

# **INDUSTRY INVENTORY, DEVELOPMENT AND CLUSTERING POTENTIAL OF ÇANAKKALE PROVINCE (TURKEY) IN REGIONAL DEVELOPMENT PROCESS**

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## **Abstract**

*The leading problem of underdeveloped and developing countries in the globalized world is the economic development and distortion of inter-regional development. The inter-regional income differences in the developed economies are relatively less than in underdeveloped and developing countries. Considered Turkey from this point, we can clearly see that imbalance. With this study, first of all, it has been tried to discover the inventory of existing industrial facilities in Çanakkale, Turkey. In order to get this information, the data of the Ministry of Science, Industry and Technology has been used. Additionally, by interviewing face to face with 984 businesses in different size in Çanakkale, data has been collected. According to this research, 34% of the industrial enterprises are located in the center of Çanakkale. 59% of these companies make investment with their own resources and 60% of them are sole proprietorship. 51.2 % of these businesses sell their products with their own brand, the most numbers of employees in the main business areas are in the field of dairy products. Male employees are 81.3 % of total employees of these firms, while women are 18.7%. As a result of the research, it has been emerged that clustering is possible in dairy products and olive oil manufacturing sectors. However, since the manufacturers do not have enough information about this issue, sole proprietorship are more in number, there is less institutionalization and there is family-owned business understanding, there are big obstacles to achieve this aim.*

*Keywords: Cluster, Economic Growth, Industry in Çanakkale, Geographical Positioning*

Note: In this study, survey data obtained from the project (to which author was a part) named "The project of generating industrial inventory in Çanakkale province, studying R&D, innovativeness and clustering potential of the industry of the province" is used.

## INTRODUCTION

Although a large part of Çanakkale province territory (Turkey) is in the boundaries of Marmara Region, it is one of the provinces which couldn't achieve economic development. According to 2014 figures, 53% of the population live in urban areas and 47% live in rural areas (Governorship of Çanakkale, 2015). Fundamentals of the economy is based on agriculture and animal husbandry. Employment in industry as a percent of total employment is 19.3% according to 2011 figures. This ratio is under the industry figures of Turkey. Workers in agriculture as a percent of total employment is 36.3%. This value is above the average of Turkey. The share of agriculture in Turkey is 9% at current prices, this share was 9% for Çanakkale. The share of industry is 23% and the share of service sector is 65%. While Gross Domestic Product per capita is \$8954 for Çanakkale, it is \$9244 for Turkey. (TÜİK (Turkish Statistical Institute): Çanakkale 2013, p.9) The share of agriculture is 23.6% and industry is 26.4% across Turkey in the same period. (TÜİK: 2015)

Increasing the share of industry and reducing the share of agriculture is one of the main policies during the economic development and growth process. In recent years, the industry based on agriculture has entered development process. One of the sub-policies which will provide regional development is revealing the clustering possibilities of the companies operating in the same field and trying to accomplish it.

The aim of this study is revealing the structure and clustering potential of industrial enterprises of Çanakkale provinces.

## THE CONCEPT OF CLUSTERING

### Literature Search Related to Clustering

Signes (2008) has addressed the clustering potential of the hotels in the U.S. and identified tourism clusters by using geographical positions in his study. Due to the good location and management structure of the hotels in star category, it has been determined that they are strong in this field. He has identified that remaining outside of clustering has affected the performance of this type of hotels better.

Kristiansen and WbWambo (2003) have studied social media usage and clustering potential of companies manufacturing summer clothes in two small towns of Tanzania. They have determined that these enterprises do not use social media, are not open to clustering and has low competitive capacity. They have also identified that these companies operating in this field have small, imitator and non-innovative structure.

Collins(2008) has discussed the effect of “Kobe Medical Industry Development Project” on regional economy which is built in order to revive industrial region as an international center

for biomedical researches and innovation which collapsed after 1995 Kobe earthquake and develop the province in his study. Paying attention the project by government officials in local and national level has led many foreign investors come to the region. This study has also identified that it is necessary to ensure a project to be compliance with its historical, cultural and institutional context while implementing a project.

Mohannak (2004) has tried to reveal innovative and clustering potential of small and medium sized enterprises in Melbourne 1 in his study. He conducted a survey with the companies. He has determined that innovative aspect of these type of companies is less and they can be organized by the support of public institutions.

Günaydın (2013) has tackled clustering structure of TR31 İzmir region in development process and found that it can mostly be achieved by the incentives provided to SMEs and Izmir Development Agency can be effective to realize it.

Karakayacı (2010), in his study, has comparatively discussed manufacturing industry of Bursa where clustering tendency is high and Konya where it is low in the formation of economic growth and entrepreneurship. He has determined that the companies, whose competitive level are high and which are open to national/international integration and have clustering potential, are open to new entrepreneurs in comparison with the companies which have traditional structure.

Aydemir; Soydaş (2014) have discussed clustering potential of Denizli province in terms of tourism, relationship among stakeholders and innovativeness by the help of survey study and face to face interview technique. At the end of study, they have revealed that there is a medium level relationship between companies and public institutions, companies do not take consultancy service and there is clustering in the association level but it didn't improve

Bacak; Altaş (2011) have examined the concept of cluster and clustering policies within the frame of Europe Union and Germany's policies. They have determined that Germany has been implementing clustering policy in regional and national level for a long time like 20 years and has achieved successful results in this field.

İrhan (2010), has tried to reveal the Classical Economics and clustering relationship in his study. He has formulized the interaction between clustering and neoclassical economics, micro-macroeconomics, international economics, development as "Clustering Effect".

Eraslan; Dönmez; Yüksel (2015), have descriptively addressed the concept of industrial clustering in their study and considered this concept from the point of Organized Industrial Zones, Specialized Organized Industrial Zones, Small Industrial Areas and Agricultural Based Organized Industrial Zones. They have identified that these type of areas do not make clustering possible completely, but they carry the core which can realize it.

## Clustering

The effective use of local and regional resources becomes more important in the globalized and destructively competitive world. It is possible to see the reflection of “Think global, act local” understanding in clustering. The clustering concept has been seen as the new way of regional and local development efforts and the policies in this direction has been started to be made since 1990s.

M. E. Porter, who is one of the first people discussing clustering, defines it as geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular field (Porter, 2000). It is also possible to see the first fundamentals of clustering concept at D. Ricardo’s Theory of Comparative Advantage. This theorem recommends that economies specialized in some fields should get other goods from other countries.

Ardıç and Yiğit defines clustering in this way: “Cluster is a geographic area where businesses, which are spatially close to each other and belong to vertically and horizontally related sectors, and other institutions (like educational institutions, non-governmental organizations and public institutions) related with the sector are in a relationship” (Ardic and Yigit, 2013).

Clustering is not a concept that companies eliminates each other by using competitive advantage but it is one of the ring that complement each other (Eraslan et al., 2015).

Among clustering models “Diamond Model” revealed by Porter draws attention. Porter has discussed clustering from two points of view such as “Actors forming clustering” and “Links between actors” according to function and scope of cluster. Even if the clusters are generally in the national boundaries, they can reach international dimensions (Yigit, 2014).

Gathering businesses which complement or compete with each other in a certain geographic area brings advantage in terms of both for those businesses and for providing economic development of the region. Some of them are;

- Making businesses specialize on some certain fields,
- Accelerating innovative improvement and increasing knowledge sharing between companies
- Reducing transport, production and marketing costs,
- Facilitating infrastructure more economically and more professionally and
- Having access to workforce easier.

The formation of synergy in the geographical area where clustering exists encourages new businesses and, thus it provides the region to develop faster than other regions and makes regional development possible. Clustering gives businesses ability to be more flexible by accelerating flow of information (HobikogluveDeniz, 2011).

The most beautiful examples of positive contributions which clustering provides businesses can be seen in automotive sector in goods and services producing industry. Some of the main reasons that this sector operates in Bursa-Kocaeli-Sakarya region more intensely are the advantages mentioned above.

## STRUCTURE AND CLUSTERING POTENTIAL OF INDUSTRIAL ENTREPRISES IN CANAKKALE

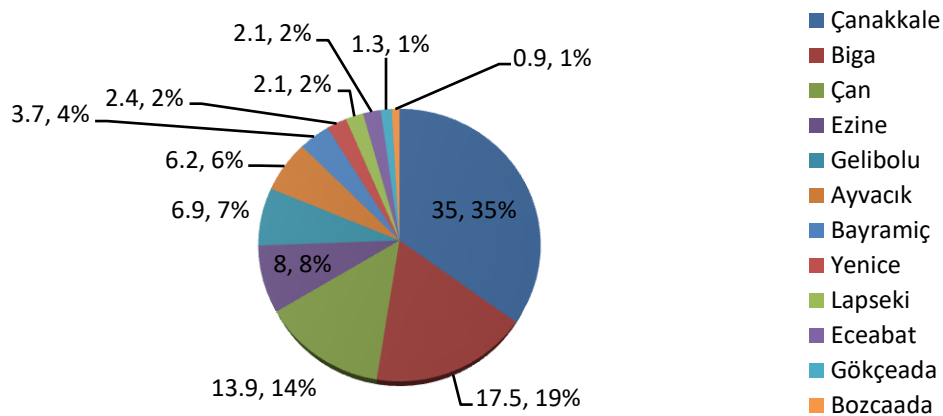
### Distribution of Industrial Enterprises in Çanakkale Province

In this study, a survey was conducted with 984 industrial enterprises operating in the boundaries of Çanakkale province. The distribution of companies according to city centers are shown in the table below. Three city centers where industrial enterprises are intensely located are respectively Çanakkale by 35%, Biga 17.5% and Çan by 13.9%.

Table 1: Distribution of Industrial Enterprises in Çanakkale Province

Name of City Centre	Number of Companies	Distribution (%)	Population (Thousand)-2014
Çanakkale	344	35	155.657
Biga	172	17,5	86.453
Çan	137	13,9	49.299
Ezine	79	8	32.962
Gelibolu	68	6,9	44.851
Ayvacık	61	6,2	32.187
Bayramiç	36	3,7	29.870
Yenice	24	2,4	33.945
Lapseki	21	2,1	25.987
Eceabat	21	2,1	9.151
Gökçeada	12	1,3	8.644
Bozcaada	9	0,9	2.754
Total	984	100	511.790

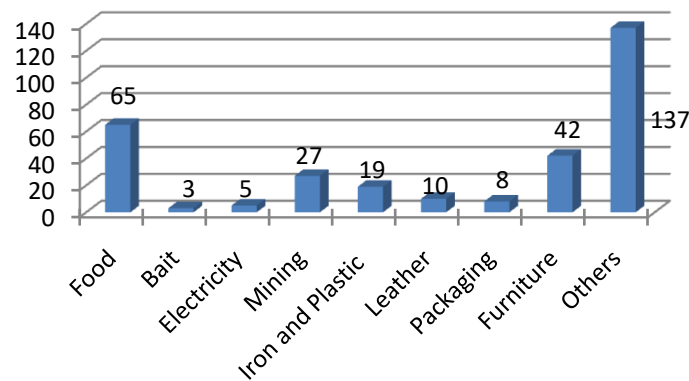
Figure 1: Distribution of Industrial Enterprises



### Distribution of Industrial Enterprises Regarding with Area of Activities

Area of activities of the companies has been evaluated by the survey in nine categories. Accordingly, 316 companies answered this question in the survey. Food and furniture sectors remain at the forefront as area of activities.

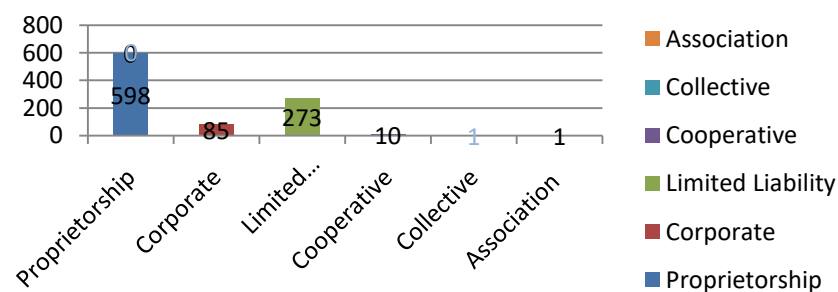
Figure 2: Distribution According to Area of Activities



### Legal Structure of the Businesses

Legal structure of the businesses has been evaluated according to Turkish Trade Law. A large part of the companies as 60.8% are sole proprietorship. The rest are corporate companies by 39.2% and limited liability companies by 27.7%. It shows that institutionalization among industrial enterprises are not much.

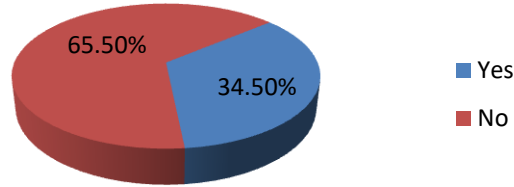
Figure 3: Legal Structure of the Businesses



### “Family-Owned Businesses” among Industrial Enterprises:

264 companies answered the question related family-owned businesses and 91 (34.5%) of them stated that they were family-owned businesses, but 173 (65.5%) of them were not these type of companies. 42 are sole proprietorship and 39 are limited liability companies among family-owned businesses.

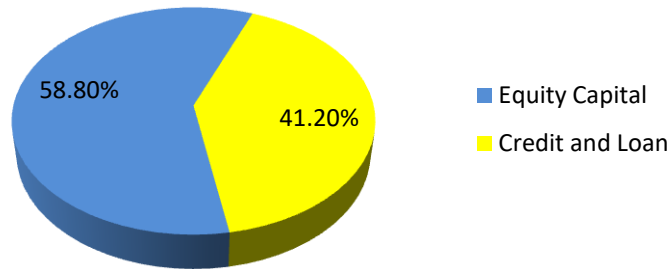
Figure 4: “Family-Owned Businesses” among Industrial Enterprises



**Source of Finance for Investments**

“How do you finance your investments” question was answered by 252 companies in the survey conducted, 147 of them stated that by equity capital and 105 by credit and loan. 81 of the companies investing by equity capital are sole proprietorship.

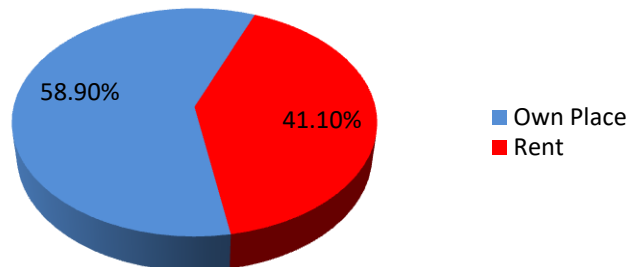
Figure 5: Financial Resources of Companies for Investment



**Workplace Ownership Status**

265 industrial enterprises replied the question related with ownership status of workplaces. 156 are operating on their own workplace and 109 work in a rented facility among these companies. 82 from sole proprietorships, 53 from limited liability corporates, 14 from joint stock companies and 7 from cooperatives operate on their own workplaces.

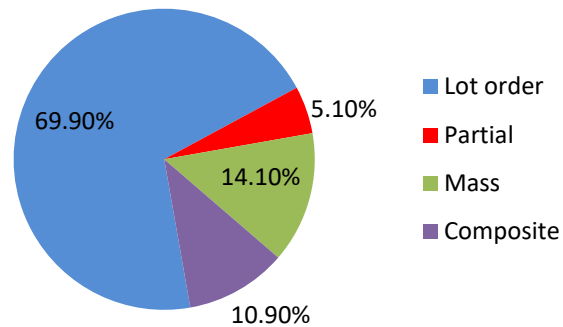
Figure 6: Workplace Ownership Status of Companies



## Production Method

When production methods are examined, it is seen that 36 (14.1%) of the companies prefer mass production, 13 (5.1%) prefer partial production, 179 (69.9%) prefer lot order production and 28 (10.9%) prefer composite production techniques.

Figure 7: Production Method of the Companies



## Trademark and Patent Ownership

217 companies from industrial enterprises replied this question, 15 of them have their own registered patents and 110 companies operate under their own trademarks.

Figure 8: Patent Ownership

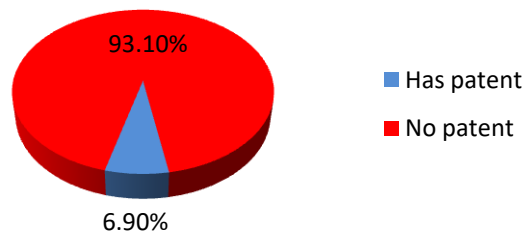
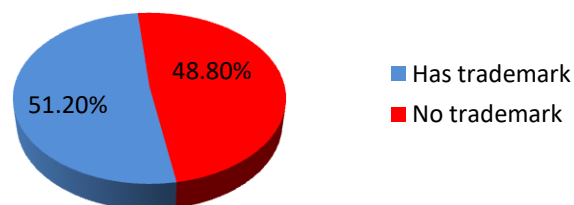


Figure 9: Trademark Ownership

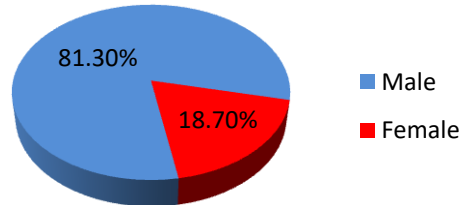




### Gender Distribution of Employees

466 industrial enterprises answered this question, there are 1304 women employees in 87 (18.7%) of them and 15 women work in every company on an average. A large part of the companies as 81.3% have only male workers.

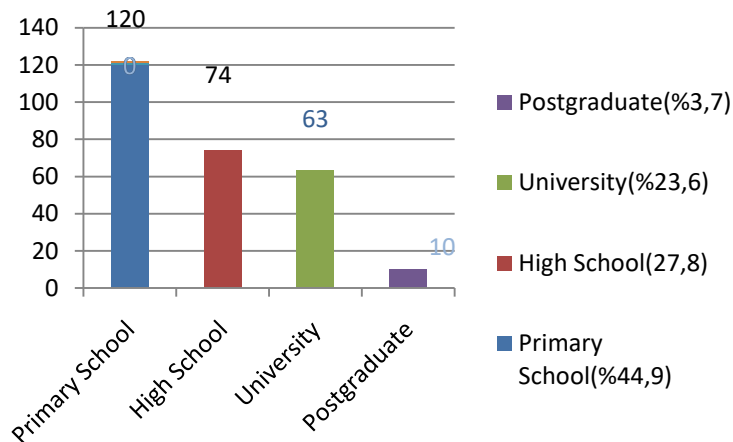
Figure 10: Gender Distribution of Employees



### Educational Background of Executives

According to answers given by 267 companies about educational background of executives, 120 people (44.9%) are primary school graduate, 74 people (27.8%) are high school graduate, 63 people (23.6%) are university graduate and 10 (3.7%) of them are postgraduate. 86 of the primary school graduate company executives work in sole proprietorships. 3 of them manage joint stock companies. It has been understood that executives who manage a large part of the companies are primary and high school graduate

Figure 11: Educational Background of Executives

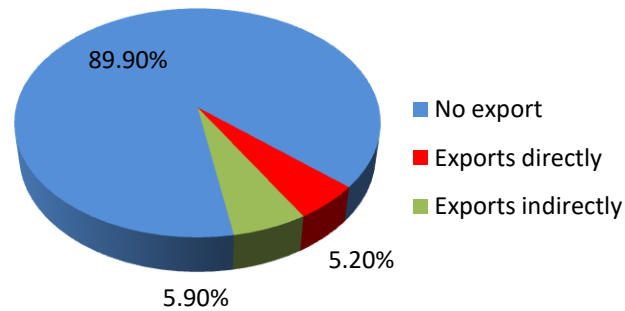


### Export Potential of Industrial Enterprises

253 businesses replied the question about export. Accordingly, 225 companies (88.9%) do not export, 13 companies (5.2%) directly and 15 companies (5.9%) indirectly export. Only one of the

companies which export directly and 10 of the companies which export indirectly are sole proprietorships. This case shows that legal entities are more prone to export. In general, the export potential of enterprises in Çanakkale are low.

Figure 12: Export Potential of Enterprises



### Clustering Potential of Industrial Enterprises

Three questions were asked to companies to determine their clustering potential and tendency. 235 businesses replied the question of “Are you aware of clustering and clustering support” among these 3 questions and 33 (14%) said yes and 202 (86%) replied as no. They stated the lack of knowledge for the reason of negative reply. 226 businesses replied the question of “Do you want to get involved in clustering” and 143 (63.2%) companies replied as yes and 83 companies (36.8%) as no. The question of “Do you want to be aware of the meetings about clustering” was answered by 233 companies, 161 of them said yes and 72 of them said no. The industrialists in Çanakkale do not have sufficient knowledge about clustering but they also appear to be open to obtain information concerning this issue. The leading sectors in the province which have potential for clustering are agriculture and livestock, and dairy product and liquid-solid oil as sub-sectors of them. It can be seen in the map 1 and map 2 shown below.

Figure 13: Having Knowledge about Clustering

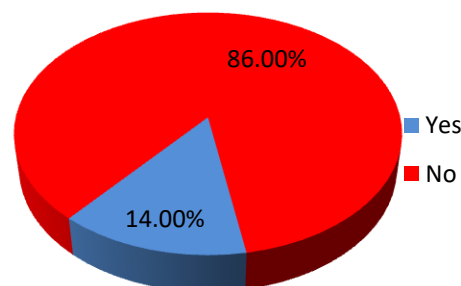
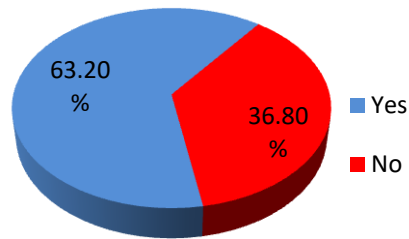


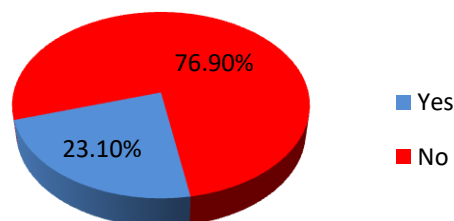
Figure 14: Knowledge Acquisition Desire about Clustering



### Public – Industry – University Cooperation

One of the components necessary for clustering is providing public - private sector interaction in nearby geographical area. Universities have an important role at this point. 56 companies said yes and 186 said no to the question of “Did you hear about Public-University-Industry cooperation”. It shows that companies has not been informed sufficiently. “Do you want to cooperate with universities in the future” was asked and 173 companies gave positive and 58 companies gave negative answer. 39 companies stated that they had collaborated with universities when “Have you ever collaborated with university” question was asked. 43 companies replied as Yes and 196 companies replied as No to the question of “Have you ever gone to university to collaborate”.

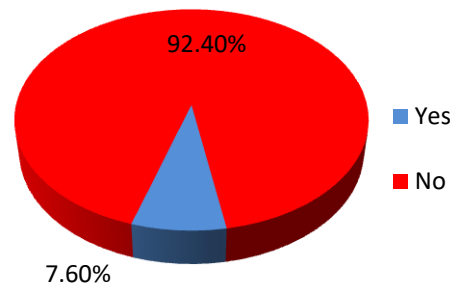
Figure 15: Having Knowledge about Public-University-Industry Cooperation



### Existence of R&D Activities

Tendency toward innovation and being open to improvement for companies is important to provide clustering. 18 companies said “Yes” and 208 companies said “No” to the question of “Do you have R&D department”. This situation shows that firms are not open to development sufficiently in this issue. Only 4 companies among all companies which have R&D department are sole proprietorships.

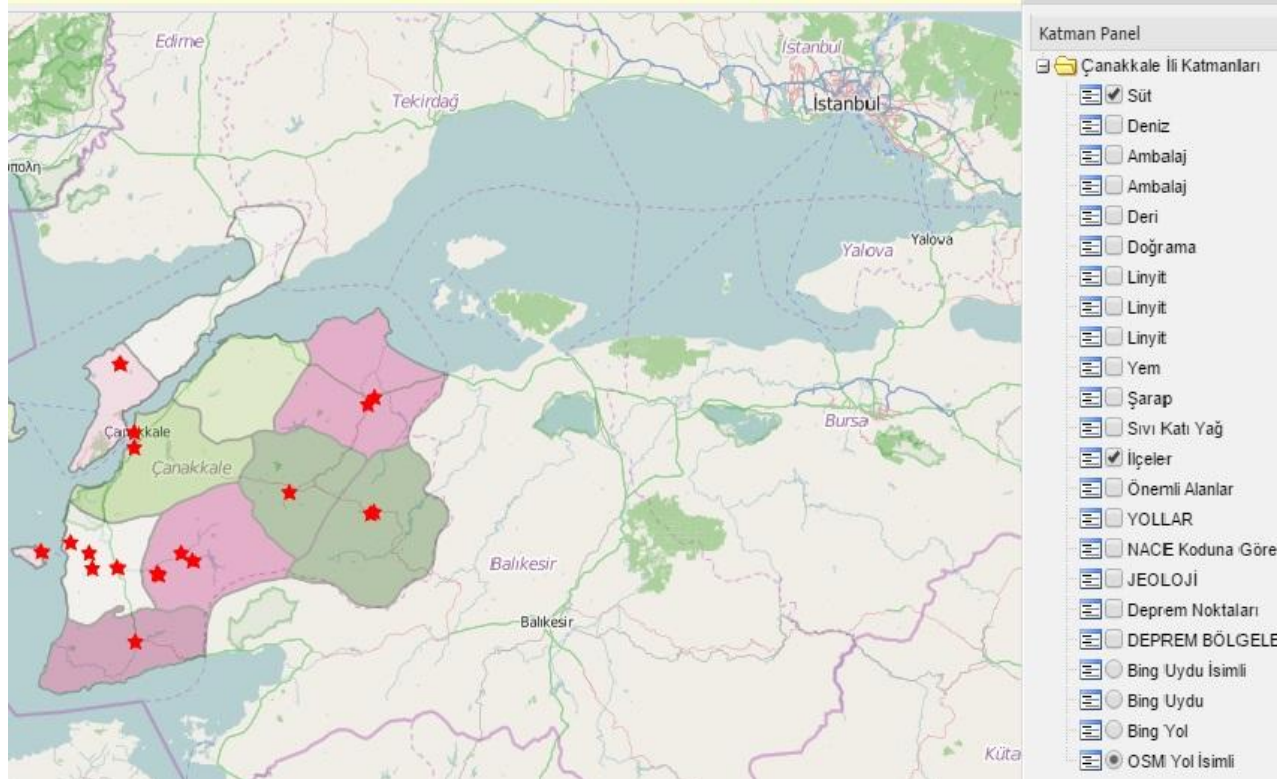
Figure 16: Existence of R&amp;D Department



### Geographical Position of Clustering Potential

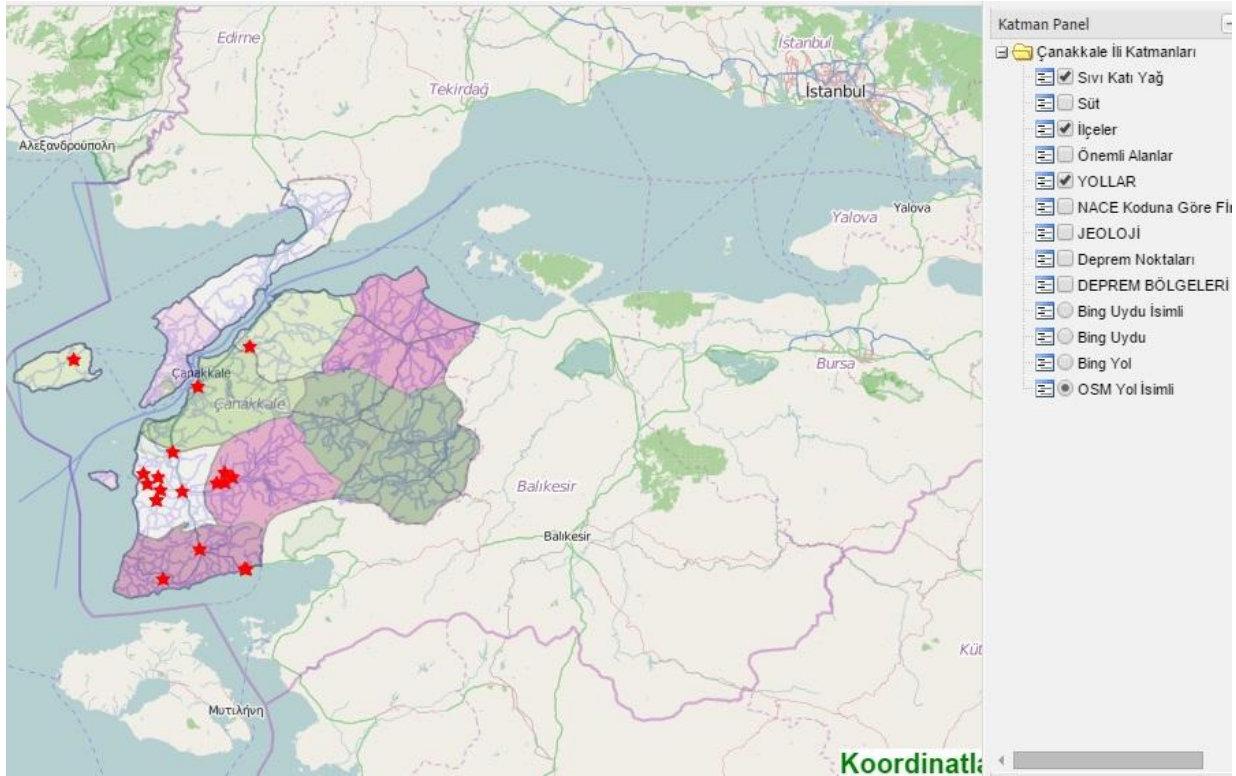
Economic structure of Çanakkale Province is based on agriculture and livestock. When geographical positioning is done for the businesses operating in this field, it will be seen that producers particularly operating at two fields accumulate in a certain geographical areas and these sectors are the most suitable sectors for clustering. Here, geographical position of each industrial enterprises had been recorded and data had been obtained by filtering. The sectors whose clustering potential are the highest, are dairy and liquid - solid oil production.

Map 1: Geographical Position of Dairy Products Manufacturers



Source: <http://185.85.190.109:2626/harita/index.php>

Map 2: Geographical Position of Liquid-Solid Oil Manufacturers



Source: <http://185.85.190.109:2626/harita/index.php>

## RESULTS

Çanakkale has an economic structure which could not industrialize and achieve economic development and is basically dominated by agriculture and animal husbandry. Industrial enterprises are particularly operating on food and furniture sectors. A large part of these companies are small and medium sized enterprises. Businesses continues their legal existence in the form of sole proprietorship, organizing as stock corporates is low. Hence, it makes it difficult for businesses to export directly.

More than half of the businesses operate on their own premises and most of them are sole proprietorship. The power of creating their own trademarks by companies is weak. They do not transfer sufficient financial sources for R&D activities. Patent ownership is also weak. Production planning is based on make-to-order and it threatens the continuity of production. They will be affected quickly from the negative factors that may occur suddenly in the market.

Educational backgrounds of executives in industrial enterprises are not high. Most of them are primary and secondary school graduates. Most of the employees are male and it has been determined that a few number of female employees participated to business life.

Businesses do not have information about clustering too. They also do not have adequate vision about contribution which clustering will provide to themselves and the region. However, they are open to informing about clustering. They are only in communication with trade bodies among institutions which will provide clustering in the same geographical area. They do not have enough information about cooperation between public-industry-university and very few of them had a cooperation with such an organization. Clustering can be implemented for dairy products manufacturers located in Ezine district and surroundings and liquid-solid oil manufacturers when geographical positioning is done.

## **SUGGESTIONS**

- Majority of the businesses should be encouraged to be institutionalized due to being sole proprietorship, they should be informed about positive contributions resulted from being corporate company.
- Since family-owned businesses are at the forefront, it weakens institutionalization. Owners of the companies should be encouraged to change this structure.
- Attending business life by women is weak. It results from both workers and employers. Occupational ability of women should be improved by courses. Departments should be opened in vocational schools and colleges in the areas where businesses need qualified employee.
- Companies which have export potential should be encouraged to participate national and international fairs due to weak export ability, trade associations should take an active role here.
- Events should be organized to provide public-industry-university cooperation, sufficient support should be given to companies in this direction.
- Companies should be supported in terms of finding new markets for changing production process from make-to-order to mass production.
- Shareholders should be informed sufficiently about the contributions which clustering provide to related sectors. An autonomous union should be established which will get busy only with clustering and study about it in the leadership of trade associations.
- Some courses and seminars should be given to business managers in order to increase their level of education and they should be encouraged to get higher education.
- Support should be provided for branding of agricultural and animal products produced in the region in national and international level. Ezine Cheese can be considered here as the first product.
- The diversity of agricultural products should be increased. Area-specific products should be fore grounded.



- Businesses should be helped to make a brand because their own brands are few.
- Due to the location advantage that Çanakkale has, international transportation should be improved.
- Seafood production should be promoted.

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