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# Organized Industrial Zones and their Effects on Regional Development

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Sonyel Oflazoğlu

Additional information is available at the end of the chapter

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## Abstract

It has been observed that in the industrial sector parallel to the development of the flexible production process, the tendency of firm aggregation increases, especially in countries where the traditional modes of production are valid as it is in Turkey. Organized industrial zone (OIZ) enables firms to select appropriate locations for establishment, discover new opportunities and obtain competitive capacity, leading many researchers to investigate the enterprises functioning in those areas, of their nature. In this frame, the scope of this study is to analyse the relations between social network approach, entrepreneurs and network activities, social capital components and firm novelty, and social capital. Within the scope of the research, a questionnaire was carried out by face-to-face interviews with 121 OIZ firms while the number of interviews with firms from a similar factor, which are not active in OIZ, is 116. The results of the research support the fact that the social capital components are effective in the innovation of the firms. It was found that the social capital indicators are highly important for OIZ firms and that there are important differences between firms inside and outside of OIZ, in terms of innovation.

**Keywords:** social capital, social network approach, organized industrial zone, firm novelty, entrepreneurs

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## 1. Introduction

The establishment of enterprises functioning in different fields is important for regional development. The aggregation of enterprises based on knowledge and technology is a critical means of gaining a sustainable competitive advantage at a national level through social capital dimensions [1]. Social relations among entrepreneurs strengthen cooperation and increase the

learning opportunities, which are regarded as one of the economic benefits of social capital. Cooperation between individuals and organizations leads to the emergence of scale economies. Risks that uncertainties may bring along are reduced by trust that helps to take action. Exchange of information is also facilitated by trust. The entrepreneurs in high-trust relations have a higher learning capacity due to their wider and richer information flow. Information exchange serves as a 'mediator' between the dimensions of social capital (trust, networks and recurrent exchanges) and economic performance [2]. In short, social capital contributes to economic growth by ensuring more productive and rational use of available production factors [3].

This study aims at examining the impacts of the dimensions of social capital on innovation capacity of a firm and in this respect, identify the difference between firms functioning in organized industry zones (OIZs) and others. The relevant literature mainly focuses on the resources providing competitive advantage and increasing innovation capacity of the firms. However, in this study, the literature has been reviewed to identify the impacts of social capital dimensions on innovation capacities of the firms by their locations. At this point, this study attempts to examine not only the impacts of social capital dimensions on the innovation capacities of the firms, but also the dependence of these impacts on the locations of the firms. In this sense, this study may contribute to bridge the gap in the relevant literature.

Organized industrial zones emerged as an idea in the United Kingdom and the United States of America, respectively, in 1896 and 1899; however, their implementation occurred around 1950s. First OIZ practices in the USA were carried out by the private sector with the aim of profit; on the other hand, with the Second World War, OIZs were organized as public investments to contribute for the development of SMEs in the developing countries. In Turkey, the first OIZ was established in Bursa province in 1962. According to the Ministry of Industry and Trade, OIZs can be defined as settlements which meet the necessary physical requirements for the foundation of factories of a specific economic scale, provide an environment for the improvement of networks among industrial enterprises, and direct entrepreneurs to the appropriate areas. Within this context, it would not be wrong to accept OIZs as a means of development and space arrangement [4]. Having enterprises of similar economic scales and activities in the same settlement has many positive effects on firms. At this point, since firms are located together, they can create synergy and increase their productivity; and through the networks they have built, they can increase their capacity for innovation [5].

On the other hand, Morgan and Hunt [6] emphasized that it is necessary to establish network connections, which can provide competitive advantage among enterprises, to help them increase their competition capacity in the global economy. In fact, this advice may serve as a strategic idea for the SMEs that operate within the small-scale economies and look for alternatives for competitive advantage [7] because these connections and collaborations contribute to the process of learning and innovation among enterprises. Through the networks between enterprises located in close areas, the natural development and modification of knowledge can be ensured. In this context, the concept of agglomeration introduced in the literature by Marshall has in fact no technological purpose, but rather, brings spatial and industrial advantages. In the definition proposed by Asheim, organized industrial zones are

considered as a network of small and medium enterprises (SMEs) in geographically determined production systems; they are based on practices which support the local and social structure, dense information modification, and innovation among the enterprises in the region [8]. Although aggregation and industrial zone are interchangeably used in the relevant literature, it is accepted that while each organizational zone is an aggregation, an aggregation is not necessarily an industrial zone.

## **2. Relation sources and innovation in organized industrial zone**

According to the interaction model, relations are changing with time and these changes do not occur without a cost; relations are processes in which enterprises utilise their sources and time [9]. At the same time, relations can also be composed of basic elements such as collaboration, trust resulting from the intimacy or distance of relations, and loyalty [10]. Relations can also be in horizontal and vertical structures. While vertical relations emphasize the 'loyalty' element, horizontal relations emphasize the 'dialogue' element. In all these processes, the 'trust' element has a central role. Since interactions between enterprises are different from each other in horizontal and vertical relations, trust can also develop differently in these structures [6].

In his study on the relations between enterprises, Rindfleisch concludes that enterprises in horizontal relation show a lower level of corporate trust compared to the enterprises that have vertical relations [11]. The biggest challenge for these inter-enterprises relations occurring in different ways is to create collaboration among the participants, who activate these relations, and to ensure the sustainability of this collaboration. The competition between enterprises, which are located in a specific geographical region (such as organized industrial zones), is directly proportional to their ability to connect the innovation network typology emerging in inter-enterprises relations. On the other hand, there is a significant differentiation in regional innovation systems with regard to the extent of Small and Medium Enterprises (SMEs) relations with their cooperation partners and the realization level of this cooperation with local partners [7, 12, 13].

### **2.1. Social capital, social network and innovation**

Social capital refers to the sum of the actual and potential sources, which exist in the relation owned an individual or a social unit; they are accessible by and based on that relation. The key premise of social capital theory is that relation networks are valuable sources for social works [14]. For this reason, social capital is composed of assets, which are movable in that relation network; and since it increases the innovation capacity of enterprises, it can create competitive advantage [15]. Social capital can be effective in the important activities of an enterprise, such as in the exchange of internal sources, in the creation of intellectual capital, in internal learning, and in innovation [16]. Social capital, which also provides the opportunity for technological information and market for an enterprise, is a significant source for enterprises [17]. At the same time, through the use and dissemination of sources of an enterprise, social capital

contributes to the increase of innovation capacity the enterprise [18] and as a result, positively affects the performance of an enterprise.

There are many different theories and approaches in the literature with regard to enterprise networks. As one of these approaches, social networks approach is important especially for the entrepreneurship literature and for those enterprises, which are shaped by entrepreneur's own relations [19]. Social networks are social structures, which are generally established by the owner of the enterprise and accordingly, shaped depending on the personality and activities of the owner [20]. According to the social network approach, social networks of an entrepreneur affect the formation and development of the enterprise [21]; in addition, they emerge as the fundamental determinant of the potential collaboration with the other enterprises [22]. Accordingly, social networks provide the opportunity for enterprises to take advantage of the sources that they do not have [15]. People in firms can have different social group behaviours or identities, and these differences can change how they access and make use of the opportunities.

In the social network literature, there might be strong or weak relations with regard to the structure of relations in the network. While the relation is dependent on the trust element in strong relations as in the relationships with family and close friends, weak relations tend to involve weaker emotional bonds and higher risks, and a concern of mutual benefit [19]. In strong attachments where people know and are familiar with each other, the sense of trust is achieved in the relation; and, this trust is regarded as the social capital that is essential for the entrepreneur enterprises. For entrepreneurs who have the minimum information about each other, have some common points, and have the same ethnic/religious/denominational identity with each other, trust comes to the forefront as a social capital. With the feeling of trust based on similarity and/or familiarity, enterprises that have the same ethnic/cultural structure can access to the social networks easier than other enterprises [23]. Besides, Kadushin states that people who are geographically close to each other and sharing similar social characteristics have more opportunity not only in the access to the existing social networks but also in the creation of new social networks [24]. In addition, no matter how strong or weak their relations are, the sense of trust strengthen with time enriching relations among enterprises.

In response to the perspective, which suggests that the strong relations within social networks create advantage of trust, and hence enterprises should create this kind of relations, Burt [25] draws attention to the structural gaps, which mean lack of connection between the actors in the network. According to this, instead of close connections, the importance of structural gaps in the determination and revelation of opportunities is emphasized. It is stated that since the enterprises, which can fill the structural gap, can access the new and strategically important information in a shorter period of time compared to the other network components, they can get the competitive advantage [26]. The reason is that there are people who have different kinds of information in the social networks where the relations are not strong, and with the help of their social networks, enterprises can have access to different kinds of information; because, as mentioned, the processes of entrepreneurship, determination and utilization of opportunities are directly related to the filling the connections within the network [26]. According to this, it is stated that the enterprises, which confine themselves only to their religious and cultural

social networks, cognitively shut themselves down for the opportunities existing in the world, apart from the ones in their subject network [27]. Generally, the enterprises, which have different cultural structures and are unknown in the present market for offering new customer value, can fill in the structural gaps existing in the general networks apart from the networks that have similar cultural structures in this sense [23]; and in relation to this, they play an important role in the determination and utilization of the opportunities that are not known in the general cultural structure of the market.

As mentioned in the relevant literature, social networks between enterprises and the created social capital have positive effects on the innovation capacities of enterprises. Innovation and information is indeed comprised of internal and external sources; however, it is emphasized in the recent strategy and innovation literature that firms create innovation from external sources. In this context, knowledge acquisition, learning and creating opportunities are based on intra-organizational relations; access to external innovation sources, on the other hand, are related to the relationship between the firm and the actors in social networks [28]. This approach accepts that the firm is embedded in the social structure granted with the social capital. Social networks enable the relations, trust, and information flow between firms; therefore, they function as sources, which can prevent fraud and enable the utilization of opportunities for the firms. These strategic sources can positively affect the abilities and performances of firms [29].

Geographical proximity is expected to create strong relations and to produce strict structures hence it can shape social networks. Thus, through the existing social networks, firms can share quality and reliable information, and they can utilize the market opportunities in a more productive way because geographical distribution determines the frequency and density of the communication between the actors in the same structure. Apart from this network, firms can also develop networks through local institutions. This topic is also discussed a lot in the literature. It is concluded that these local institutions (universities, research institutes, vocational education centres and development agencies) positively affect the performance of the firms.

### **3. Hypotheses**

The effect of social capital to create value in terms of innovation has been studied by Tsai and Ghoshal [30] and various dimensions of the social capital in the literature have been dealt with [15]. In this study, from the dimensions of the social capital; social interactions, trust and shared vision have been used. In addition, the role of social institutions is added to the study as a feature of local aggregates with the view of their ability to mediate the firms' external networks [25, 31].

#### **3.1. Social interactions and innovation**

The popularity of a social networks and interactions of a firm is actually accepted as a sign of the social capital. Social interactions are the channels for the actors in the market to reach the

information sources [15]. At the same time, social interactions are tools to destroy the boundaries between firms. The lack or rarity of these interactions and bounds, both make it hard to reach some of highly important information resources and define the boundaries. In this case, within the context of creating and spreading productive research innovations in the literature, a great deal of importance is attached to social interactions. At this point, as the social interactions of the firms increase, through facilitating the access to the resources in the subject network structure and abolishing the boundaries between firms, firms will be more advantageous in terms of opportunities; and, all these tools will have a positive effect on innovation opportunities of the firms because these interactions will enable firms to reach specialised information and resources in the network structure. As a result, through social interactions, a firm will have more advantages to exchange resources with other actors and will be in a more advantageous position to combine talents. This situation will enable them to increase their innovation capacity [30].

H1: Social interactions of the firm will be positively associated with innovation.

### **3.2. Trust and innovation**

Trust plays the role of a control mechanism between the actors in the networks and it is also a dimension of the social capital. At this point, it is not quite wrong to say that trust is actually a mechanism that manages embedded relationships and if trust cannot be managed, the access to the information and resources will become harder. Dakhli and De Clercq put forth that the trust between firms also feeds the innovation [32]. When trust comes out in the relation between firms, an institutional behaviour appears between actors as sharing the resources and information is voluntary without any concern. Ultimately, trust is a social process and when trust is achieved for one actor, it will be easier for other actors. In the literature, many studies have revealed that the perceived trust level and reliability may cause different results with regard to sharing of information and resources among the firms in the same network. At this point, we propose that:

H2: The level of trust of a firm is positively associated with innovation.

### **3.3. Shared vision and innovation**

Shared vision is accepted as the latest mechanism that enables the flow of sources via a network. It is also a way to ensure a common language between actors as a feature of social capital. In other words, it can be defined as a common code in the social system and involves the expectations and targets of the network members [15]. The shared expectations and targets among the network members go beyond the boundaries of the firm and facilitate access to the information and resources of the other units [30]. When it is accepted as a mechanism to help different firms to combine resources, the shared vision, which is used to combine different firms or to separate the firms from each other, will increase the innovation capacity. At this point, we propose that;

H3: Sharing the firm's vision with the rest of the firms will be positively associated with innovation.

### 3.4. Local institutions and innovation

Local institutions are of great importance in providing specific information in the networks and they take the role to supply new resources and opportunities. They have a major role in decreasing research costs, spreading the information, and in gaining the ability to compete. Creating a connection with external networks contributes to innovation to increase the abilities of the firms. Thus, the firms get advantage in having networks and since they reach information resources via local institutions, it causes an increase in firm's capabilities. Local institutions have some ways that ease the creation of value for firms [31].

1. It supports the technological services (quality control, standardisation, etc.) and these services enhance quality managements of the firm.
2. It organizes training activities for the workers of the firm and it increases the human capital of the firm.
3. It takes the duty of mediation between local and external firms, so that it provides attendance to congresses, different solutions for problems, and partnership for projects. In this way, regional firms establish access to information sources not only to increase the research costs but also to increase their abilities for opportunities.
4. By encouraging the attendance to common research projects, it provides the formation of formal and informal communication channels and this increases the innovation capacity of the firms.
5. It mediates the access of regional firms to the international markets with minimum risk, enabling the circulation of products and services of the firm in national and international markets. Besides, it has a positive impact on the innovation capacity of firms by introducing the firm's brand with co-operative advertising on behalf of the country. At this point, we propose that:

H4: Firm involvement in local institutions will be positively associated with innovation.

| Name of OIZ       | Surface area<br>(Decare) | Industry parcel<br>(Decare) | Number of<br>parcel (Qty) | Number of the parcel<br>assigned (Qty) | Number of<br>workers |
|-------------------|--------------------------|-----------------------------|---------------------------|----------------------------------------|----------------------|
| ANTAKYA OIZ       | 1520                     | 881                         | 66                        | 66                                     | 1221                 |
| İSKENDERUN OIZ    | 2080                     | 1140                        | 75                        | 75                                     | 4771                 |
| PAYAS OIZ         | 530                      | 429                         | 42                        | 42                                     | 1913                 |
| İSKENDERUN II OIZ | 780                      | 513                         | 7                         | 7                                      | –                    |

**Table 1.** Hatay organized industrial zones.

### 3.5. District affiliation and innovation

It is important to have face-to-face regional membership relations to construct common norms and values. Social interactions, trust and shared vision form the dimensions of social capital;

and, when external firms are compared to the regional ones, it is expected to be at a higher level than the regional ones. Bianchi and Bellini asserted that geographical closeness is an important supporter of innovation from the side of social solidarity through continuous communication [33]. However, it cannot be said that every firm in the industrial zone is taking the advantages equally because their level of using these sources may affect their structural features (see **Tables 1** and **2**).

H5: District affiliation will be positively associated with a firm’s innovation.

| Name       | Year of operation | Total area (m²) | Total number of workplaces | Total number of full capacity workplaces |
|------------|-------------------|-----------------|----------------------------|------------------------------------------|
| ANTAKYA    | 1967              | 805,000         | 1529                       | 1529                                     |
| İSKENDERUN | 1967              | 300,000         | 700                        | 700                                      |
| DÖRTYOL    | 1978              | 75,237          | 146                        | 143                                      |
| KIRIKHAN   | 1994              | 270,000         | 200                        | 190                                      |
| PAYAS      | 1986              | 78,841          | 151                        | 148                                      |

Source: [www.dogaka.gov.tr](http://www.dogaka.gov.tr) [34].

**Table 2.** Hatay organized industrial zones.

**3.6. Collecting data**

There are three organized industrial zones in the province of Hatay, Turkey where 194 firms are active. While the firms in the OIZ in Antakya district are mainly active in manufacturing olives, food, flour and daphne; the firms in the OIZ in the district of Iskenderun focus on filters, machinery, iron and steel [34]. The addresses and the contacts are taken from Hatay, organized industrial zone; a pilot study was conducted with 10 firms and tested whether or not there are any incomprehensible questions in the questionnaire form; and then, a part of the questionnaire was sent via e-mail, the other part of the questionnaire was used in face-to-face interview. Exactly 121 firms from organized industrial zones, and 116 firms outside the organized industrial zones, gave feedback and meetings were held. The questionnaire used in research is attached in the Appendix.

**4. Research design**

**4.1. Independent variables**

*4.1.1. Social interactions*

Social interactions represent the communication of firms with other firms or actors for the use of sources or the access to the information. For the measurement of this variable, the study of



Tsai and Ghoshal is taken into consideration and four questions were prepared in the questionnaire form [30].

#### *4.1.2. Trust*

Trust is defined as a phenomenon, which has been constructed with firm's new or old experiences, used by the firms to exchange information or to use of sources. Firms, either construct the trust for the other firms or there will be the exact opposite. This phenomenon also affects the quality or intension of shared or changeable sources. For the measurement of this variable, the study of Tsai and Ghoshal is taken into consideration and four questions were prepared in the questionnaire form [30].

#### *4.1.3. Shared vision*

Shared vision is related to the cognitive perception of the other firms in the market. It is constructed with the commonly used language, beliefs, manners and cultural values. Shared vision may not be perceived the same by all firms. For the measurement of this variable, the study of Tsai and Ghoshal is taken as the reference [30].

#### *4.1.4. Involvement of local institutions*

Not only the firms that are active in the organized industrial zones but also those outside these regions can cooperate voluntarily with local institutions. By taking McEvily and Zahra's study as the basis, we designed four questions in the questionnaire about this dimension [31].

#### *4.1.5. Industrial district affiliation*

In this study, we analysed this dimension through four questions, inspired by the relevant studies of Geringer et al. [35]. Despite a number of other relevant studies in the literature, based on the study of Becattini, data are gathered from the managers of the firms who are members and non-members of industrial regions [36].

#### *4.1.6. Dependent variables innovation*

In this study, the term of innovation refers to the successful introduction of a practice or an idea to the market by a firm. To measure this variable, the studies of Tsai and Ghoshal and Meeus et al. are used to create four questions [30, 37].

#### *4.1.7. Control variables*

In this study, the size of the firm [38] and the efforts of its Research and Development (R&D) [39] are determined as control variables [40].

5. Results and discussion

As a result of the conducted analyses, first, data on the firms’ field of activities and cooperation choices is presented based on whether or not they operate in the industrial zone (see **Figure 1**). Although it is not given as a chart, in 95 of 121 firms, the number of employees is between 11 and 50; and in 26 of them, the number of employees is between 51 and 250. In 116 firms, which operate outside the industrial zone, the number of employees is between 11 and 50. As can be observed in **Figure 2**, it is clear that firms located in the industrial zone can get higher support from the regional development agencies and better cooperation from universities. Despite this, it is found out that firms outside the industrial zone use neither university sources nor foreign sources, which indicates that for the firms, already located in the same zone, it becomes essential to have more opportunities of cooperation for innovation and establish relations with regional/foreign/other institutions.

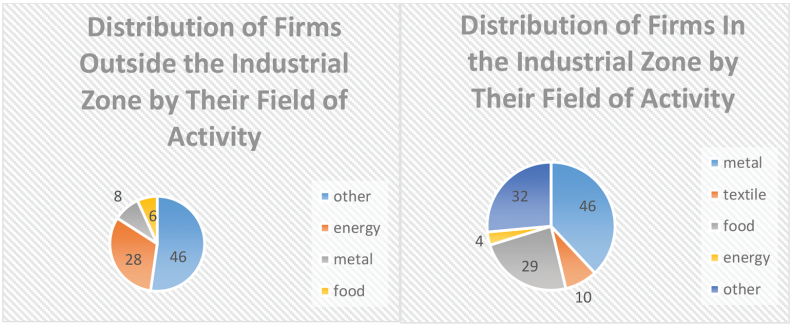


Figure 1. Statistics of Firms With Regard to Their Field of Activity.



Figure 2. Statistics of Firms’ Cooperation Choices.

Reliability and validity of the scales used in the study were tested, and they were found to be within the acceptability limits indicated in the literature. Descriptive statistics and Cronbach’s

alpha multiple item variables are presented in **Table 3**. It is seen that the acquired results are within the limits of toleration as indicated in the literature. As can be seen in **Table 3**, social capital values are found to be at high levels and significant in the firms operating outside the industrial zone. Significantly high values were acquired for the firms operating in the industrial zone by the dependent variables we identified (product and process innovation). When control variables are analysed (the number of employees and R&D investments), it is observed that R&D investments are different in accordance with the firms operating in or outside the industrial zone. In addition to this, it would not be wrong to state that the number of employees has no connection with innovation; it is completely related to the capacities of firms.

| Variable            | Mean                          | S.D. |      | a | Mean                             | S.D. |      | a |
|---------------------|-------------------------------|------|------|---|----------------------------------|------|------|---|
|                     | (District Members)<br>N = 121 |      |      |   | (No District Members)<br>N = 116 |      |      |   |
| Product Innovation  | 4.54                          | 0.45 | 0.97 |   | 1.980                            | 13   | 0.77 |   |
| Process Innovation  | 4.02                          | 0.51 | 0.74 |   | 1.00                             | 0.00 | 0.83 |   |
| Social Interactions | 4.43                          | 0.40 | 0.74 |   | 4.71                             | 0.47 | 0.82 |   |
| Trust               | 4.38                          | 0.40 | 0.94 |   | 4.72                             | 0.44 | 0.93 |   |
| Shared Vision       | 4.52                          | 0.39 | 0.73 |   | 4.87                             | 0.32 | 0.86 |   |
| Local Institutions  | 4.51                          | 0.45 | 0.79 |   | 4.45                             | 0.53 | 0.92 |   |
| Size                | 1.21                          | 0.83 | –    |   | 1.00                             | 0.00 | –    |   |
| R&D                 | 3.00                          | 0.41 | –    |   | 2.00                             | 0.09 | –    |   |

a = Cronbach's alpha for all multiple-item variables.

**Table 3.** Descriptive Statistics, Means, Standard Deviation, Cronbach's Alpha.

According to the results of regression analysis conducted after descriptive statistics, it is found out that first, second, third, and fourth hypotheses, social interaction, trust, shared vision, and cooperation with local institutions positively affect the innovation capacity of firms; therefore, these hypotheses are accepted. According to the results of the same regression analysis, it is observed that corrected  $R^2$  value (D Adjusted  $R^2$ ) of the variable, being located in the region, changed from 0.203 to 0.261 for product innovation, and from 0.061 to 0.074 for the process innovation. There are some differences between the variables of social capital and of being or not being located in the organized industrial zone. The most important difference is observed to be the collaboration with local institutions. In our model, the results of Durbin-Watson test, which shows whether or not there is autocorrelation, are expected to be around 1.5 and 2.5; and according to the results of the analysis, these values are found within the acceptable limits as (1.514), (2.370), (2.404) and (2.047). It is clearly seen that firms located in the zone are highly in cooperation with institutions. Low tolerance and high VIF values indicate that there are multiple connections between independent variables [41]. According to this, tolerance (0.918) and VIF (1.089) are within the acceptable limits. Finally, for the fifth hypothesis, it is found out

that regional membership positively and significantly affect the firm innovation. In such case, the hypothesis is accepted.

Especially because the firms located outside organized industrial zones have limited capacities and attach less importance to Research and Development, they do not pay attention to the product or process innovation unlike the firms located in organized industrial zones. Therefore, they can be weak with regard to the cooperation with local/foreign institutions. However, to increase the innovation capacity and market opportunities of firms, it should be taken into consideration that risk levels of firms will be less through the collaboration with local institutions. Results acquired from the study show that social capital variables affect the firm innovation. Within this context, it can be concluded that connections of firms are significantly important. Including the firms, which are located either inside or outside the zone, into the study enables the discussion of different parameters that can be effective on the innovation.

There are some limitations in our study. These limitations were experienced in the communication with owners and managers of the firms located in the organized industrial zones, and in time. Since the firms located outside the industrial zone were in different areas, time limitation created a pressure on the researchers. It is found that especially the firms located outside the industrial zone are not properly informed about the local institutions in the area where the research was held. At this point, it can be another issue to discuss that reach out of the local institutions should be increased to make more use of their roles as mediators in the access of new information sources and regional networks. Especially, it is suggested that studies should be conducted on the models, in which different cultural elements are also included in addition to the elements of social capital and of the firms operating in the organized industrial zones. When the cosmopolitan nature of Hatay province and the different cultural, ethnic and religious background of the firm owners and employees are taken into consideration, the importance of these elements in terms of trust and social capital can be another subject of research. In addition to these suggestions, limitations of the positive effects of social capital and trust can also be investigated.

## Appendix

**Social interaction:** (1) People from your company spend a considerable amount of time on social occasions with people from other firms. (2) People from your company spend a considerable amount of time on social events organised by the local community. (3) A local origin and common academic background of the employees at local firms allow social interactions to take place. (4) There is an informal network among customers, suppliers and competitors.

**Trust:** (1) Other firms can rely on your company without any fear that you will take advantage of them, even if the opportunity arises to do so. (2) In general, your company will always keep the promises it makes to others. (3) Suppose your company is seeking to be a business partner in a joint project. You are confident that you will do what is required in the agreement (i.e., what partners believe you should do) even without a written contract that clearly specifies your obligations. (4) You consider that other firms feel a special duty to stand behind you in times of trouble, so you consider it only fair that your company should also give support to other firms.

**Shared vision:** (1) You and the people in your company share the same ambitions and vision as other companies in your local area. (2) People in your company are encouraged and motivated to pursue the collective goals and mission of the whole local area. (3) You consider that your company's future is related to other firms in the area. (4) There is some kind of collective strategy or plan for firms in the whole area.

**Involvement of local institutions:** (1) Your company has received significant support for R&D activities from local institutions. (2) You or your employees have received specific training by local academic institutions. (3) Your company has received considerable information about products and markets from local institutions. (4) You consider that you cannot receive support from external firms directly, instead of through local institutions.

**Product innovation:** (1) Number of developments or introductions of new materials. (2) Number of developments or introductions of new intermediate products. (3) Number of developments or introductions of new components. (4) Number of developments or introductions of new attributes of the products.

**Process innovation:** (1) New developments or introductions of new equipment. (2) Improvements in the level of automation. (3) Number of new organizational methods of the productive activities. (4) Use of new energy sources.

Responses were scored on a 5-point Likert scale, where 1 = fully disagree and 5 = fully agree.

**Size:** Size was operationalised as the number of employees (1 = 11–50 employees; 2 = 51–250 employees; 3 = +250 employees).

## Author details

Sonyel Oflazoğlu

Address all correspondence to: [oflazoglu@mku.edu.tr](mailto:oflazoglu@mku.edu.tr)

Mustafa Kemal University, Hatay, Turkey

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