



# The Study of Industrial Clusters Performance in Islamic Republic of Iran (The Case Study of Yazd clerical and accounting machinery)

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## ABSTRACT

Today, since industrial clusters affect the organizational competitiveness both national and international levels and introduces a new perspective towards the location of business establishment, most countries use industrial cluster development strategy. Industrial clusters have been also considered in Iran and the industries adapted to and coordinated with the mentioned approach have tried to locate their business at the better conditions of competition and market gain within the country, region and throughout the world. In this article, at first industrial cluster, its advantages and disadvantages have been defined, and then, the history of industry and industrial cluster of Yazd province and Yazd ceramic and tile cluster performance examination tools and at the end, the strengths, weaknesses, opportunities and threats Yazd ceramic and tile cluster have been investigated.

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## Introduction

All countries hope to achieve increasingly developments which grow fast. Nowadays many developed countries are using strategy of industrial clusters development because they influence the competitiveness of industrial clusters in the country as well as beyond national borders and show new ways of thinking about the place of dealing and earning. Industrial clusters influence competition through increasing of productivity based on settlement of companies and providing quick guidelines for development and innovation and encouraging of new business. Recently this method in Iran attracted many attentions based on industries compatible with mentioned method which attempts to provide a better and competitive market place for the country, region and the world. A new approach proposed nowadays in the discussions of regional and industrial development is that different regions depending on, natural, human and organizational advantages or available industrial should pay serious attention to the development of a limited number of industrial clusters and facilitate different dimensions for organization of clusters. In these situations they can be successful in international markets and hold more valuable sectors of related goods from their value chain and they can reform or reconstruct existing structures against world problems.

### Industrial Cluster Definition

Using various definitions provided by the thinkers, industrial clusters can be defined a set of correlated firms, professional suppliers, service providers, the firms consisting of dependent industries, and interconnected institutions each one of which is linked to another one to save the added value supply. This set works in a common field, is concentrated in a certain geographic area, is able to synergy, and has created the

possibility to use external savings and has common challenges and opportunities.

**Forming industrial clusters has many advantages, a number of which are mentioned below:**

- Regional economic growth and encouragement of more investment in the region
- More effective cooperation between public and private sector
- Improvement of efficiency and increase of productivity in small and medium enterprises
- Development of adaptability and flexibility in small and medium enterprises in the fields of product, market, technology, management and organization considering trade liberalization across the world and economic globalization
- Possibility to achieve criterion-driven interests, market knowledge, local interaction-dependent innovation and technological progress
- Make the education endogenous, development of new skills, professional and efficient division of labor, use of external savings, reduction of transaction costs, elimination or reduction of market entry restriction
- Easier and faster access to suppliers of raw materials, services, specialist human resources
- Economic justification of establishing and strengthening service and support centers in various areas such as marketing, reference laboratories, technical and financial and consultations.
- Proportion to indigenous social structures
- The most appropriate development path
- Facilitation of the developmental process

### Shortcomings of Industrial Clusters

- They fail to act properly if there is inappropriate copying of models without considering specific conditions of performed model in other countries.

- Adjustment of products according to customer demands may cause problems in the cluster interests

#### History of industry and industrial clusters in Yazd province

Yazd's name has been long associated with industry, productivity, and industrial activities and artisans of the province have had a distinguished and considerable role in providing the goods required throughout the country since many years ago. Hard work, compassion, contentment and saving have been associated with the essence of the people of this desert province and underlies their elevated culture in terms of work and production and this has provided the good cultural groundwork along with other relative advantages such as competent and experienced managers and employers, optimal growth of higher education, richness of the mines, being located in the center of the country and infrastructural facilities and appropriate services regarding ways, railways, airports, energy, telecommunications, etc. have provided suitable setting to develop industry in the province. Yazd province has an exclusive place in Iran's industry and a significant part of the country's industrial products; especially in the textile and non-metallic minerals sector, is produced in Yazd Province.

#### Statistical population and sample

Statistical population of the study is all small, medium and large active textile industrial units in the city of Yazd based on 3ISIC code.

#### Sampling method:

For this research, after conducting the required studies, two classification-sampling methods are selected with appropriate and systematic allocation.

#### Determination of the Classification Sample size (n) with proportional allocation:

Since in the main definition of cluster, units are divided into small, large and medium categories, the following formula applies and in other words, each class has been relatively shown with  $Q_h$  and  $P_h$  and  $P_h = \frac{A_h}{N_h}$  where  $A_h$  is volume of large units

of each class and  $N_h$  is the total volume of each class.  $V$  is the

estimating variance which has been assumed to be a constant value and when the estimating variance of value sum of the units is already determined, sample size will be estimated from the following method:

$$s_h^2 = \frac{N_h}{N_h - 1} P_h Q_h$$

$$n_0 = \frac{N}{V} \sum_{h=1}^L N_h s_h^2 = \frac{374 * 77.197}{41} = 702$$

$$\hat{n} = \frac{n_0}{1 + \frac{n_0}{N}} = 244$$

Also Sample size estimated through Kakran method with error volume of ( $E = 0.037$  and  $0.05 = \alpha$  and  $p = 0.5$ ) is as follows: Size of the classes of ( $n_h$ ) is obtained from the following formula:

$$n_0 = \frac{Z_{\alpha/2} * p(1-p)}{E^2} = 702$$

$$\hat{n} = \frac{n_0}{1 + \frac{n_0}{N}} = 244$$

$$n_h = n * \frac{N_h S_h}{\sum_{h=1}^L N_h S_h}$$

#### Research tools:

To investigate the function of Yazd textile cluster, we used a questionnaire tool including human resource pivots, raw material supply network, technology, network access to markets, financing and capital provisions and coordination agency; the collected data indicates that:

#### The human resources employed in the clerical and accounting machinery cluster

Data from the questionnaires on human resources shows that:

- Regarding the question of how do you evaluate the result of using the human resources skill of the similar units?

100% of clerical and accounting machinery cluster units have evaluated it to be desirable.

- Regarding the question of whether the clerical and accounting machinery cluster units are content with other similar units using their human resources skill or not?

50% of clerical and accounting machinery cluster units have expressed their interest in lending their human resources skill to their counterparts.

#### Raw material supply network in clerical and accounting machinery cluster

Information provided by the clerical and accounting machinery cluster units on raw material supply network indicates that:

- 25% of clerical and accounting machinery cluster units purchase their required raw materials directly from the raw material manufacturers.

In response to the question of "if raw materials are provided directly from the manufacturers, where these units belong to"?

- 100% of the clerical and accounting machinery cluster units have stated that their raw materials suppliers are outside the city of Yazd.

Regarding the question of whether clerical and accounting machinery cluster units desire to cooperate with other similar units regarding raw material supply or not?

- 75% of clerical and accounting machinery cluster units have expressed their willingness to cooperate with other similar units on raw material supply.

#### Technology in clerical and accounting machinery cluster

Clerical and accounting machinery cluster units were asked whether all the operational levels of their production are performed in their own units or not? The responses provided by the clerical and accounting machinery cluster units were as follows:

- 33.3% of clerical and accounting machinery cluster units department announced that all the operational levels of their production are performed in their own units

Regarding the exchange capability of technology, clerical and accounting machinery cluster units were asked whether they have ever used their own machinery to complete the production of other units or not? The responses provided by the clerical and accounting machinery cluster units were as follows:

- 100% of clerical and accounting machinery cluster units have responded that they have used their own machinery to complete the production of other units.

Regarding the question of whether clerical and accounting machinery cluster units are willing to provide their counterparts with machinery services or not, the answer is:

- 100% of clerical and accounting machinery cluster units have expressed their willingness to provide their counterparts with machinery services.

Regarding the cooperation of units on the exchange of technical methods and knowledge of production, the units' comments are as follows:

- 66.3% of clerical and accounting machinery cluster units have announced that they have cooperated with other similar units on the exchange of technical methods and production know how.

#### **Market access network center in clerical and accounting machinery cluster**

Regarding the market access network, clerical and accounting machinery cluster units were asked about their marketing methods. Their responses indicated that:

- 50% of clerical and accounting machinery cluster units have declared that their products were marketed directly by themselves.

In response to the question of "if the goods are sold by clerical and accounting machinery cluster units, where will these products be presented?" clerical and accounting machinery cluster units responses are as follows:

- 100% of clerical and accounting machinery cluster units have stated that they market main part of their goods inside the city of Yazd.

#### **The financial issues in clerical and accounting machinery cluster**

Clerical and accounting machinery cluster units were asked some questions regarding the financial issues which are as follows:

Clerical and accounting machinery cluster units were asked whether they have faced serious financial issues to continue the activities of their own units or not? The answers of clerical and accounting machinery cluster units have been as follows:

- 67% of clerical and accounting machinery cluster units have been facing serious financial issues.

Regarding getting facilities from the banking system, clerical and accounting machinery cluster units were asked whether they have used banking facilities to establish industrial units or not? The answers given are as follows:

- 100% of the clerical and accounting machinery cluster units have used banking facilities to establish their own industrial unit.

Clerical and accounting machinery cluster units were asked whether they agree with establishment of finance fund which is formed through membership and investment of units and aims to help to meet the financial needs of the partner units or not? The answers of clerical and accounting machinery cluster units have been as follows:

- 100% of clerical and accounting machinery cluster units have agreed with the establishment of finance fund which is formed through membership and investment of units and aims to help to meet the financial needs of the partner units.

Regarding the establishment of finance fund, the clerical and accounting machinery cluster units have been asked whether they agreed to join the fund or not? The answers provided by clerical and accounting machinery cluster units are as follows:

- 100% of clerical and accounting machinery cluster units declared their intention to become a member and invest in the fund.

#### **Coordination in clerical and accounting machinery cluster units**

Regarding the topic of harmony and establishment of a non-governmental organization for this purpose clerical and accounting machinery cluster units were asked whether there is any trade or professional association in their industry or not? Their answers have been as follows:

Clerical and accounting machinery cluster units have been asked that at which level do the trade or professional associations work in their industry (city, province, and country) and the answers provided by clerical and accounting machinery cluster units are as follows:

- 17% of clerical and accounting machinery cluster units have announced that their trade association works within the city.
- 17% of clerical and accounting machinery cluster units have announced that their trade association works at the provincial level.
- 67% of clerical and accounting machinery cluster units have announced that their trade association works at country level.

Clerical and accounting machinery cluster units were asked whether they are a member of their own trade association or not? The answers provided by them have been as follows:

- 100% of clerical and accounting machinery cluster units are a member of their own trade association.

Regarding the coordination, clerical and accounting machinery cluster units have been asked "if the issues related to the manufacturing units are supposed to be organized through the formation of a non-governmental organization in order to increase their share of national and international markets and solve existing problems, what combination is appropriate for it?" the answers of the units have been as follows:

- 100% of the clerical and accounting machinery cluster units believe that the mentioned organization should be established through the presence of the similar industrial units.

#### **Evaluation of the points of strength & weaknesses and opportunities & threats of clerical and accounting machinery**

SWOT analysis can be performed in various fields such as marketing, supply chain of information systems, and etc. Essentially, this analysis proves to be valuable when used for the current situation, but this analysis can also be used to formulate the strategies. Using SWOT analysis (strengths, weaknesses, opportunities and threats), it will be possible firstly to analyze the internal and external environments and also to be able to make strategic decisions which balance the organization competitions through appropriate job opportunities.

##### **Strengths of clerical and accounting machinery cluster**

- Wide range of distribution and consumption of IT products
- Pristine state of the domestic market for IT products
- Excellent IT growth because it leads to the growth and development of the other industries in the country
- Reduced costs for consumers due to the use of related devices and equipment and high performance speed

##### **Weaknesses of clerical and accounting machinery cluster**

- Instability of market prices and variety of devices
- Lack of proper knowledge and low awareness of consumers about the presented devices
- Unhealthy competition in the supply of products
- Reduced prices with regard to their updates

##### **Opportunities of clerical and accounting machinery cluster**

- The government and people needs for clerical and accounting machinery and products

- Employment and training specialist manpower
- Creating new business opportunities and economic prosperity of small enterprises
- Reduced technology gap with other countries using clerical and accounting machinery and products

#### **Threads of clerical and accounting machinery cluster**

- High speed of change in products and productions
- Lack of sufficient technical knowledge about producing related products within the country
- Entrance of non-experts in the relevant market
- Unhealthy competition in the market
- The existence of similar and counterfeit goods in the market
- Lack of job security due to the diversity and abundance of the market customers

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