

Cluster Potential in Textile Sector: Case from Turkish Small and Medium Size Textile Enterprises

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Abstract

Textile and apparel sector is one of the important sector in Turkey as well as other developing countries because of macroeconomic indicators such as gross domestic product, the share of manufacturing industry and industrial production, export, net foreign exchange inflow, employment and investment. However, textile and apparel sector have led to enter the maturity period in Turkey because of countries with lower labor costs which begin to take a bigger share in the world trade together with the globalization in production processes. The best management of this transition period and also to harmonize the changing world competition conditions will affect future of this sector and also the whole economy. Barely, consisting of the majority of enterprises from Small and Medium-Sized Enterprises (SMEs) in textile and apparel sector indicate that this transition process will be an arduous process because of the problems in financing, management, quality standards, technology and R & D facilities that can be reduce the competition chances of SMEs in foreign markets.

Thus, increasing global competition requires taking part in the new formations of enterprises where they can find the large number of input of goods and services in the sector. One of these formations is called as “Industrial Clusters” where conjoining of institutions and organizations in a specific geographic location, producing all goods and services in the same value chain and have input-output relation with each other. “Industrial Clusters” are also one of the tools of local economic development that make contribution to collection of total value added within this specific region.

The main purpose of this study is stating the point of view of SMEs in the provinces of Ankara and Izmir about clustering model that can be applied in order to adapt SMEs to increasing global competitive environment. The data which have been obtained after implementation of total of 200 survey to SMEs in textile sector in the provinces of Ankara and Izmir have constituted the main material of this research. Research findings has stated that perspectives of SMEs about industrial cluster in two provinces are different. While SMEs in Izmir are more dynamic, innovative and look favorably to clustering model, SMEs in Ankara do not have any information about cluster model.

Introduction

Turkish economical indicators point to the textile and apparel sector as the most powerful and exclusive sector in the development of the industry, in the globalization process and the foreign expansion. However, competition is on the rise in this sector; and the focus of the competition is determined by the products that are designed to meet the individual needs of the consumer, that are high in quality but lower in price, with a good variety and plenty of design work, a brand-name and by the ease of getting into the hands of the consumer.

Although the businesses in this sector are willing to become brand names; they have not been able to make much progress due to the lack of knowledge, experience, and training in developing original products and making unique collections. As indicated in the Development Plans, there should be harmony and collaboration between education, research and development policies as well as government and industry policies for these businesses to make good use of the existing technologies, to increase their usage of unutilised capacity, to increase their level of productivity, to create their own collections and to keep their existing markets.

In this power union, it is important that both the educational institutions, universities and research institutes as well as the businesses with work experience and technology, and the public offices supporting scientific information collaborate. Such a collaboration is only possible with the “clustering” or “industrial clustering” approach that became popular after 1998's, which provides an infrastructure to the enterprises to gain advantage in competition by means of using exterior resources.

Although clustering has various definitions in the literature, the most recognized definition has been given by Porter (2000):

“Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standard agencies, trade associations) in a particular field that compete but also cooperate.”

In other words, a cluster is a group of interconnected companies and associated institutions that compete with each other, but also contribute to each other and generate a regional wealth. These clusters form the value chain in a modern global economy, and they evolve in time from the firms and the local products and services in a region. Business clusters become the leaders of the economical development in the regions they are formed.

According to Van Dijk and Sverrisson (2003), the clusters can be found everywhere and are formed spontaneously. Clustering is a term indicating that cases were not randomly distributed but in the trend of arrangement with nearby groups. Sectoral clustering is a process observed since the beginning of industrialization (Chakravorty, Koo, Lall, 2005). Throughout history clustering has been observed in many parts of the world (Van Dijk and Sverrisson, 2003). Even an ordinary observer can visually detect these clusters such as Lancashire cotton mills, automotive manufacturing in Detroit, Ahmadabad and Kolkata and Mumbai with the textile factories and leather-craft in Arcot (Chakravorty, Koo, tulip, 2005). Previous vanguard studies in literature related to clustering deal with worldwide known market leader clusters such as New-York and London-based financial clusters, media cluster in Hollywood, Silicon Valley computing clusters, automotive clusters in southern Germany and Detroit, telecommunication clusters in Stockholm and Finland, textile and fashion clusters in northern Italy. (Sölvell, Ketels, Lindqvist, 2008).

Industrial clusters of various structures have found a place in the global economy with both the traditional products and highly technological products (Cooke, 2001).

The relations in the business clusters vary from customer-vendor relations, to cooperative marketing, education, research initiatives, institutionalization and lobbying.

Businesses in a cluster can create common competencies via the interactions among each other, and put products on the market that are higher in added value compared to the sector (Cortright and Mayer, 2001).

Since the 1990's, EU countries have successfully utilized various clustering approaches to increase the competitiveness of small and medium sized enterprises. In this process, it is important to create rising sectors through innovation and commerce and investment enhancement. In other words, the ultimate goal is to make sustainable and competitive sectors. Business clusters are formed through the affiliations of small and medium sized enterprises, as well as their vertical and lateral integration (Humphrey ve Schmitz, 1996).

Business clusters are separated from industrial estates with two important features. The first feature is the local produce hitting the international market; and the second feature is the capacity of innovation and creativeness. In clustering regions, the main properties of the manufacturing can be listed as specialization in particular sectors, collaboration between the firms, a competitive atmosphere based on quality and the rise in productivity as a result of these properties. This organizational structure leads to the production of speciality products that reach the small market niche. On the other hand, production organization supports innovation through mutual learning and cooperation; and it leads to the development of the region as a whole (Christensen et al., 2002).

As indicated with the previous examples, businesses in industrial clusters would contribute to a local economy much more than the individual businesses, via the plans and programs they develop, as well as the products and services they provide (Christensen et al., 2002).

With this study, the industrial clustering potential of the Turkish textile and apparel sector in two highly active cities – Izmir and Ankara – is investigated. Also, for clustering analysis, the harmony and collaboration between these businesses and the supporting institutions have been evaluated. The supporting institutions vary from research and development institutions, universities, know-how corporations, science and technology parks, startup money / initial capital financing options, physical properties of the region, transportation, information and communication infrastructure, regional tax requirements and the quality of life in the region.

Data Resources and Method

Textile and clothing sector has been the leading sector in the development of our country for years and still continues to be the leading sector of the country. Textile and apparel industry developments occurring in the world market require new measures to be taken in order to protect our country's competitive advantage in the industry. Clustering between companies in industry is one of these measures. With this study, the industrial clustering potential of the firms in the Turkish textile and apparel sector with a focus on “threading, weaving and finishing jobs” in Ankara and Izmir is investigated. In both cities, a total of 325 face-to-face surveys were filled; and the analysis was done using the SPSS 16.0 package program. The results are provided in the findings section below.

Findings:

3.1 Firms' Information:

Investigating the regional distribution of the firms in each city, in Izmir, 49.2% of the firms are located in small industrial estates, and 44.5% of the firms are located in office buildings. On the other hand, in Ankara, only 6.5% of the firms are located in industrial

estates and 24.3% are in office buildings. In Ankara, most of the firms are located in private properties, and inconveniently placed to make regional clusters. The reasons of the business owners' preferences for choosing the textile sector have been given in Table 1. Most of the firms in Ankara have production geared towards the cities in Anatolia. Hence, 27.5% of the firms in Ankara chose "Growth potential of sector within region" as the reason to choose the textile sector. Whereas, in Izmir, this rate is 48.5% due to "Domestic Experience/Education"; which is supported by the fact that the firms in Izmir have been active in the textile and apparel sector since the beginning of the republic, and are mainly producing export goods.

Table 1: Business owners' reasons to choose the textile and apparel sector

Options	İZMİR		ANKARA	
	F	%	F	%
Takeover from Family Members	65	25,0	30	19,6
Growth Potential of Sector within Region	46	17,7	42	27,5
Availability / Easy Access of Raw Material	0	0	5	3,3
Domestic Experience / Education	126	48,5	21	13,7
International Experience	7	2,7	7	4,6
Easy Relationship between buyer and seller	2	0,8	11	7,2
Easy Collaboration with Sub Sectors	1	0,4	3	2,0
Innovative potential of the sector	1	0,4	14	9,2
Incentive	11	4,2	8	5,2
Others	1	0,4	12	7,8

When the manufacturing patterns are investigated, both cities have the highest scores for "manufacturing is performed both in the business, and by the subcontractors" with 38%.

With globalization, technological improvements quickly grow obsolete, and a new improvement in any part of the world can be imitated in no time. Thus, one of the conditions for keeping the competitive advantage is to continuously put new products and services on the market; which requires at least adequate if not top level research and development. The research and development activities in both cities are presented in Table 2. It can be observed from this table that Izmir puts more emphasis on R&D than Ankara, and both cities list this as "Innovative studies are followed in the firm".

Table 2: Is there any research and development?

R&D	İZMİR		ANKARA	
	F	%	F	%
Research and Development Activities occurs in our firms	96	42,5	29	23,8
Innovative Studies are Followed	31	13,7	31	25,4
There is no R&D Department	79	35,0	14	13,5
There is no R&D Study	20	8,8	48	46,2

When the education levels in the businesses are investigated, the employees in both cities are mostly high school graduates. The hiring of these employees is mainly based on the recommendations of acquaintances with 64.3% in Izmir and 37.3% in Ankara. In service training is provided with rates of 30.8% in Ankara and 21.6% in Izmir; and in both cities, in-service training is acquired from local firms.

3.2 Apparel Manufacturing Businesses and the Market

Garment industry, depending on market segmentation is a labor-intensive, low-paying sector as well as a dynamic and an innovative one. In the high-quality fashion market, the sector is characterized by modern technology, high rates of flexibility, relatively high-paid workers and designers. Another important market segment is the mass production of lower-quality or standard products (shirts, uniforms, etc.). The manufacturers of this market segment are often in developing countries. Textile sector, compared to clothing sector, is more capital intensive and especially in developed countries has a high rate of automation. This sector consists of three functions such as spinning, weaving and finishing. These functions are generally carried out as combinations in factories (*Nordås, 2004*). Clustering is regarded as the most important result of flexible production occurring with the local reorganization of production (*Eraydın, 1992*).

Manufacturing and market matters have been investigated based on the products, the services, and where these products and services were obtained. 54.2% of the firms in Ankara focus their manufacturing directly for the consumer; whereas this number reaches 73.7% in Izmir. Materials in manufacturing are acquired from locally, domestically or internationally as listed in Table 3.

Table 3: List of the materials in the production line by the way they were obtained:

	İZMİR			ANKARA		
	Local (%)	Domestic (%)	International (%)	Local (%)	Domestic (%)	International (%)
Labor Force	98,6	0,5	0,9	57	2,8	1,9
Raw Materials						
1.Raw Material	48,3	47,6	4,1	54,2	76,6	35,5
2.Raw Material	48,8	45,6	5,5	42,1	54,2	15,9
3 Raw Material	44,4	48,4	7,2	29,0	31,8	7,5
Sub Materials						
1. Product	68,1	28,9	3,0	45,8	59,8	10,3
2. Product	71,4	23,2	5,4	33,6	39,3	6,5
3.Product	65,4	23,1	11,5	18,7	26,2	1,9
Machines						
New	62,8	26,7	10,5	16,8	41,1	27,1
Second Hand	79,4	16,3	4,3	15,9	6,5	4,7

As it can be seen from Table 3, firms in Izmir are obtaining their needs locally; with the most important reasons for this being “easily accessible”, “right on time delivery” and “inexpensive acquisition”. In Ankara, the raw materials and the intermediate materials as well as the machines are acquired mostly domestically; and a main reason for this is the lack of the raw material producing textile industries near Ankara region.

Product prices and taxes cause the biggest problems in receiving raw materials. When the purchasing methods are analyzed, preferential purchasing takes the lead with 19.3% in Ankara and 38.7% in Izmir. The channels of distribution are mostly retailers with 36.9% in Izmir and 31.4% in Ankara. When we look at the competitors, the firms in Ankara think their competitors are domestic with 50.5%; but the firms in Izmir think their competitors are the local firms by 62.3%. When compared with their competitors, Izmir firms considered themselves more competent in terms of “man power quality”; whereas Ankara firms considered themselves more competent in terms of “machinery and hardware”

Recently, the reasons of industrial transition from geographic condensing to regional clustering have been examined by a number of authors, extending to Weber (1929) and Marshall (1929). These reasons are considered as the usage of local natural resources in production, application of economies of scale, market proximity, labor pool creation, local input and equipment suppliers, shared infrastructure and reduced production costs. Table 4 and Table 5 display what type of services are received and how the firms in Izmir and in Ankara receive them, respectively.

Table 4 Service types for Izmir and the location of the firms from which service is received

Service Type	LOCATIONS FROM WHICH SERVICE IS RECEIVED (IZMIR)															
	Local		Domestic		International		Local+ International		Local+ Abroad		Domestic+ International		All		None	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Infrastructure	60	21,2	1	0,4											185	78,4
Maintenance	193	81,8	4	1,7											39	16,5
Consultancy	32	13,6	4	1,7			1	0,4							199	84,3
Auditing	77	32,6	4	1,7	6	2,5									149	63,1
Exchange	100	42,4	3	1,3	1	0,4									132	55,9
Education	31	13,1	2	0,8											203	86
Equipment	125	53	5	2,1	1	0,4									105	44,5
Energy	168	71,5	2	0,8											66	28
Finance	113	47,9	3	1,3											120	50,8
Communication	102	43,2	2	0,8											132	55,9
Human Resources	56	23,7	1	0,4											179	75,8
Construction	24	10,2													212	89,8
Architecture	39	16,5													197	83,5
Advertisement and Promotion	87	36,9	2	0,8					1	0,4					146	61,9
Health	115	48,7	1	0,4											120	50,8
Insurance	130	55,5	2	0,8	2	0,8									102	43,2
Shipping	101	42,8	1	0,4											134	56,8
Transportation	159	67,4	1	0,4											76	32,2

Table 5 Service types for Ankara and the location of the firms from which service is received.

Service Type	LOCATIONS FROM WHICH SERVICE IS RECEIVED (ANKARA)															
	Local		Domestic		International		Local+ International		Local+ Abroad		Domestic+ International		All		None	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Infrastructure	60	56,1	11	10,3			1	0,9							35	32,7
Maintenance	55	51,4	9	8,4			3	2,8							40	37,4
Consultancy	21	19,6	11	10,3					2	1,9					73	68,2
Auditing	20	18,7	5	4,7	1	0,9	2	1,9							79	73,8
Exchange	21	19,6	8	7,5	2	1,9	2	1,9			1	0,9	2	1,9	71	66,4
Education	18	16,8	13	12,1							2	1,9	1	0,9	73	68,2
Equipment	31	29,0	14	13,1	3	2,8	6	5,6	1	0,9	3	2,8	1	0,9	48	44,9
Energy	57	53,3	7	6,5			1	0,9							42	39,3
Finance	37	34,6	14	13,1	5	4,7	5	4,7			1	0,9	1	0,9	49	45,8
Communication	34	31,8	10	9,3			11	10,3	1	0,9	4	3,7	5	4,7	42	39,3
Human Resources	25	23,4	8	7,5			3	2,8			1	0,9	2	1,9	68	63,6
Construction	20	18,7	11	10,3			1	0,9							75	70,1
Architecture	16	15,0	11	10,3											80	74,8
Advertisement and Promotion	18	16,8	18	16,8			5	4,7			2	1,9	1	0,9	63	58,9
Health	32	29,9	8	7,5			1	0,9							55	51,4
Insurance	40	37,4	11	10,3			1	0,9							55	51,4
Shipping	30	28,0	16	15,0			7	6,5			3	2,8	1	0,9	50	46,7
Transportation	31	29,0	11	10,3	1	0,9	6	5,6			2	1,9			56	52,3

With a careful inspection of the tables; it can be seen that Izmir region satisfies almost all of its needs from local firms; whereas in Ankara, although most of the needs are satisfied via local firms, some are handled domestically.

Textile firms located in Ankara and İzmir were questioned if provincial, state and local government (municipality) incentives for the region and sector were enough. 91.6 % of the firms in Ankara stated that regional and industrial incentives were not enough. In addition, 93.15% of the firms in Ankara are not satisfied with the services provided to industries by the local government. The rate for both has been observed as 99.2% in the province of İzmir. Having examined the incentive programs implemented in Turkey, it is noticed that the textile and apparel sector do not have any special incentive. State incentives are addressed to the provinces. A company with 100 employees, in other words a medium-sized textile fabric in a not-incentive-receiving province pays for income tax, social security premiums and electricity, that is, at least 45.250 Euro monthly, whereas the same size fabric in subsidized provinces save 16.900 Euro for each month for the same kind of payments. Thus, this brings unfair competition. Therefore, encouraging applications in the industry should certainly be revised.

Questions related to the clustering potential have been asked to the firms in both cities. Based on these questions, while 35.2% of the firms in Izmir collaborate with other companies doing similar businesses, only 29.9% percent of the firms in Ankara collaborate with other companies. On the other hand, partnership agreements with various corporations are around 3% in both cities. In Izmir, 92.8% of the companies exchange ideas (written or oral) with the companies in similar businesses; with a corresponding 24.6% in Ankara. Also, domestic and local exchange of ideas percentages are very close to each other in Ankara.

Table 6: Exchange of Ideas between companies doing similar business

	İzmir	Ankara
WRITTEN OR ORAL EXCHANGE OF IDEAS WITH LOCAL FIRMS	92,8%	24,6%
WRITTEN OR ORAL EXCHANGE OF IDEAS WITH DOMESTIC FIRMS	5,2%	22,4%
WRITTEN OR ORAL EXCHANGE OF IDEAS WITH INTERNATIONAL FIRMS	2,0%	9,0%

Table 7 presents the technical information and data exchange between businesses in each city. The 93.2% information exchange in Izmir drops to 20.2% in Ankara. These values show that Izmir has a better clustering potential than Ankara.

Table 7 Exchange of Information & Data between companies doing similar business

	İzmir	Ankara
TECHNICAL INFORMATION/ DATA EXCHANGE WITH LOCAL FIRMS	93,2%	20,2%
TECHNICAL INFORMATION/ DATA EXCHANGE WITH DOMESTIC FIRMS	4,8%	16,8%
TECHNICAL INFORMATION/ DATA EXCHANGE WITH INTERNATIONAL FIRMS	2,0%	6,7%

From the view of companies, the process is to obtain output / outcome / service for the customers by processing specific inputs in certain operations and adding value. In other words, the process is the work itself. In order to ensure the compliance of the firms to changing market conditions strategic management, project management and human resources management and other processes within the firm are important . In determining the clustering potential of the provinces, especially the openness of the firms to innovation, the application capacity and the compliance levels of these innovations within the specified period were reviewed. Accordingly, as seen in Table 8, "logistics and storage" is the least applied process in the companies operating in the province of İzmir. However, the application of the same process in Ankara is quite high (76.4%). "Quality Control" is applied in İzmir (97.5%), also in Ankara(85.9%). The implementation of "Human Resource Management," "Project Management" and "Strategic Planning" processes were low in the firms of both provinces. On the other hand, companies operating in the province of Ankara have higher capacity of the implementation .

Table 8: Processes Applied by the Companies

	İZMİR	ANKARA
Finance	89.4%	71.7%
Human Resources Management	22.9%	38.7%
Work Study-Ergonomics	7.6%	32.1%
Quality Control	97.5%	85.8%
Logistics –Transportation	48.3%	78.3%
Logistics - Storage	2.1%	76.4%
Cost accounting	88.6%	79.2%
Carrying materials	46.6%	63.2%
Project Management	17.4%	23.6%
Sales-Marketing	69.1%	83.0%
Stock / Inventory	12.7%	58.5%
Strategic Planning	18.6%	35.8%
Forecasting Demand	58.5%	50.9%

Scheduling Machines	12.3%	22.6%
Production Design: Main Production Scheduling	36.0%	67.9%
Production Design: Material Requirements Planning	85.2%	62.3%
Production Design: Capacity Planning	68.6%	64.2%
Investment Planning	14.4%	50.9%
Settlement planning	13.1%	45.3%
Time Study	57.6%	61.3%

Conclusion:

In the light of developments in the world, particularly as a result of the removal of quotas against China and India, in order to protect the competitive advantages of Turkey restructuring in the textile and clothing sector is required. With this study, the industrial clustering potential of the firms in the Turkish textile and apparel sector with a focus on “threading, weaving and finishing jobs” in Ankara and Izmir is investigated. The analysis show that the firms in Izmir have a natural clustering potential. Also, in comparison to Ankara; due to the local collaborations with the other businesses, Izmir exhibits higher levels of clustering potential.

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References:

1. Chakravorty S., Koo, J. and Lall, S.V. (2005). Do Localization Economies Matter in Cluster Formation? Questioning the Conventional Wisdom with Data from Indian Metropolises. *Environment and Planning*, 37, 331-353.
2. Christensen, P., McIntyre, N., Pikholtz, L., (2002). *Bridging Community and Economic Development, A Strategy for Using Industry Clusters to Link Neighbourhoods to the Regional Economy*, Shorebank Enterprise Group, U.S.A.
3. Cho M. and Hassink, R. (2008). Limits to Locking-out through Restructuring: The Textile Industry in Daegu. *Regional Studies*, 42, 1–16.
4. Cooke, P. (2001). *Knowledge Economies : Clusters, Learning & Co-Operative Advantage*. London: Routledge.
5. Cortright, J. and H. Mayer. (2001). "High Tech Specialization: A Comparison of High Tech Centers." Washington, D.C., The Brookings Institute.
6. Eraydın, A. (1992). *Post-Fordizm ve Değişen Mekânsal Öncelikler*. ODTÜ Mimarlık Fakültesi Matbaası, Ankara.
7. Humphrey, J., Schmitz, H., (1996). The Triple C Approach to Local Industrial Policy. *World Development*, 24(12), 1859-1877.
8. Marshall, A., (1920). *Principles of Economics: An introductory volume* (1e), London: Macmillan.
9. Nordås, H.K. (2004). "The Global Textile and Clothing Industry post the Agreement on Textiles and Clothing". WTO, Discussion Paper.
10. Porter, M.E. (2000). Location, Competition and Economic Development: Local Clusters in a Global Economy. *Economic Development Quarterly*, 14(1), 15-34.
11. Sölvell, Ö., Ketels, C. and Lindqvist, G. (2008). Industrial Specialization and Regional Clusters in the Ten New EU Member States. *Competitiveness Review*, 18(1/2), 104-130.
12. Stamer, M. J., (2000). "Clusterförderung als Element lokaler und regionaler Standortpolitik: Optionen, Hindernisse und Grenzen", Perspektiven für NRW. Duisburg.
13. Van-Dijk, M.P. and Sverrisson, A. (2003). Enterprise Clusters in Developing Countries: Mechanisms of Transition and Stagnation. *Entrepreneurship and Regional Development*, 15, 183-206.
14. Weber, A. (1929). "Theory of the Location of Industries". University of Chicago Press, Chicago, IL.