

Porter's Diamond Model and Export Competitiveness Analysis of selected Scientific Instruments Export Industries

Dr. Sushil Kumar

Assistant Professor, Haryana Institute of Rural development, Nilokheri, Karnal, Haryana, India

email-id sushilmehtahird@gmail.com

Abstract

Competitiveness level of export is a broader concept and it includes a number of determinants and its variables. But with the growing global competition and trade liberalisations, it is the necessity of every export unit to access the determinants of export competitiveness. A number of industrial clusters are concentrated in different local cities but these clusters are competing at international level. With a glance on the Porter's Diamond theory of competitiveness, a framework has been designed to identify the determinants of export competitiveness of selected scientific instruments export industries in Ambala cluster. All the identified variables under Porter's Diamond Model of competitiveness are analysed based on the answers given by the respondents. Factor analysis is performed on all the variables covers under determinants of export competitiveness. In order to get more relevant factors of export competitiveness, factor analysis is performed separately on each determinants of export competitiveness. Export competitiveness of selected industries is depending on the expansion policy of the cluster, government should take important steps to expand the cluster by providing credit and infrastructure support to the industry.

Key Words: Export Competitiveness, Porter's Diamond Model, Determinants, Factors Analysis

Introduction

Modern theory of international trade was given by well renowned Swedish economist Heckscher in 1919. Modern international trade theory also supports comparative cost advantage theory. Modern theory of international trade also explains the reasons of difference in international trade of countries. This theory explains that factors of production are different in terms of their concentrations and availability in different countries. For example some countries are labour intensive and some are capital intensive.

Export of a country is related with its competitiveness with other countries at global level. But the concept of export competitiveness is in initial stage as per academic understanding. A large number of factors are affecting the export scenario of a country which stimulates the strength of exports in the international market. The concept of export competitiveness is relevant and based on important conditions which affect the export performance of an economy. International competitiveness of a firm depends on a number of multiple determinants and indicators that contribute to the analysis of internal and external competitiveness determinants.

Export competitiveness of a country has a mix of number of factors which are responsible for the competitive environment and relationship of those factors describes the export competitiveness. Thus identification of determinants of export competitiveness becomes a major phenomenon for managing the exports of an industry

Porter (1990) developed the Diamond Theory of to study the viewpoint of an export industrial cluster for the overall development on the basis of four interdependent factors of competitiveness to identify five interlinked advanced factors (1) Factor Conditions (2) Demand Conditions; (3) Related and Supporting industries; and (4) Firm Strategy, Structure and Rivalry (5) Government and Chance. Porter highlights that the government has to play a crucial role in export competitiveness, government can create positive and significant effect on five major determinants by formulating policies and framework.

Thus identification of determinants of export competitiveness becomes a major phenomenon for managing the exports of an industry. Bruneckiene and Paltanaviciene (2012) stated that export performance of a country can be

improved only identifying and studying the factors involve in its export competitiveness. Thus export performance and export competitiveness of a country are related to each other for evaluating the real picture of export.

Review of Literature

The export competitiveness in scientific instruments industry is untouched from the prospects of research. A number of research studies are reviewed to decide a framework of studying the determinants of export competitiveness. **Gupta Shuhi (2017)** in her study titled “A comparative study of Global Competitiveness for Indian Business and Chinese Business” discussed the essentials of global index and competitiveness and comparison of Indian and Chinese businesses India is now on the threshold of a major transformation. The policy reforms announced so far, and the further opening up of the economy in the years to come, will present us with opportunities along with challenged to be overcome. **Sikharulidze David and Kikutadze Vasil (2017)** in their study titled “Innovation and Export Competitiveness: Evidence from Georgia Firms” explained the impact effect of technological innovation on export competitiveness of selected firms of Georgia using primary source of information It is identified that 5 to 10 percent of firms are using in same innovation techniques for the improvement of technology in production process. **Madan Sonu and Sharma Rajni (2018)** in their study titled “Trade Competitiveness of Indian Wheat during Post-Reform period” revealed that Indian wheat has not been competitive under exportable and importable variables. It is analysed that in India economic reforms have not in favour of enhancing competitiveness in export and import terms. **Chaudhary Sneha (2019)** in her paper titled “Export Competitiveness Indian Tea Industry” found that India is famous for its tea in every corner of the world and industry is facing tough competition at global level. The exports competitiveness of Indian tea industry is declined as compare to China, Sri Lanka and Kenya. **P J Kshirsagar, N U Bagal, S S Wadkar and S S Manerikar (2020)** in their study titled “Export Competitiveness in Spices from India” analysed that area and production of spices in India is steadily increased year to year. The results of the study indicated that at constant price chili, turmeric and coriander are highly competitive for export to several countries and India take the benefit of comparative advantages in the world market. **Olyanga Moni Anthony, Shinyekwa M.B. Isaac and Kamya Moses (2022)** their study adopted the structural gravity model and the Poisson Pseudo Maximum Likelihood a nonlinear estimation method that was applied in STATA on balanced panel data from 2007 to 2018. Data were obtained from World Bank International Trade Center and World Bank development indicators. Exporting countries need to take deeper reforms as regards structural transformation to enable firms to integrate into the Global Value Chains (GVCs) to enable them to increase their productivity by reviewing the existing policies to match the changes in the market.

Objectives of the Study

The major focus of this study is to recognise and analyse the determinants which affect the export competitiveness of Scientific Instruments export Industries in Ambala Cluster.

1. To examine the major determinants of export competitiveness in scientific export industries in Ambala Cluster.
2. To analyse the identified factors and export competitiveness in scientific export industries in Ambala Cluster.

Significance of the Study

This paper will be a different research work based on the export competitiveness of selected scientific instruments export industries in Ambala cluster. All the research questions related to the export performance and export competitiveness of scientific instruments export industries will be answered by the results of this study. All the five major determinants of Porter's Diamond theory will be analysed on the basis of contributed variables of export competitiveness. The major determinants of scientific instruments industry in India will be studied based on the Porter's theory of competitiveness of nations. This study will also introduce factor analysis to quantify the contribution of each determinant on the competitiveness of scientific instruments export industries. The findings of this paper will be a yardstick for the government and industry houses to analyse the level of their export competitiveness.

Limitations of the Study

This research is an attempt to identify important variables of export competitiveness of scientific instruments export industries based on five determinants of Porter's model of competitiveness. But the study is confined to the

Ambala scientific instruments cluster because the sample of all India could not be covered. Ambala is a largest cluster of scientific instruments export industry in India with more than 1,000 units.

The approach of this study is to identify the determinants of export competitiveness of selected scientific instruments industries in Ambala cluster and no comparison has been done of various firms with each other. A comparative analysis of different variables of different firms may provide the ability to compete with each others on different parameters.

Data Collection and Statistical Techniques

Both Primary and Secondary data are used in this study. Primary data is collected from the selected 150 scientific instruments export industries of Ambala cluster. A structured questionnaire is prepared and filled up from the concerned respondents. In order to cover all the five determinants of export competitiveness, 5-point likert scale is used to get the responses of respondents.

The major focus of this paper is to evaluate the various determinants of export competitiveness of selected scientific instruments export industries. In this study determinant of export competitiveness of scientific instruments export industries in Ambala cluster are identified as suggested by Michael Porter in his competitiveness theory. Five determinants of export competitiveness are evaluated with number of key variables. Factor analysis statistical technique is used to identify the important variables, which affect the level of competitiveness of selected industries. A statistical analysis is conducted based on multiple regression equation model by using Statistical Package for Social Sciences (SPSS) version 21.

Result Analysis

First a survey has been conducted to collect the required primary data from the selected export industries in Ambala cluster. All the questions of structured questionnaire have covered all the proposed five determinants of 'Porter's Diamond Model'. All the variables related to Factor Conditions, Demand Conditions, Related and Supporting Industries, Firm Strategy Structure and Rivalry and Government & Chance were considered as parameters of this study.

Factor analysis is performed on all the variables covers under five determinants of export competitiveness. In order to get more relevant factors of export competitiveness factor analysis is performed separately on each determinants of export competitiveness. Factor analysis is used to reduce the components and extract common variables of determinants to get important factors of export competitiveness. Factor analysis is done by using Kaiser-Meyer-Okling (KMO) and Bartlett's Tests in SPSS version 21. Kaiser-Meyer-Okling (KMO) and Bartlett's Tests usually used to measure the adequacy of sampling in the research and analyse the appropriateness of factor analysis.

1. Factor Conditions

Factor analysis is used on 23 questions based on variables of factor conditions with an objective to find the principal components of this determinant in relation to the export competitiveness of selected scientific instruments export industries. The results of factor analysis are given as follows;

Table 1.1 Kaiser-Meyer-Okling and Bartlett's Test Statistics

Kaiser-Meyer-Okling Measure of Sampling Adequacy.		669
Bartlett's Test of Sphericity	Approx. Chi-Square	965.620
	df	253
	Sig.	.000

Source: Calculations of software SPSS

Table 1.1 shows the accuracy of Kaiser-Meyer-Okling and Bartlett's test with value .669 which show that factor analysis used on the collected data is appropriate, this value should be more than .6 for appropriateness of the test. The significant value of test is .000 and shows that the test used is significant, this value shall be less than .05 for significant of the test.

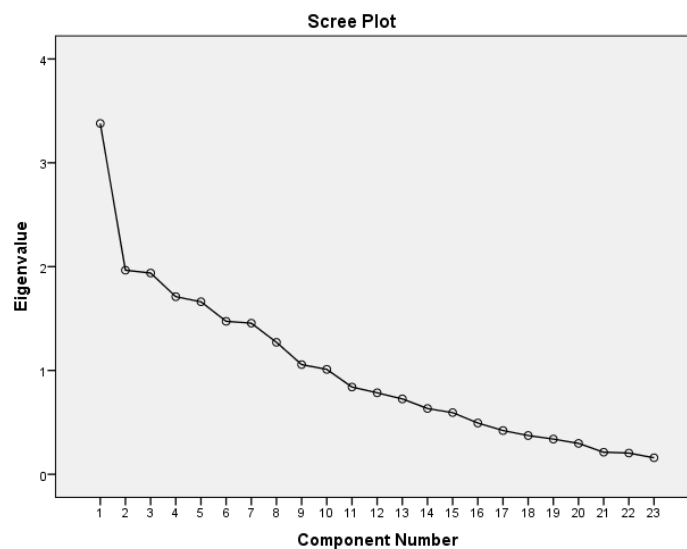
Table 1.2 Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.379	14.691	14.691	3.379	14.691	14.691	2.284	9.930	9.930
2	1.965	8.546	23.237	1.965	8.546	23.237	1.911	8.307	18.238
3	1.938	8.427	31.664	1.938	8.427	31.664	1.770	7.694	25.932
4	1.711	7.438	39.101	1.711	7.438	39.101	1.705	7.413	33.345
5	1.662	7.224	46.325	1.662	7.224	46.325	1.672	7.268	40.614
6	1.473	6.405	52.731	1.473	6.405	52.731	1.584	6.886	47.499
7	1.456	6.329	59.060	1.456	6.329	59.060	1.547	6.724	54.223
8	1.271	5.525	64.585	1.271	5.525	64.585	1.505	6.545	60.768
9	1.056	4.593	69.179	1.056	4.593	69.179	1.498	6.513	67.281
10	1.010	4.392	73.571	1.010	4.392	73.571	1.447	6.289	73.571
11	.841	3.655	77.226						
12	.785	3.412	80.637						
13	.726	3.157	83.795						
14	.633	2.754	86.548						
15	.594	2.581	89.129						
16	.494	2.146	91.275						
17	.421	1.831	93.106						
18	.373	1.622	94.728						
19	.339	1.474	96.203						
20	.298	1.294	97.496						
21	.212	.923	98.420						
22	.204	.888	99.308						
23	.159	.692	100.000						

Extraction Method: Principal Component Analysis.

Source: Calculations of software SPSS

Graph 1.1
Scree Plot of components and eigenval



The above graph 1 shows the plotted points of 23 components and Eigenvalues, up-to 10 variables value is declining after that it looks flat. The plotted points showing negative trends as compare to eigenvalue.

Table: 1.2 shows that out of 23 variables only 10 variables have Eigenvalue more than 1.0, which means 10 variables have been identified as the components of factor conditions determinant. In rotation sums of squared loading cumulative percentage is 73.571, which means that 10 variables explained almost 73% of value of the factor conations of export competitiveness. The explained variance value of 10 variables is quite significant to represent the total variables out of 23 variables.

Table 1.3
Identified Components of Variables in Factor Conditions

Serial No.	Components of Variable identified
FC1	Support of Funds and Technology
FC2	Cost and Return on Investment
FC3	Technology and Infrastructure
FC4	Raw material and basic infrastructure availability
FC5	Raw Material and Education level of employees
FC6	Advance Infrastructure and core technology
FC7	Unskilled Labour
FC8	Basic Infrastructure and Science & Technology
FC9	Cost of Raw Material and Market Information
FC10	Level of on Job training

Source: Generated by Researcher based on the values of Component Matrix.

In Table 1.3 ten major components of factor conditions have been identified by using principal component analysis under factor analysis. Factor conditions (FC) which affects the export competitiveness of the selected scientific instruments export industry in Ambala cluster. Major focus of the selected scientific instruments export industry is on funding support, technology, infrastructure, raw material and efficiency of their employees.

2. Demand Conditions

Factor analysis is used on 09 questions based on variables of demand conditions with an objective to find the principal components of this determinant in relation to the export competitiveness of selected scientific instruments export industries. The results of factor analysis are given as follows;

Table 2.1 Kaiser-Meyer-Olking and Bartlett's Test Statistics

Kaiser-Meyer-Olking Measure of Sampling Adequacy.		.630
Bartlett's Test of Sphericity	Approx. Chi-Square	123.675
	Df	36
	Sig.	.000

Source: Calculations of software SPSS

Table 2.1 shows the accuracy of Kaiser-Meyer-Olking and Bartlett’s test with value .630 which show that factor analysis used on the collected data is appropriate, this value should be more than .6 for appropriateness of the test. The

significant value of test is .000 and shows that the test used is significant, this value shall be less than .05 for significant of the test.

Table: 2.2 Total Variance Explained

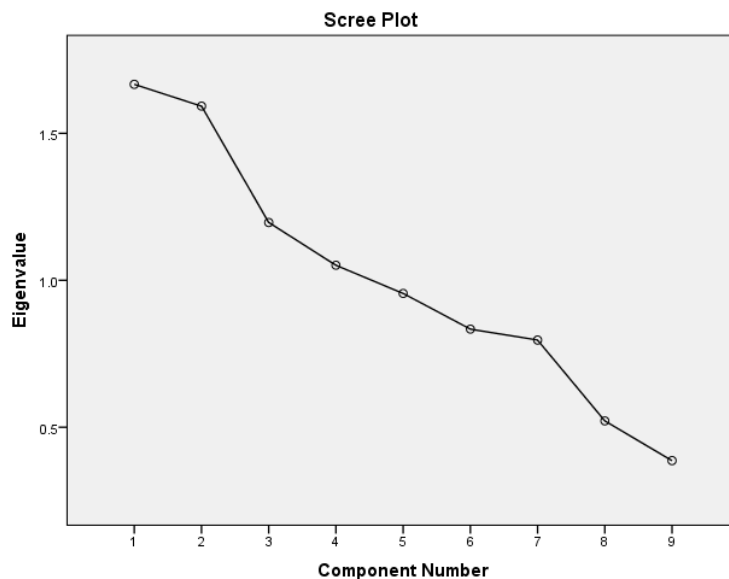
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.667	18.519	18.519	1.667	18.519	18.519	1.496	16.625	16.625
2	1.592	17.694	36.212	1.592	17.694	36.212	1.372	15.243	31.868
3	1.197	13.295	49.507	1.197	13.295	49.507	1.333	14.813	46.681
4	1.051	11.678	61.185	1.051	11.678	61.185	1.305	14.504	61.185
5	.955	10.613	71.799						
6	.834	9.264	81.063						
7	.797	8.850	89.913						
8	.522	5.794	95.708						
9	.386	4.292	100.000						

Extraction Method: Principal Component Analysis.

Source: Calculations of software SPSS

Table: 2.2 shows that out of 09 variables only 04 variables have Eigenvalue more than 1.0, which means 04 variables have been identified as the components of factor conditions determinant. In rotation sums of squared loading cumulative percentage is 61.185, which means that 04 variables explained almost 61% of value of the demand conations of export competitiveness. The explained variance value of 04 variables is quite significant to represent the total variables out of 09 variables.

Graph-2 Scree Plot of components and eigenvalue of demand conditions



The above graph 2 shows the plotted points of 09 components and Eigenvalues, up-to 04 variables value is declining after that it looks flat. The plotted points showing negative trends as compare to eigenvalue.

Table 2.3 Identified Components of Related and Supporting Industries Variable

Serial No.	Identified Components of Variable
DC1	Norms of Environment and relationship with other institutions
DC2	Competition with other firms and information sharing
DC3	Relations with administration, societies, suppliers and distributors
DC4	Support from other related firms

Source: Generated by Researcher based on the values of Component Matrix.

In table 2.3 four major components of demand conditions have been identified by using component analysis under factor analysis. Demand conditions (DC) which affects the export competitiveness of the selected scientific instruments export industry in Ambala cluster. Major focus of the selected scientific instruments export industry is on foreign and local market share, buying behavior of the customer, seasonal demand of the product and value of the product in foreign market.

3. Related & Supporting Industries

Factor analysis is used on 12 questions based on related & supporting industries variables of with an objective to find the principal components of this determinant in relation to the export competitiveness of selected scientific instruments export industries. The results of factor analysis are given as follows;

Table: 3.1 Kaiser-Meyer-Olking and Bartlett's Test Statistics

Kaiser-Meyer-Olking Measure of Sampling Adequacy.		.627
Bartlett's Test of Sphericity	Approx. Chi-Square	345.503
	df	66
	Sig.	.000

Source: Calculations of software SPSS

Table 3.1 shows the accuracy of Kaiser-Meyer-Olking and Bartlett's test with value .627 which show that factor analysis used on the collected data is appropriate, this value should be more than .6 for appropriateness of the test. The significant value of test is .000 and shows that the test used is significant, this value shall be less than .05 for significant of the test.

Table: 3.2 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.941	24.505	24.505	2.941	24.505	24.505	1.899	15.825	15.825
2	1.577	13.142	37.647	1.577	13.142	37.647	1.815	15.128	30.952
3	1.359	11.324	48.971	1.359	11.324	48.971	1.677	13.977	44.929

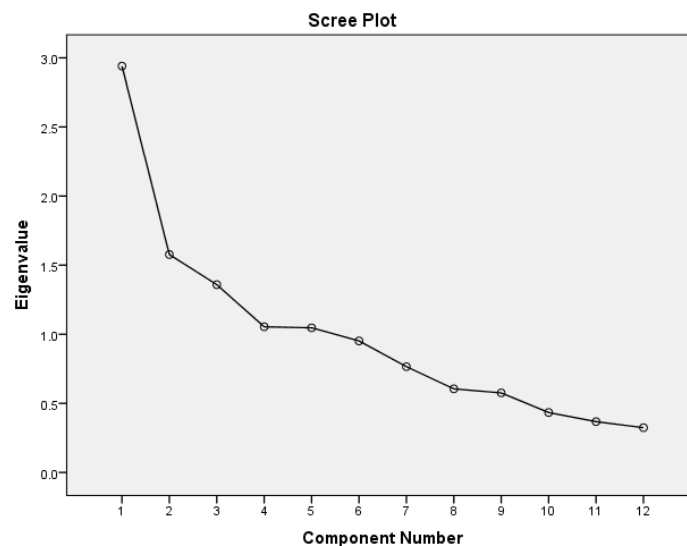
4	1.054	8.784	57.755	1.054	8.784	57.755	1.378	11.480	56.409
5	1.047	8.722	66.477	1.047	8.722	66.477	1.208	10.069	66.477
6	.952	7.930	74.408						
7	.766	6.380	80.788						
8	.605	5.041	85.828						
9	.575	4.795	90.624						
10	.434	3.615	94.239						
11	.367	3.062	97.301						
12	.324	2.699	100.000						

Extraction Method: Principal Component Analysis.

Source: Calculations of software SPSS

Table: 3.2 shows that out of 12 variables only 05 variables have Eigenvalue more than 1.0, which means 05 variables have been identified as the components of related and supporting industries determinant. In rotation sums of squared loading cumulative percentage is 66.477, which means that 05 variables explained almost 66% of value of the demand conations of export competitiveness. The explained variance value of 05 variables is quite significant to represent the total variables out of 12 variables.

Graph-3 Scree Plot of components and eigenvalue of demand conditions



The above graph 3 shows the plotted points of 12 components and Eigenvalues, up-to 05 variables value is declining after that it looks flat. The plotted points showing negative trends as compare to eigenvalue.

Table 3.3 Identified Components of Related and Supporting Industries Variable

Serial No.	Identified Components of Variable
RS1	Norms of Environment and relationship with other institutions
RSI2	Competition with other firms and information sharing
RSI3	Relations with administration, societies, suppliers and distributors

RSI4	Support from other related firms
RSI5	Research and Development Budget of the firm

Source: Generated by Researcher based on the values of Component Matrix.

In Table 3.3 five major components of related and supporting industries variables have been identified by using principal component analysis under factor analysis. It is revealed that Related and Supporting Industries affects the export competitiveness of the selected scientific instruments export industry in Ambala cluster. Major focus of the selected scientific instruments export industry is on relationship with other institutions, administration, societies, suppliers, distributors and budget on research and development.

4. Firm Strategy, Structure and Rivalry

Factor analysis is used on 09 questions based on variables of firm strategy, structure and rivalry with an objective to find the principal components of this determinant in relation to the export competitiveness of selected scientific instruments export industries. The result of factor analysis is given as follows;

Table: 4.1 Kaiser-Meyer-Olking and Bartlett's Test Statistics

Kaiser-Meyer-Olking Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	459.822
	df	36
	Sig.	.000

Source: Calculations of software SPSS

Table 4.1 shows the accuracy of Kaiser-Meyer-Olking and Bartlett's test with value .746 which show that factor analysis used on the collected data is appropriate, this value should be more than .6 for appropriateness of the test. The significant value of test is .000 and shows that the test used is significant, this value shall be less than .05 for significant of the test.

Table: 4.2 Total Variance Explained

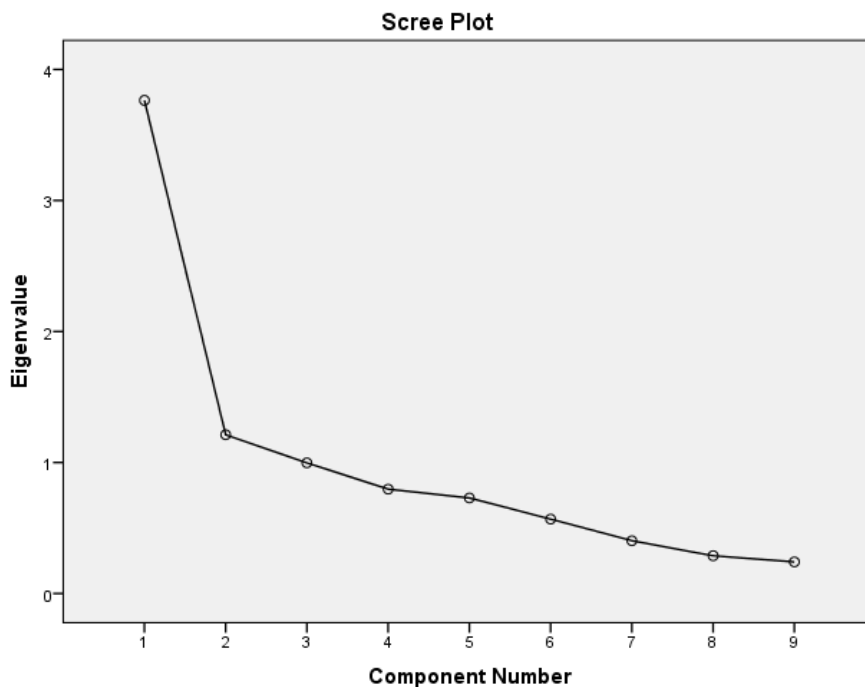
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.764	41.825	41.825	3.764	41.825	41.825	2.641	29.346	29.346
2	1.212	13.464	55.289	1.212	13.464	55.289	2.335	25.943	55.289
3	.997	11.081	66.371						
4	.797	8.853	75.223						
5	.729	8.105	83.328						
6	.568	6.309	89.637						
7	.403	4.476	94.113						
8	.288	3.204	97.317						
9	.241	2.683	100.000						

Extraction Method: Principal Component Analysis.

Source: Calculations of software SPSS

Table 4.2 shows that out of 09 variables only 02 variables have Eigenvalue more than 1.0, which means 02 variables have been identified as the components of firm strategy structure and rivalry determinant. In rotation sums of squared loading cumulative percentage is 55.289, which means that 02 variables explained almost 55% of value of variable of export competitiveness. The explained variance value of 02 variables is quite significant to represent the total variables out of 09 variables.

Graph-4 Scree Plot of components and eigenvalue of Firm Strategy, Structure and Rivalry



The above graph 5.4 shows the plotted points of 09 components and Eigenvalues, up-to 02 variables value is declining after that it looks flat. The plotted points showing negative trends as compare to eigenvalue.

Table 4.3

Identified Components of Variables in Firm Strategy, Structure and Rivalry

Serial No.	Identified Components of Variable
FSSR1	Competition approach of the firm and demand of the customers
FSSR2	Size of firm and number of employees

Source: Generated by Researcher based on the values of Component Matrix

In Table 4.3 two major components of firm strategy, structure and rivalry have been identified by using principal component analysis under factor analysis. It is observed that firm strategy, structure and rivalry (FSSR) which affects the export competitiveness of the selected scientific instruments export industry in Ambala cluster. Major focus of the selected scientific instruments export industry is on competition approach of the firm and demand of the customers and size of firm with number of employees working in the firms.

5. Government & Chance

Factor analysis is used on 16 questions based on variables of government and chance with an objective to find the principal components of this determinant in relation to the export competitiveness of selected scientific instruments export industries. The result of factor analysis is given as follows;

Table: 5.1 Kaiser-Meyer-Olking and Bartlett's Test Statistics

Kaiser-Meyer-Olking Measure of Sampling Adequacy.		.598
Bartlett's Test of Sphericity	Approx. Chi-Square	543.420
	df	120
	Sig.	.000

Source: Calculations of software SPSS

Table 5.1 shows the accuracy of Kaiser-Meyer-Olking and Bartlett's test with value .598 which show that factor analysis used on the collected data is appropriate, this value should be more than .6 for appropriateness of the test. The significant value of test is .000 and shows that the test used is significant, this value shall be less than .05 for significant of the test.

Table: 5.2 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.434	15.210	15.210	2.434	15.210	15.210	2.148	13.423	13.423
2	2.134	13.339	28.549	2.134	13.339	28.549	2.023	12.642	26.065
3	1.791	11.196	39.744	1.791	11.196	39.744	1.685	10.530	36.595
4	1.569	9.807	49.551	1.569	9.807	49.551	1.617	10.105	46.700
5	1.357	8.481	58.032	1.357	8.481	58.032	1.595	9.966	56.667
6	1.170	7.313	65.344	1.170	7.313	65.344	1.388	8.678	65.344
7	.971	6.067	71.411						
8	.815	5.092	76.503						
9	.772	4.826	81.329						
10	.657	4.107	85.435						
11	.623	3.893	89.328						
12	.503	3.144	92.472						
13	.390	2.438	94.910						
14	.302	1.888	96.799						
15	.283	1.771	98.569						
16	.229	1.431	100.000						

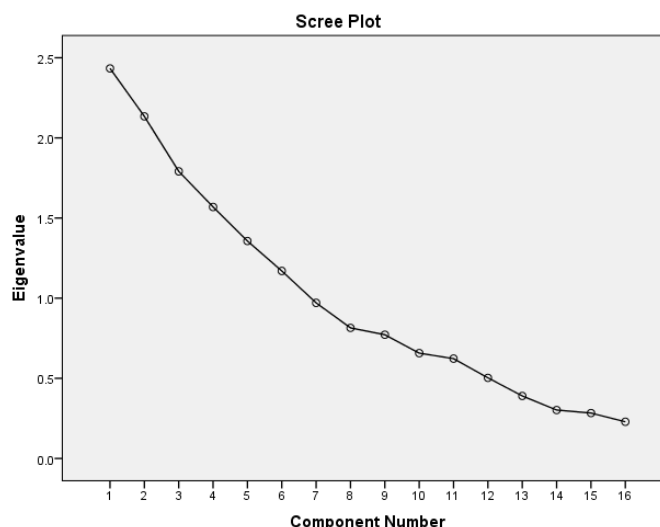
Extraction Method: Principal Component Analysis.

Source: Calculations of software SPSS

Table: 5.2 shows that out of 16 variables only 06 variables have Eigenvalue more than 1.0, which means 16 variables have been identified as the components of firm strategy structure and rivalry determinant. In rotation sums of

squared loading cumulative percentage are 65.344, which mean that 06 variables explained almost 65% of value of the government & chance of export competitiveness. The explained variance value of 06 variables is quite significant to represent the total variables out of 16 variables.

Graph 5 Scree Plot of components and eigenvalue of Government & Chance



The above graph 5 shows the plotted points of 16 components and Eigenvalues, up-to 06 variables value is declining after that it looks flat. The plotted points showing negative trends as compare to eigenvalue.

Table: 5.3 Identified Principal Components of Government and Chance Variable

Serial No.	Identified Components of Variable
GC1	Government Policy and Behavior
GC2	Government Incentives and Technological Changes
GC3	Export-Import polices and regulations of government
GC4	Tax structure and research facilities by government
GC5	Government Support for technology
GC6	Stability in Foreign Exchange rate

Source: Generated by Researcher based on the values of Component Matrix

In Table 5.3 six major components of Government and Chance (GC) have been identified by using principal component analysis under factor analysis, which affects the export competitiveness of the selected scientific instruments export industry in Ambala cluster. Major focus of the selected scientific instruments export industry is on Government policies, incentives, EXIM policy, Government support for technology and foreign exchange rate stability.

Conclusion

The strength of Indian export depends on the labour intensive techniques and comparative advantage of high domestic demands of goods and service due to large population. India is having enough resources along with large number of natural resources available for industries. Exports of India can become a source of engagement of employment for young and skilled population with large manufacturing base and technological advancement. Factor conditions of scientific instruments export industry in Ambala cluster effect its export competitiveness and major factor conditions are need to be improved. Firms of this cluster have to work on funding support, technology, infrastructure, raw material and

efficiency of their employees. Demand conditions of firms are totally depending on foreign and local market share, buying behavior of the customer, seasonal demand of the product and value of the product in foreign market. Relationship with other institutions, administration, societies, suppliers, distributors and related firms are to be focused for the improvement of export competitiveness of selected scientific instruments export industries in Ambala cluster. In order to achieve better export competitiveness scientific instruments export industries have to set up relationship with other institutions, administration, societies, suppliers, distributors and increase budget on research and development. Export competitiveness of selected scientific instruments export industry depends on competition approach of the firm, demand of the customers and size of firm with number of employees working in the firms. Strategic Measure related to competition approach of the firm and demand of the customers and size of firm with number of employees working in the firms are to be formulated and implement at industry level to improve the export competitiveness. Export competitiveness of selected industries is depending on the expansion policy of the cluster, government should take important steps to expand the cluster by providing credit and infrastructure support to the industry. These types of industrial cluster in small cities requires basic infrastructure, innovative technology, proper supply of quality raw material, efficient employees and better credit facilities at their doorstep. These export industrial cluster have to compete with advanced economies like USA, Japan, China and UK for that they need to improve the value of their product in foreign market.

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