.

4.1.2 Designation

Table No. 4.2
Designation – wise Classification of Employees

Category	Frequency	%
Top level employees	105	30.0
Middle level employees	185	52.9
Lower level employees	60	17.1
Total	350	100.0

The Top level employees include Commissioner, Joint Commissioners, Deputy Commissioners (DC) and Assistant Commissioners (AC). In the total sample of 350 employees, 105 (30%) are Top level employees, 185 (52.86%) are Middle level employees, which includes Commercial Tax Officers (CTO), Commercial Tax Inspectors (CTI), Intelligence officers and Assistant Sales Tax officers. 60 (17.14%) are Lower level employees which includes UD Compilers, Head Clerks and Upper Clerks.

4.1.3 Academic and Professional Qualifications by category

Table No. 4.3
Distribution of the educational Qualification of employees by category

Designation	Educational qualification					Total
	P.G	Graduation	PDC/Intermediate	Professional	Others	
Top level employees	60 57.1%	20 19.0%	0 .0%	15 14.3%	10 9.5%	105 100.0%
Middle Level employees	20 10.8%	105 56.8%	55 29.7%	5 2.7%	0 .0%	185 100.0%
Lower Level employees	25 41.7%	35 58.3%	0 .0%	0 .0%	0 .0%	60 100.0%
Total	105 30.0%	160 45.7%	55 15.7%	20 5.7%	10 2.9%	350 100.0%

Educational Qualification by category - wise analysis of respondents shows that (Table No.4.3) in the total sample of 350 (100%) employees, 105 (30%) have Post Graduation, 160 (45.7%) have Graduation, 55 (15.7%) have PDC/Intermediate, 20(5.7%) have Professional Qualification and 10 (2.9%) are under other category, which means they are persons below Pre Degree/Intermediate or any kind of Diploma holders.

4.1.4 Number of years of experience in Commercial Taxes Department

Table No. 4.4
Number of years of experience of Top level employees in CTD

Year	Frequency	Percentage
15	30	28.6
17	5	4.8
23	20	19
24	5	4.8
29	45	42.9
Total	105	100.0

Table 4.4 examines the experience of the Top level employees in the Commercial Taxes Department. All the employees selected in the category have minimum of 15years experience. But only 5 have experience in 17years and 24years. A highest number of 45 have 29 years of experience. The mean experience of the Top level employees in the Commercial Taxes Department is found to be 23.05 years.

Table No. 4.5
Total Experience of Middle level employees

Year	Frequency	Percentage
3	5	2.7
10	15	8.1
14	35	18.9
21	25	13.5
22	5	2.7
24	15	8.1
26	20	19.8
28	30	16.2
29	30	16.2
30	5	2.7
Total	185	100.0

The average year's experience of the selected Middle level employees of the Commercial Taxes Department is shown in Table 4.5. The minimum 3years experience is recorded by 5 respondents and a maximum of 30 years by 5 respondents with an average of 21.78 years experience in the Commercial Taxes Department.

Table No. 4.6
Total Experience of Lower level employees

Year	Frequency	Percentage
5	10	16.7
6	20	33.3
20	5	8.3
22	25	41.7
Total	60	100.0

The average years experience of the selected Lower level employees in the Commercial Taxes Department is explained in Table no.4.6. The minimum years experience of 5year is selected by 10 respondents and a maximum of 22 years experience is 25. The average experience is 13.67years.

4.1.5 Number of years of experience in the present position

Table No. 4.7
Experience level of employees in the present position

Year	Top	Middle	Lower	Total
1	15 (14.3%)	55 (29.7%)	30 (50%)	100 (28.6%)
2	25 (23.8%)	25 (13.5%)	20 (33.3%)	70 (20%)
3	5 (4.8%)	5(2.7%)	0	10 (2.9%)
4	0	40 (21.6%)	0	40 (11.4%)
5	40 (38.1%)	25 (13.5%)	10 (16.7%)	75 (21.4%)
8	20 (19%)	35 (18.9%)	0	55(15.7%)
Total	105 (100%)	185 (100%)	60 (100%)	350 (100%)

Under Table 4.7, total experience of all categories of employees is mentioned. A minimum year’s experience of 1 year is selected by 15 (14.3%) Top level employees, 55 (29.7%) Middle level employees and 30 (50%) Lower level employees. 20(19%) Top level employees and 35(18.9%) Middle level employees have a maximum of 8 years experience. But the Lower level employees have a maximum experience of 5 years by 10 members.

4.1.6 Placement mode

Table No. 4.8
Placement mode

		Placement of Transfer		
		By Promotion	By Direct Recruitment	Total
Designation	Top level employees	95	10	105
		90.5%	9.5%	100.0%
	Middle Level employees	160	25	185
		86.5%	13.5%	100.0%
	Lower Level employees	50	10	60
		83.3%	16.7%	100.0%
Total		305	45	350
		87.1%	12.9%	100.0%

The Table No.4.8 shows the mode of transfer of employees in the Commercial Taxes Department. Under this 305 (87.1%) of employees reached their position by promotion out of which 95 of them are Top level employees, 160 of them are Middle level employees and 50 of them are Lower level employees. And of the rest 45 (12.9 %) of them by direct recruitment, ten are Top level employees, 25 of them are Middle level employees and another 10 of them are Lower level employees.

4.1.7 Mode of Transfer of Employees by category

Table No 4.9

Distribution of different categories of employees by Mode of Transfer

Designation	Mode of Transfer					Total
	Once in less than a year	Once in a year	Once in every two years	Once in every three years	Once in more than 3 years	
Top level employees	15 14.3%	0 .0%	5 4.8%	85 81.0%	0 .0%	105 100.0%
Middle Level employees	0 .0%	5 2.7%	60 32.4%	105 56.8%	15 8.1%	185 100.0%
Lower Level employees	0 .0%	0 .0%	0 .0%	50 83.3%	10 16.7%	60 100.0%
Total	15 4.3%	5 1.4%	65 18.6%	240 68.6%	25 7.1%	350 100.0%

The table 4.9 shows that 240 (68.6 %) of the employees say that they get transfer once in every 3 years. The norms for transferring the employees of the department set by the Commercial Taxes Department are also three. 25 (7.1%) of the employees have a transfer of more than 3 years. Only 15 (4.3%) have a minimum transfer period of less than one year. 5(1.4%) of them have one year and 65 (18.6%) of them have a transfer period of two years.

4.1.8 District - wise Distribution at present

Table No 4.10
District - wise Distribution

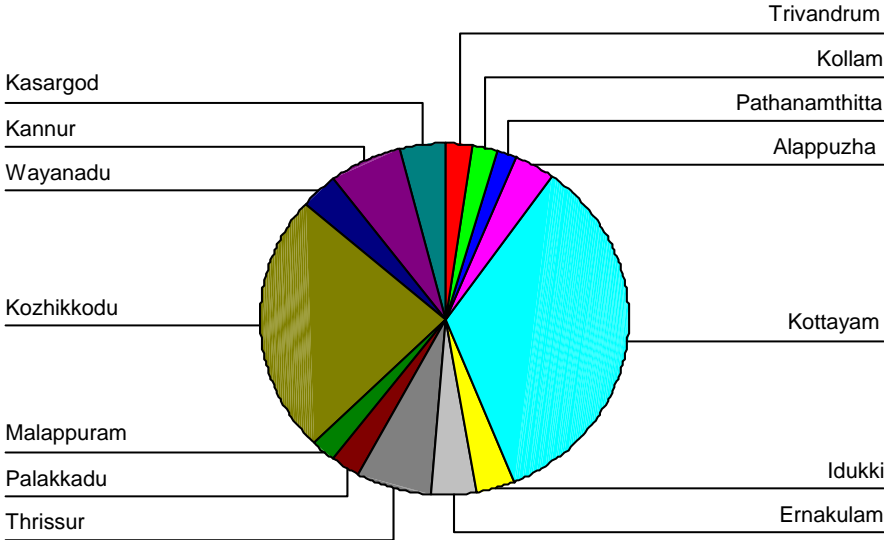
District	Top level employees	Middle level employees	Lower level employees	Total
Thiruvananthapuram	7 (6.7)	2(1.1)	-	9(2.6)
Kollam	4(3.8)	3(1.6)	1(1.7)	8(2.3)
Pathenamthitta	4(3.8)	1(0.5)	-	5(1.4)
Alappuzha	2(1.9)	7(3.8)	4(6.7)	13(3.7)
Kottayam	16(5.2)	70(37.8)	33(55)	119(34)
Idukki	2(1.9)	7(3.8)	2(3.3)	11(3.1)
Ernakulam	6(5.7)	7(3.8)	1(1.7)	14(4)
Trissur	4(3.8)	8(4.3)	11(18.3)	23(6.6)
Palakkadu	2(1.9)	5(2.7)	2(3.3)	9(2.6)
Malappuram	5(4.8)	3(1.6)	-	8(2.3)
Kozhikodu	43(41)	40(21.6)	-	83(23.7)
Wayanadu	1(1)	9(4.9)	2(3.3)	12(3.4)
Kannur	3(2.9)	16(8.6)	3(5)	22(6.3)
Kasargodu	6(5.7)	7(3.8)	1(1.7)	14(4)
Total	105(100)	185(100)	60(100)	350(100)

Under Table 4(10), the employees who were working in the 14 districts were as follows, Thiruvananthapuram out of 9(2.6%), 7(6.7%) are Top level employees and 2(1.1%) are Middle level employees. In Kollam 8(2.3), 4(3.8) are Top level employees, 3(1.6%) are Middle level employees and 1(1.7%) are Lower level employees. Pathenamthitta 5(1.4%), 4(3.8%) are Top level employees and 1(.5%) are Middle level employees. In Alappuzha 13(3.7%), Top level employees are 2(1.9%), 7(3.8%) are Middle level employees and 4(6.7%) are Lower level employees. Under Kottayam 119(34%), 16(5.2%) are Top level employees, 70(37.8%) are Middle level employees and 33(55%) are Lower level employees. Idukki 11 (3 .1%), 2 (1.9%) are

Top level employees, 7 (3.8%) are Middle level employees and 2 (3.3%) are Lower level employees. In Ernakulam 14(4%), 6(5.7%) are Top level employees, 7(3.8) are Middle level employees and 1(1.7%) were Lower level employees. Trissur out of 23(6.6 %), 4(3.8) were Top level employees, 8(4.3) were Middle level employees and 11(18.3) were Lower level employees. In Palakkadu 9(2.6%), 2(1.9) were Top level employees, 5(2.7) were Middle level employees and 2(3.3) were Lower level employees. Malappuram 8(2.3%), only Top level employees 5(4.8%) and Middle level employees 3(1.6%) were included. In Kozhikodu 83 (23.7%), 43(41%) were Top level employees and 40(21.6%) were Middle level employees. wayanadu 12 (3.4 %), only 1(1%) were Top level employees, 9(4.9%) were Middle level employees and 2(3.3%) were Lower level employees. Kannur out of 22 (6.3%), 3(2.9%) were Top level employees, 16(8.6%) were Middle level employees and 3(5%) were Lower level employees and from Kasargodu 14(4%) were selected, 6(5.7%) Top level employees, 7(3.8%) Middle level employees and 1(1.1%) were Lower level employees.

Chart 4.1

Pie chart showing the District -wise distribution at present



4.1.9 Preferred Districts to Work

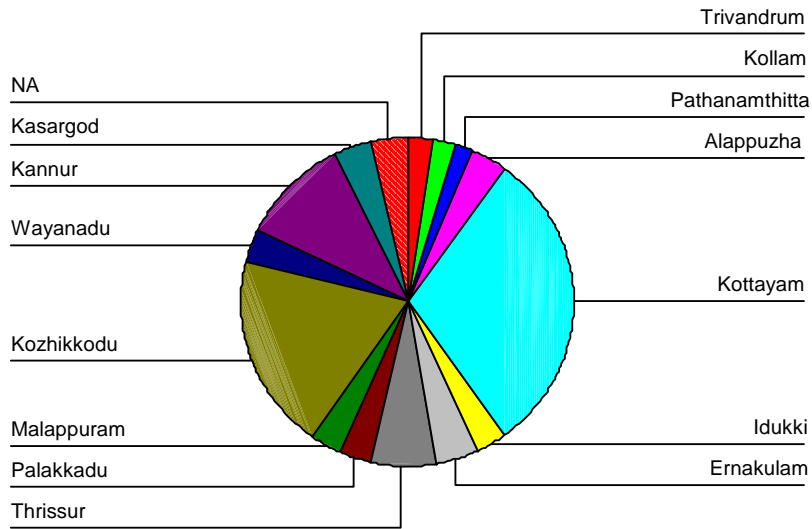
Table No 4.11
Preferred Districts to Work

District	Top level employees	Middle level employees	Lower level employees	Total
Thiruvananthapuram	7 (6.7)	2(1.1)	-	9(2.6)
Kollam	4(3.8)	3(1.6)	1(1.7)	8(2.3)
Pathenamthitta	4(3.8)	1(0.5)	-	5(1.4)
Alappuzha	2(1.9)	7(3.8)	4(6.7)	13(3.7)
Kottayam	17(16.7)	55(29.7)	33(55)	105(30)
Idukki	2(1.9)	7(3.8)	2(3.3)	11(3.1)
Ernakulam	6(5.7)	7(3.8)	1(1.7)	14(4)
Trissur	4(3.8)	8(4.3)	11(18.3)	23(6.6)
Palakkadu	3(2.9)	5(2.7)	2(3.3)	10(2.9)
Malappuram	8(7.6)	3(1.6)	-	11(3.1)
Kozhikodu	27(25.7)	40(21.6)	-	67(19.1)
Wayanadu	1(1)	9(4.9)	2(3.3)	12(3.4)
Kannur	3(2.9)	31(16.8)	3(5)	37(10.6)
Kasargodu	4(3.8)	7(3.8)	1(1.7)	12(3.4)
No Preference	13(12.4)	-	-	13(3.7)
Total	105(100)	185(100)	60(100)	350(100)

From Table 4.11, the number and percentage of employees who's preferred districts to work were, Thiruvananthapuram 9 (2.6%), Kollam 8(2.3%), Pathenemthitta 5(1.4%), Alappuzha 13(3.7%), Kottayam 105 (30%), Idukki 11 (3.1%), Ernakulam 14 (4%), Trissur 23 (6.6 %), Palakkadu 10 (2.9%), Malappuram 11 (3.1%), Kozhikodu 67 (19.1%), wayanadu 12 (3.4%), Kannur 37(10.6%), and Kasargodu 12 (3.4%). And a total of 13 (3.7%) of them have no preference to work any district.

Chart 4.2

Pie chart showing the district preferred to work



4.2 Analysis of factors by Percentage Score Analysis

The attitude of employees towards administration practice is determined by analysing the extent of their effectiveness level in each of the selected items under the five factors identified for the purpose. The 'Percentage score' of opinion on each item lies between 0 and 100. If the 'percentage score' of opinion of an item is 0, it is an indication of the least effective in such an item, which further indicates the absence of Administrative practices in the department. If the 'percentage score' of opinion of an item is 100, it is an indication of maximum effectiveness in such an item as also the excellence of Administrative practices. In this study, the 'percentage score' on each of the items under the five factors was found falling somewhere between these two extremes.

4.2.1 Identification of factors and items coming under each factor

There are no set methods or clear cut formulae to identify the factors determining the effectiveness of administration in any organisation. Therefore, for selecting the factors the researcher carefully investigates and looks in to the various theories, models, research reports, and seminar reports on the topic. Apart from these, the characteristic features of the Commercial Taxes Department are also considered. After a close perusal of the above stated factors the various aspects that influence the

Administrative Practice in the department have been identified, and broadly classified into five factors. Viz.

- 4.2.1. Levy and collection of tax - 57 Sub items
- 4.2.2. Audit and inspection - 32 Sub items
- 4.2.3. Training and Development - 22 Sub items
- 4.2.4. Check post Management - 23 Sub items
- 4.2.5. Tax reforms and Amendments - 09 Sub items

For the purpose of evaluation of the factors, the following four levels are fixed:

Table No. 4.12
Mode of Evaluation under percentage score

Percentage Score	Effectiveness Level	Administrative effectiveness
0% - 40%	Poor practices continuum	Least effective
40% - 60%	Mediocre practices Continuum	Moderate effective
60% - 80%	Fair Practices Continuum	Effective
80% - 100%	Excellent Practices Continuum	Highly effective

The 'Percentage score' of opinion of each item in relation to its maximum score is calculated as follows:

$$\text{Percentage score of an item} = \frac{\text{Total score obtained in respect of an item}}{\text{Maximum score obtainable in respect of an item}} \times 100$$

The maximum score obtained in respect of an item depends on the number of respondents, i.e., the maximum score obtainable for an item in respect of Top level officer's category, where N= 105, is 525 i.e., (105x5). Similarly the maximum score obtainable in respect of Middle level officers, where N=185, is 925 i.e., (185 x 5) and Lower level employees, where N = 60, is 300 i.e., (60 x 5). The maximum score obtainable for an item in respect of Total respondents, where N= 350, is 1750 i.e.,

(350 x 5). An item – wise analysis of factors on the basis of the percentage score obtained is given below.

4.2.1.1 Levy and collection of tax

In the first factor, Levy and collection of tax, 57 items were identified and given to opinion survey to identify the extent of effectiveness of employees in those items to evaluate the effectiveness of Tax administration in Commercial Taxes Department of Kerala.

Table No.4.13 gives the percentage scores obtained for each of these items of the factor, Levy and collection of tax, based on the opinion expressed by the employees. The percentage scores of opinion of employees about the filing of return by dealers are indicated in item no. 1.1 is Fair Practices Continuum. The examination of these items reveals that the level of effectiveness expressed by the total samples is more than 70%, which lies in fair practice continuum.

The opinion of the total sample of respondents about item no. 1.2, Scrutiny of return, reveals that the percentage score of eight items was more than 60%. It belongs to Fair practice continuum. Tax addition due to scrutiny has a value of 73.66% which is only factor have a high score. Adequacy of time for security (59.77%), Possibility for 100% Security (55.77%) and Checking system – Manual (56.29) have a percentage score less than 60 % which comes under the group of Mediocre practices Continuum. It shows that the administration level is moderately effective in these areas.

In case of Return Data Management (item no.1.3), Tax Assessment (item no.1.4), Appeals, revision...etc. (item no. 1.5) MIS (item no. 1.6) and Computerisation (item no.1.7) and all the sub items under this group were included in the status of Fair Practice Continuum. It reveals that the levels of effectiveness expressed are more than 60%.

On the basis of Percentage Score analysis, it is clear that the Levy and Collection of Tax is under the group of Fair Practice Continuum

Table-4 13

Factor I - Levy and collection of Tax

I.1. Filing of Return by Dealers									
Sl. No.	Particulars	Top level employees		Middle level employees		Lower level employees		Total	
		Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score
1.	Due date compliance	448	85.33	658	71.14	215	71.67	1321	75.49
2.	Contents of returns	423	80.57	662	71.57	221	73.67	1306	74.63
3.	Contents of annexure	387	73.71	632	68.32	219	73	1238	70.74
4.	Return acknowledgement system	429	81.71	707	76.43	227	75.67	1363	77.89
5.	Tax :E - payment system	452	86.09	745	80.54	234	78	1431	81.77
6	Tax payment : other mode of payment	367	69.90	652	70.49	235	78.33	1254	71.66
I. 2. Scrutiny of return									
1.	Levels of scrutiny	349	66.48	673	72.76	180	60	1202	68.69

2.	Adequacy of time for security	318	60.57	548	59.24	180	60	1046	59.77
3	Possibility for 100% security	304	57.90	492	53.19	180	60	976	55.77
4.	Checking system – software	399	76	641	69.30	181	60.33	1221	69.77
5.	Checking system – manual	270	51.43	535	57.84	180	60	985	56.29
6.	Software guidance for security	365	69.52	628	67.89	176	58.67	1169	66.8
7.	Cross checking system of dealer data	376	71.62	673	72.76	175	58.33	1224	69.94
8.	Generation of defect memo	326	62.09	582	62.92	178	59.33	1086	62.06
9.	Mode of scrutiny of notice / defect memo	314	59.81	663	71.68	180	60	1157	66.11
10.	Time frame for completion of security	349	66.48	651	70.38	180	60	1180	67.43
11.	Scrutiny with books of accounts	326	62.09	641	69.30	178	59.33	1145	65.43
12.	Tax addition due to scrutiny of return	398	75.81	713	77.08	178	59.33	1289	73.66

I. 3.	Return data Management								
1.	Availability of backlog return data	332	63.24	653	70.59	190	63.33	1175	67.14
2.	Availability of current return data	377	71.81	684	73.95	190	63.33	1251	71.49
3.	Frequency of return data reporting	416	79.24	656	70.92	190	63.33	1262	72.11
4.	Adequacy of return data for MIS	402	76.57	690	74.59	190	63.33	1282	73.26
5.	Software efficiency in return data processing	316	60.19	644	69.62	190	63.33	1150	65.71
6.	Software efficiency in generation of reports	403	76.76	654	70.70	190	63.33	1247	71.26
I. 4.	Tax Assessment								
1.	Adequacy of internal data for assessments	359	68.38	678	73.30	190	63.33	1227	70.11
2.	Availability of external data for assessments	358	68.19	646	69.84	190	63.33	1194	68.23
3.	Adequacy of time frame for completing monthly assessments	368	70.09	608	65.73	190	63.33	1166	66.63

4.	Tax addition due to assessments	422	80.38	719	77.73	190	63.33	1331	76.06
5.	Dealer co operation in assessments	391	74.48	692	74.81	190	63.33	1273	72.74
6.	Evaluation of monthly assessments	393	74.86	663	71.68	190	63.33	1246	71.2
7.	Yearly consolidation system of monthly assessments	424	80.76	707	76.43	187	62.33	1318	75.31
8.	Scope for assessment on the basis of annual returns	382	72.76	714	77.19	186	62	1282	73.26
9.	Scope for assessment on the basis of audit reports	377	71.81	673	72.76	190	63.33	1240	70.86
I.5	Appeals, Revision....etc.								
1.	Levels of appeals and revision	418	79.62	618	66.81	180	60	1216	69.49
2.	Functioning of appeal mechanism	395	75.24	635	68.65	178	59.33	1208	69.03
3.	Time frame for disposal of appeals	392	74.67	603	65.19	180	60	1175	67.14

4.	Tax addition due to appeals	356	67.81	611	66.05	180	60	1147	65.54
5.	Dealer co-operation in disposal of appeals	424	80.76	562	60.76	179	59.67	1165	66.57
6.	Statutory fees for filing of appeals	367	69.90	609	65.84	180	60	1156	66.05
7.	Possibility of stay of tax in existing value	377	71.81	585	63.24	178	59.33	1140	65.14
8.	Finality of first appeal	387	73.71	586	63.35	180	60	1153	65.89
9.	Alternative mechanism for disposal (Adhalath, Settlement...etc)	430	81.90	591	63.89	179	59.67	1200	68.57
I. 6.	Management Information system								
1.	Functioning of MIS in the department	369	70.29	632	68.32	199	66.33	1200	68.57
2.	Channels of communication for MIS	381	72.57	629	68	197	65.67	1207	68.97
3	Software assistance in MIS	370	70.48	630	68.11	206	68.67	1206	68.91
4.	Staff role in MIS	399	76	642	69.41	207	69	1248	71.31

5.	Evaluation mechanism of MIS	393	74.86	641	69.30	209	69.67	1243	71.03
6.	Decision taken on the basis of MIS	415	79.05	646	69.84	210	70	1271	72.63
7.	Directions given on the basis of MIS	401	76.38	647	69.95	207	69	1255	71.71
8.	Corrective measures taken on the basis of MIS	406	77.33	643	69.51	208	69.33	1257	71.83
I. 7.	Computerization								
1.	Effectiveness of computerization in filing of return	409	77.90	657	71.03	280	93.33	1346	76.91
2.	Effectiveness of computerization in return data Management	392	74.67	669	72.32	254	84.67	1315	75.14
3.	Effectiveness of computerization in tax assessment	389	74.09	667	72.11	277	92.33	1333	76.17
4.	Effectiveness of computerization in shop inspections	333	63.43	631	68.22	193	64.33	1157	66.11

5.	Effectiveness of computerization in check post data management	354	67.43	665	71.89	234	78	1253	71.60
6.	Effectiveness of computerization in vehicle checking	314	59.81	584	63.14	193	64.33	1091	62.34
7.	Effectiveness of computerization in detecting tax evasion	350	66.67	670	72.43	238	79.33	1258	71.89

4.2.1.2 Audit and inspection

In the second factor, Audit and inspection of tax, 32 items were identified and given to opinion survey to identify the extent of effectiveness of employees in those items to evaluate the effectiveness of Tax administration in Commercial Taxes Department of Kerala.

In case of Audit and Inspection, (Table No. 4.14) the sub items come under the group of Fair Practice Continuum. All the values are in between 60% to 80%. Which reveal that, the employees' perspective and the administration level is fairly effective

Table No. 4.14

Factor II - Audit and inspection

II.1. Audit and inspection in dealers premises									
Sl. No.	Particulars	Top level employees		Middle level employees		Lower level employees		Total	
		Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score
1.	Existing mode of shop inspection	329	62.67	686	74.16	179	59.67	1194	68.23
2.	Frequency of shop inspection	332	63.24	639	69.08	184	61.33	1155	66
3	Basis of shop inspection	330	62.86	660	71.35	186	62	1176	67.2
4.	Grievance redressal mechanism in shop inspection	357	68	724	78.27	182	60.67	1263	72.17
5.	Dealer cooperation in shop inspection	321	61.14	630	68.10	189	63	1140	65.14
6.	Maintenance of books of accounts by dealers	366	69.71	709	76.65	188	62.67	1263	72.17
7.	Technical support in inspection	350	66.67	719	77.73	184	61.33	1253	71.6
8.	Police support in inspection	353	67.24	646	69.84	184	61.33	1183	67.6

9.	Political influences in shop inspection	308	58.67	666	72	189	63	1163	66.46
10.	Existing mode of preparation and delivery of Shop Inspection Report (SIR)	379	72.19	726	78.49	183	61	1288	73.6
II. 2. Inspection of goods in transit									
1.	Effectiveness inspection in transit	347	66.09	625	67.57	191	63.67	1163	66.46
2.	Vehicle cooperation during inspection	348	66.29	625	67.57	190	63.33	1163	66.46
3	Dealer cooperation during inspection	360	68.57	613	66.27	189	63	1162	66.4
4.	Basis of vehicle inspection	346	65.90	623	67.35	192	64	1161	66.34
5.	Scope of complete inspection of goods	334	63.62	581	62.81	192	64	1107	63.25
6.	Verification method of transporting documents	370	70.48	642	69.41	192	64	1204	68.80
7.	Mode of serving defect notice	367	69.90	647	69.95	192	64	1206	68.91
8.	Compliance in defective notice	365	69.52	630	68.11	193	64.33	1188	67.89

9.	Addition collection through road inspection	363	69.14	634	68.54	192	64	1189	67.94
10.	Team spirit in inspection	367	69.90	644	69.62	191	63.67	1202	68.69
11.	Political influences at the time of vehicle inspection	362	68.95	616	66.59	193	64.33	1171	66.91
II. 3.	Internal and A.G audit								
1.	Support from the pear group	432	82.29	675	72.97	179	59.67	1286	73.49
2.	Frequency of internal audit	337	64.19	652	70.49	183	61	1172	66.97
3	Frequency of A.G. audit	392	74.67	660	71.35	178	59.33	1230	70.29
4.	Cooperation of employees in internal audit	405	77.14	660	71.35	180	60	1245	71.14
5.	Cooperation of employees in A.G. audit	432	82.29	668	72.22	184	61.33	1284	73.37
6.	Detection of defects in internal audit	383	72.95	661	71.46	185	61.67	1229	70.23
7.	Detection of defects in A.G. audit	400	76.19	653	70.59	178	59.33	1231	70.34

8.	Effectiveness of A.G. audit in the department	417	79.43	665	71.89	180	60	1262	72.11
9.	Effectiveness of internal audit in the department	377	71.81	660	71.35	182	60.67	1219	69.66
10.	Mode of clearing defects in internal audit	422	80.38	668	72.22	181	60.33	1271	72.63
11.	Mode of clearing defects in A.G. audit	405	77.14	666	72	189	63	1260	72

4.2.1.3 Training and development

In the third factor, training development of tax, 22 items were identified and given to opinion survey to identify the extent of effectiveness of employees in those items to evaluate the effectiveness of Tax administration in Commercial Taxes Department of Kerala. From the Table 4.15 It is clear that the Lion percentage of items come under the group of Fair Practice Continuum. But in the case of ‘Adequacy of training centers’, the value is less than 60% such as 56.8. This is the only one item coming under the group of Mediocre practices continuum. In the case of ‘Training centers’, only few of them were in Kerala. It makes a lot of inconveniences to employees. In the last year, only two or three training were conducted in Kerala. These also resulted to mediocre practices

Table No. 4.15

Factor III – Training and development

III.1 Department training practices									
Sl. No.	Particulars	Top level employees		Middle level employees		Lower level employees		Total	
		Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score
1.	Method of identification of training needs	314	59.81	662	71.57	285	95	1261	72.06
2.	Adequacy of training centers	301	57.33	486	52.54	207	69	994	56.8
3	Selection criteria for training	306	58.29	629	68	240	80	1175	67.14
4.	Duration of training programme	314	59.81	663	71.68	205	68.33	1182	67.54
5.	Standard / Quality training programme	307	58.48	713	77.08	228	76	1248	71.31
6.	Training methods	346	65.90	715	77.30	231	77	1292	73.83
7.	Trainers performance	349	66.48	674	72.86	254	84.67	1277	72.97
8.	Infrastructural facilities of training centers	306	58.29	760	82.16	258	86	1324	75.66

9.	Interaction opportunities during training	320	60.95	716	77.41	205	68.33	1241	70.91
III.2.	Areas of Training								
1.	Procedural and legal aspects for return scrutiny	328	62.48	688	74.38	184	61.33	1200	68.57
2.	Procedural and legal aspects for assessment	337	64.19	714	77.19	195	65	1246	71.2
3	Procedural and legal aspects for disposal of appeal / revision	352	67.05	720	77.84	182	60.67	1254	71.66
4.	Procedural and legal aspects for shop inspection	359	68.38	745	80.54	181	60.33	1285	73.43
5.	Procedural and legal aspects for vehicle checking	363	69.14	756	81.73	186	62	1305	74.57
6.	Computer and allied areas	309	58.86	741	80.11	240	80	1290	73.71
7.	Judicial aspects and case law reviews	330	62.86	760	82.16	192	64	1282	73.26
8.	Recent trends in taxation	310	59.05	645	69.73	174	58	1129	64.51

III.3	Training results / achievements								
1.	Employee development	367	69.90	683	73.84	241	80.33	1291	73.77
2.	Job efficiency or performance	349	66.48	706	76.32	235	78.33	1290	73.71
3	Job commitment and motivation	324	61.71	698	75.46	217	72.33	1239	70.8
4.	Monetary benefits attained in the department	328	62.48	700	75.68	191	63.67	1219	69.66
5.	Service / promotional benefits	335	63.81	682	73.73	175	58.33	1192	68.11

4.2.1.4 Check post management

In the second factor, check post management, 23 items were identified and given to opinion survey to identify the extent of effectiveness of employees in those items to evaluate the effectiveness of Tax administration in Commercial Taxes Department of Kerala.

From the following Table No.4.16, Check post management is under the group of Fair Practice continuum. In case of 'Award or gift from CTD for the detection of tax evasion', the employees come under the value of 58.23. This shows that, in case of issue of awards the employees are in the group of moderate practice continuum. They are moderately satisfied on these things.

Table No. 4.16

Factor IV - Check post management

IV.1.	Check post authorities								
Sl. No.	Particulars	Top level employees		Middle level employees		Lower level employees		Total	
		Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score
1.	Awareness of duties and responsibilities	378	72	611	66.05	199	66.33	1188	67.89
2.	Work environment & welfare facilities	364	69.33	521	56.32	218	72.67	1103	63.03
3.	Security measures for law and order	369	70.29	583	63.03	207	69	1159	66.23
4.	Award or gift from CTD for the detection of tax evasion	355	67.62	509	55.02	155	51.67	1019	58.23
5.	Inter departmental co-ordination	368	70.09	570	61.62	183	61	1121	64.06
6.	Grievance redressal mechanism	366	69.71	610	65.95	215	71.66	1191	68.06
7.	Adequacy of computerization	386	73.52	606	65.51	215	71.66	1207	68.97

IV. 2.	Vehicle checking procedures at Check post								
1.	Present system of checking	367	69.90	560	60.54	205	68.33	1132	64.69
2.	Detection of crimes or offences	371	70.67	606	65.51	208	69.33	1185	67.71
3	Disposal of crimes or offences	374	71.24	611	66.05	214	71.33	1199	68.51
4.	Check post data management / Documentation.	364	69.33	594	64.22	213	71	1171	66.91
5.	Adequacy of work force	370	70.48	574	62.05	215	71.67	1159	66.23
6.	Support from the top level management	368	70.09	630	68.11	195	65	1193	68.17
7.	Support from police force	357	68	601	64.97	186	62	1144	65.37
8.	Support from local persons	361	68.76	549	59.35	187	62.33	1097	62.69
9.	Support from RTO, excise & forest departments	365	69.52	594	64.22	187	62.33	1146	65.49
10.	Role of computerization in evasion detection	359	68.38	596	64.43	211	70.33	1166	66.63
IV. 3.	Collection of advance taxes, penalty and security								
1.	Cash or chest management	350	66.67	642	69.41	175	58.33	1167	66.69

2.	Method of detection in fake cash / DD	321	61.14	609	65.84	181	60.33	1111	63.49
3.	Extent of penalty collection	363	69.14	635	68.65	180	60	1178	67.31
4.	Extent of collection of securities	383	72.95	641	69.30	183	61	1207	68.97
5.	Extent of collection of advance tax	396	75.43	609	65.84	178	59.33	1183	67.6
6.	Remittance mode of cash at check post	402	76.57	530	57.30	183	61	1115	63.71

4.2.1.5 Tax reforms and reforms

In the five factor, Tax reforms and amendments, eight items were identified and given to opinion survey to identify the extent of effectiveness of employees in those items to evaluate the effectiveness of Tax administration in Commercial Taxes Department of Kerala.

Table No.4.17 shows, it is clear that all the items under Tax reforms and amendments have a value more than 70 which shows that it is under fair practice continuum.

Table No.4.17

Factor V - Tax reforms and amendments

V.	Tax reforms and amendments								
Sl. No.	Particulars	Top level employees		Middle level employees		Lower level employees		Total	
		Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score	Scores obtained	% to maximum score
1.	Updation of amendments in statute	378	72	738	79.78	182	60.67	1298	74.17
2.	Effectiveness of amendments	389	74.10	739	79.89	184	61.33	1312	74.97
3	Communication mode of amendments	395	75.24	755	81.62	179	59.67	1329	75.94
4.	Assessment based amendments	392	74.67	770	83.24	185	61.67	1347	76.97
5.	Inspection based amendments	369	70.29	744	80.43	180	60	1293	73.89
6.	Procedure simplification amendments	381	72.57	765	82.70	184	61.33	1330	76

7.	Evasion control amendments	380	72.38	749	80.97	183	61	1312	74.97
8.	Political or popularity amendments	369	70.29	734	79.35	170	56.67	1273	72.74

In short all the five factors considered under this study revealed that majority of items were under the group of Fair Practice Continuum. Under this analysis, it is clear that Tax administration is highly effective.

4.3 Multiple Discriminant Analysis (MDA)

In order to identify the most significant factor in each region that contributes to the overall effectiveness of Tax administration is determined by applying Multiple Discriminant analysis. The output of the MDA is given in the tables of Group statistics, Test of equality of group means, Wilks' lambda, Standardised canonical discriminant function co-efficient, Structure matrix and Functions at group centroid.

Table No. 4.18

Group Statistics of Southern, Central and Northern region in case of Multiple Discriminant Analysis

factors	Southern Region		Central Region		Northern Region		Total	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Filing of return by dealers	22.9143	1.44245	23.3713	1.64460	21.6757	2.87900	22.6086	2.37427
Scrutiny of return	38.6000	4.73535	39.2275	4.72328	39.0405	3.52422	39.0857	4.24987
Return data management	20.3429	2.76472	21.3593	2.38272	20.8649	2.97072	21.0486	2.69680
Tax assessment	31.9143	3.76807	33.0479	4.15775	31.3581	4.27620	32.2200	4.23793
Appeals, revision...etc	30.5714	3.39797	29.2216	3.41401	31.1486	4.44982	30.1714	3.98267
Management Information System (MIS)	28.3143	4.63853	28.2635	5.65281	28.2162	5.37383	28.2486	5.42766
Computerisation	25.8857	3.03675	26.2934	2.53722	23.3514	2.76485	25.0086	3.03512
Audit and inspection in dealers premises	35.1714	5.45832	33.2695	5.07348	35.7500	6.59507	34.5086	5.90747
Inspection of goods in transit	36.2857	4.68145	34.8683	4.26325	39.3446	4.60215	36.9029	4.92427
Internal/A.G.Audit	38.2286	7.51894	38.4371	7.61937	40.0811	4.83822	39.1114	6.60872
Department training practices	28.9714	5.10758	31.0778	4.01202	32.3649	5.18783	31.4114	4.75074
Areas of training	26.0571	6.11624	26.4731	4.59415	31.4730	6.73951	28.5457	6.25503

Training results/achievements	16.0857	2.90407	16.8563	2.18780	19.2770	3.54528	17.8029	3.16834
Check post authorities	22.4857	3.32876	21.9641	2.36921	23.8716	3.22887	22.8229	2.99523
Vehicle checking procedures at check post	31.4571	5.50050	32.2156	4.06590	34.5338	5.05267	33.1200	4.80418
Collection of advance taxes, penalties and security	20.2857	2.56184	19.4910	2.71068	20.2432	2.97752	19.8886	2.83078
Tax reforms and Amendments	27.6857	7.09089	29.7545	4.99695	30.7838	3.23573	29.9829	4.69161
Valid N	35		167		148		350	

From the Table No. 4.18 it is clear that, overall effectiveness is high at Northern region and is lower at Southern region. The sub factors Appeals, revision..etc, Audit and inspection in dealer premises, Inspection of goods in transit, Internal / A.G. Audit, Department Training Practices, Area of training, Training results / achievements, Check post authorities, Vehicle checking procedure at check post and Tax reforms and amendments were highly effective at Northern region, whereas Filing of return by dealers, Scrutiny of return, Return data management, Tax assessment & Computerisation are effective at Central region, and only MIS and Collection of advance taxes, penalties and security is effective at Southern region.

As the initial step in the discriminant analysis to trace out the importance of independent factors to the discriminant function, test of equality of group mean is performed. The result from the test is interpreted based on Wilk' Lambda. The result of tests of equality of group mean is given below;

Table No. 4.19**Test of Equality of Group Means of ‘Southern’ and ‘Northern’ region**

	Wilks' Lambda	F	Sig.
Filing of return by dealers	.989	2.325	.129
Scrutiny of return	.997	.510	.476
Return data management	.976	4.973	.027 *
Tax assessment	.989	2.218	.138
Appeals, revision...etc	.978	4.531	.035 *
Management Information System (MIS)	1.000	.002	.960
Computerisation	.997	.696	.405
Audit and inspection in dealers premises	.981	3.961	.048 *
Inspection of goods in transit	.985	3.091	.080
Internal/A.G.Audit	1.000	.022	.883
Department Training Practices	.965	7.215	.008 *
Areas of training	.999	.210	.648
Training results/achievements	.984	3.178	.076
Check post authorities	.994	1.203	.274
Vehicle checking procedures at check post	.996	.882	.349
Collection of advance taxes, penalties and security	.987	2.533	.113
Tax reforms and amendments	.979	4.231	.041 *

* Significant at 5 % level of significance

The table no. 4.19 is interpreted based on two tests Wilk’s Lambda and F – test. The smaller the Wilk’s Lambda, the more important the factor to the discriminant function. The significance of Wilk’s Lambda is tested through F- test which is equivalent to the result of one way ANOVA. Here, the Wilk’s Lambda is found to be not significant at majority cases. The more important factor to this discriminant

function is Department Training Practices which is having the lowest **Wilk's Lamda value (0.965)**.

Table No. 4.20

Test of Equality of Group Means 'Centre' and 'Northern' region

	Wilks' Lambda	F	Sig.
Filing of return by dealers	.881	42.345	.000 *
Scrutiny of return	1.000	.155	.694
Return data management	.992	2.680	.103
Tax assessment	.961	12.618	.000 *
Appeals, revision...etc	.943	18.822	.000 *
Management Information System (MIS)	1.000	.006	.940
Computerisation	.763	96.963	.000 *
Audit and inspection in dealers premises	.957	14.167	.000 *
Inspection of goods in transit	.796	80.271	.000 *
Internal/A.G.Audit	.984	5.075	.025 *
Department Training Practices	.981	6.137	.014 *
Areas of training	.838	60.307	.000 *
Training results/achievements	.852	54.468	.000 *
Check post authorities	.896	36.263	.000 *
Vehicle checking procedures at check post	.939	20.314	.000 *
Collection of advance taxes, penalties and security	.983	5.508	.020 *
Tax reforms and amendments	.986	4.578	.033 *

* Significant at 5 % level of significance

The table no. 4.20 is interpreted based on two tests Wilk's Lambda and F – test. Here the Wilk's Lambda is found to be significant at majority cases except Scrutiny of return, Return Data Management and MIS. So all these were not considered for discriminant analysis. The more important factor to this discriminant function is Computerrisation which is having the lowest **Wilk's Lamda value (0.763)**.

Table No. 4.21**Test of Equality of Group Means ‘Southern’ and ‘Centre’ region**

	Wilks' Lambda	F	Sig.
Filing of return by dealers	.883	22.880	.000*
Scrutiny of return	.998	.329	.720
Return data management	.985	2.676	.070
Tax assessment	.964	6.540	.002*
Appeals, revision...etc	.946	9.858	.000*
Management Information System (MIS)	1.000	.006	.994
Computerisation	.779	49.094	.000*
Audit and inspection in dealers premises	.959	7.426	.001*
Inspection of goods in transit	.812	40.047	.000*
Internal/A.G.Audit	.984	2.803	.062
Department training practices	.954	8.346	.000*
Areas of training	.839	33.365	.000*
Training results/achievements	.836	34.029	.000*
Check post authorities	.907	17.705	.000*
Vehicle checking procedures at check post	.934	12.200	.000*
Collection of advance taxes, penalties and security	.982	3.193	.042*
Tax reforms and amendments	.962	6.766	.001*

* Significant at 1 % level of significance

The table no. 4.21 is interpreted based on two tests Wilk's Lambda and F – test. Here the Wilk's Lambda is found to be significant at majority cases except Scrutiny of return, Return Data Management, MIS and Internal/A.G. Audit. So all these were not considered for discriminant analysis. The more important factor to this discriminant function is Computerrisation which is having the lowest **Wilk's Lamda value (0.779)**.

The results of discriminant analysis between Southern, Centre and Northern regions are explained below on a step – by – step basis. The hypothesis is

H₀: The discriminant functions of the factors affecting the effectiveness of Tax administration between Southern, Centre and Northern regions are not valid.

H₁: The discriminant functions of the factors affecting the effectiveness of Tax administration between Southern, Centre and Northern regions are valid.

The results of the test statistics are depicted in the following tables

Table No. 4.22
Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	1.209 ^a	89.8	89.8	.740
2	.137 ^a	10.2	100.0	.347

a. First 2 canonical discriminant functions were used in the analysis.

Table No. 4.23
Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	Df	Sig.
1 through 2	.398	312.138	34	.000*
2	.880	43.505	16	.000*

* Significant at 1 % level of significance

The canonical correlation coefficient of 0.740 with 89.8% variance and 0.347 with 10.2% variance are found to be significant at 5% level with a Wilk' Lambda values of 0.398 with the chi – square value 312.138 and 0.880 with 43.505. Hence, the discriminant function between Southern, Central and Northern region is statistically significant and valid for further analysis.

Table No. 4.24

Functions at Group Centroids in Southern and Central region

Area	Function
Southern Region	-1.199
Central Region	0.251

Unstandardized canonical discriminant functions evaluated at group means

Table No. 4.25

Functions at Group Centroids in Central and Northern region

Area	Function
Central Region	-1.063
Northern Region	1.200

Unstandardized canonical discriminant functions evaluated at group means

Table No. 4.26

Functions at Group Centroids in Southern and Northern region

Area	Function
Southern Region	-1.085
Northern Region	.042

Unstandardized canonical discriminant functions evaluated at group means.

The table no. 4.24, 4.25 and 4.26 reveals that the Southern and Central regions are placed on the left side of Northern region with group centroid values of negative. The centroid for Northern region is positive. So, the cutting point here is zero. Thus factors with negative co-efficient are considered to be dominant in Southern and Central region and the other values are important for Northern region.

The values for the canonical discriminant function coefficients are depicted below

Table No. 4.27**Standardized canonical discriminant function coefficients**

	Functions		
	Southern & Central regions	Central & Northern regions	Southern & Northern regions
Filing of return by dealers	.259	-.003	.352
Scrutiny of return	.239	-.085	.230
Return data management	.170	.073	.035
Tax assessment	-.043	-.197	-.133
Appeals, revision...etc	-.414	1.441	-.091
Management Information System (MIS)	.471	-.410	.308
Computerisation	-.038	-.650	.064
Audit and inspection in dealers premises	.063	-.195	-.364
Inspection of goods in transit	-.372	.385	-.192
Internal/A. G. Audit	.212	-.276	.294
Department Training Practices	.388	.466	.476
Areas of training	-.312	.123	.110
Training results/achievements	-.172	.396	.238
Check post authorities	-.726	.099	-.634
Vehicle checking procedures at check post	1.407	-.215	1.103
Collection of advance taxes, penalties and security	-.976	.041	-.659
Tax reforms and amendments	.618	-.057	.439

From the table 4.27 results, the factors with negative coefficients are Tax assessment, Appeals, revision..etc, Computerisation, Inspection of goods in transit, Areas of training, training results / achievements, check post authorities and collection of advance taxes, penalties and security in Southern and Central region, Filing of return by dealers, Scrutiny of return, Tax assessment, MIS, Computerisation, Audit and inspection in dealers premises, Internal/A. G. Audit, Vehicle checking procedures at check post, and Tax reforms and amendments in Central and Northern region and Tax assessment, Appeals, revision..etc, Audit and inspection in dealers premises, Inspection of goods in transit, check post authorities and collection of advance taxes, penalties and security in Southern and Northern region. But MIS and Internal / A. G. Audit are not considered for classification because the difference in mean scores is found to be insignificant. Thus the rest of them are considered as an important discriminant factors at Southern and Central regions. The co- efficient with positive values is dominant in Northern region.

To identify the factors that explains the discrimination function structure matrix containing total correlation between discriminating factors and standardized canonical discriminant functions has been developed.

Table No. 4.28
Structure Matrix for Southern and Central region

	Function
	Southern & Central r egion
Department training practices	.344
Return data management	.286
Appeals, revision...etc	-.273
Tax reforms and amendments	.264
Audit and inspection in dealers premises	-.255
Training results/achievements	.229
Inspection of goods in transit	-.225
Collection of advance taxes, penalties and security	-.204
Filing of return by dealers	.195
Tax assessment	.191
Check post authorities	-.141
Vehicle checking procedures at check post	.120
Computerisation	.107
Scrutiny of return	.092
Areas of training	.059
Internal/A.G. Audit	.019
Management Information System	-.006

Pooled within-groups correlations between discriminating factors and standardized canonical discriminant functions

factors ordered by absolute size of correlation within function.

From the structure matrix, it is visible that the sub - factor with high positive correlation coefficient is Department Training Practices (0.344) and the factor with high negative correlation are Appeals, revision.etc (-0.273). Thus it can be concluded that Inspection of goods in transit is the prominent factor that discriminates Central region, while the computerisation is important in discriminating Southern region.

Table No. 4.29
Structure Matrix for Central and Northern region

	Function
	Central & Northern region
Computerisation	-.491
Inspection of goods in transit	.447
Areas of training	.387
Training results/achievements	.368
Filing of return by dealers	-.325
Check post authorities	.300
Vehicle checking procedures at check post	.225
Appeals, revision...etc	.216
Audit and inspection in dealers premises	.188
Tax assessment	-.177
Department training practices	.124
Collection of advance taxes, penalties and security	.117
Internal/A. G. Audit	.112
Tax reforms and amendments	.107
Return data management	-.082
Scrutiny of return	-.020
Management Information System	-.004

Pooled within-groups correlations between discriminating factors and standardized canonical discriminant functions
factors ordered by absolute size of correlation within function.

From the structure matrix it is visible that the factor with high positive correlation coefficient is Inspection of goods in transit (0.447) and the factor with high negative correlation is Computerisation (-0.491). Thus it can be concluded that Inspection of goods in transit is the candidate factor that discriminates Northern region, while the computerisation is important in discriminating Central region.

Table No. 4.30
Structure Matrix for Southern and Northern region

	Function
	Southern & Northern region
Computerisation	-.484*
Inspection of goods in transit	.435*
Areas of training	.395*
Training results/achievements	.388*
Filing of return by dealers	-.330*
Check post authorities	.290*
Vehicle checking procedures at check post	.232*
Tax assessment	-.168*
Internal/A. G. Audit	.114*
Department Training Practices	.148
Tax reforms and amendments	.124
Return Data Management	-.063
Appeals, revision...etc	.205
Audit and inspection in dealers premises	.175
Collection of advance taxes, penalties and security	.105
Scrutiny of return	-.012
Management Information System	-.004

Pooled within-groups correlations between discriminating factors and standardized canonical discriminant functions

factors ordered by absolute size of correlation within function.

**. Largest absolute correlation between each factor and any discriminant function*

From the structure matrix it is visible that the factor with high positive correlation coefficient is **Inspection of goods in transit (0.435)** and the factor with high negative correlation is **Computerisation (-0.484)**. Thus it can be concluded that Inspection of goods in transit is the prominent factor that discriminates Northern region, while the computerisation is important in discriminating Southern region.

In short, there were 17 sub factors taken together to measure the overall effectiveness of Tax administration in Commercial Taxes Department in Kerala. Here Kerala is

divided into three regions viz., South, Central and North. To identify the most significant element in the effectiveness of Tax administration system, the multiple discriminant analysis will be applied region wise. Therefore southern, central and northern region will be compared at a time. So, out of the 350 cases, 35 cases were related to southern region, 167 cases were related to central area and 148 cases were belonging to northern region. The test of equality of group means shows that there is high validation of certain elements between these two areas as the 'F' value and the associated probability is significant at 5% level of significance. Similarly the discriminant function in the model is also significant with a value of the chi – square (1 through 2) is **312.138** and the chi – square (2) is **43.505**, and the '**p**' = **.000 < 0.005** Based on the functions at group centroids, the most important and powerful element which determine the effectiveness of the success of Tax administration in the Southern and Central region is Computerisation, while the inspection of goods in transit is the most powerful element in the northern region for the effectiveness of Tax administration.

Since the 'p' value is less than 0.05 levels, the alternative hypothesis was accepted. This means the discriminant functions between Southern, Centre and Northern regions are valid.

4.4 Factors affecting the 'Effectiveness of Tax administration of Commercial Taxes Department'

4.4.1 Levy and collection of tax

One of the major reasons affecting the effectiveness of Tax administration in Commercial Taxes Department is the Levy and collection of tax. Under this, the following sub factors were covered by the study

- (a) ***Filing of return by dealers***, here due date compliance of return, contents which were mentioned in the return form, contents of various annexure which were attached with the return, return acknowledgement system adopted by the CTD, Tax e-payment system implemented and other type of tax payment system in case of system failure, all these were analysed on the basis of effectiveness level by the sample selected from CTD.

- (b) **Scrutiny of return**, under this head, the researcher analysed the satisfaction level on various levels of scrutiny adopted by the CTD, adequacy of time taken for the completion of scrutiny, possibility for the completion of 100% scrutiny, software and manual checking mechanism adopted in the scrutiny, software guidance for the smooth functioning of scrutiny, Generation of defect memo for any defects found in the scrutiny, present mode of mechanism for scrutiny of notice / defect memo, time frame availed for the completion of scrutiny, scrutiny with books of accounts maintained and tax addition due to scrutiny were analysed.
- (c) **Return data management** in CTD was analysed with availability of backlog return data from previous returns, availability of data from current return, frequency for the reporting of current data, adequacy level for return data for the purpose of MIS and software efficiency for return data processing and the generation of reports .
- (d) **Tax Assessment** is analysed byway of certain sub items such as adequacy of internal data for assessment(backlog returns, information from higher authority...etc.), availability of external data other than return data for assessment, adequacy of time frame (dealers whose annual tax liability in the preceding year is less than 10lakhs, the date of submission is on or before 10th of next month and in the case of all other dealers it is on or before 15th of next month) set for completing monthly assessment, tax addition due to the present system of assessment, dealer co operation in case of yearly assessment and scope for assessment on the basis of audit reports (Form 13 & 13A)
- (e) **Appeals, Revision...etc** is a sub factor analysed with sub items, different levels of appeals and revision from the bottom to higher level, functioning of appeal mechanism adopted by CTD, time frame set for the disposal of various appeals, tax addition due to appeals, dealer co – operation in disposal of accounts, statutory fees set by CTD for filing of appeals at various Department level, Tribunal, high court and supreme court , possibility of stay of tax in existing value, chance of finality of first appeals and all other type of alternative mechanism for the disposal of appeals and revision (adhalath, settlement...etc.).

- (f) **Management Information System (MIS)** is analysed by the functioning mechanism adopted in the CTD, various channels of communication used in the MIS, software assistance in MIS like generation and sending of e-mails on proper time, role of MIS in CTD by the staff members in general, evaluation mechanism for the accuracy of MIS reports, decisions taken on the basis of MIS by employees, directions given on the basis of MIS and corrective measures taken on the basis of MIS reports.
- (g) **Computerisation** is analysed by the effectiveness of computerization in the following allied areas such as filing of return by dealers, return data management in CTD, tax assessment on the basis of data collected, data availed or generated for shop inspection, check post data management system, vehicle checking in general and detection of tax evasion.

Against these sub – factors, fifty seven questions were asked to collect the perception of employees in Commercial Taxes Department regarding the preservation of Levy and collection of tax. Responses were collected on a five point scale from highly effective to least effective. The composite score of all the fifty seven questions is taken to present the table.

Table No. 4.31
Descriptive Statistics:- Levy and collection of tax – combined

	Mean	Median	Mode	Std. Deviation
Levy and collection of tax	3	3	3	0.3272
Filing of return by dealers	4	4	4	0.3957
Scrutiny of return	3	3	3	0.3542
Return data management	4	4	3	0.4495
Tax assessment	4	4	3	0.4709
Appeals, revision...etc	3	3	3	0.4425
Management Information System (MIS)	4	3	3	0.6785
Computerisation	4	4	4	0.4336

From the table 4.31 the computed value of mean, median and mode values under Levy and Collection of tax is 3. The leading sub – factor under the levy and collection of tax are Filing of return by dealers, Return data management, Tax assessment, MIS and Computerisation. The mean value of 4 out of 5 shows that lion shares are satisfied in the said sub - factors. To further under the nature of responses we look into the composite mode and median for levy and collection of tax. The mode and median are three and the mean value is 3 out of 5, with a standard deviation of 0.3271. That means lions majority of the respondents is positively satisfied to Levy and collection of tax.

In the next section the researcher tries to identify and analyse the major problems affecting effectiveness of Tax administration. The various dimensions of the factor show an increase in the positive influence of the Tax administration in Commercial Taxes Department in Kerala. Since the factors identified are highly qualitative in nature and the issues are interconnected, the researcher used the multidimensional scaling technique for the study.

The factors affecting the filing of return by dealers were identified and the most effective variable in this regard may be examined by applying Multi dimensional Scale Alscal Model (MDSAM).

Table No. 4.32

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for levy and collection of tax

Iteration	S - stress	Improvement
1.	.02360	
2.	.02154	.00207
3.	.02146	.00008

The following table gives both the external and internal dimensions of the factor ‘Levy and collection of tax’. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.33

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards ‘Levy and collection of tax’

Stimulus Number	Stimulus Name	1	2
1.	Filing of return by dealers (factor 1.1)	1.3871	-.0573
2.	Scrutiny of return (factor 1.2)	-2.5684	-.1805
3.	Return Data Management(factor 1.3)	1.7259	-.0759
4.	Tax Assessment(factor 1.4)	-.9149	-.1848
5.	Appeals, revision.etc. (factor 1.5)	-.4298	.2729
6.	Management Information System(MIS) (factor 1.6)	-.0298	.6666
7.	Computerisation (factor 1.7)	.8300	-.4409

Stress and squared correlation (RSQ) in distances RSQ values are the proportion of variance of the scaled data (disparities) in the partition (row, matrix, or entire data) which is accounted for by their corresponding distances. Stress values are Kruskal's stress formula 1.

For matrix,

Stress = .03248 RSQ = .99666

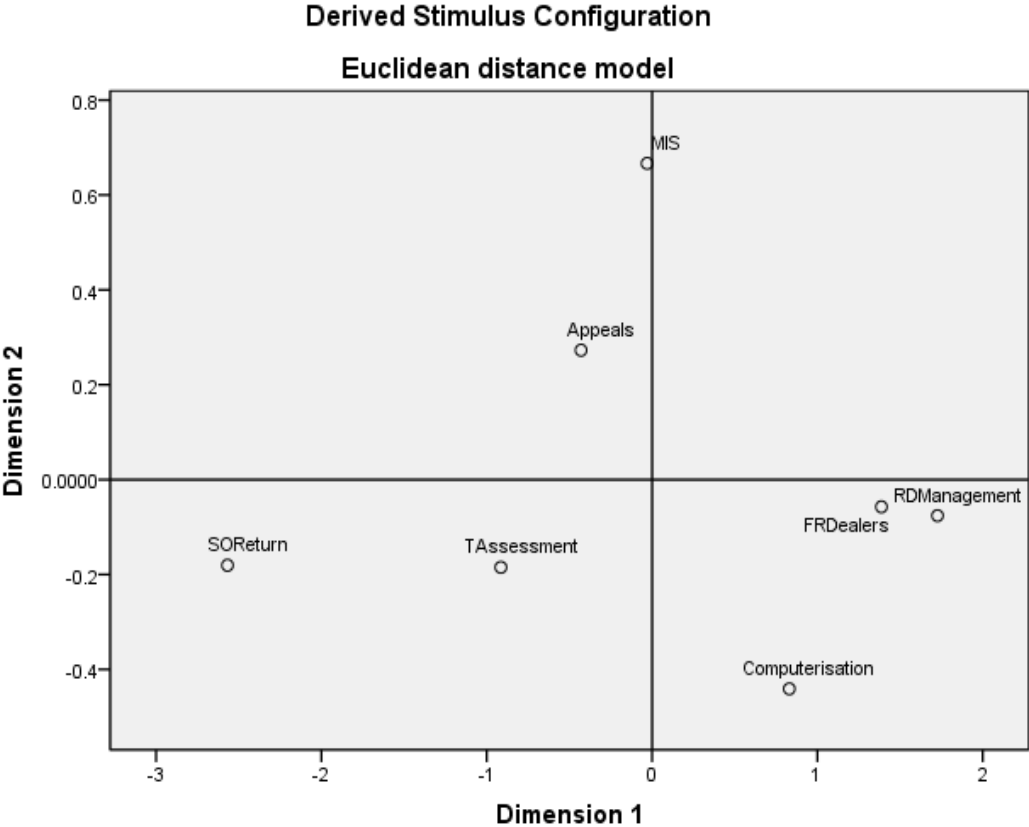
The above table explains 99.66 percentage of variability and the stress is also very small and negligible in size, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the levy and collection of tax. This model can be used to redress the levy and collection of tax, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in levy and collection of tax spatially by means of visual display, the statistical tool, multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of

the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the levy and collection of tax is one having the highest positive co-efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Filing of return by dealers (factor 1.1) and Management Information System (MIS) (factor 1.6)’ are the most effective elements in the levy and collection of tax. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.3

Chart showing perception and preferences of respondents towards ‘levy and collection of tax’



From the above MDS, it may be concluded that,

- Filing of return by dealers (factor 1.1), Return Data Management (factor 1.3), Appeals, revision.etc. (factor 1.5), Management Information System (MIS) (factor 1.6) and Computerisation (factor 1.7) are loaded in single dimensions only.

- Scrutiny of return (factor 1.2) and Tax Assessment (factor 1.4) do not contribute much to levy and collection of tax.

4.4.1.1- Filing of return by dealers

One of the main sub factor under levy and collection of tax is filing of return by dealers. This shows a combined result of the said sub items, due date compliance of return, contents in the return form, contents of various annexure, return acknowledgement system, Tax e-payment system and other type of tax payment systems. Therefore the filing of return is an essential factor influencing the effectiveness of Tax administration in Commercial Taxes Department (CTD). Here, designation – wise and Area – wise variation of the Filing of return by dealers with Two – way ANOVA and the output is presented in Table No. 4.34 and 4.35.

Table No. 4.34

Area – wise Estimated Marginal Means – Filing of return by dealers

Dependent factor:- Filing of return by dealers				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	22.539	.340	21.870	23.208
Central	23.760	.160	23.445	24.076
Northern	21.485	.182	21.126	21.843

Table No. 4.35

Designation – wise Estimated Marginal Means – Filing of return by dealers

Dependent factor:- Filing of return by dealers				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	24.199	.206	23.795	24.604
Middle Level Employees	21.829	.173	21.488	22.170
Lower Level Employees	21.756	.282	21.202	22.310

Table No. 4.36
Two – way ANOVA – Filing of return by dealers

Tests of Between-Subjects Effects					
Dependent factor:- Filing of return by dealers					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	253.317	2	126.659	32.304	.000**
Area	361.353	2	180.676	46.081	.000**
Error	1352.705	345	3.921		
Total	1967.374	349			

** Significant at 1 % level of significance

As per Table No. 4.34, 4.35 and 4.36, filing of return by dealers has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of filing of return is functioning in Central region, because it has the highest mean value (23.76). To test the mean variation of the scores for filing of return among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 32.304 and 46.081, df is 2 with $p = 0.000 < 0.01$**). Therefore, it may be concluded that filing of return by dealers has more influence on the effectiveness of Tax administration in CTD of Central region and especially in case of Top level employees (mean is 24.199).

The researcher tries to identify and analyse the major problems affecting effectiveness of Tax administration. The various dimensions of the sub- factors show an increase positive influence of the Tax administration in Commercial Taxes Department in Kerala. Since the sub -factor identified is highly qualitative in nature and the issues are interconnected, the researcher used the multidimensional scaling technique for the study. The sub - factor affecting the filing of return by dealers were identified and the most effective factor in this regard may be examined by applying Multi dimensional Scale Alscal Model (MDSAM).

Table No. 4.37

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for filing of return

Iteration	S – stress	Improvement
1.	.14465	
2.	.10707	.03758
3.	.10520	.00187
4.	.10522	-.00002

The following table 4.37 gives both the external and internal dimensions of the factor 'filing of return by dealers'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.38

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'filing of return by dealers'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Due date compliance (qn 11.1.1)	1.1221	-.9479
2.	Contents of returns (qn 11.1.2)	1.0908	.0556
3.	Contents of Annexure (qn 11.1.3)	-1.1430	-.9045
4.	Return acknowledgement system (qn 11.1.4)	.0059	.6167
5.	Tax :E - payment System (qn 11.1.5)	1.0048	.8239
6.	Tax payment : Other mode of payment (qn 11.1.6)	-2.0806	.3563

For matrix,

Stress = .14970 RSQ = .84788

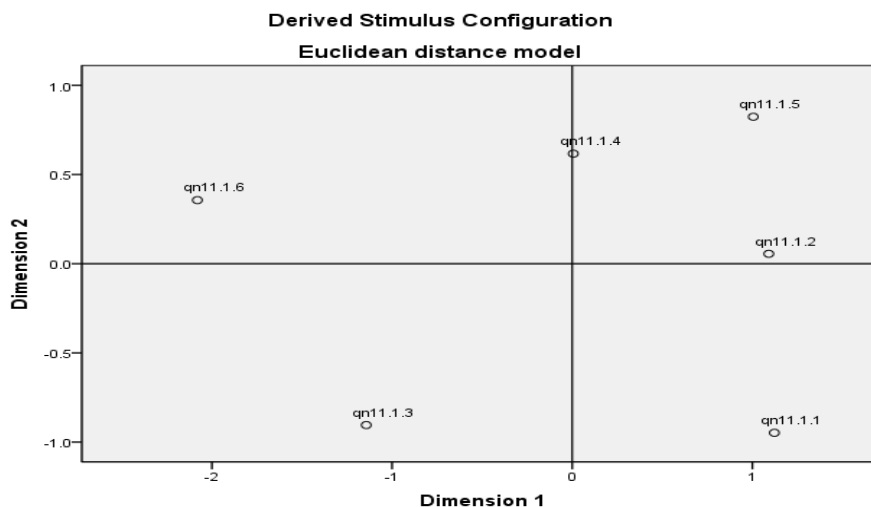
The above Table No. 4.38 explains 84.79 percentage of variability and the stress is also small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the filing of return. This model

can be used to redress the filing of return, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in filing of return spatially by means of visual display, the statistical tool Multi Dimensional Scaling is employed. While using the ALSCAL Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the filing of return is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘due date compliance; (qn 1.11.1) and Tax e – payment system (qn 1.11.5) are the most effective elements in the filing of return by dealers. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.4

Chart showing perception and preferences of respondents towards ‘filing of return by dealers’



From the above MDS, it may conclude that,

- Contents of return (qn11.1.2), Return acknowledgement system (qn11.1.4) and Tax: e – payment system (qn11.1.5) contribute much to the filing of return in both dimensions.

- Due date compliance (qn11.1.1) and Tax payment: other mode of payment (qn11.1.6) are loaded in single dimensions only.
- Contents of annexure (qn11.1.3) do not contribute much to the filing of return.

4.4.1.2. Scrutiny of return

The second sub factor identified under levy and collection of tax is scrutiny of return. This shows a combined result of the said sub items, such as levels of scrutiny, adequacy of time for scrutiny, possibility for the completion of 100 percentage scrutiny, software and manual checking mechanism adopted in the scrutiny, software guidance for scrutiny, Cross checking system of dealer data, Generation of defect memo, mode of scrutiny of notice / defect memo, time frame availed for the completion of scrutiny, scrutiny with books of accounts maintained and tax addition due to scrutiny. Here, Designation – wise and Area – wise variation of the scrutiny of return with Two – way ANOVA and the output is presented in Table No. 4.40 and 4.39.

Table No. 4.39
Area – wise Estimated Marginal Means – Scrutiny of return

Dependent factor: Scrutiny of return				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	37.848	.675	36.520	39.175
Central	38.817	.318	38.191	39.443
Northern	37.787	.362	37.076	38.498

Table No. 4.40**Designation – wise Estimated Marginal Means – Scrutiny of return**

Dependent factor:- Scrutiny of return				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	39.070	.408	38.267	39.872
Middle Level Employees	40.063	.344	39.387	40.740
Lower Level Employees	35.318	.559	34.219	36.418

Table No. 4.41**Two – way ANOVA – Scrutiny of return**

Tests of Between-Subjects Effects					
Dependent factor: Scrutiny of return					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	898.353	2	449.177	29.100	.000**
Area	79.845	2	39.923	2.586	.077**
Error	5325.230	345	15.435		
Total	6303.429	349			

** Significant at 1 % level of significance

As per Table No. 4.39, 4.40 and 4.41, scrutiny of return has a more significant impact on the tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of scrutiny of return is functioning in Central region, because it has the highest mean value (**38.817**). To test the mean variation of the scores for scrutiny of return among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 29.100 and 2.586, df is 2 with p = 0.000 < 0.01**). Therefore, it may be concluded that scrutiny of return has more influence on the effectiveness of Tax administration in CTD of Central region and especially in case of Middle level employees (mean is **40.063**).

Table No. 4.42

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for filing of return

Iteration	S - stress	Improvement
1.	.14432	
2.	.10890	.03542
3.	.10654	.00236
4.	.10614	.00040

The following table gives both the external and internal dimensions of the factor 'scrutiny of return'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.43

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'filing of return by dealers'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Levels of scrutiny (qn 11.2.1)	.6934	.0982
2.	Adequacy of time for security (qn 11.2.2)	-1.0780	.3477
3.	Possibility for 100% Security (qn 11.2.3)	-2.5672	.7816
4.	Checking system – Software (qn 11.2.4)	.8019	-.6370
5.	Checking system – Manual (qn 11.2.5)	-1.8533	-.9962
6.	Software guidance for security (qn 11.2.6)	.7500	.9968
7.	Cross checking system of dealer data (qn 11.2.7)	.4217	1.0917
8.	Generation of defect memo (qn 11.2.8)	-.5386	-1.0677
9.	Mode of Scrutiny of Notice / Defect Memo (qn 11.2.9)	.3646	-.4425
10.	Time frame for completion of security (qn 11.2.10)	.4616	-.4931
11.	Scrutiny with books of accounts (qn 11.2.11)	.6375	-.2377
12.	Tax addition due to scrutiny of return (qn 11.2.12)	1.9063	.5581

For matrix

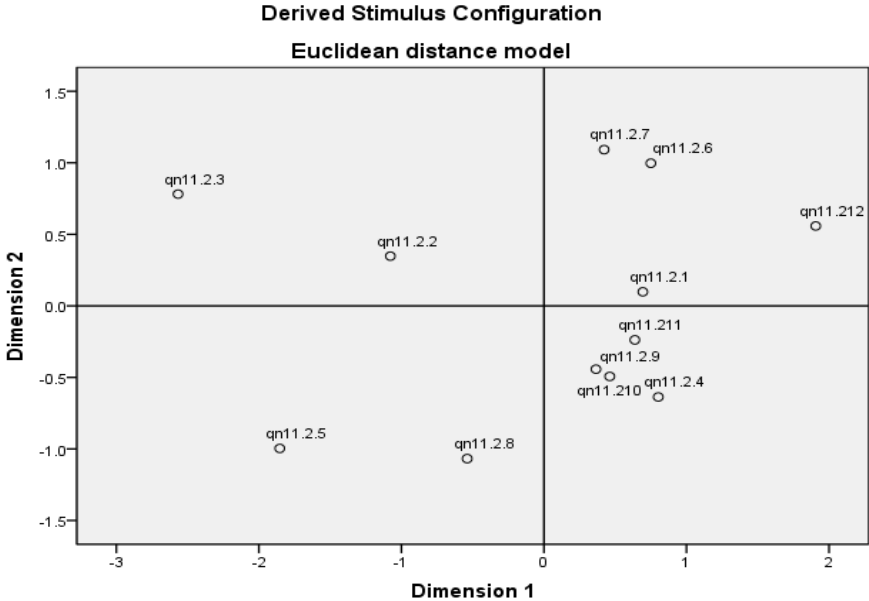
Stress = .13486 RSQ = .92012

It is clear that 92.012 percentages of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the scrutiny of return. This model can be used to redress the scrutiny of return, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in scrutiny of return spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with lowest stress value and highest RSQ will be considered as a value model. The most effective factor affecting the scrutiny of return is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Cross checking system of dealer data (qn 11.2.7) **1.0917** and Tax addition due to scrutiny of return (qn 11.2.12) **1.9063** are the most effective elements in the scrutiny of return. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.5

Chart showing perception and preferences of respondents towards ‘scrutiny of return’



From the above MDS, it may be concluded that,

- Levels of scrutiny (qn 11.2.1), Software guidance for security (qn 11.2.6), Cross checking system of dealer data (qn 11.2.7) and Tax addition due to scrutiny of return (qn 11.2.12) contribute much to the scrutiny of return in both dimensions.
- Adequacy of time for security (qn 11.2.2), Possibility for 100% Security (qn 11.2.3), Checking system – Software (qn 11.2.4), Mode of Scrutiny of Notice / Defect Memo (qn 11.2.9), Time frame for completion of security (qn 11.2.10) and Scrutiny with books of accounts (qn 11.2.11) are loaded in single dimensions only.
- Checking system – Manual (qn 11.2.5), Generation of defect memo (qn 11.2.8) do not contribute much to the scrutiny of return.

4.4.1.3 Return Data Management

Return data management in CTD was analysed with availability of backlog return data from previous returns, availability of data from current return, frequency for the reporting of current data, adequacy level for return data for the purpose of MIS and software efficiency for return data processing and the generation of reports). Here, designation – wise and Area – wise variation of the Return Data Management with Two – way ANOVA and the output is presented in Table No. 4.44 and 4.45.

Table No. 4.44

Area – wise Estimated Marginal Means – Return data management

Dependent factor: Return data management				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	19.773	.425	18.937	20.609
Central	21.239	.200	20.845	21.634
Northern	20.056	.228	19.608	20.503

Table No. 4.45**Designation – wise Estimated Marginal Means – Return data management**

Dependent factor: Return data management				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	21.421	.257	20.915	21.927
Middle Level Employees	21.251	.217	20.824	21.677
Lower Level Employees	18.397	.352	17.704	19.089

Table No. 4.46**Two – way ANOVA – Return data management**

Tests of Between-Subjects Effects					
Dependent factor: Return data management					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	305.000	2	152.500	24.901	.000**
Area	120.300	2	60.150	9.822	.000**
Error	2112.874	345	6.124		
Total	2538.174	349			

** Significant at 1 % level of significance

As per Table No. 4.44, 4.45 and 4.46, Return Data Management has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Return Data Management is functioning in Central region, because it has the highest mean value (**21.239**). To test the mean variation of the scores for Return Data Management among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 24.901 and 9.822, df is 2 with $p = 0.000 < 0.01$**). Therefore, it may be concluded that Return Data

Management has more influence on the effectiveness of Tax administration in CTD of Central region and especially in case of Top level employees (mean is **21.421**).

Table No. 4.47

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Return data management

Iteration	S – stress	Improvement
1.	.08480	
2.	.07865	.00615
3.	.07829	.00036

The following table gives both the external and internal dimensions of the factor 'Return data management'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.48

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'Return data management'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Availability of Backlog return data (qn 11.3.1)	1.1403	.3095
2.	Availability of current return data (qn 11.3.2)	-1.1802	.1557
3.	Frequency of return data reporting (qn 11.3.3)	-.8297	.5487
4.	Adequacy of return data for MIS (qn 11.3.4)	-.7935	.5680
5.	Software efficiency in return data processing (qn 11.3.5)	2.1282	-.0007
6.	Software efficiency in Generation of Reports (qn 11.3.6)	-.4650	-1.5811

For matrix

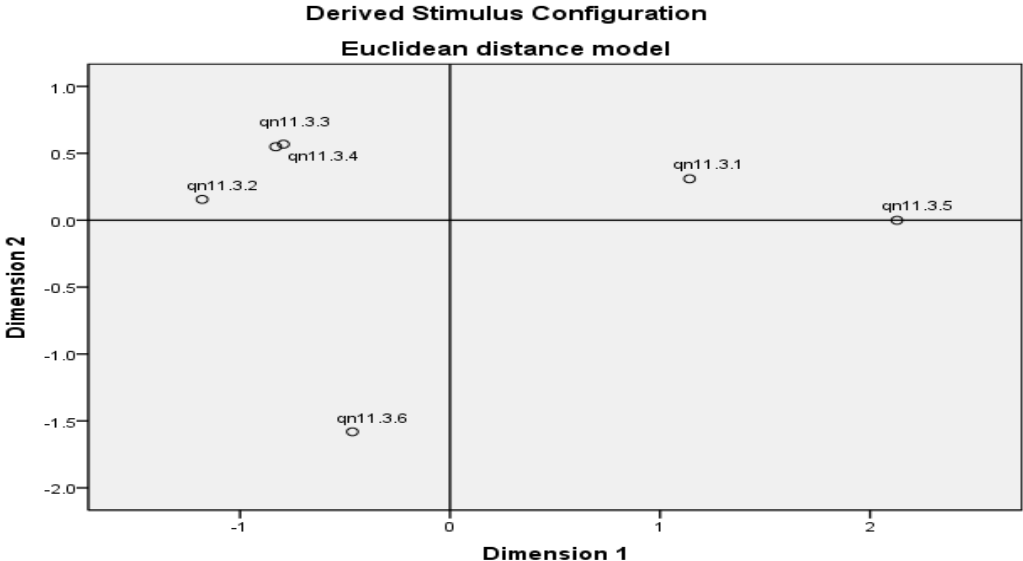
Stress = .09123 RSQ = .96342

The above table explains 96.34 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Return data management. This model can be used to redress the Return data management, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Return data management spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alsca Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with lowest stress value and highest RSQ will be considered as a value model. The most effective factor affecting the Return data management is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Adequacy of return data for MIS (qn 11.3.4) and Software efficiency in return data processing (qn 11.3.5) are the most effective elements in the Return data management. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.6

Chart showing perception and preferences of respondents towards ‘Return data management’



From the above MDS, it may concluded that,

- Availability of Backlog return data (qn 11.3.1) contribute much to the Return data management in both dimensions.
- Availability of current return data (qn 11.3.2), Frequency of return data reporting (qn 11.3.3), Adequacy of return data for MIS (qn 11.3.4), and Software efficiency in return data processing (qn 11.3.5) are loaded in single dimensions only.
- Software efficiency in Generation of Reports (qn 11.3.6) does not contribute much to the Return data management.

4.4.1.4. Tax Assessment

Tax Assessment is analysed byway of certain sub items such as adequacy of internal data for assessment(backlog returns, information from higher authority...etc.), availability of external data other than return data for assessment, adequacy of time frame (dealers whose annual tax liability in the preceding year is less than 10lakhs the date of submission is on or before 10th of next month and in the case of all other dealers is on or before 15th of next month) set for completing monthly assessment, tax addition due to the present system of assessment, dealer co operation in the case of yearly assessment and scope for assessment on the basis of audit reports (Form 13 & 13A).). Here, designation – wise and Area – wise variation of the Tax Assessment with Two – way ANOVA and the output is presented in Table No. 4.49 and 4.50.

Table No. 4.49

Area – wise Estimated Marginal Means – Tax Assessment

Dependent factor:- Tax assessment				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	30.755	.622	29.533	31.977
Central	32.886	.293	32.309	33.462
Northern	29.770	.333	29.116	30.425

Table No. 4.50**Designation – wise Estimated Marginal Means – Tax Assessment**

Dependent factor: Tax assessment				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	33.462	.376	32.723	34.201
Middle Level Employees	32.721	.317	32.098	33.344
Lower Level Employees	27.228	.515	26.215	28.240

Table No. 4.51**Two – way ANOVA – Tax Assessment**

Tests of Between-Subjects Effects					
Dependent factor: Tax assessment					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	1066.783	2	533.392	40.749	.000**
Area	685.338	2	342.669	26.179	.000**
Error	4515.939	345	13.090		
Total	6268.060	349			

** Significant at 1 % level of significance

As per Table No. 4.49, 4.50 and 4.51, Tax Assessment has a more significant impact on the tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Tax Assessment is functioning in Central region, because it has the highest mean value (**32.886**). To test the mean variation of the scores for Tax Assessment among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 40.749 and 26.179, df is 2 with $p = 0.000 < 0.01$**). Therefore, it may be concluded that Tax Assessment has more influence on the effectiveness of Tax administration in CTD of Central region and especially in the case of Top level employees (mean is **33.462**).

Table No. 4.52

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Tax Assessment

Iteration	S - stress	Improvement
1.	.21265	
2.	.18798	.02467
3.	.18410	.00388
4.	.18372	.00038

The following table gives both the external and internal dimensions of the factor 'Tax Assessment'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.53

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'Tax Assessment'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Adequacy of internal data for assessments (qn11.4.1)	.6052	1.0268
2.	Availability of external data for assessments (qn11.4.2)	.7590	1.1847
3.	Adequacy of time frame for completing monthly Assessments (qn11.4.3)	2.1163	-.5227
4.	Tax addition due to assessments (qn11.4.4)	-.4264	-.9368
5.	Dealer co operation in assessments (qn11.4.5)	.5908	-.7164
6.	Evaluation of monthly assessments (qn11.4.6)	.0335	-.4071
7.	Yearly consolidation system of monthly assessments (qn11.4.7)	-1.0269	-1.0603
8.	Scope for assessment on the basis of annual returns (qn11.4.8)	-1.2782	-.0039
9.	Scope for assessment on the basis of Audit Reports (qn11.4.9)	-1.3732	1.4357

For matrix

Stress = .13896 RSQ = .87208

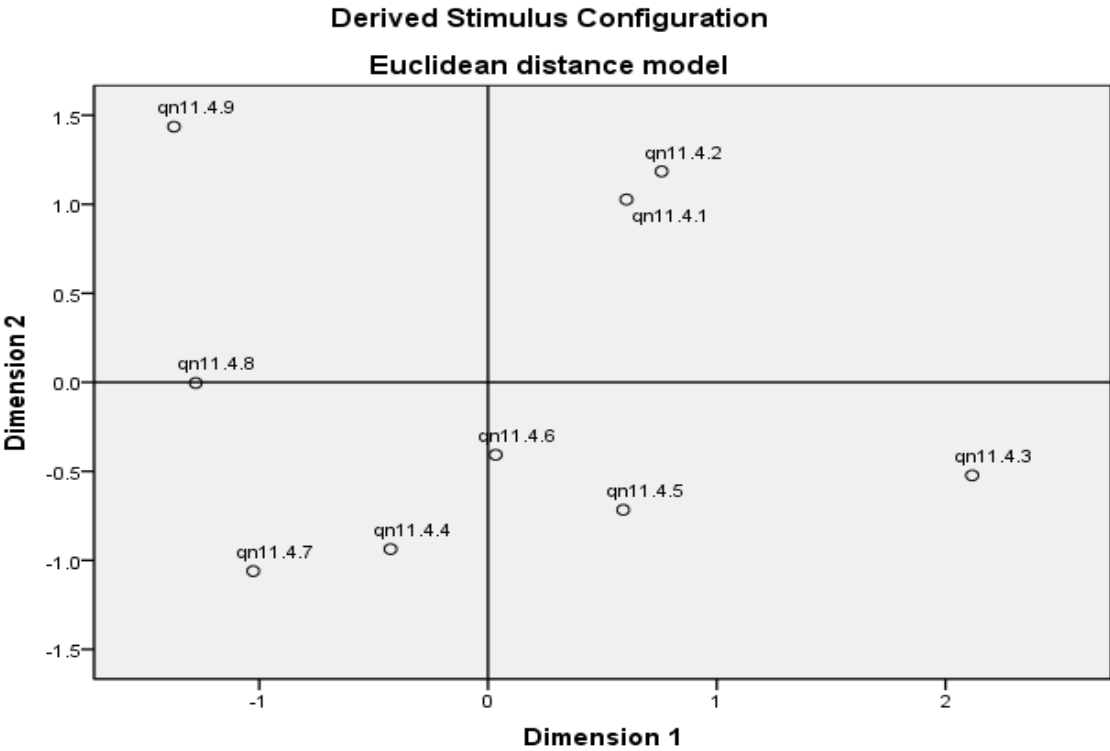
The above table explains 87.21 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Tax Assessment. This model

can be used to redress the Tax Assessment, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in filing of return spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alsca Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Tax Assessment is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘due date compliance; (qn 1.11.1) and Tax e – payment system (qn 1.11.5) are the most effective elements in the Tax Assessment. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.7

Chart showing perception and preferences of respondents towards ‘Tax Assessment’



From the above MDS, it may be concluded that,

- Adequacy of internal data for assessments (qn11.4.1) and Availability of external data for assessments (qn11.4.2) contribute much to the tax assessment in both dimensions.
- Adequacy of time frame for completing monthly Assessments (qn11.4.3), Dealer co operation in assessments (qn11.4.5), Evaluation of monthly assessments (qn11.4.6) and Scope for assessment on the basis of Audit Reports (qn11.4.9) are loaded in single dimensions only.
- Tax addition due to assessments (qn11.4.4), Yearly consolidation system of monthly assessments (qn11.4.7) and Scope for assessment on the basis of annual returns (qn11.4.8) do not contribute much to Tax assessment.

4.4.1.5 Appeals, revision...etc

Appeals, Revision...etc is a sub factor analysed with sub items, different levels of appeals and revision from bottom to higher level, functioning of appeal mechanism adopted by CTD, time frame set for the disposal of various appeals, tax addition due to appeals, dealer co – operation in disposal of accounts, statutory fees set by CTD for filing of appeals at department level, high court and supreme court, possibility of stay of tax in existing value, chance of finality of first appeals and all other types of alternative mechanism for the disposal of appeals and revision (adhalath, settlement... etc.). Here, designation–wise and Area – wise variation of the Appeals, Revision...etc with Two – way ANOVA and the output is presented in Table No. 4.54 and 4.55.

Table No. 4.54

Area – wise Estimated Marginal Means – Appeals, revision...etc

Dependent factor: Appeals, revision...etc				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	29.459	.534	28.409	30.510
Central	29.866	.252	29.370	30.361
Northern	30.210	.286	29.647	30.773

Table No. 4.55**Designation – wise Estimated Marginal Means – Appeals, revision...etc**

Dependent factor: Appeals, revision...etc				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	33.620	.323	32.984	34.255
Middle Level Employees	29.048	.272	28.513	29.584
Lower Level Employees	26.867	.442	25.997	27.737

Table No. 4. 56**Two – way ANOVA – Appeals, revision...etc.**

Tests of Between-Subjects Effects					
Dependent factor: Appeals, revision...etc					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	2181.422	2	1090.711	112.817	.000**
Area	18.838	2	9.419	.974	.379*
Error	3335.455	345	9.668		
Total	5535.714	349			

** Significant at 1 % level of significance

* Significant at 5 % level of significance

As per Table No. 4.54, 4.55 and 4.56, Appeals, revision...etc has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Appeals, revision...etc is functioning in Northern region, because it has the highest mean value (**30.210**). To test the mean variation of the scores for Appeals, revision...etc among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores are statistically significant at 1% level of significance (**Value of F is 112.817 and 0.974, df is 2 with $p = 0.000 < 0.01$**). Therefore, it may be concluded that Appeals, revision...etc has more influence on the effectiveness of Tax administration in CTD of Central region and especially in the case of Top level employees (mean is **33.620**).

Table No. 4.57

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Appeals, Revision...etc

Iteration	S – stress	Improvement
1.	.28195	
2.	.23840	.04355
3.	.23402	.00438
4.	.23354	.00048

From the above table gives both the external and internal dimensions of the factor 'Appeals, Revision...etc'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.58

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'Appeals, Revision...etc'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Levels of appeals and revision (qn 11.5.1)	-.3969	.2523
2.	Functioning of Appeal mechanism (qn 11.5.2)	1.3392	1.0834
3.	Time frame for disposal of Appeals (qn 11.5.3)	.1601	.5201
4.	Tax addition due to Appeals (qn 11.5.4)	.4803	-1.7934
5.	Dealer co-operation in disposal of Appeals (qn 11.5.5)	-2.6110	-.1180
6.	Statutory fees for filing of appeals (qn 11.5.6)	1.1433	-.5958
7.	Possibility of stay of tax in existing value (qn 11.5.7)	.2109	-.8442
8.	Finality of first Appeal (qn 11.5.8)	.1975	.3080
9.	Alternative mechanism for Disposal (Adhalath, Settlement...etc) (qn 11.5.9)	-.5232	1.1875

For matrix

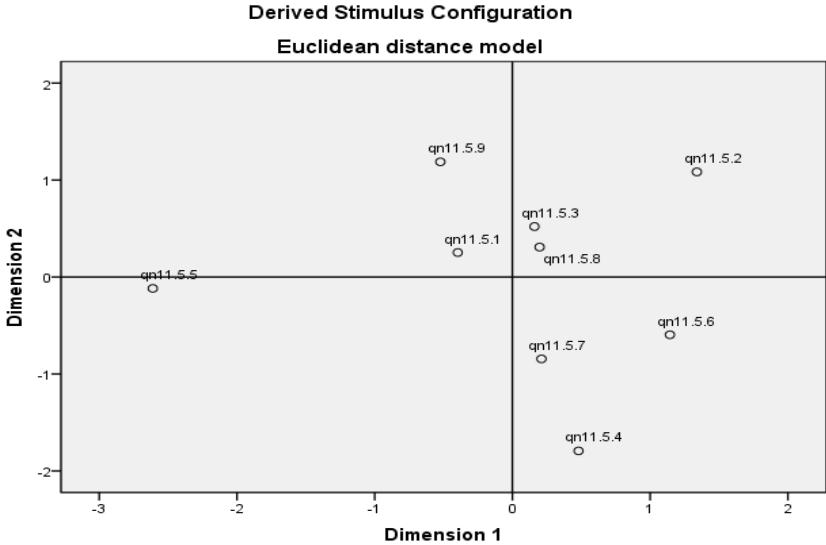
Stress = .19059 RSQ = .81443

The above table explains 81.44 percentage of variability and the stress is also small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Appeals, Revision...etc. This model can be used to redress the Appeals, Revision...etc, which are some of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Appeals, Revision...etc spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alsca Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Appeals, Revision...etc is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Functioning of Appeal mechanism (qn 11.5.2) and Alternative mechanism for Disposal (Adhalath, Settlement...etc) (qn 11.5.9) are the most effective elements in the Appeals, Revision...etc. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.8

Chart showing perception and preferences of respondents towards ‘Appeals, Revision...etc’



From the above MDS, it may be concluded that,

- Functioning of Appeal mechanism (qn 11.5.2), Time frame for disposal of Appeals (qn 11.5.3), and Finality of first Appeal (qn 11.5.8) contribute much to the Appeals, Revision...etc in both dimensions.
- Levels of appeals and revision (qn 11.5.1), Tax addition due to Appeals (qn 11.5.4), Statutory fees for filing of appeals (qn 11.5.6), Possibility of stay of tax in existing value (qn 11.5.7) and Alternative mechanism for Disposal (Adhalath, Settlement...etc) (qn 11.5.9) are loaded in single dimensions only.
- Dealer co-operation in disposal of Appeals (qn 11.5.5), does not contribute much to Appeals, Revision...etc.

4.4.1.6. Management Information System

Management Information System (MIS) is analysed by the functioning mechanism adopted in the CTD, various channels of communication used in the MIS, software assistance in MIS like generation and sending of e-mails on proper time, role of MIS in CTD by the staff members in general, evaluation mechanism for the accuracy of MIS reports, decisions taken on the basis of MIS by employees, directions given on the basis of MIS and corrective measures taken on the basis of MIS reports. Here, designation – wise and Area – wise variation of the Management Information System with Two – way ANOVA and the output is presented in Table No. 4.59 and 4.60.

Table No. 4.59

Area – wise Estimated Marginal Means – Management Information System

Dependent factor:- Management Information System				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	27.865	.918	26.059	29.671
Central	28.638	.433	27.786	29.489
Northern	27.920	.492	26.952	28.887

Table No. 4.60**Designation – wise Estimated Marginal Means – Management Information System**

Dependent factor: Management Information System				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	29.886	.555	28.794	30.978
Middle Level Employees	27.489	.468	26.569	28.410
Lower Level Employees	27.047	.760	25.551	28.542

Table No. 4.61**Two – way ANOVA – Management Information System (MIS)**

Tests of Between-Subjects Effects					
Dependent factor:- Management Information System					
Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Designation	386.116	2	193.058	6.759	.001**
Area	40.919	2	20.460	.716	.489*
Error	9854.340	345	28.563		
Total	10281.374	349			
a. R Squared = .042 (Adjusted R Squared = .030)					

** Significant at 1 % level of significance

* Significant at 5 % level of significance

As per Table No. 4.59, 4.60 and 4.61, Management Information System has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Management Information System is functioning in Central region, because it has the highest mean value (**28.638**). To test the mean variation of the scores for Management Information System among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 6.759 and 0.716, df is 2 with p = 0.000 < 0.01**). Therefore, it may be concluded that Tax Assessment has more influence on the effectiveness of Tax administration in CTD of Central region and especially in case of Top level employees (mean is **29.886**).

Table No. 4.62

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Management Information System (MIS)

Iteration	S – stress	Improvement
1.	.10665	
2.	.09495	.01169
3.	.09480	.00015

The following table gives both the external and internal dimensions of the factor ‘Management Information System (MIS)’. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No.4.63

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards ‘Management Information System(MIS)’

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Functioning of MIS in the department (qn 11.6.1)	1.7676	-.4494
2.	Channels of Communication for MIS (qn 11.6.2)	1.3662	1.1363
3.	Software assistance in MIS (qn 11.6.3)	1.4616	-.6986
4.	Staff role in MIS (qn 11.6.4)	-.1289	.2459
5.	Evaluation Mechanism of MIS (qn 11.6.5)	-.0689	.0813
6.	Decision taken on the basis of MIS (qn 11.6.6)	-1.2667	.2698
7.	Directions given on the basis of MIS (qn 11.6.7)	-1.6948	-.3941
8.	Corrective measures taken on the basis of MIS (qn 11.6.8)	-1.4360	-.1913

For matrix

Stress = .13528 RSQ = .91378

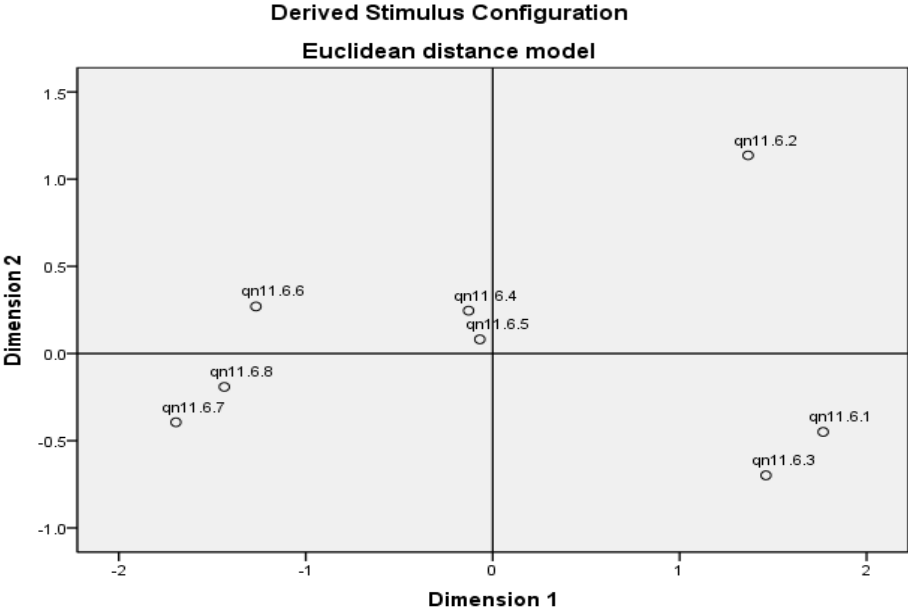
The above table explains 91.37 percentage of variability and the stress is also small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Management Information System (MIS). This model can be used to redress the Management Information System (MIS), which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Management Information System(MIS) spatially by means of visual display, the statistical tool multi dimensional scaling is

employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Management Information System(MIS) is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Functioning of MIS in the department (qn 11.6.1) and Channels of Communication for MIS (qn 11.6.2) are the most effective elements in the Management Information System(MIS). This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.9

Chart showing perception and preferences of respondents towards ‘Management Information System (MIS)’



From the above MDS, it may conclude that,

- Channels of Communication for MIS (qn 11.6.2) contribute much to the Management Information System(MIS) in both dimensions.
- Functioning of MIS in the department (qn 11.6.1), Software assistance in MIS (qn 11.6.3), Staff role in MIS (qn 11.6.4), Evaluation Mechanism of MIS (qn 11.6.5) and Decision taken on the basis of MIS (qn 11.6.6) are loaded in single dimensions only.

- Directions given on the basis of MIS (qn 11.6.7) and Corrective measures taken on the basis of MIS (qn 11.6.8) do not contribute much to Management Information System (MIS).

4.4.1.7 Computerisation

Computerisation is analysed by the effectiveness of computerization in the following allied areas such as filing of return by dealers, return data management in CTD, tax assessment on the basis of data collected, data availed or generated for shop inspection, check post data management system, vehicle checking in general and detection of tax evasion. Here, designation – wise and Area – wise variation of the computerisation with Two – way ANOVA and the output is presented in Table No. 4.64 and 4.65.

Table No. 4.64

Area – wise Estimated Marginal Means – Computerisation

Dependent factor:- Computerisation				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	26.376	.434	25.522	27.231
Central	26.422	.205	26.019	26.825
Northern	24.067	.233	23.609	24.525

Table No. 4.65

Designation – wise Estimated Marginal Means – Computerisation

Dependent factor:- Computerisation				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	24.753	.263	24.236	25.270
Middle Level Employees	24.778	.221	24.343	25.214
Lower Level Employees	27.334	.360	26.627	28.042

Table No. 4.66
Two – way ANOVA – Computerisation

Tests of Between-Subjects Effects					
Dependent factor:- Computerisation					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	579.537	2	289.768	45.318	.000**
Area	429.458	2	214.729	33.582	.000**
Error	2205.979	345	6.394		
Total	3214.974	349			

** Significant at 1 % level of significance

As per Table No. 4.64, 4.65 and 4.66, Computerisation has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Computerisation is functioning in Central region, because it has the highest mean value (**26.422**). To test the mean variation of the scores for Computerisation among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 45.318 and 33.582, df is 2 with $p = 0.000 < 0.01$**). Therefore, it may be concluded that Computerisation has more influence on the effectiveness of Tax administration in CTD of Central region and especially in case of Lower level employees (mean is **27.334**).

Table No. 4.67

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Computerisation

Iteration	S - stress	Improvement
1.	.04522	
2.	.03761	.00761
3.	.03736	.00025

The following table gives both the external and internal dimensions of the factor ‘Computerisation’. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.68

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards ‘Computerisation’

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Effectiveness of Computerization in filing of return (qn11.7.1)	1.2004	-.6788
2.	Effectiveness of Computerization in Return Data Management (qn11.7.2)	1.0230	.2482
3.	Effectiveness of Computerization in Tax Assessment (qn11.7.3)	1.0431	-.4663
4.	Effectiveness of Computerization in shop Inspections (qn11.7.4)	-1.0563	1.2443
5.	Effectiveness of Computerization in Check post Data Management (qn11.7.5)	.1090	.3267
6.	Effectiveness of Computerization in Vehicle Checking (qn11.7.6)	-2.4064	-.9990
7.	Effectiveness of Computerization in Detecting Tax Evasion (qn11.7.7)	.0872	.3250

For matrix

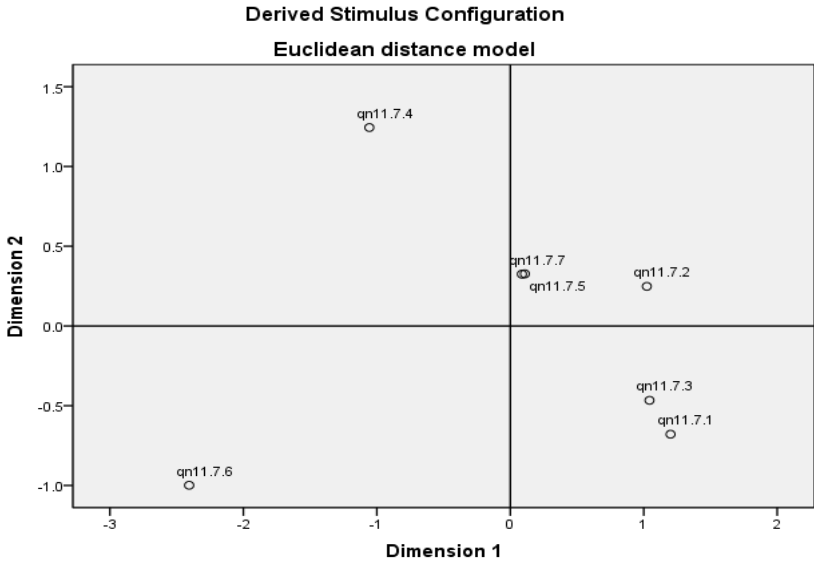
Stress = .06840 RSQ = .98253

The above table explains 98.25 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Computerisation. This model can be used to redress the Computerisation, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Computerisation spatially by means of visual display, the statistical tool, multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the

stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Computerisation is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Effectiveness of Computerization in filing of return (qn11.7.1) and Effectiveness of Computerization in shop Inspections (qn11.7.4)’ are the most effective elements in the Computerisation. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.10
Chart showing perception and preferences of respondents towards
‘Computerisation’



From the above MDS, it may conclude that,

- Effectiveness of Computerization in Return Data Management (qn11.7.2), Effectiveness of Computerization in Check post Data Management (qn11.7.5) and Effectiveness of Computerization in Detecting Tax Evasion (qn11.7.7) contribute much to the Computerisation, in both dimensions.
- Effectiveness of Computerization in filing of return (qn11.7.1), Effectiveness of Computerization in Tax Assessment (qn11.7.3) and Effectiveness of Computerization in shop Inspections (qn11.7.4) are loaded in single dimensions only.

- Effectiveness of Computerization in Vehicle Checking (qn11.7.6) do not contribute much to Computerisation.

4.4.2 Audit and inspection

Second major reason affecting the effectiveness of Tax administration in Commercial Taxes Department is Audit and Inspection. Under this, Audit and inspections were analysed at three levels i.e., in dealer premises, vehicle inspection and office audit (A.G Audit). The following sub factors were covered by the study;

- (a) ***Audit and inspection in dealer premises***, here Existing mode of shop inspection, frequency of shop inspection in an accounting year, basic criteria for shop inspection (in that way of selection of shop; either alphabetic order or turn over achieved in the last accounting year), grievance redressal mechanism adopted in the shop inspection, dealer co-operation at the time of shop inspection, Books of accounts maintained by the dealer at the time when shop inspected, technical support from CTD at the time of inspection (system support), Police support at the time of inspection and existing mode of preparation and delivery of Shop Inspection Report (SIR) were analysed on the basis of effectiveness level by the sample selected from CTD.
- (b) ***Inspection of goods in transit*** was analysed by way of the following sub items such as effective inspection during the time of transit, vehicle checking co-operation and dealer co-operation by the dealer at the time of inspection, basic steps followed by the authority at the time of vehicle inspection, scope of complete inspection of goods, present verification method of transporting documents (it means c-form, bills, tax remitted receipt... etc.), mode of serving defect notice if any false information is communicated through the transporting documents or at the time of vehicle checking, compliance in defective notice generated, additional collection of tax through road inspection, team spirit in vehicle inspection and hands of politicians at the time of vehicle checking.
- (c) ***Internal and A.G Audit*** means, Audits were conducted in the department itself. A separate wing of employees in the CTD called A.G's do the A.G audit. It is also a type of internal audit. Under this, support from the peer group in the department (different A.G audit teams), frequency of internal checking system

(Internal audit) in the CTD, frequency of A.G Audit, Co – operation of employees at the time of A.G. Audit, detection of defects in internal audit and A.G audit, effectiveness of internal audits and A.G Audit and Mode of clearing defects in Internal and A.G Audits were analysed by way of the effectiveness level of employees.

Table No. 4.69
Descriptive Statistics:- Audit and inspection - combined

	Mean	Median	Mode	Std. Deviation
<i>Audit and inspection</i>	3	4	3	0.4017
Audit and inspection in dealers premises	3	3	3	0.590747
Inspection of goods in transit	3	3	3	0.44766
Internal/A.G Audit	4	4	4	0.60079

From the Table No.4.69 the computed values of Audit and inspection were 3 in case of mean, 4 in case of median and 3 in case of mode. The leading sub – factor under the main independent factor Audit and inspection is Internal / A.G Audit. The mean value of 4 out of 5 shows that majority are satisfied in the case of Internal / A.G Audit activities followed in the CTD. To further the nature of responses we look into the composite mode and median for Internal / A.G Audit. The mean and mode are 3 and median is 4 out of 5, with a standard deviation of 0.4017. That means lions majority of the respondents is positively satisfied to Internal / A.G. Audit.

4.4.2.1 Audit and inspection in Dealers Premises

Audit and inspection in dealer premises, here Existing mode of shop inspection, frequency of shop inspection in an accounting year, basic criteria for shop inspection(in that way of selection of shop; either alphabetic order or turn over achieved in the last accounting year), grievance redressal mechanism adopted in the shop inspection, dealer co-operation at the time of shop inspection, Books of accounts maintained by the dealer at the time when shop inspected, technical support from CTD at the time of inspection (system support), Police support at the time of inspection and existing mode of preparation and delivery of Shop Inspection Report (SIR) were analysed on the basis of satisfaction level by the sample selected from

CTD. Here, designation – wise and Area – wise variation of the Audit and inspection in dealers premises with Two – way ANOVA and the output is presented in Table No. 4.70 and 4.71.

Table No. 4.70

Area – wise Estimated Marginal Means – Audit and inspection in Dealers Premises

Dependent factor: Audit and inspection in Dealers Premises				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	34.885	.904	33.107	36.663
Central	32.208	.426	31.370	33.047
Northern	34.612	.484	33.659	35.564

Table No. 4.71

Designation – wise Estimated Marginal Means – Audit and inspection in Dealers Premises

Dependent factor: Audit and inspection In Dealers Premises				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	32.506	.547	31.430	33.581
Middle Level Employees	37.250	.461	36.344	38.156
Lower Level Employees	31.950	.749	30.477	33.422

Table No. 4.72

Two – way ANOVA - Audit and inspection in Dealers Premises

Tests of Between-Subjects Effects					
Dependent factor: Audit and inspection In Dealers Premises					
Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Designation	2157.761	2	1078.881	38.954	.000**
Area	466.412	2	233.206	8.420	.000**
Error	9555.302	345	27.697		
Total	12179.474	349			

a. R Squared = .215 (Adjusted R Squared = .206)

** Significant at 1 % level of significance

As per Table No. 4.70, 4.71 and 4.72, Audit and inspection In Dealers Premises has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Audit and inspection In Dealers Premises is functioning in Southern region, because it has the highest mean value (**34.885**). To test the mean variation of the scores for Audit and inspection In Dealers Premises among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 38.954 and 8.420, df is 2 with p = 0.000 < 0.01**). Therefore, it may be concluded that Audit and inspection In Dealers Premises has more influence on the effectiveness of Tax administration in CTD of Southern region and especially in case of Middle level employees (mean is **37.250**).

Table No. 4.73

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Audit and inspection in dealer premises,

Iteration	S – stress	Improvement
1.	.23201	
2.	.20716	.02485
3.	.20597	.00119
4.	.20584	.00013

The following table gives both the external and internal dimensions of the factor ‘Audit and inspection in dealer premises’. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.74

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards ‘Audit and inspection in dealer premises,’

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Existing mode of Shop Inspection (qn12.1.1)	.6673	-.4107
2.	Frequency of shop inspection (qn12.1.2)	1.7972	-.9861
3.	Basis of Shop Inspection (qn12.1.3)	.7405	.0757
4.	Grievance Redressal Mechanism in Shop Inspection (qn12.1.4)	-.3828	1.0552
5.	Dealer Cooperation in Shop Inspection (qn12.1.5)	1.1522	.6406
6.	Maintenance of Books of Accounts by Dealers (qn12.1.6)	-1.6214	.3844
7.	Technical Support in Inspection (qn12.1.7)	-.8865	-.0284
8.	Police support in Inspection (qn12.1.8)	.8834	1.0601
9.	Political Influences in shop inspection (qn12.1.9)	-.9184	-1.8088
10.	Existing mode of preparation and delivery of Shop Inspection Report (SIR) (qn12.1.10)	-1.4314	.0180

For matrix,

Stress = .14970 RSQ = .84788

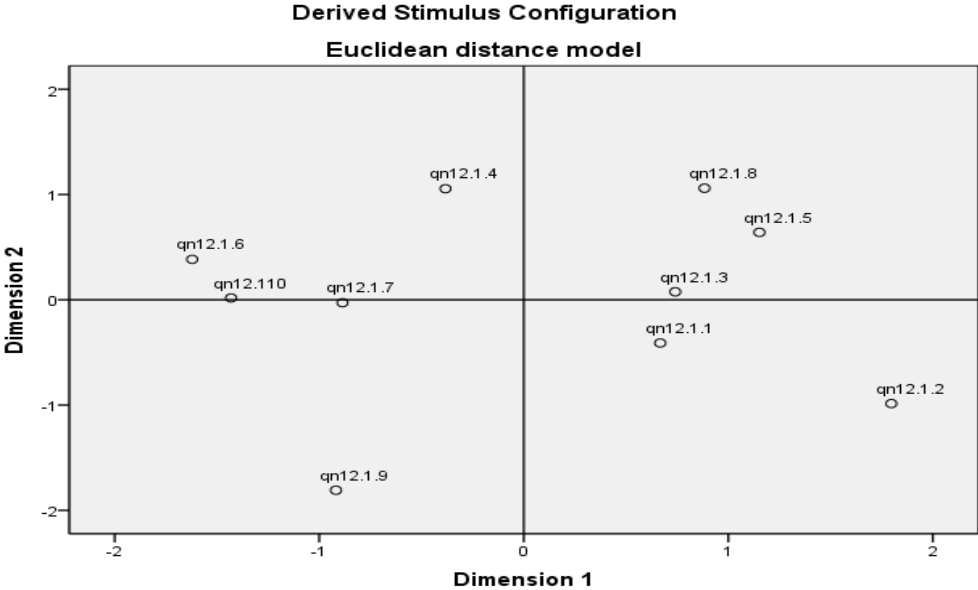
The above table explains 84.79 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Audit and inspection in dealer premises, This model can be used to redress the Audit and inspection in dealer premises,, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Audit and inspection in dealer premises,

spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with lowest stress value and highest RSQ will be considered as a value model. The most effective factor affecting the Audit and inspection in dealer premises, is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Frequency of shop inspection (qn12.1.2) and Police support in Inspection (qn12.1.8) are the most effective elements in the Audit and inspection in dealer premises,. This can be validating by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ are as follows;

Chart No. 4.11

Chart showing perception and preferences of respondents towards ‘Audit and inspection in dealer premises,’



From the above MDS, it may conclude that,

- Basis of shop inspection (qn12.1.3), Dealer cooperation in shop inspection (qn12.1.5) and Police support in inspection (qn12.1.8) contribute much to the Audit and inspection in dealer premises, in both dimensions.
- Existing mode of Shop Inspection (qn12.1.1), Frequency of shop inspection (qn12.1.2), Grievance Redressal Mechanism in Shop Inspection (qn12.1.4), Maintenance of Books of Accounts by Dealers (qn12.1.6) and Existing mode of

preparation and delivery of Shop Inspection Report (SIR) (qn12.1.10) are loaded in single dimensions only.

- Technical Support in Inspection (qn12.1.7) and Political Influences in shop inspection (qn12.1.9) do not contribute much to Audit and inspection in dealer premises,.

4.4.2.2 - Inspection of Goods in Transit

Inspection of goods in transit were analysed by way of the following sub items such as effective inspection during the time of transit, vehicle checking co-operation and dealer co-operation by the dealer at the time of inspection, basic steps followed by the authority at the time of vehicle inspection, scope of complete inspection of goods, present verification method of transporting documents(it means c-form, bills, tax remitted receipt...etc.), mode of serving defect notice if any false information is communicated through the transporting documents or at the time of vehicle checking, compliance in defective notice generated, additional collection of tax through road inspection , team spirit in vehicle inspection and hands of politicians at the time of vehicle checking. Here, designation – wise and Area – wise variation of the Inspection of goods in transit with Two – way ANOVA and the output is presented in Table No. 4.75 and 4.76.

Table No. 4.75

Area – wise Estimated Marginal Means – Inspection of goods in transit

Dependent factor: Inspection of Goods in Transit				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	36.219	.765	34.714	37.723
Central	34.742	.361	34.033	35.452
Northern	39.168	.410	38.362	39.974

Table No. 4.76**Designation – wise Estimated Marginal Means – Inspection of goods in transit**

Dependent factor: Inspection of Goods in Transit				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	36.619	.463	35.709	37.528
Middle Level Employees	37.139	.390	36.372	37.906
Lower Level Employees	36.371	.634	35.125	37.617

Table No. 4.77**Two – way ANOVA - Inspection of Goods in Transit**

Tests of Between-Subjects Effects					
Dependent factor: Inspection of Goods In Transit					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	234.574	2	117.287	5.915	.003**
Area	1386.890	2	693.445	34.970	.000**
Error	6841.233	345	19.830		
Total	8462.697	349			
a. R Squared = .192 (Adjusted R Squared = .182)					

** Significant at 1 % level of significance

As per Table No. 4.75, 4.76 and 4.77, Inspection of goods in transit has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Inspection of goods in transit is functioning in Northern region, because it has the highest mean value (**39.168**). To test the mean variation of the scores for Inspection of goods in transit among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 5.915 and 34.970, df is 2 with $p = 0.000 < 0.01$**). Therefore, it may be concluded that Inspection of goods in transit has more influence on the effectiveness of Tax administration in CTD of Northern region and especially in case of Middle level employees (mean is **37.139**).

Table No. 4.78

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Inspection of goods in transit

Iteration	S - stress	Improvement
1.	.44699	
2.	.35994	.08704
3.	.34858	.01136
4.	.34796	.00062

The following table gives both the external and internal dimensions of the factor 'Inspection of goods in transit'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.79

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'Inspection of goods in transit'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Effectiveness Inspection in Transit (qn 12.2.1)	.2860	-1.2456
2.	Vehicle Cooperation during Inspection (qn 12.2.2)	.7553	-.7174
3.	Dealer cooperation during Inspection (qn 12.2.3)	-.5729	1.4725
4.	Basis of Vehicle Inspection (qn 12.2.4)	-1.3587	-.2085
5.	Scope of Complete Inspection of Goods (qn 12.2.5)	-2.5087	-.5250
6.	Verification method of Transporting documents (qn 12.2.6)	.5924	-.5554
7.	Mode of serving defect notice (qn 12.2.7)	.6212	-.3848
8.	Compliance in defective notice (qn 12.2.8)	.3652	1.2497
9.	Addition collection through Road Inspection (qn 12.2.9)	.9259	-.5514
10.	Team spirit in Inspection (qn 12.2.10)	.7065	-.4222
11.	Political Influences at the time of vehicle inspection (qn 12.2.11)	.176	1.8879

For matrix

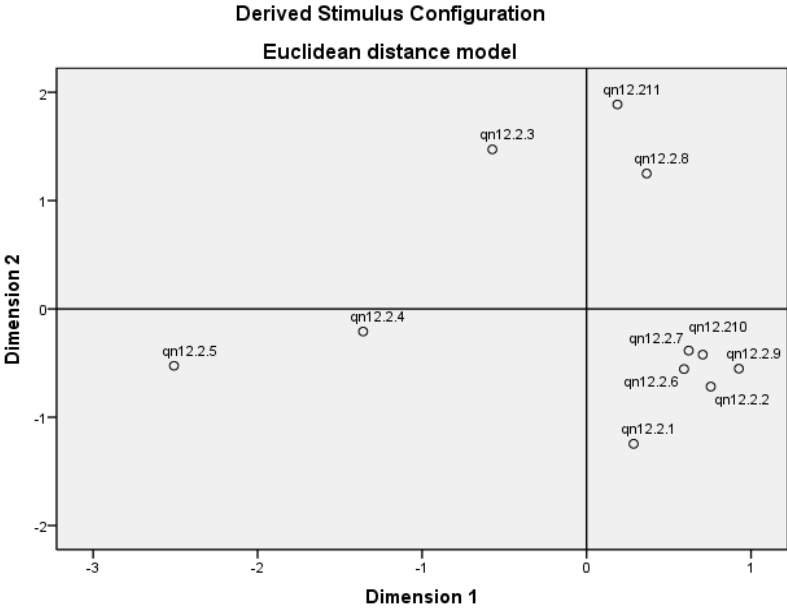
Stress = .33563 RSQ = .72163

The above table explains 72.16 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Inspection of goods in transit. This model can be used to redress the Computerisation, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Computerisation spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alsca Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Inspection of goods in transit is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘due date compliance; (qn 1.11.1) and Tax e – payment system (qn 1.11.5) are the most effective elements in the Inspection of goods in transit. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.12

Chart showing perception and preferences of respondents towards ‘Inspection of goods in transit’



From the above MDS, it may conclude that,

- Compliance in defective notice (qn 12.2.8) and Political Influences at the time of vehicle inspection (qn 12.2.11) contribute much to the Inspection of goods in transit, in both dimensions.
- Effectiveness Inspection in Transit (qn 12.2.1), Vehicle Cooperation during Inspection (qn 12.2.2), Dealer cooperation during Inspection (qn 12.2.3), Verification method of Transporting documents (qn 12.2.6), Mode of serving defect notice (qn 12.2.7), Addition collection through Road Inspection (qn 12.2.9) and Team spirit in Inspection (qn 12.2.10) are loaded in single dimensions only.
- Basis of Vehicle Inspection (qn 12.2.4) and Scope of Complete Inspection of Goods (qn 12.2.5) do not contribute much to Inspection of goods in transit.

4.4.2.3 – Internal and A.G. Audit

Audits were conducted in the department itself. A separate wing of employees in the CTD called A.G's do the A.G audit. It is also type of internal audit. Under this support from the peer group in the department (different A.G audit teams), frequency of internal checking system (Internal audit) in the CTD, frequency of A.G Audit, Co – operation of employees at the time of A.G. Audit, detection of defects in internal audit and A.G audit, effectiveness of internal audits and A.G Audit and Mode of clearing defects in Internal and A.G Audits were analysed by way of the effectiveness level of employees.

Here, designation – wise and Area – wise variation of the Internal / A. G. Audit with Two – way ANOVA and the output is presented in Table No. 4.80 and 4.81.

Table No. 4.80**Area – wise Estimated Marginal Means - Internal/A.G. Audit**

Dependent factor:- Internal/A. G. Audit				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	36.630	1.025	34.615	38.646
Central	38.575	.483	37.624	39.525
Northern	38.156	.549	37.077	39.236

Table No. 4.81**Designation – wise Estimated Marginal Means - Internal/ A. G. Audit**

Dependent factor:- Internal/A. G. Audit				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	41.690	.620	40.471	42.909
Middle Level Employees	38.925	.522	37.897	39.952
Lower Level Employees	32.747	.849	31.078	34.416

Table No. 4. 82**Two – way ANOVA - Internal/A. G. Audit**

Tests of Between-Subjects Effects					
Dependent factor: Internal/A. G. Audit					
Source	Type I Sum of Squares	Df.	Mean Square	F	Sig.
Designation	2860.086	2	1430.043	40.183	.000**
Area	104.495	2	52.248	1.468	.232*
Error	12278.073	345	35.589		
Total	15242.654	349			

a. R Squared = .194 (Adjusted R Squared = .185)

** Significant at 1 % level of significance

* Significant at 5 % level of significance

As per Table No. 4.80, 4.81 and 4.82, Internal/A. G. Audit has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, Internal/A.G. Audit is functioning effectively in central region, because it has the highest mean value (**38.575**). To test the mean variation of the scores for Internal/A.G. Audit among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 40.183 and 1.468, df is 2 with p = 0.000 < 0.01**). Therefore, it may be concluded that Internal/A.G. Audit has more influence on the effectiveness of Tax administration in CTD of Central region and especially in case of Top level employees (mean is **41.690**).

Table No. 4.83

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Internal and A.G Audit

Iteration	S - stress	Improvement
1.	.15135	
2.	.11246	.03889
3.	.11173	.00072

The following table gives both the external and internal dimensions of the factor 'Internal and A.G Audit'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.84**Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'Internal and A.G Audit**

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Support from the pear group (qn 12.3.1)	1.8375	-.0001
2.	Frequency of Internal Audit (qn 12.3.2)	-3.0734	.2024
3.	Frequency of A.G. Audit (qn 12.3.3)	.5801	1.1497
4.	Cooperation of employees in Internal Audit (qn 12.3.4)	-.5038	.0698
5.	Cooperation of employees in A.G. Audit (qn 12.3.5)	1.5860	-.0966
6.	Detection of defects in Internal Audit (qn 12.3.6)	-.5336	-.4904
7.	Detection of defects in A.G. Audit (qn 12.3.7)	-.6290	.8723
8.	Effectiveness of A.G. Audit in the department (qn 12.3.8)	.4229	.0687
9.	Effectiveness of Internal Audit in the department (qn 12.3.9)	-.7568	-1.1346
10.	Mode of Clearing defects in Internal Audit (qn 12.3.10)	.5383	-.0115
11.	Mode of clearing defects in A.G. Audit (qn 12.3.11)	.5317	-.6298

For matrix

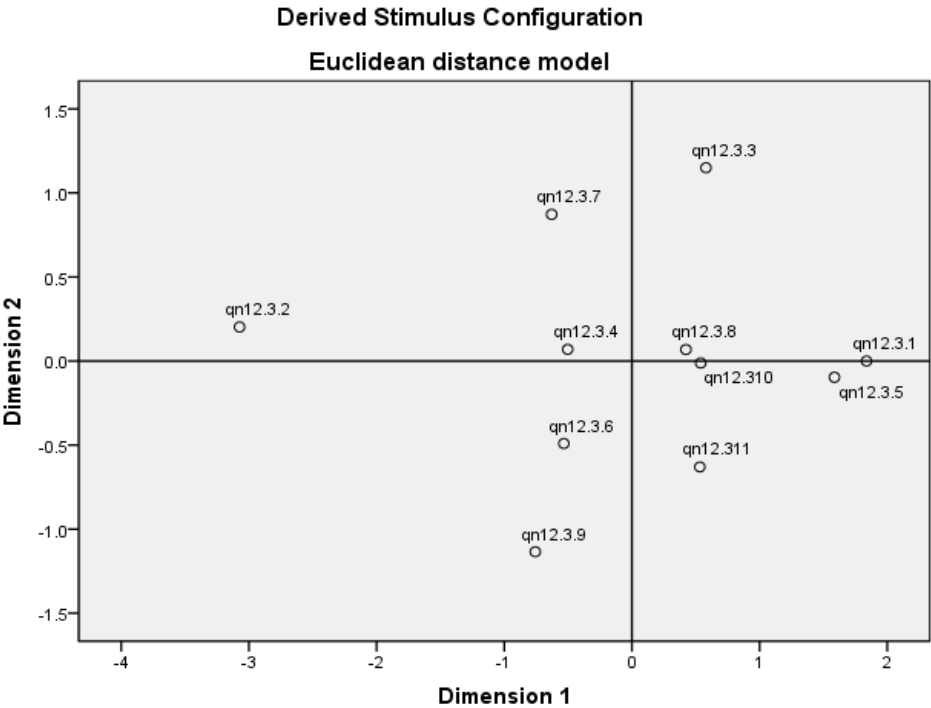
Stress = .12481 RSQ = .93478

The above table explains 93.478 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Internal and A.G Audit. This model can be used to redress the Internal and A.G Audit, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Internal and A.G Audit spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Internal and A.G Audit is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that Support from the pear group (qn 12.3.1) and Frequency of A.G. Audit (qn 12.3.3) are the most effective element in the Internal and A.G Audit. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.13

Chart showing perception and preferences of respondents towards ‘Internal and A.G Audit’



From the above MDS, it may be concluded that,

- Frequency of A.G. Audit (qn 12.3.3) and Effectiveness of A.G. Audit in the department (qn 12.3.8) contribute much to the Internal and A.G Audit in both dimensions.

- Support from the peer group (qn 12.3.1), Frequency of Internal Audit (qn 12.3.2), Cooperation of employees in Internal Audit (qn 12.3.4), Cooperation of employees in A.G. Audit (qn 12.3.5), Detection of defects in A.G. Audit (qn 12.3.7), Mode of Clearing defects in Internal Audit (qn 12.3.10) and Mode of clearing defects in A.G. Audit (qn 12.3.11) are loaded in single dimensions only.
- Detection of defects in Internal Audit (qn 12.3.6) and Effectiveness of Internal Audit in the department (qn 12.3.9) do not contribute much to Internal and A.G Audit.

4.4.3 Training and development

Third independent factor affecting the effectiveness of Tax administration in Commercial Taxes Department is Training and development. Under this, three sub factors and twenty two sub items were covered by the study. They are;

- (a) ***Department training practices*** includes different methods of identification of training need, sufficiency of training centers under CTD, selection criteria for training subjects, duration of training to employees, standard/quality of training programmes, training methods adopted, trainers performance, infrastructural facilities provided in the training centers and interaction opportunities between the employees during the training were analysed.
- (b) ***Areas of training*** is a sub factor analysed by the satisfaction level of the sample. Area of training under procedural and legal aspects related to return scrutiny, assessment, disposal of Appeals/ revision and vehicle checking, Computer and allied areas, judicial aspects and case law reviews and recent trends in taxation were considered.
- (c) ***Training results/achievements*** includes overall employee development in the department, job efficiency or performance seen, job commitment and motivation shown, monetary benefits attained in the department and service / promotion benefits of employees. It is analysed with the help of 5 point scale.

Table No. 4.85**Descriptive Statistics:- Training and development - combined**

	Mean	Median	Mode	Std. Deviation
<i>Training and development</i>	4	3	3	0.531
Department training practices	3	3	3	0.52786
Areas of training	4	4	3	0.7818
Training results/achievements	4	4	3	0.633668

From the Table 4.85, the main independent factor ‘Training and development’ has a mean score value of 4. The median and mode values are 3. Under this, the sub factors having highest mean and median values are Areas of training and Training results/achievements, all these have a mean and median value of 4.

4.4.3.1 Department Training Practices

Department training practices includes different methods of identification of training need, sufficiency of training centers under CTD, selection criteria for training subjects, duration of training to employees, standard / quality of training programmes, training methods adopted, trainers performance, infrastructural facilities provided in the training centers and interaction opportunities between the employees during the training were analysed.

Table No. 4.86**Area – wise Estimated Marginal Means - Department Training Practices**

Dependent factor: Department Training Practices				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	30.562	.588	29.406	31.718
Central	30.315	.277	29.770	30.860
Northern	33.824	.315	33.204	34.443

Table No. 4.87

Designation – wise Estimated Marginal Means - Department Training Practices

Dependent factor: Department Training Practices				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	26.474	.355	25.775	27.173
Middle Level Employees	32.247	.299	31.658	32.836
Lower Level Employees	35.980	.487	35.023	36.938

Table No. 4.88

Two – way ANOVA - Department Training Practices

Tests of Between-Subjects Effects					
Dependent factor: Department Training Practices					
Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Designation	2903.951	2	1451.976	124.057	.000**
Area	934.896	2	467.448	39.939	.000**
Error	4037.908	345	11.704		
Total	7876.754	349			
a. R Squared = .487 (Adjusted R Squared = .481)					

** Significant at 1 % level of significance

As per Table No. 4.86, 4.87 and 4.88, Department Training Practices has a more significant impact on the tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, Department Training Practices is functioning effectively in Northern region, because it has the highest mean value (**26.422**). To test the mean variation of the scores for Department Training Practices among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 124.057 and 39.939, df is 2 with p = 0.000 < 0.01**). Therefore, it may be concluded that Department Training Practices have more influence on the effectiveness of Tax administration in CTD of Northern region and especially in case of Lower level employees (mean is **27.334**).

Table No. 4.89

shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for department training practices

Iteration	S - stress	Improvement
1.	.19355	
2.	.17928	.01426
3.	.17735	.00194
4.	.17637	.00098

The following table gives both the external and internal dimensions of the factor 'department training practices'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.90

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'department training practices'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Method of Identification of Training Needs (qn13.1.1)	.5557	-1.4298
2.	Adequacy of training centers (qn13.1.2)	2.3587	.7633
3.	Selection Criteria for training (qn13.1.3)	-.4395	.3720
4.	Duration of training Programme (qn13.1.4)	-.1624	.7179
5.	Standard / Quality training programme (qn13.1.5)	-.1375	-.2580
6.	Training Methods (qn13.1.6)	-.1231	-.0023
7.	Trainers Performance (qn13.1.7)	.7942	.3894
8.	Infrastructural facilities of training centers (qn13.1.8)	-.2732	-.9464
9.	Interaction opportunities during training (qn13.1.9)	-2.5728	.3939

For matrix,

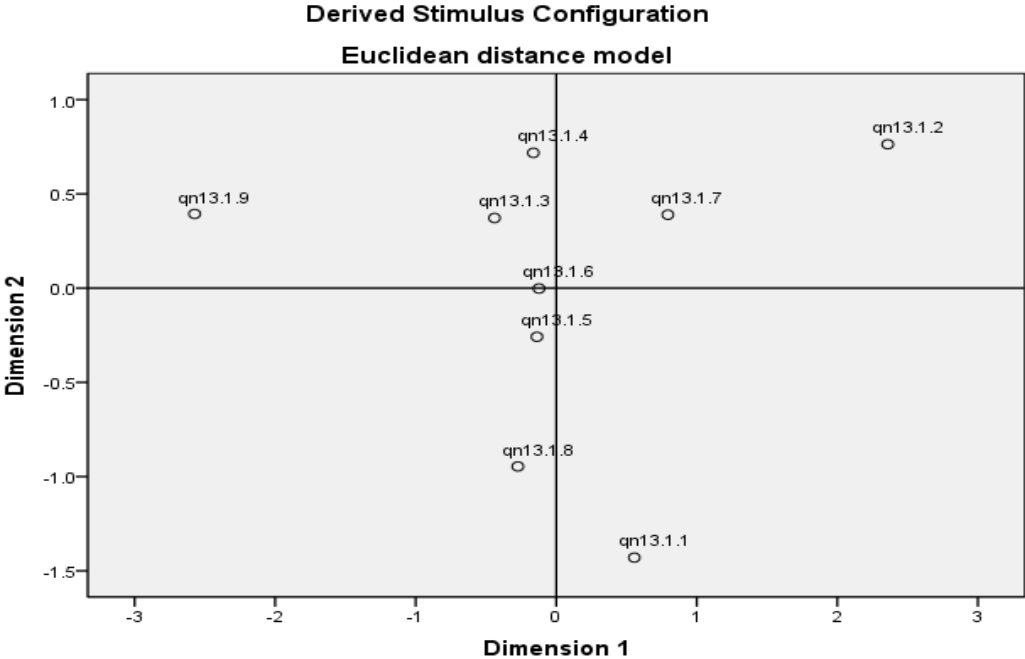
Stress = .17430 RSQ = .87220

The above table explains 87.22 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the department training practices. This model can be used to redress the department training practices, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in filing of return spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Department training practices is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that Adequacy of training centers (qn13.1.2) is the most effective element in the Department training practices. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.14

Chart showing perception and preferences of respondents towards ‘department training practices’



From the above MDS, it may be concluded that,

- Adequacy of training centers (qn13.1.2) and Trainers performance (qn13.1.7) contribute much to the department training practices in both dimensions.
- Method of Identification of Training Needs (qn13.1.1), Selection Criteria for training (qn13.1.3), Duration of training Programme (qn13.1.4), and Interaction opportunities during training (qn13.1.9) are loaded in single dimensions only.
- Standard / Quality training programme (qn13.1.5), Training Methods (qn13.1.6), Infrastructural facilities of training centers (qn13.1.8), do not contribute much to the department training practices.

4.4.3.2 – Areas of training

Areas of training is a sub factor analysed by the effectiveness level of the sample. Area of training under procedural and legal aspects related with return scrutiny, assessment , disposal of Appeals/ revision and vehicle checking, Computer and allied areas, judicial aspects and case law reviews and recent trends in taxation were considered.

Table No. 4.91

Area – wise Estimated Marginal Means - Areas of Training

Dependent factor: Areas of Training				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	26.291	.858	24.604	27.979
Central	25.197	.404	24.401	25.992
Northern	30.838	.459	29.934	31.741

Table No. 4.92**Designation – wise Estimated Marginal Means - Areas of Training**

Dependent factor: Areas of Training				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	24.445	.519	23.424	25.465
Middle Level Employees	30.913	.437	30.053	31.772
Lower Level Employees	26.968	.710	25.571	28.366

Table No. 4.93**Two – way ANOVA - Areas of Training**

Tests of Between-Subjects Effects					
Dependent factor: Areas of Training					
Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Designation	2731.084	2	1365.542	54.776	.000**
Area	2322.963	2	1161.482	46.590	.000**
Error	8600.721	345	24.930		
Total	13654.769	349			
a. R Squared = .370 (Adjusted R Squared = .363)					

** Significant at 1 % level of significance

As per Table No. 4.91, 4.92 and 4.93, Areas of Training has a more significant impact on the tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Areas of Training is functioning in Northern region, because it has the highest mean value (**30.838**). To test the mean variation of the scores for Areas of Training among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores are statistically significant at 1% level of significance (**Value of F is 54.776 and 46.590, df is 2 with $p = 0.000 < 0.01$**).

Therefore, it may be concluded that Areas of Training has more influence on the effectiveness of Tax administration in CTD of Northern region and especially in case of Middle level employees (mean is **30.913**).

Table No. 4.94

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Areas of training

Iteration	S - stress	Improvement
1.	.17357	
2.	.14880	.02477
3.	.14691	.00189
4.	.14687	.00004

The following table gives both the external and internal dimensions of the factor 'Areas of training'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.95

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'Areas of training'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Procedural and Legal aspects for return scrutiny (qn 13.2.1)	1.3966	-.6216
2.	Procedural and Legal aspects for Assessment (qn 13.2.2)	1.1574	-.4290
3.	Procedural and Legal aspects for Disposal of Appeal / Revision (qn 13.2.3)	.2702	-.0661
4.	Procedural and Legal aspects for Shop Inspection (qn 13.2.4)	.8118	1.0134
5.	Procedural and Legal aspects for Vehicle checking (qn 13.2.5)	.6355	.5674
6.	Computer and allied areas (qn 13.2.6)	-1.0533	-1.3802
7.	Judicial aspects and case law reviews (qn 13.2.7)	-1.1010	.9690
8.	Recent trends in taxation (qn 13.2.8)	-2.1171	-.0530

For matrix

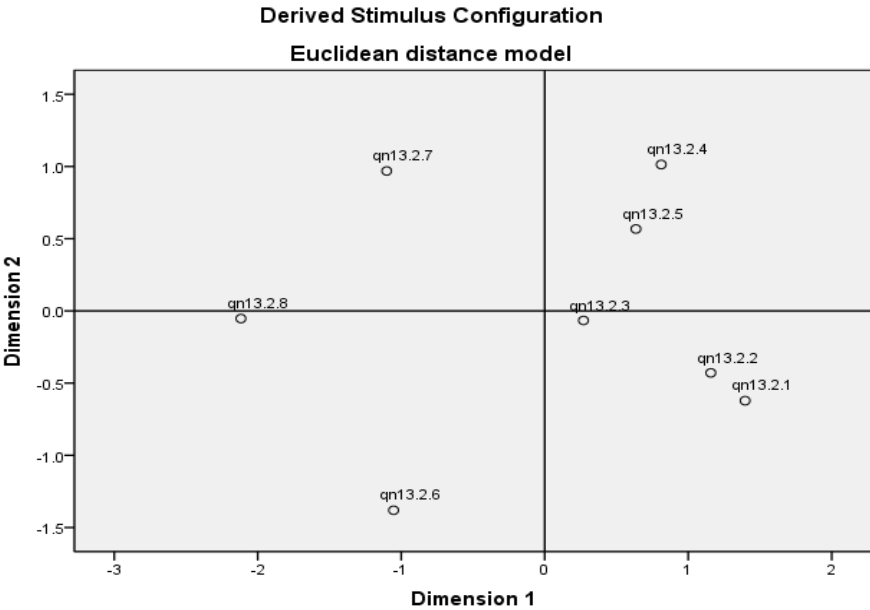
Stress = .11321 RSQ = .93328

The above table explains 93.32 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Areas of training. This model can be used to redress the Areas of training, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Areas of training spatially by means of visual display, the statistical tool, multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Areas of training is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that Procedural and Legal aspects for return scrutiny (qn 13.2.1) and Procedural and Legal aspects for Shop Inspection (qn 13.2.4) are the most effective elements in the Areas of training. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.15

Chart showing perception and preferences of respondents towards ‘Areas of training’



From the above MDS, it may be concluded that,

- Procedural and Legal aspects for Shop Inspection (qn 13.2.4) and Procedural and Legal aspects for Vehicle checking (qn 13.2.5) contribute much to the area of training in both dimensions.
- Procedural and Legal aspects for return scrutiny (qn 13.2.1), Procedural and Legal aspects for Assessment (qn 13.2.2), Procedural and Legal aspects for Disposal of Appeal / Revision (qn 13.2.3), and Judicial aspects and case law reviews (qn 13.2.7) are loaded in single dimensions only.
- Computer and allied areas (qn 13.2.6) and Recent trends in taxation (qn 13.2.8) do not contribute much to the area of training.

4.4.3.3 – Training Results/Achievements

Training results/achievements includes overall employee development in the department, job efficiency or performance seen, job commitment and motivation shown, monetary benefits attained in the department and service/promotion benefits of employees. Its analysed with the help of 5 point scale.

Table No. 4.96

Area – wise Estimated Marginal Means - Training Results / Achievements

Dependent factor: Training Results/Achievements				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	16.505	.448	15.624	17.385
Central	16.354	.211	15.939	16.769
Northern	19.441	.240	18.970	19.913

Table No. 4.97**Designation – wise Estimated Marginal Means - Training Results/Achievements**

Dependent factor: Training Results/Achievements				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	15.510	.271	14.977	16.042
Middle Level Employees	18.485	.228	18.036	18.934
Lower Level Employees	18.305	.371	17.576	19.034

Table No. 4.98**Two – way ANOVA - Training Results/Achievements**

Tests of Between-Subjects Effects					
Dependent factor: Training Results/Achievements					
Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Designation	431.223	2	215.612	31.755	.000**
Area	729.692	2	364.846	53.734	.000**
Error	2342.482	345	6.790		
Total	3503.397	349			
a. R Squared = .331 (Adjusted R Squared = .324)					

** Significant at 1 % level of significance

As per Table No. 4.96, 4.97 and 4.98, Training Results/Achievements have a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the effective function of Training Results/Achievements is functioning in Southern region, because it has the highest mean value (**16.505**). To test the mean variation of the scores for Training Results/Achievements among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance

(Value of F is 31.755 and 53.734, df is 2 with $p = 0.000 < 0.01$). Therefore, it may be concluded that Training Results/Achievements has more influence on the effectiveness of Tax administration in CTD of Central region and especially in case of Middle level employees (mean is 18.485).

Table No. 4.99

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Training results/achievements

Iteration	S – stress	Improvement
1.	.02603	
2.	.02135	.00468
3.	.02071	.00064

The following table gives both the external and internal dimensions of the factor ‘Training results/achievements’. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.100

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards ‘Training results / achievements’

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Employee development (qn13.3.1)	.5580	1.2481
2.	Job efficiency or performance (qn13.3.2)	.0801	.3986
3.	Job commitment and motivation (qn13.3.3)	-.5926	-.0671
4.	Monetary benefits attained in the department (qn13.3.4)	-1.7899	-.5495
5.	Service / promotional benefits (qn13.3.5)	1.7445	-1.0301

For matrix

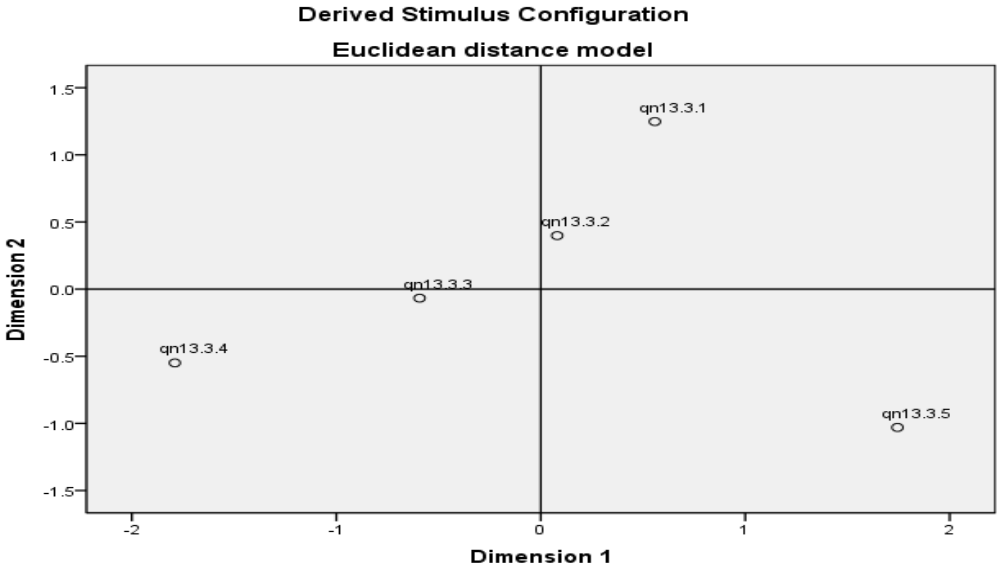
Stress = .03035 RSQ = .99447

The above table explains 99.45 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Training results / achievements. This model can be used to redress the Training results / achievements, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Training results / achievements spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alsca Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and highest RSQ will be considered as a value model. The most effective factor affecting the Training results / achievements is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Employee development (qn13.3.1) and Service / promotional benefits (qn13.3.5) are the most effective elements in the filing of return by dealers. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.16

Chart showing perception and preferences of respondents towards ‘Training results / achievements’



From the above MDS, it may be concluded that,

- Employee development (qn13.3.1) and Job efficiency or performance (qn13.3.2) are in both dimensions.
- Service / promotional benefits (qn13.3.5) are loaded in single dimensions only.
- Job commitment and motivation (qn13.3.3) and Monetary benefits attained in the department (qn13.3.4) do not contribute much to Training results / achievements.

4.4.4 Check post management

Fourth factor affecting the effectiveness of Tax administration in Commercial Taxes Department is Check post management. Under this, three sub factors and twenty three sub items were covered by the study. They are;

- (a) ***Check post authorities*** It includes awareness of duties and responsibilities at check post authorities, working environment and welfare facilities provided in check post by CTD, security measures for implementing law and order, any award or gift given by the CTD for the detection of tax evasion, inter departmental co-ordination with motor vehicle department, parcel services, CTD & customs and excise duty, grievance redressal mechanism implemented in the check post & adequacy of computer data available in the department.
- (b) ***Vehicle checking procedures at check post*** is analysed by the satisfaction level of certain sub items. They are, present system of checking in the department, detection measures for crimes or offences at check post, disposal of crimes or offences by the check post authority, check post data management / documentation, adequate number of work force available in the check post, role of computerization in evasion detection and support from top management, police force, local persons, RTO, Excise and forest departments.
- (c) ***Collection of advance taxes, penalty and security*** is measured by the satisfaction level of employees. The sub factors under consideration were cash or chest management adopted in the check post, method of detection in fake cash / DD, remittance mode of cash at check post, extent of penalty collection, security

collection and advance tax collection.

Table No. 4.101
Descriptive Statistics:- Check post management - combined

	Mean	Median	Mode	Std. Deviation
<i>Check post authorities</i>	3	3	3	0.4115
Check post authorities	3	3	3	0.4279
Vehicle checking procedures at check post	3	3	3	0.4804
Collection of advance taxes, penalties and security	3	3	3	0.4718

From the Table 4.21, the combined mean, median and mode values are 3. All the sub factors have same mean, median and mode values. It shows that Check post management is moderately effective under employees perspective.

4.4.4.1 Check post authorities

Check post authorities which includes awareness of duties and responsibilities at check post authorities, working environment and welfare facilities provided in check post by CTD, security measures for implementing law and order, any award or gift given by the CTD for the detection of tax evasion, inter departmental co-ordination with motor vehicle department, parcel services, CTD & customs and excise duty, grievance redressal mechanism implemented in the check post & adequacy of computer data's available in the department.

Table No. 4.102
Area – wise Estimated Marginal Means - Check Post Authorities

Dependent factor: Check Post Authorities				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	22.460	.444	21.588	23.333
Central	22.520	.209	22.109	22.932
Northern	24.246	.238	23.778	24.713

Table No. 4.103**Designation – wise Estimated Marginal Means - Check Post Authorities**

Dependent factor: Check Post Authorities				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	24.207	.268	23.680	24.735
Middle Level Employees	21.489	.226	21.044	21.934
Lower Level Employees	23.530	.367	22.807	24.253

Table No. 4.104**Two – way ANOVA - Check Post Authorities**

Tests of Between-Subjects Effects					
Dependent factor: Check Post Authorities					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	594.362	2	297.181	44.560	.000**
Area	235.785	2	117.893	17.677	.000**
Error	2300.870	345	6.669		
Total	3131.017	349			
a. R Squared = .265 (Adjusted R Squared = .257)					

** Significant at 1 % level of significance

As per Table No. 4.102, 4.103 and 4.104, Check Post Authorities have a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the Check Post Authorities is functioning effectively in Northern region, because they have a highest mean value (**24.246**). To test the mean variation of the scores for Check Post Authorities among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 44.560 and 17.677, df is 2 with p = 0.000 < 0.01**). Therefore, it may be concluded that Check Post Authorities have more influence on the effectiveness of Tax administration in CTD of Northern region and especially in case of Top level employees (mean is **24.207**).

Table No. 4.105

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Check post authorities

Iteration	S – stress	Improvement
1.	.06991	
2.	.06506	.00485
3.	.06499	.00007

The following table gives both the external and internal dimensions of the factor 'Check post authorities'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.106

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'Check post authorities'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Awareness of Duties and responsibilities (qn14.1.1)	1.5428	-.0797
2.	Work environment & Welfare facilities (qn14.1.2)	-.8134	1.6534
3.	Security measures for Law and Order (qn14.1.3)	.3329	-.6757
4.	Award or gift from CTD for the detection of tax evasion (qn14.1.4)	-2.2457	-.4376
5.	Inter Departmental co-ordination (qn14.1.5)	-.3262	-.9764
6.	Grievance Redressal mechanism (qn14.1.6)	.5504	.2615
7.	Adequacy of Computerization (qn14.1.7)	.9592	.2546

For matrix

Stress = .07350 RSQ = .97201

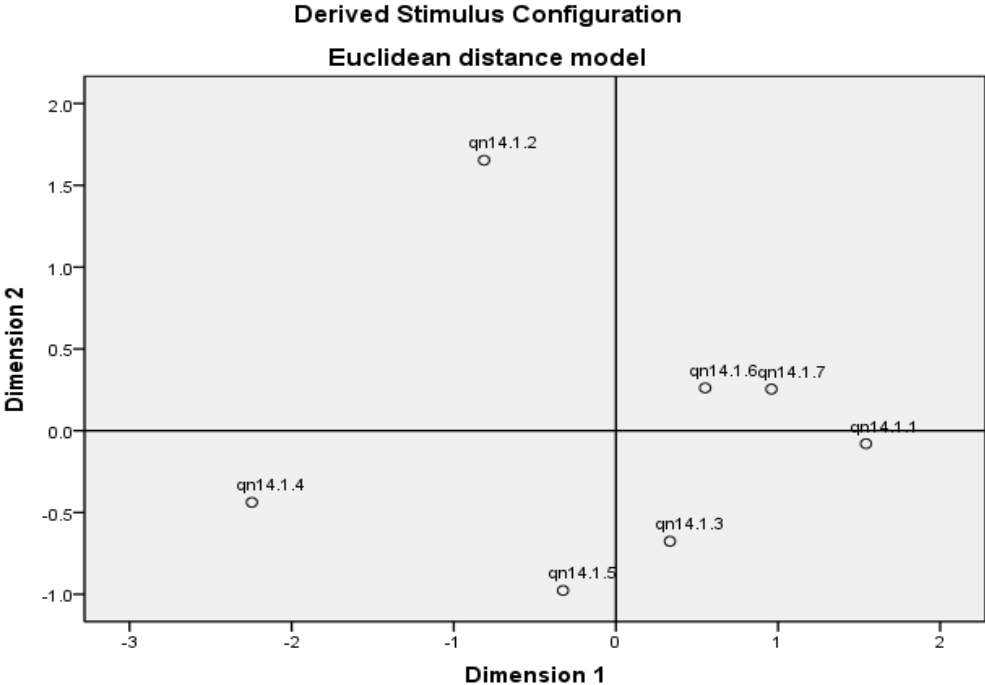
The above table explains 97.20 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model

reveals the perceptions of the respondents regarding the Check post authorities. This model can be used to redress the Check post authorities, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Check post authorities spatially by means of visual display, the statistical tool multi dimensional scaling is employed. While using the Alscol Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Check post authorities is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Awareness of Duties and responsibilities (qn14.1.1) and Work environment & Welfare facilities (qn14.1.2) are the most effective elements in the Check post authorities by dealers. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.17

Chart showing perception and preferences of respondents towards ‘Check post authorities’



From the above MDS, it may be concluded that,

- Grievance Redressal mechanism (qn14.1.6) and Adequacy of Computerization (qn14.1.7) contribute much to the filing of return in both dimensions.
- Awareness of Duties and responsibilities (qn14.1.1), Work environment & Welfare facilities (qn14.1.2 and Security measures for Law and Order (qn14.1.3) are loaded in single dimensions only.
- Award or gift from CTD for the detection of tax evasion (qn14.1.4) and Inter Departmental co-ordination (qn14.1.5) do not contribute much to check post authorities.

4.4.4.2 –Vehicle checking procedures at check post

Vehicle checking procedures at check post is analysed by the satisfaction level of certain sub items are present system of checking in the department, detection measures for crimes or offences at check post, disposal of crimes or offences by the check post authority, check post data management / documentation, adequate number of work force available in the check post, role of computerization in evasion detection and support from top management, police force, local persons, RTO, Excise and forest departments.

Table No. 4.107

Area – wise Estimated Marginal Means - Vehicle Checking Procedures at Check Post

Dependent factor: Vehicle Checking Procedures at Check Post				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	31.509	.772	29.992	33.027
Central	32.779	.364	32.064	33.495
Northern	35.011	.413	34.198	35.824

Table No. 4.108**Designation – wise Estimated Marginal Means - Vehicle Checking Procedures at Check Post**

Dependent factor: Vehicle Checking Procedures at Check Post				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	34.070	.467	33.152	34.988
Middle Level Employees	31.418	.393	30.644	32.191
Lower Level Employees	33.812	.639	32.555	35.069

Table No. 4.109**Two – way ANOVA - Vehicle Checking Procedures At Check Post**

Tests of Between-Subjects Effects					
Dependent factor: Vehicle Checking Procedures At Check Post					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	565.550	2	282.775	14.017	.000**
Area	529.519	2	264.760	13.124	.000**
Error	6959.891	345	20.174		
Total	8054.960	349			

a. R Squared = .136 (Adjusted R Squared = .126)

** Significant at 1 % level of significance

As per Table No. 4.107, 4.108 and 4.109, Vehicle Checking Procedures at Check Post has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, Vehicle Checking Procedures at Check Post is functioning effectively in Northern region, because it has the highest mean value (**35.011**). To test the mean variation of the scores for Vehicle Checking Procedures At Check Post among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 14.017 and 13.124, df is 2 with p = 0.000 < 0.01**). Therefore, it may be concluded that Vehicle Checking Procedures At Check Post has more influence on

the effectiveness of Tax administration in CTD of Northern region and especially in case of Top level employees (mean is **34.070**).

Table No. 4.110

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Vehicle checking procedures at check post

Iteration	S – stress	Improvement
1.	.17421	
2.	.15479	.01942
3.	.15408	.00071

The following table gives both the external and internal dimensions of the factor 'Vehicle checking procedures at check post'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.111

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'Vehicle checking procedures at check post'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Present system of checking (qn14.2.1)	-1.650	-1.8051
2.	Detection of crimes or offences (qn14.2.2)	1.0759	.0656
3.	Disposal of crimes or offences (qn14.2.3)	1.7939	-.3723
4.	Check post data management / Documentation (qn14.2.4)	.0699	-.0380
5.	Adequacy of work force (qn14.2.5)	-.3271	-.3415
6.	Support from the Top level Management (qn14.2.6)	.2213	.8960
7.	Support from Police force (qn14.2.7)	-1.0877	1.3549
8.	Support from local persons (qn14.2.8)	-2.5258	-.3199
9.	Support from RTO, Excise & Forest departments (qn14.2.9)	-.2360	.2224
10.	Role of Computerization in evasion detection (qn14.2.10)	1.1806	.3379

For matrix

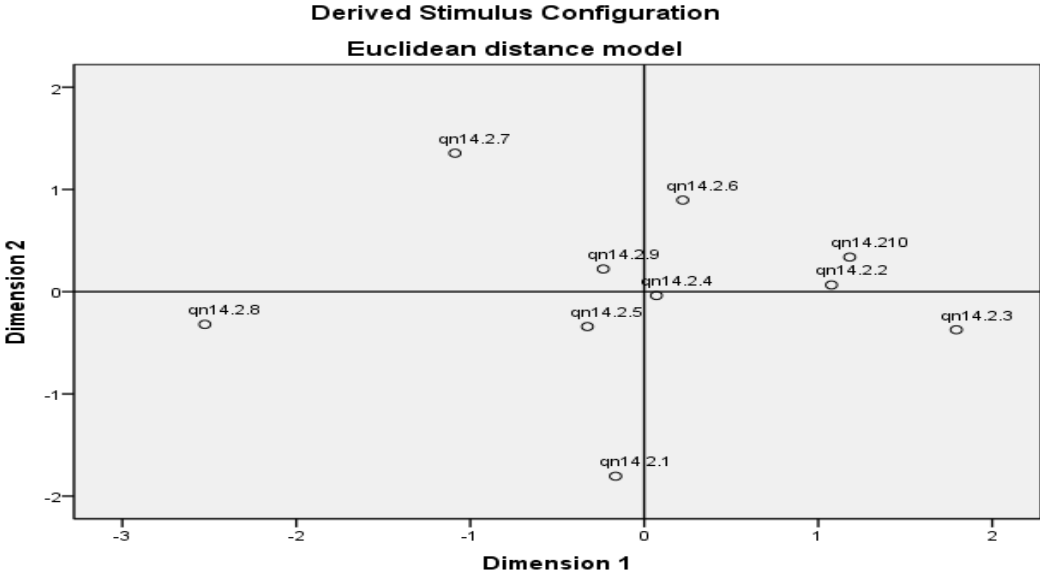
Stress = .14131 RSQ = .89750

The above table explains 89.750 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Vehicle checking procedures at check post. This model can be used to redress the Vehicle checking procedures at check post, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Vehicle checking procedures at check post spatially by means of visual display, the statistical tool, multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Vehicle checking procedures at check post is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘due date compliance; (qn 1.11.1) and Tax e – payment system (qn 1.11.5) are the most effective elements in the Vehicle checking procedures at check post. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.18

Chart showing perception and preferences of respondents towards ‘Vehicle checking procedures at check post’



From the above MDS, it may be concluded that,

- Detection of crimes or offences (qn14.2.2), Support from the Top level Management (qn14.2.6) and Role of Computerization in evasion detection (qn14.2.10) contribute much to the Vehicle checking procedures at check post in both dimensions.
- Disposal of crimes or offences (qn14.2.3), Check post data management / Documentation (qn14.2.4), Support from Police force (qn14.2.7) and Support from RTO, Excise & Forest departments (qn14.2.9) are loaded in single dimensions only.
- Present system of checking (qn14.2.1), Adequacy of work force (qn14.2.5) and Support from local persons (qn14.2.8) do not contribute much to the Vehicle checking procedures at check post.

4.4.4.3 –Collection of advance taxes, penalties and security

Collection of advance taxes, penalty and security is measured by the satisfaction level of employees. The sub factors under consideration were cash or chest management adopted in the check post, method of detection in fake cash / DD, remittance mode of cash at check post, extent of penalty collection, security collection and advance tax collection.

Table No. 4.112

Area – wise Estimated Marginal Means - Collection of Advance Taxes, Penalties and Security

Dependent factor: Collection of Advance Taxes, Penalties And Security				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	19.750	.456	18.853	20.646
Central	19.606	.215	19.183	20.029
Northern	19.648	.244	19.168	20.128

Table No. 4.113**Designation – wise Estimated Marginal Means - Collection of Advance Taxes, Penalties and Security**

Dependent factor: Collection of Advance Taxes, Penalties and Security				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	21.110	.276	20.568	21.652
Middle Level Employees	19.850	.232	19.393	20.307
Lower Level Employees	18.044	.377	17.302	18.787

Table No. 4.114**Two – way ANOVA - Collection of Advance Taxes, Penalties and Security**

Tests of Between-Subjects Effects					
Dependent factor: Collection of Advance Taxes, Penalties and Security					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	367.855	2	183.928	26.132	.000**
Area	.584	2	.292	.041	.959
Error	2428.215	345	7.038		
Total	2796.654	349			
a. R Squared = .132 (Adjusted R Squared = .122)					

** Significant at 1 % level of significance

As per Table No. 4.112, 4.113 and 4.114, Collection of Advance Taxes, Penalties and Security has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the Collection of Advance Taxes, Penalties and Security is functioning effectively in Southern region, because it has the highest mean value (**19.750**). To test the mean variation of the scores for Collection of Advance Taxes, Penalties and Security among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 26.132 and 0.041, df is 2 with p = 0.000 < 0.01**). Therefore, it may be concluded that Collection of Advance Taxes, Penalties and Security has more influence on the effectiveness of Tax administration in CTD of Southern region and especially in case of Top level employees (mean is **21.110**).

Table No. 4.115

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for Collection of advance taxes, penalty and security

Iteration	S - stress	Improvement
1.	.07932	
2.	.05322	.02610
3.	.05164	.00158
4.	.05159	.00005

The following table gives both the external and internal dimensions of the factor ‘Collection of advance taxes, penalty and security’. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.116

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards ‘Collection of advance taxes, penalty and security’

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Cash or Chest Management (qn14.3.1)	.8548	-.0560
2.	Method of detection in fake cash / DD (qn14.3.2)	1.5277	.9050
3.	Extent of Penalty collection (qn14.3.3)	.3724	-.9029
4.	Extent of Collection of securities (qn14.3.4)	.2315	-.2846
5.	Extent of Collection of advance tax (qn14.3.5)	-.4108	-.1185
6.	Remittance mode of cash at Check post (qn14.3.6)	-2.5756	.4568

For matrix

Stress = .05320 RSQ = .95780

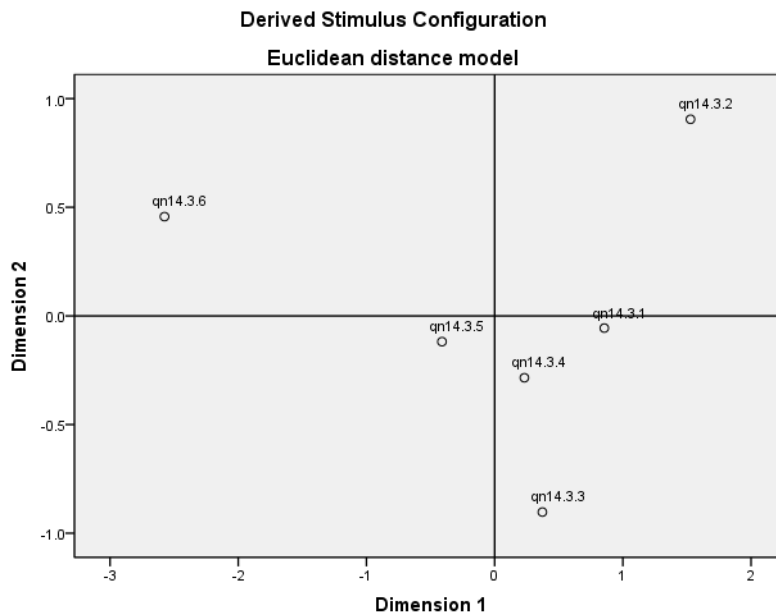
The above table explains 95.78 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the Collection of advance taxes, penalty and security. This model can be used to redress the Collection of advance taxes, penalty and security, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in Collection of advance taxes, penalty and security spatially by means of visual display, the statistical tool, multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the Collection of advance taxes, penalty and security is one having the highest positive co- efficient in the stimulus coordinates of each

dimension. Therefore it can be observed that ‘Method of detection in fake cash / DD (qn14.3.2) is the most effective elements in the Collection of advance taxes, penalty and security. This can be validated by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ which is as follows;

Chart No. 4.19

Chart showing perception and preferences of respondents towards ‘Collection of advance taxes, penalty and security’



From the above MDS, it may be concluded that,

- Method of detection in fake cash / DD (qn14.3.2) contribute much to the Collection of advance taxes, penalty and security in both dimensions.
- Cash or Chest Management (qn14.3.1), Extent of Penalty collection (qn14.3.3), Extent of Collection of securities (qn14.3.4) and Remittance mode of cash at Check post (qn14.3.6) are loaded in single dimensions only.
- Extent of Collection of advance tax (qn14.3.5) does not contribute much to the Collection of advance taxes, penalty and security.

4.4.5 Tax reforms and amendments

Fifth major factor affecting the effectiveness of Tax administration in Commercial Taxes Department is the Tax reforms and amendments. Under this, the following sub factors were covered by the study, updation of amendments in statute, effectiveness of

amendments in each year, communication mode of amendments from top to bottom, assessment based amendments, inspection based amendments, present procedure simplification amendments, evasion control amendments and political popularity amendments were analysed by the satisfaction level of employees in the department.

Table No. 4.117

Descriptive Statistics:- Tax reforms and amendments - combined

	Mean	Median	Mode	Std. Deviation
<i>Tax reforms and amendments</i>	4	4	4	0.5865
Updation of Amendments in Statute	4	4	4	.758
Effectiveness of Amendments	4	4	4	.722
Communication mode of Amendments	4	4	4	.751
Assessment based Amendments	4	4	4	.712
Inspection Based Amendments	4	4	4	.837
Procedural Simplification Amendments	4	4	4	.734
Evasion Control Amendments	4	4	4	.718
Political or Popularity Amendments	4	4	4	.778

Table No.4.117 denotes the Mean Score values of fifth main independent factor Tax reforms and Amendments. The entire sub factors have a mean, median and mode value of 4. The computed value of 4 reveals that the factor Tax reforms and amendments towards administration is effective.

Table No. 4.118

Area – wise Estimated Marginal Means - Tax Reforms and Amendments

Dependent factor: Tax Reforms and Amendments				
Area	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Southern	26.580	.607	25.386	27.773
Central	28.810	.286	28.248	29.373
Northern	28.692	.325	28.053	29.332

Table No. 4.119**Designation – wise Estimated Marginal Means - Tax Reforms and Amendments**

Dependent factor: Tax Reforms and Amendments				
Designation	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Top Level Employees	28.722	.367	28.000	29.444
Middle Level Employees	31.825	.309	31.217	32.433
Lower Level Employees	23.535	.503	22.547	24.524

Table No. 4.120**Two – way ANOVA - Tax Reforms and Amendments**

Tests of Between-Subjects Effects					
Dependent factor: Tax Reforms and Amendments					
Source	Type I Sum of Squares	Df	Mean Square	F	Sig.
Designation	3231.923	2	1615.962	129.548	.000**
Area	146.503	2	73.252	5.872	.003**
Error	4303.471	345	12.474		
Total	7681.897	349			
a. R Squared = .440 (Adjusted R Squared = .433)					

** Significant at 1 % level of significance

As per Table No. 4.118, 4.119 and 4.120, Tax Reforms and Amendments has a more significant impact on the Tax administrative practices in Commercial Taxes Department. From the tables, it is clear that, the function of Tax Reforms and Amendments is effectively functioning in Central region, because it has the highest mean value (**28.810**). To test the mean variation of the scores for Tax Reforms and Amendments among different categories of employees and region, Two – way ANOVA is used and it is found that the designation – wise and region – wise variation of the mean scores is statistically significant at 1% level of significance (**Value of F is 129.548 and 5.872, df is 2 with $p = 0.000 < 0.01$**). Therefore, it may be concluded that Tax Reforms and Amendments has more influence on the effectiveness of Tax administration in CTD of Central region and especially in case of Middle level employees (mean is **31.825**).

Table No. 4.121

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for tax reforms and amendments

Iteration	S – stress	Improvement
1.	.34261	
2.	.29416	.04845
3.	.29380	.00036

The following table gives both the external and internal dimensions of the factor 'Tax reforms and amendments'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.122

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'tax reforms and amendments'

Stimulus Number	Stimulus Name	Dimensions	
		1 (Internal)	2 (External)
1.	Updation of Amendments in Statute (qn 15.1.1)	1.3395	1.1041
2.	Effectiveness of Amendments (qn 15.1.2)	.6625	.7253
3.	Communication mode of Amendments (qn 15.1.3)	.0855	-1.2608
4.	Assessment based Amendments (qn 15.1.4)	-.0833	-.1388
5.	Inspection Based Amendments (qn 15.1.5)	-1.5337	-1.2263
6.	Procedural Simplification Amendments (qn 15.1.6)	.2743	-.6892
7.	Evasion Control Amendments (qn 15.1.7)	.9775	.0476
8.	Political or Popularity Amendments (qn 15.1.8)	-1.7223	1.4381

For matrix,

Stress = .24179 RSQ = .67297

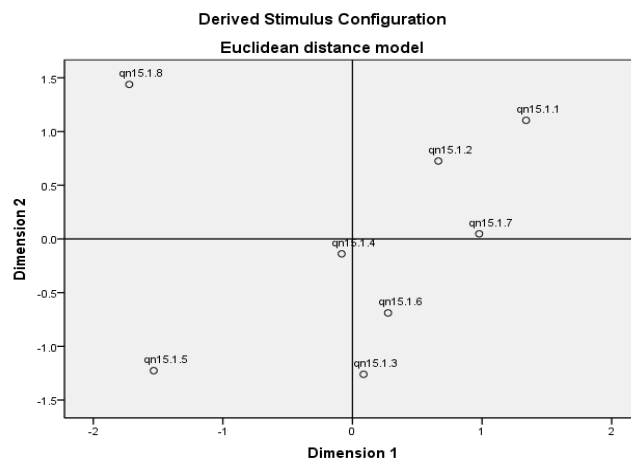
The above table explains 67.29 percentage of variability and the stress is also very small, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the filing of return. This model can be used to redress the Tax reforms and amendments, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in filing of return spatially by means of visual

display, the statistical tool, multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting the tax reforms and amendments is one having the highest positive co- efficient in the stimulus coordinates of each dimension. Therefore it can be observed that ‘Updation of Amendments in Statute; (qn 15.1.1) and Political or Popularity amendments (qn 15.1.8) are the most effective elements in the filing of return by dealers. This can be validating by examining the ‘Derived Stimulus Configuration of Euclidean Distance model’ are as follows;

Chart No. 4.20

Chart showing perception and preferences of respondents towards ‘tax reforms and amendments’



From the above MDS, it may be concluded that,

- Updation of Amendments in Statute (qn 15.1.1), Effectiveness of Amendments (qn 15.1.2) and Evasion Control Amendments (qn 15.1.7) contribute much to the Tax reforms and amendments in both dimensions.
- Communication mode of Amendments (qn 15.1.3), Procedural Simplification Amendments (qn 15.1.6) and Political or Popularity Amendments (qn 15.1.8) are loaded in single dimensions only.
- Assessment based Amendments (qn 15.1.4) and Inspection Based Amendments (qn 15.1.5) do not contribute much to Tax reforms and amendments.

4.5 All five Independent factors - Combined

The effectiveness of Tax administration of the employees is evaluated in area – wise and the designation – wise by applying a MANOVA Model. The concept of MANOVA is displayed in the following Tables

Table No.4.123

Estimated Marginal Means for area and selected dependent factor

Dependent factor	Area	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Levy and collection of tax	Southern	194.616	2.957	188.799	200.432
	Central	201.627	1.395	198.884	204.370
	Northern	191.295	1.584	188.179	194.410
Audit and inspection	Southern	107.734	1.970	103.859	111.610
	Central	105.525	.929	103.698	107.353
	Northern	111.936	1.055	109.860	114.012
Training and development	Southern	73.359	1.449	70.509	76.208
	Central	71.866	.683	70.522	73.210
	Northern	84.102	.776	82.576	85.629
Check post management	Southern	73.719	1.503	70.764	76.675
	Central	74.906	.709	73.512	76.299
	Northern	78.905	.805	77.322	80.489
Tax reforms and amendments	Southern	26.580	.607	25.386	27.773
	Central	28.810	.286	28.248	29.373
	Northern	28.692	.325	28.053	29.332

From the table 4.123 it is clear that Audit and inspection, Training and development and Check post management are more effective at Northern region, whereas Levy and collection of tax and Tax reforms and amendments are effective at Central region. The Audit and inspection is effectively functioning at northern districts, because the number of files handled by CTD in Northern region is high as compared with other regions. In the case of training and development, it's effectively and efficiently functioning at northern region as compared with other regions. And in the case of check posts, the lion percentages of check posts are situated at northern areas. The Levy and collection of tax and Tax reforms and amendments are highly effective at Central region.

Table No.4.124

Estimated Marginal Means for designation and selected dependent factor

Dependent factor	Designation	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Levy and collection of tax	Top level employees	206.411	1.789	202.893	209.928
	Middle level employees	197.180	1.507	194.215	200.144
	Lower level employees	183.947	2.449	179.130	188.765
Audit and inspection	Top level employees	110.814	1.192	108.470	113.158
	Middle level employees	113.313	1.004	111.338	115.288
	Lower level employees	101.068	1.632	97.858	104.277
Training and development	Top level employees	66.428	.876	64.705	68.151
	Middle level employees	81.645	.738	80.193	83.097
	Lower level employees	81.254	1.200	78.894	83.614
Check post management	Top level employees	79.387	.909	77.600	81.175
	Middle level employees	72.756	.766	71.250	74.263
	Lower level employees	75.387	1.245	72.939	77.835
Tax reforms and amendments	Top level employees	28.722	.367	28.000	29.444
	Middle level employees	31.825	.309	31.217	32.433
	Lower level employees	23.535	.503	22.547	24.524

As per the above table 4.124 it's clear that, the effective function of Levy and collection of tax and Check post management were in the hands of Top level employees. But in the case of Audit and Inspection, Training and development and Tax reforms and amendments are highly effective in the hands of middle level employee because these works are done by commercial tax officers and they are

included in the category of middle level employees. Normally lower level staffs are not directly influencing the Tax administration.

Table No. 4.125

Tests of Between-Subjects Effects – respondents towards five factors

Source	Dependent factor	Type I Sum of Squares	df	Mean Square	F	Sig.
Area	Levy and collection of tax	2065.023	2	1032.512	3.484	.032*
	Audit and inspection	5831.527	2	2915.764	22.163	.000**
	Training and development	7666.938	2	3833.469	53.903	.000**
	Check post management	2044.267	2	1022.133	13.358	.000**
	Tax reforms and amendments	288.339	2	144.170	11.558	.000**
Designation	Levy and collection of tax	17070.124	2	8535.062	28.800	.000**
	Audit and inspection	6435.417	2	3217.709	24.458	.000**
	Training and development	15527.060	2	7763.530	109.163	.000**
	Check post management	2820.571	2	1410.285	18.431	.000**
	Tax reforms and amendments	3090.088	2	1545.044	123.863	.000**
Error	Levy and collection of tax	102244.227	345	296.360		
	Audit and inspection	45388.372	345	131.560		
	Training and development	24535.842	345	71.118		
	Check post management	26398.216	345	76.517		
	Tax reforms and amendments	4303.471	345	12.474		
Total	Levy and collection of tax	121379.374	349			
	Audit and inspection	57655.317	349			
	Training and development	47729.840	349			
	Check post management	31263.054	349			
	Tax reforms and amendments	7681.897	349			

a. *R Squared* = .158 (*Adjusted R Squared* = .148)

b. *R Squared* = .213 (*Adjusted R Squared* = .204)

c. *R Squared* = .486 (*Adjusted R Squared* = .480)

d. *R Squared* = .156 (*Adjusted R Squared* = .146)

e. *R Squared* = .440 (*Adjusted R Squared* = .433)

* Significant at 5% level of significance

**Significance at 1% level of significance

Table No.4.126
Multivariate Tests^c

	Effect	Value	F	Sig.
Intercept	Pillai's Trace	.998	32940.124 ^a	.000**
	Wilks' Lambda	.002	32940.124 ^a	.000**
	Hotelling's Trace	482.993	32940.124 ^a	.000**
	Roy's Largest Root	482.993	32940.124 ^a	.000**
Area	Pillai's Trace	.310	12.528	.000**
	Wilks' Lambda	.705	13.023 ^a	.000**
	Hotelling's Trace	.398	13.518	.000**
	Roy's Largest Root	.336	22.961 ^b	.000**
Designation	Pillai's Trace	1.080	80.282	.000**
	Wilks' Lambda	.211	80.230 ^a	.000**
	Hotelling's Trace	2.358	80.177	.000**
	Roy's Largest Root	1.287	88.039 ^b	.000**
a. Exact statistic				
b. The statistic is an upper bound on F that yields a lower bound on the significance level.				
c. Design: Intercept + Area + Designation				

* Significant at 5% level of significance

**Significance at 1% level of significance

The effectiveness of Tax administration in Commercial Taxes Department in Kerala may be evaluated by considering the five factors, such as Levy and collection of tax, Audit and inspection, Training and development, Check post management and Tax reforms and amendments. All the five factors are taken together and applied in the MANOVA Model, to identify the effectiveness of tax collection procedures in different areas according to the responses of the different categories of employees. The 'Estimated marginal means' table shows that the area wise and employee category wise variation of the mean score of the responses of the selected employees

in all the five factors varies considerably, as the value of 'F' in the multivariate test and the powerful 'Pillai's Trace' is also significant at 1% level of significance (**in both the cases $p = 0.000 < 0.01$**). Therefore it is considered that the effectiveness of Tax administration is seen to be very high in 'Northern Area' as the observed mean score is higher than that of the other two areas. This can be also validated by considering the mean variation, 'F' values and significance level of each factor taken independently in the 'tests of between subject effects'.

Under the study all the 5 independent factors were considered, for that a total of 142 questions were asked by way of interview schedule. Items were identified and given to opinion survey to identify the extent of effectiveness of employees in those items to evaluate the effectiveness of Tax administration in Commercial Taxes Department of Kerala.

Table No. 4.127

Shows that the Iteration history for the 2 dimensional solution (in squared distances) and Young's S-stress formula for levy and collection of tax

Iteration	S - stress	Improvement
1.	.00187	

The following table gives both the external and internal dimensions of the factor 'effectiveness of Tax administration in CTD'. The Configuration derived in 2 dimensions and Stimulus Coordinates dimension.

Table No. 4.128

Multidimensional Scaling (ALSCAL) Model showing perceptions and preference of respondents towards 'effectiveness of Tax administration in Commercial Taxes Department'

Stimulus Number	Stimulus Name	1	2
1.	Levy and collection of tax (factor 1)	2.5156	-.0990
2.	Audit and inspection (factor 2)	.2788	.2126
3.	Training and development (factor 3)	-.5354	.1344
4.	Check post management (factor 4)	-.5587	-.1401
5.	Tax reforms and amendments (factor 5)	-1.7003	-.1079

Iterations are stopped because S-stress is less than 0.005000 Stress and squared correlation (RSQ) in distances RSQ values are the proportion of variance of the scaled data (disparities) in the partition (row, matrix, or entire data) which is accounted for by their corresponding distances. Stress values are Kruskal's stress formula 1.

For matrix,

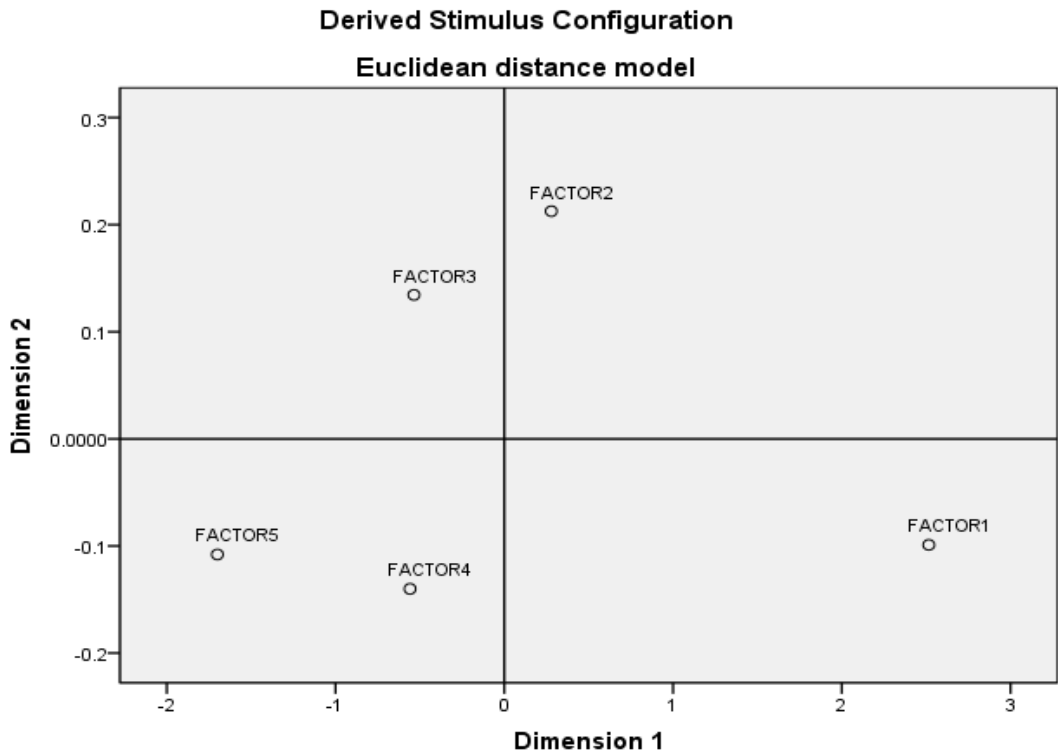
Stress = .00594 RSQ = .99991

The above table explains 99.99 percentage of variability and the stress is also very small or negligible, and so it can be concluded that the result is very consistent and the model reveals the perceptions of the respondents regarding the effectiveness of Tax administration. This model can be used to redress the five factors, which is one of the main problems faced by the effectiveness of Tax administration in CTD in Kerala.

For the purpose of representing perceptions and preference of respondents towards the effectiveness of Tax administration in five factors spatially by means of visual display, the statistical tool, multi dimensional scaling is employed. While using the Alscal Model of MDS, the validity of the model is identified by using the value of the stress and RSQ. The model with the lowest stress value and the highest RSQ will be considered as a value model. The most effective factor affecting effectiveness of Tax administration is one having the highest positive co-efficient in the stimulus coordinates of each dimension. Therefore it can be observed that 'Levy and collection of tax (factor 1) and Audit and inspection (factor 2)' are the most effective elements affecting the effectiveness of Tax administration. This can be validated by examining the 'Derived Stimulus Configuration of Euclidean Distance model' which is as follows;

Chart No. 4.21

Chart showing perception and preferences of respondents towards ‘effectiveness of Tax administration’



From the above MDS, it may be concluded that,

- Contribute much to the effectiveness of Tax administration in both dimensions.
- Levy and collection of tax (factor 1) and Training and development (factor 3) are loaded in single dimensions only.
- Check post management (factor 4) and Tax reforms and amendments (factor 5) do not contribute much to effectiveness of tax administration.

At the third stage, the relationships of the five independent factors with dependent factors – Tax administration practice – is identified with the help of Correlation Analysis. Correlation is a measure of the degree of relationship between two or more factors. Karl Pearson’s coefficient of correlation or simple correlation is the most widely used method of measuring the degree of relationship between two factors.

Comparison of correlation values of all the independent factors to its own sub -

factors indicates that almost all the independent factors selected for the study viz., Levy and collection of tax, Audit and inspection, Training and development, Check post management and Tax reforms and Amendments are highly correlated with its sub – factors. It shows the sub factors selected under study have a positive correlation.

Table No. 4.129
Correlation analysis for all factors (factor 1 to 5)

	1	2	3	4	5
1. Levy and collection of tax	1				
2. Audit and inspection	-.323**	1			
3. Training and development	-.454**	.472**	1		
1. Check post management	.248**	.139**	.126*	1	
2. Tax reforms and amendments	.197**	.333**	.269**	.079	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The table above examines the five main factors under study. The table reveals certain interesting relationships. The relationship between levy and collection of tax and Audit and inspection and also between training and development is negative. This negative correlation is also found 99% significant. This means that people who perceive tax collection efficient perceive that Audit and inspection and training and development are not efficient. Audit and inspection is functioning by a separate wing in the CTD. There is no enough number of respondents in the audit wing, which makes certain inefficiencies. This study reveals that Audit and inspection is not functioning properly. If they conduct proper audit visits, it will lead to a growth in tax collection. Therefore this relation is a negative correlation. Training and development and levy and collection of tax were under a negative correlation. In the case of training and development, given by GIFT to all the respondents. It was conducted in the following places in Kerala such as Thiruvannathapuram, Ernakulam and Thrissur.

It shows that all the employees in Kerala want to participate training in these centers. The employees who were working in northern districts could not participate in training on proper time. And the subjects selected for training and development were not appropriate. They were going through old syllabus.

4.6 Simple Linear Regression

The descriptive statistics analysis may be given the level effectiveness of Tax administration practices followed in the department based on the opinion expressed by the respondents. The regression analysis measures the nature and extent of their relation, enabling to make predictions. The correlation coefficient is a measure of degree of co-variability between two factors while the regression establishes functional relationship between dependent and independent factors; so that the former can be predicted for a given value of the latter. Hence it seems desirable to adopt the single regression analysis with the combination of two factors. Here the dependent factor is Levy and collection of tax and independent factor is Tax reforms and Amendments. The dependent factor, Levy and collection of tax, is symbolically represented by F_1 and the independent factor is symbolically represented as F_5 respectively.

4.6.1 Dependent factor - Levy and collection of tax (factor – F_1)

One of the major reasons affecting the effectiveness of Tax administration in Commercial Taxes Department is the Levy and collection of tax. Under this, the following sub factors were covered by the study

- (a) ***Filing of return by dealers***, here due date compliance of return, contents mentioned in the return form, contents of various annexure which attached with the return, return acknowledgement system adopted by the CTD, Tax e-payment system implemented and other types of tax payment system in case of systems failure, all these were analysed on the basis of satisfaction level by the sample selected from CTD.
- (b) ***Scrutiny of return***, under this head the researcher analysed the satisfaction level on various levels of scrutiny adopted by the CTD, adequacy of time taken for the completion of scrutiny, possibility for the completion of 100% scrutiny, software

and manual checking mechanism adopted in the scrutiny, software guidance for the smooth functioning of scrutiny, Generation of defect memo for any defects found in the scrutiny, present mode of mechanism for scrutiny of notice / defect memo, time frame availed for the completion of scrutiny, scrutiny with books of accounts maintained and tax addition due to scrutiny were analysed.

- (c) **Return data management** in CTD was analysed with availability of backlog return data from previous returns, availability of data from current return, frequency for the reporting of current data, adequacy level for return data for the purpose of MIS and software efficiency for return data processing and the generation of reports .
- (d) **Tax Assessment** is analysed byway of certain sub items such as adequacy of internal data for assessment(backlog returns, information from higher authority...etc.), availability of external data other than return data for assessment, adequacy of time frame (dealers whose annual tax liability in the preceding year is less than 10lakhs the date of submission is on or before 10th of next month and in case of all other dealers is on or before 15th of next month) set for completing monthly assessment, tax addition due to the present system of assessment, dealer co operation in case of yearly assessment and scope for assessment on the basis of audit reports (Form 13 & 13A)
- (e) **Appeals, Revision...etc** is a sub factor analysed with sub items, different levels of appeals and revision from bottom to higher level, functioning of appeal mechanism adopted by CTD, time frame set for the disposal of various appeals, tax addition due to appeals, dealer co – operation in disposal of accounts, statutory fees set by CTD for filing of appeals at department level, high court and supreme court , possibility of stay of tax in existing value, chance of finality of first appeals and all other types of alternative mechanism for the disposal of appeals and revision (adhalath, settlement...etc.).
- (f) **Management Information System (MIS)** is analysed by the functioning mechanism adopted in the CTD, various channels of communication used in the MIS, software assistance in MIS like generation and sending of e-mails on proper time, role of MIS in CTD by the staff members in general, evaluation mechanism

for the accuracy of MIS reports, decisions taken on the basis of MIS by employees, directions given on the basis of MIS and corrective measures taken on the basis of MIS reports.

- (g) **Computerisation** is analysed by the effectiveness of computerization in the following allied areas such as filing of return by dealers, return data management in CTD, tax assessment on the basis of data collected, data availed or generated for shop inspection, check post data management system, vehicle checking in general and detection of tax evasion.

Against these sub – factors, Fifty seven questions were asked to collect the perception of employees in Commercial Taxes Department regarding the preservation of Levy and collection of tax. Responses were collected on a five point scale from highly effective to least effective.

4.6.2 Independent factor - Tax reforms and amendments (factor – F₅)

Fifth major factor affecting the effectiveness of Tax administration in Commercial Taxes Department is the Tax reforms and amendments. Under this, the following sub factors were covered by the study, updation of amendments in statute, effectiveness of amendments in each year, communication mode of amendments from top to bottom, assessment based amendments, inspection based amendments, present procedure simplification amendments, evasion control amendments and political popularity amendments. There were analysed by the effectiveness level of employees in the department.

The result of regression analysis is expressing the relationship between the dependent and independent factor, including coefficients that indicate the sensitivity of the former to a unit change in the latter. Also calculated is a coefficient of determination (R^2), which indicates how well the equation describes the data. R^2 value in the 0.80 – 1.00 range indicates that the regression equation *describes* the data very well and does a good job of explaining the observed variations in the dependent factor. Regression Analysis identifies the equation which *best describes* the relationships between the factors. It helps to predict the most effective equation possible with only one independent factor, if one has to measure the Tax administration practices with the help of one of the five independent factor selected for the study. Among the predictor

equations the equation with highest multiple correlation square is selected as the fittest predictor equation.

Table No. 4. 130

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.197 ^a	0.039	0.036	18.30901

a. Predictors: (Constant), Tax reforms and amendments

Table No. 4. 131

ANOVA^b

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4722.886	1	4722.886	14.089	.000 ^a
Residual	116656.488	348	335.220		
Total	121379.374	349			

a. Predictors: (Constant), Tax reforms and amendments

b. Dependent factor: Levy and collection of tax

Table No. 4. 132

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	174.882	6.339		27.587	.000
Tax reforms and amendments	.784	.209	.197	3.754	.000

a. Dependent factor: Levy and collection of tax

The tax collection procedure is always affected by the amendments of existing rules and regulations. This relationship can be measured by applying **Simple Linear Regression Model**. Based on the output of the regression analysis, it can be observed that the model is valid and significant with 'F' value at 1% level of significance. The β coefficient and associated 't' values in the model are also significant at 1% level of significance, which means that the tax collection procedure is positively affected by tax reforms and amendments to a great extent.

The above table explains the relationship between Levy and collection of tax and Tax reforms and amendments. Since the p value is less than 0.01 Levy and collection of tax is found significantly influencing the perception regarding the Tax reforms and amendments. The R^2 value is 0.039, 03.9% of the perception is found influenced by Levy and collection of tax. Since the B value is 0.784, 78.4% it means that one unit change in the independent factor Tax reforms and amendments will create 78.4 % change in the dependent factor Levy and collection of tax.

4.7 Testing of hypothesis

H_{01} - There is no variation in all the aspects of the effectiveness of Tax administration of CTD among different areas and different categories of employees.

This hypothesis is tested with MANOVA Model and it was found that, the value of 'f' and the powerful Pillai's Trace is significant at 5% level of significance in the multivariate test, and the value of f also in the test of between subject effect of each factor. Therefore this hypothesis is rejected with a conclusion that the effectiveness of Tax administration of CTD among different areas and different categories of employees is different.

H_{02} - The discriminant functions of the factors affecting the effectiveness of Tax administration between Southern, Centre and Northern regions are not valid.

The hypothesis is tested with Multiple Discriminant model which Wilks λ characterised by chi- square is significant at 5% level of significance. Therefore it is concluded that the factors affecting the effectiveness of Tax administration are different among different areas and there may be significant discrimination of Tax administration in all the areas in this regard. So this null hypothesis is rejected.

H_{03} - Levy and collection of tax is not dependent on tax reforms and amendments.

This hypothesis is tested by applying linear regression model in which the β coefficient and the associated 't' value are significant at 1% level of significance. Therefore the null hypothesis is rejected with a conclusion that tax reforms and amendments affect the levy and collection of tax.

Reference

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