

FACTORS DETERMINING THE GROWTH OF SPORTS GOODS CLUSTER AT JALANDHAR

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ABSTRACT

This paper is an attempt to identify the factors determining the growth of sports goods cluster at Jalandhar. Factor Analysis is applied to find out small set of uncorrelated variables and to replace the large set of correlated variables. The Principal Component Analysis through Orthogonal Rotation with Varimax method is used for extracting the factors. Five set of factors are found affecting the growth of sports goods cluster of Jalandhar. These are Cluster Development Programme by the Government, Planning and Sharing of Goals, Location, Presence of Industry Association and Availability of Bank Finance.

Keywords: Cluster, Factor Analysis, Principal Component Analysis.

INTRODUCTION

The origin of sports goods Industry of India can be traced back to Sialkot, Pakistan. In 1947, after partition, the entrepreneur belonging to one community decided to shift from Sialkot. The workers belonging to that community also migrated along with the entrepreneurs. As per the resettlement plan of Government of India, initially these migrants settled in Batala but later on shifted from Batala to Jalandhar. (UNIDO, 2001, p.3). At Jalandhar, the raw material required was easily available. Some of the migrants shifted to Meerut where also the raw material required was available.

Punjab and Meerut have emerged as the leading centers for sports goods manufacture and the only industry which appears to offer some prospects is sports goods industry of Punjab. Meerut is yet to become powerful (Chandra Mohan, 2002).

Jalandhar has grown as the major centre of Indian sports goods industry. Meerut in Uttar Pradesh is the second and Gurgaon in Haryana is the third largest cluster of sports goods manufacturing. (NPC, 2009, p.1).

OBJECTIVES OF STUDY

Present study has been conducted, keeping in view the following objectives:

1. To study the structure of sports goods cluster at Jalandhar.
2. To identify the factors determining the growth of sports goods cluster at Jalandhar.

DATABASE AND METHODOLOGY

Primary data was collected to study the characteristics of firms located in the cluster in order to highlight the structure of the

cluster as well as to study of various factors affecting the growth of the cluster. The universe of the study was the sports goods units registered with District Industries Centre i.e. 734 (As per figures given by District Industries Center, Jalandhar). A sample of 150 units (i.e. 20% of the total population) was taken to represent the universe. Here judgment sampling was used to draw the sample and collect the data from sample. Personal investigation method was applied.

Factor Analysis is applied to identify the factors determining the growth of Sports Goods cluster of Jalandhar.

RESULT AND DISCUSSIONS

Present study has tried to examine the structure of sports goods cluster at Jalandhar and to identify the factors determining the growth of the cluster. Results have been discussed in two sections: Section I tries to highlight various characteristics of units under study in order to examine the structure of the cluster. Section II deals with the study of factors determining the growth of the cluster.

Section I

Present study has tried to examine the structure of sports goods cluster at Jalandhar. It is found that sports goods cluster at Jalandhar came into existence at the time of partition of the country. The cluster is concentrated in the areas of Basti Nau, Basti Danishmandan, Surgical and Sports Goods Complex, Kapurtala Road and Industrial Area. (UNIDO, 2001, p.4). The cluster is dominated by sole proprietorship firms. Majority of firms have denied the presence of any kind of barrier to entry in the industry. Majority of firms have made investment in plant and machinery below 25 lacs. 78.7% of the firms are using Indian technology. 81% of the firms are making 100 % utilization of technology. 79.3% of the firms are not having any standard. 48% of the firms test raw material before its use. Various sources of finance are available in the cluster but most of the firms rely on their own sources. 51% of the firms are producing for their own brand, 13% are producing for others brand and 36% are producing for both of the brands. Majority of firms are directly selling to the customers apart from using agents, wholesalers and retailers. 93% of the firm use cost plus profit margin as the base of pricing. Business tours by the entrepreneurs are found to be the main sales promotion activity. Majority of firms have manpower employment less than 10. Major workforce is skilled. It is found that number of workers appointed depend upon number of machines used. 100% of the firms reported the shortage of skilled labour. Majority of firms don't give training to their workers. 4% of firms have labour union in their organization. 58% of the firms share information with the other firms located in the cluster. Majority of firms use both formal and informal networks for sharing of information. 87% of the firms don't cooperate with other firms present in the cluster. 90% of the firms are member of various industry associations. 92% of the firms reported that no research and development facility is available in the cluster. Most of the firms get information about

innovation or new product from customers only. 65% of the firms don't conduct research and development.

Section- II

Pilot survey and Review of Literature provides us some important variables which are determining the growth of the cluster. These were location, setting up of special economic zones, availability of bank finance, skilled labour, training programmes, availability of raw material, raw material suppliers, test house, research institutes, active rivalry, planning and sharing of goals, presence of leader firm, industry associations, government policies, incentives by the government, revaluation of export policies and subsidy rate.

Factor Analysis is applied to find out small number of uncorrelated variables and to replace the large number of correlated variables.

Reliability of Scale: Before applying factor analysis, it is required to check the reliability of scale. The reliability of scale can be tested by Cronbach's Alpha.

The Cronbach's Alpha is 0.800 which is acceptable for factor analysis.

Adequacy of data for Factor Analysis: After checking the reliability of collected data, it is mandatory to check the adequacy of the data.

The data adequacy tests were conducted on the basis of following considerations.

1. **Adequate Sample Size:** The minimum sample size should be at least 5 times of variables taken under consideration (Hair 2006, p.136). The sample size is 150 firms and variables taken are 25 which are appropriate for Factor Analysis.
2. **Construction of Correlation Coefficient Matrix of Explanatory Variables:** The large number of correlations greater than 0.30 among the variables supports the appropriateness of data for the use of Factor Analysis.
3. **Construction of Anti-image Correlation Matrix:** The anti-image correlations show that partial correlations were low, signifying that accurate factors exist in the data.
4. **Kaiser- Meyer- Oklin (KMO) Measure of Sampling Adequacy:** The computed value of KMO statistic is 0.599 which is acceptable for Factor Analysis.
5. **Bartlett's Test of Sphericity:** The Bartlett's tests chi square value is 5083.622, d.f. 300, significance at 0.000 shows that correlation coefficient matrix is not an identity matrix.

All the above values exposes that the collected data is fit for the purpose of factor analysis in the present study.

The Principal Component Analysis through Orthogonal Rotation with Varimax Method was used for extracting the factors and the number of factors was finally chosen on the basis of 'Latent Root Criteria'. The variables with loadings more than or equal to 0.50 (ignoring the signs of + and -) have

been taken up for analysis in the study. The variables with their factor loadings and percentage of variance explained by each factor are given in Table 1.1.

Total five factors have been extracted which collectively account for 76.973 per cent of total variance. The percentage of variance explained by factors separately varies from 27.419 to 6.600 and communalities range from 0.973 to 0.432. The formation of these five factors is explained in detail in the following pages:

Factor – I: -It highlights a dynamic approach. This factor revealed that for the growth of cluster fast action by the government, special benefits by the banks, change in subsidy

rate, availability of researches institutes or universities, test house, availability of raw material, skilled labour, setting up of special economic zones, specialized public sector services, awards by the government and revaluation of export policies is required.

Factor-II:-This factor advocates planning and sharing of goals, location of firms in cluster, favourable government policies, presence of leader firm and equal incentives by the government to sports cluster.

Factor-III:-This factor highlights the importance of location, availability of sources of raw material, machinery and training programmes by the government.

Table 1.1: Factors Determining the Growth of Sports Goods Cluster at Jalandhar

Label Factors	Factor Loadings
F1 Cluster Development Programme by the Government (27.419 percent variance)	
23 Government should take fast action for cluster development	.802
5 Special benefits given by the banks to the firms located in the cluster affects the growth of the cluster	.788
25 There must be change in subsidy rate	.760
13 Availability of research institutes or universities accelerate the growth of cluster	.742
11 Availability of test houses within the cluster is conducive to the growth of cluster	.717
9 Regular availability of raw material is essential for the growth of cluster	.675
6 Availability of skilled labour enhance the growth of the cluster	.666
3 Setting up of Special Economic Zone can enhance the competitiveness of the cluster	.632
12 Location of various specialized public sector services such as technology extension services or technology centers or export assistance centers helps in the growth of cluster	.632
21 Awards given by the Government/ other agencies induces the cluster to perform better	.595
24 There must be revaluation of export policies	.550
F2 Planning and Sharing of Goals (19.007 percent variance)	
15 Planning and sharing of goals within the cluster is must for the growth of cluster	.903
1 Location of firms in the cluster provides a number of benefits	.902
22 Favourable government policies affects the growth of cluster	.888
16 Presences of leader firms in the cluster help to maintain collectiveness as well as competitiveness and keep all the firms together in the cluster	.878
20 Equal incentives should be given by the government to sports cluster with regard to other clusters located in India	.843
F3 Location (14.346 percent variance)	
2 Any change in location can reduce sales and hence growth	.882
8 Sources of raw material located within the cluster helps in the growth of cluster	.878
10 Location of suppliers of machines and tools within the cluster helps in accelerating the growth	.877
7 Various training programmes organized by the government and other agencies helps in improving the competitiveness of the cluster	.865
F4 Presence of Industry Association (9.602 percent variance)	
18 Various trade fairs organized by the associations helps to increase sales and hence growth	.765
17 Availability of industry associations helps the cluster to upgrade	.723
19 Various buyer seller meet organized by the associations helps to increase sales and hence growth	.719
F5 Availability of Bank Finance (6.600 percent variance)	
4 Adequate bank finance helps is adopting new technologies and enhance competitiveness	.888
14 Active rivalry motivates the firm to perform better	.878

Factor-IV:-It advocates the presence of industry associations. Various trade fairs and buyer seller meet organized by the industry associations are found negatively loaded on the factor.

Factor-V: - It highlights the availability of bank finance and active rivalry in the cluster.

Validity of Factor Analysis: Validation of factor analysis result is essential. (Hair, 2006, p. 177). In order to check the validity of result, split sample analysis is applied. The sample of 150 is divided into two equal samples of 75 respondents and re estimation of factor models is done to test for comparability. Table 1.2 shows the Varimax rotation for both factor models (ignoring + or – signs) along with the communalities.

Table 1.2: Factor Model of two samples

Factors	Sample I		Sample II	
	Factor Loading	Communalities	Factor Loading	Communalities
Factor I				
23	.805	.786	.797	.722
5	.796	.738	.774	.740
25	.765	.664	.752	.625
13	.745	.721	.736	.648
11	.712	.574	.725	.597
9	.683	.726	.662	.685
6	.674	.645	.651	.643
3	.632	.512	.630	.428
12	.643	.724	.617	.655
21	.602	.610	.584	.496
24	.544	.572	.556	.463
Factor II				
15	.916	.916	.876	.935
1	.916	.922	.876	.935
22	.901	.850	.863	.852
16	.870	.898	.876	.935
20	.859	.776	.818	.777
Factor III				
2	.880	.972	.878	.972
8	.877	.973	.874	.974
10	.875	.974	.873	.971
7	.864	.928	.861	.929
Factor IV				
18	.778	.853	.696	.980
19	.705	.822	.696	.980
17	.704	.803	.696	.980
Factor V				
4	.644	.436	.894	.972
14	.660	.693	.894	.972

It can be seen that the both models are comparable both in terms of factor loading and communalities. This shows that results are stable within the sample.

CONCLUSION

The study concludes that sports goods cluster of Jalandhar is a labour intensive industry where most of the entrepreneurs are themselves highly skilled workers. They follow the policy of personalized marketing. Cluster Development Policies by the Government, Planning and Sharing of Goals, Location, Presence of Industry Association and Availability of Bank Finance are various factors which affect the growth of the cluster.

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