

Innovation Capability and Export Performance of Turkish Export Firms

Kumru Uyar, Burcu Oralhan
Nuh Naci Yazgan University, Kayseri, Turkey

In today's competitive environment the key element is the differentiation of business which will lead to success. Especially in international markets where there's much more intense competition, it is more important for businesses to enter with innovations that make a difference to their consumers. Innovation is also important for competitive export-oriented production in globalization. In global competition, innovation is the key factor for sustainable success. Increases in the efficiency, profitability of firms make it possible to enter new markets and extend present markets by obtaining advantage of competition. In order to determine accurate strategies, the connection between innovation and exports must be understood better. The aim of this study is to determine the innovation capability and export performance of Turkish export firms. Another aim is to examine the relationship between firm characteristics and innovation capability. Innovation capability of export firms is measured by INNOVSCALE which was developed by Vicente, Abrantes, and Teixeira (2015). Export performance is measured by APEV scale which was developed by Lages, Lages, and Lages (2005). The study uses data collected from 83 firms located in Kayseri. Results obtained by using SPSS indicate that there is a positive relationship between innovation capability and export performance. The results of the ANOVA analysis, innovation capability differ in terms of firm size and export earnings. Innovation capability does not differ in terms of sector, operating years, share of export earnings in the whole revenues, exporting periods, or internationalization levels.

Keywords: innovation, export performance, INNOVSCALE, APEV scale, international trade, Turkey

Developed countries attach importance to export by technology intensive production. Innovation is an important topic of interest in developed and developing countries' exportation debates in recent years. The fundamental purpose of this study is identifying and analyzing the relationship between innovation and exportation in Kayseri's companies. We believe this study will support companies located in Kayseri and other cities as they design innovation practices and development strategies for their effects on export.

Although Turkey's share in international trade in 1980s was low, it increased significantly in 1990s and especially in the 2000s. According to Turkish export figures in 2016, the total was 142,530,542 thousand US dollars. From 2010 to 2012, Turkish exports earnings increased fast.

Özçelik and Taymaz (2002) concluded that R&D activities affected international competition power positively. They emphasized that technology development policies, which have an impact on quality and

Kumru Uyar, ass. prof., Faculty of Economics and Administrative Sciences, Nuh Naci Yazgan University, Kayseri, Turkey.
Burcu Oralhan, ass. prof., Faculty of Economics and Administrative Sciences, Nuh Naci Yazgan University, Kayseri, Turkey.
Correspondence concerning this article should be addressed to Kumru Uyar, Nuh Naci Yazgan University, İİBF, Kayseri 38030, Turkey.

productivity rather than devaluations in international competitiveness of Turkey, are very effective. On the contrary, Manavgat and Kaya (2016) and Sungur, Aydın, and Eren (2016) found that the effect of received patents on export share was not statistically significant.

There are very limited studies in the literature with regard to whether more innovative firms perform better in terms of their export behaviors than less innovative firms. A study of Turkish firms may help improve the present knowledge of research. To fill this gap, the present study examines the relationship between a firm's innovative activity and its export performance. The purpose of this paper is to investigate the relationship between innovation capability and performance of an export venture. In addition to this, another aim of the study is to investigate whether there is a relationship between firm characteristics and innovative nature of the firm.

Innovation

The concept of innovation has been a subject to numerous studies by gaining importance in the management literature. It becomes increasingly central to competitiveness because of the emergence of the information economy and global competition as a result of globalization and considerable technological advance. Today's companies are increasingly focused on innovation; performance barriers for success have increased substantially (Lawson & Samson, 2001). New successful products and services are critical for many organizations for adapting to changes in technology, markets, and competition (Dougherty & Hardy, 1996). So, innovation is critical for companies to create sustainable competitive advantage. Additionally, innovation also has positive effects on country economies in ways such as sustainable growth, employment growth, and social welfare. According to the results of the innovation survey of the Turkish Statistical Institute (TURKSTAT), 51.3 percent of enterprises with 10 or more employees in the three-year period covering 2012-2014, 49.3 percent of enterprises with 10-49 employees, 57.5 percent of enterprises with 50-249 employees, and 65 percent of enterprises with 250 or more employees were involved in innovation, and 48.72 percent of initiatives were not involved in innovation activities during the period of 2012-2014, while 84.7 percent of enterprises not involved in an innovation activity indicated that there is no reason to force innovation, 15.3 percent indicated that the most important reason preventing an innovation activity was various factors. This study shows that firms cannot recognize the importance of innovation. On the other hand, in the literature, there are several definitions about the concept of innovation. In 1934, Schumpeter defined innovation as "creation of a new good which more adequately satisfies existing and previously satisfied needs." Utterback and Abernathy (1975) described it as "a new technology or combination of technologies introduced commercially to meet a user or market need" while Freeman stated that "innovation is the introduction of change via something new" in 1982. Senge (1990) described innovation as the following: "Idea becomes an innovation only when it can be replicated on a meaningful scale at practical costs", Rouse (1992) stated "Innovation is the introduction of change via something new", and Leonard and Swap (1999, p. 7) pointed it out as "the embodiment, combination, and/or synthesis of knowledge in novel, relevant, valued new products, processes or services." The latest revision of innovation is in the Oslo Manual by Organization for Economic Cooperation and Development (OECD). OECD (2005) defines innovation as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method or a new organizational method in business practices, workplace organization or external relations". Innovations are based on development and provided to level up productivity, improve quality of life for society (Vasilenko, Arbačiauskas, & Staniškis,

2011). O'Sullivan and Dooley (2013) defined innovation as the following in 2009: "Innovation is more than creation of something novel. Innovation also includes the exploitation for benefit by adding value to customers."

Innovation is provided by today's significant competitive advantage. It is supported in flexibility speed, efficiency, quality, and speed by potent main capabilities. Innovation has played a significant role for companies for the future of their industries. High innovation performance is able to provide high performance of capabilities, new, faster, and high quality products for markets, and lower costs than competitors. Over and above, firms use processes and systems innovation for improving their products and ensuring addition of value for customers. This system combination creates a dynamic and sustainable strategic position, making the organization be a constantly moving target to competitors (Kiernan, 1996). Bos-Brouwers (2010) stated that firms' orientation and innovation processes with sustainability show their proof of value creation, such as the development value of products, services new to the market, and cooperation value with stakeholders.

Literature Review

Innovation capability is the capacity of firms to create new ideas to develop their products, services, and processes to enable them to enhance their organizational performance and attain competitive edge (Jantunen, 2005). Innovation capability enables firms to enhance their facility to gather and combine knowledge to become original, uncommon, and difficult to imitate, thus providing them with increased competitive advantage (Ologbo & Nor, 2015). Chen (2009) considered innovation capability as the firm's capacity, based on processes, systems, and organizational structure, which can be used in product or process innovations. Vicente et al. (2015) conceptualized innovation capability as the firm's capacity to develop new products for the export market by combining innovative behaviors, strategic capability, and internal technological processes.

According to Posner (1961), continuity of the exports of a country depends on the continuity of new technology production. Fischer, Fröhlich, and Gassler (1994) found that more and more patent activities took place in sectors with high technology intensity, which in return led to an increase in exports in the sectors. Greenhalgh (1994) determined that technological innovation activities increase trade performance. Many previous studies found a positive relationship between innovation potential and export volume (Roper & Love, 2002; Guan & Ma, 2003; Cassiman & Martinez-Ros, 2004; Lachenmaier & Wößmann, 2006). Innovation activities play an important role in determining a firm's strategic decision in export activities and export volumes (Cassiman, Golovko, & Martínez-Ros, 2010). Additionally, innovation's importance is expected to grow further as markets become increasingly globalized. Cassiman et al. (2010) were interested in innovation for appraising export-productivity association effects. The Spanish firms' innovation decisions were related to firm productivity and exports when positive directional association occurred between these. The French firms in a science-based industry identified that firm size is not a determinant factor for innovation or export volume (Pla-Barber & Alegre, 2007) and the results showed a positive and significant relationship between innovation and export volume. Most studies examining innovation capability and export have considered the relationship in small-scale firms. The relationship between innovation and export could differ from one firm to another because of issues such as firm size. Wakasugi and Koyata (1997) conducted an empirical study on these issues. The study was implemented in the electrical machinery industry on Japanese companies. They found that large firms were more thriving in their innovation performance than small firms; sales volume was associated with the number of products. Large companies are considered to possess more human and financial resources

provided in higher economy of scale levels (Wagner, 1995). The characteristics of their products and services enable entry into international markets. In many studies, firm size was considered as an influential variable on export performance (Mittelstaedt, Harben, & Ward, 2003). For these reasons, in difference to other studies, we are interested in examining the link between innovation capability and export in large-scale firms. So, the purpose of this study is to determine the relationship between innovation capability and export performance in large-scale firms. Vicente et al. (2015), drawing on the resource-based view, aimed to identify important dimensions in order to build a scale to measure innovation capability in export firms—the INNOVSCALE. The study draws on data collected by an online questionnaire in a sample survey of 471 exporting manufacturing firms. The results were obtained using structural equation modeling. Statistical tests demonstrate that the scale presents composite reliability as well as convergent and nomological validity. The findings reveal that innovation capability is a higher-order construct formed by four dimensions: product development capability, innovativeness, strategic capability, and technological capability. The results also indicate that all four dimensions of the innovation capability scale are positively and significantly associated with export venture performance. Costa, Lages, and Hortinha (2015) focused on corporate social responsibility (CSR) criteria's effects. First effect is the ability of technology resources to enhance firm innovation and second effect is innovation's capacity to achieve export performance. The findings show that CSR contributed to the enhancement of the impact of exploratory innovation on export performance. Nørskov, Chrysochou, and Milenkova (2015) examined the effects on product innovation characteristics as complexity, relative advantage, compatibility, trial ability, and observability on brand equity. These characteristics have different levels of effect on brand equity. Elmawazini (2012) found in host countries such as US parent companies that innovation capability and export success of local firms have significant impact on technology transfer spending by foreign affiliates during the period of 1966-2000. Fan (2011) explained that innovation capacity has affected economic growth of China and India significantly in 1990's. Main China and India innovation capacity outputs are measured by patents and high-tech/service exports for their national innovation systems. Hortinha, Lages, and Filipe Lages (2011) investigated customer orientation and technology orientation in development of exploratory innovation capabilities. Zhang and Duan (2010) studied the effects of responsive market orientation (MO) and proactive market orientation on product innovation performance in China firms, and they found that both proactive market orientation and responsive market orientation have a positive total effect on improving product innovation performance. Guan and Ma (2003) examined the role of seven innovation capability dimensions for firm characteristics in China's industrial firms. Resource allocation, marketing, research and development (R&D), learning, organizational strategy planning, and manufacturing dimensions were studied in terms of domestic market size, productivity growth rate, and share in determining export performance. Some important empirical findings were reached. Growth of export is related to innovation capability, but it was not related to manufacturing capability. When local market margin does not have any significant effects on export performances, productivity growth rate increases, or supports export performance rates significantly. Geldres-Weiss, Monreal-Pérez, and Carrasco-Roa (2016) analyzed the act of innovation in exports by exploring export product innovation and export market innovation, and their strategic activities that allow experiential knowledge obtained in Chilean companies, from 2006 to 2011. Their study results showed that exporting to different and geographically distant markets increases the firm's export activity and such export market innovation takes precedence over export product innovation. Another study estimated a multi-group path analysis with Structural Equation Modeling (SEM) for young and mature firms in active Greek Manufacturing

R&D firms in 2016. Although results did not suggest the existence of a two-way causality between export performance and innovation, the direction of causality differed between the firms classified as young and mature (Gkypali, Rafailidis, & Tsekouras, 2015). Brouwer and Kleinknecht (1996) observed that large firms are more innovative than small firms. Unger (2000) found that innovation capability differed in terms of the firm's operating sector.

Conceptual Framework and Hypotheses

Monreal-Pérez, Aragón-Sánchez, and Sánchez-Marín (2012) stated that innovation induces firms to increase their export activities. Numerous empirical studies confirmed that innovation increases the likelihood of positive export results for a firm. As indicated by Vernon (1966) and Krugman (1979), innovation is the main determinant of export. There is a two-way linkage between a firm's export and innovation activities (Filipescu, Prashantham, Rialp, & Rialp, 2013; Arvanitis, Gkypali, & Tsekouras, 2014). Several studies found a relationship between export performance and innovation performance (Hitt, Hoskisson, & Kim, 1997; Wakelin, 1998; Anderton, 1999; Sterlacchini, 2001; A. Lefebvre & L. A. Lefebvre, 2001; Roper & Love, 2002; Bleaney & Wakelin, 2002; Gourlay & Seaton, 2004; Lo'pez-Rodri'guez & Garcí'a-Rodri'guez, 2005; Lachenmaier & Wößmann 2006; Roper et al, 2006; Leonidou, Katsikeas, Palihawadana, & Spyropoulou, 2007; Pla-Barber & Alegre, 2007; Harris & Li, 2009; Golovko & Valentini, 2011; Monreal-Pérez et al., 2012; Love & Roper, 2013). On the contrary, some studies found that innovation levels do not affect export performance (Schlegelmilch & Crook, 1988; Landesmann & Pfaffermayr, 1997; Verspagen & Wakelin, 1997; E. Lefebvre, L. A. Lefebvre, & Bourgault, 1998; Becchetti & Rossi, 2000; Silva & Leita'õ, 2007). Greenhalgh, Taylor, and Wilson (1994) suggested a positive effect of innovation measures on trade volumes. Wakelin (1998) suggested a positive relationship between innovation and export flows. Avermaete, Viaene, Morgan, and Crawford (2003) found that innovation in young firms affects the firm's turnover. Ganotakis and Love (2012) and Oke, Burke, & Myers (2007) found a positive association between innovation and growth (in employment and/or sales). Freeland and Robson (2004) revealed a negative relationship between product innovation and growth in sales or productivity. Wolff and Pett (2006) stated that product improvement orientation has an influence on growth and profit performance. Therefore, it is hypothesized that:

H1: There is a statistically significant relationship between innovation capability and export performance.

H2: There is a statistically significant relationship between innovation capability and export earnings as a part of revenues.

H3: Innovation capability differs in terms of export level and share of export earnings in the whole revenue.

H4: There is a statistically significant relationship between innovation capability and yearly export values.

H5: Innovation capability differs in terms of yearly export values.

Filipescu et al. (2013) determined that a firm's age has a positive and significant effect on R&D intensity. Additionally, a firm's age has a positive and significant effect on the firms' innovation performance (Klepper, 1996; Huergo & Jaumandreu, 2004; Coad, Segarra, & Teruel, 2013). On the contrary, Hausman (2005) suggested that younger micro-firms are more innovative than their older counterparts. Therefore, it is hypothesized that:

H6: There is a statistically significant relationship between innovation capability and years of operation.

H7: Innovation capability differs in terms of years of operation.

H8: There is a statistically significant relationship between innovation capability and exporting periods.

H9: Innovation capacity differs in terms of exporting periods.

Ren, Eisingerichb, and Tsaic (2015) reported that internationalization has a positive effect on innovation performance when SMEs' R&D capability or marketing capability is high. Notably, however, they found that the effect of internationalization on innovation performance is negative when R&D capability or marketing capability is low. Many studies found that there is a positive and significant link between internationalization and innovation (Lo'pez-Rodri'guez & Garc'ı'a-Rodri'guez, 2005; Pla-Barber & Alegre, 2006; Vila & Kuster, 2007; Bianchi, 2009; Filipescu, A. Rialp, & J. Rialp, 2009; Cassiman & Golovko, 2011; Garc'ı'a, Avella, & Ferna'ndez, 2012; Love & Ganotakis, 2013). Based on this set of arguments, it is hypothesized that:

H10: There is a statistically significant relationship between innovation capability and internationalization levels.

H11: Innovation capability differs in terms of internationalization levels.

Cohen and Klepper (1996) determined that innovation varied with firm size within industries. There are theoretical arguments and empirical findings that suggest a positive relationship between firm size and innovation (Capon, Farley, Lehman, & Hulbert, 1992; Arvanitis, 1997; Moen, 1999; Rogers, 2004; Camiso'n-Zornoza, Lapiedra-Alcamı, Segarra-Ciprés, & Boronat-Navarro, 2004; Filipescu, et. al. 2013). Audretsch and Acs (1991) found a positive relationship between firm size and innovation in low-technology firms. However, high-technology firms showed no evidence of such a relationship. Pla-Barber and Alegre (2007) found a low-level and insignificant relationship between firm size and innovation. Freel and Robson (2004) found a positive relationship between novel product innovation and employment growth. Filipescu et al. (2013) found that industry sector does not affect innovation significantly. Kumar and Siddharthan (1994) determined that R&D was a significant determinant of export propensity but only in low- and medium-technology industries. Monreal-Pérez et al. (2012) found that when a firm operates in a high-tech industry, the firm is more likely to export and develop product and process innovations. Therefore, it is hypothesized that:

H12: There is a statistically significant relationship between innovation capability and firm size.

H13: Innovation capability differs in terms of firm size.

H14: Innovation capability differs in terms of the firm's operating sector.

In light of the theoretical findings mentioned, the research problem was defined as "is there a relationship between the innovation capacity of a company, and factors of export performance and company characteristics?" Furthermore, statistical hypotheses were tested.

Research Methods

Sample and Data Collection

The population of the current study consists of 323 exporting firms registered with Kayseri Chamber of Industry. Although the survey aimed to reach the whole population, only 83 of the firms returned usable completed questionnaire forms. In line with the aims, a questionnaire was developed including various types of questions. In order to prepare an appropriate questionnaire, firstly the literature was reviewed and an interview was conducted with the representatives of eight exporting firms in Kayseri. Subsequently, a pilot study was carried out with a sample representing the targeted population.

Measures

In this study, the questionnaire comprised three parts: (a) the first part included 13 statements for measuring innovation capability; (b) the second part included questions related to export performance of firms; and (c) the last part was related to organizational characteristics. All statements in the context of research used a five-point Likert-type scale (1 = Strongly Disagree-5 = Strongly Agree). To measure the innovation capability of the exporting firms, it used INNOVSCALE, which was developed by Vicente et al. (2015). L. F. Lages, C. Lages, and C. R. Lages (2005) developed APEV scale, which is a measure of annual performance of an export venture. This scale includes five dimensions: annual export venture financial performance, annual export venture strategic performance, annual export venture achievement, contribution of the export venture to annual exporting operations, and satisfaction with annual export venture overall performance. Lages et al. (2009) revised the scale by removing the “contribution of the export venture to annual exporting operations” dimension. This study used it to measure export performance. It was adapted for usage in Turkey by changing certain statements. The questionnaire was implemented via e-mail and face-to-face visits. For each variable, the Cronbach’s α value was calculated for reliability. The reliability coefficient of the INNOVSCALE was 0.914, while it was 0.952 for the APEV scale.

Analysis and Discussion

Characteristics of the exporting firms and respondents are given in Table 1. There were 83 exporting firms that participated in the survey. Approximately 39% of the responding firms were in the textile and furnishing sectors, most medium sized and 36% of the participating firms’ yearly export value was lower than 2,000,000 US dollars and 32.4% had export values of above 6,000,001 US dollars. As for the globalization levels of the responding firms, most frequently (42.3%), they sold their products in foreign markets; 30.1% of the responding firms mainly focused on the internal market, but sought some opportunities in foreign markets, while 24% conducted detailed market research in foreign markets in order to be available globally and 3.6% sold globally on some occasions in order to destock.

Table 1

Characteristics of the Exporting Firms That Responded to the Survey

Operating sector	n	%	Number of employees	n	%
Textile	14	16.9	Small (1-50)	29	34.8
Furnishing	18	21.7	Medium (51-150)	32	38.4
Electronics/communication technologies	7	8.4	Large (151 and above)	22	26.4
Machinery	4	4.8	Total	83	100
Chemical	4	4.8			
Food	6	7.2			
Other	30	36.1			
Total	83	100			
Years of operation	n	%	Export earnings as part of revenues	n	%
Less than 5 years	3	3.6	1-20	26	31.2
5-10 years	14	16.8	21-40	25	30
11-20 years	28	33.6	41-60	8	9.6
21-30 years	23	27.6	61-80	11	13.2
31-40 years	8	9.6	81-100	8	9.6
41-60 years	7	8.4	Missing system	5	6
Total	83	100	Total	83	100

(Table 1 continued)

Exporting Period	n	%	Yearly exporting values (\$US)	n	%
1-10 years	44	53.7	Less than 2,000,000	30	36.1
11-20 years	30	36.4	2,000,001-4,000,000	8	9.6
21-30 years	4	4.8	4,000,001-6,000,000	8	9.6
31-60 years	4	4.8	6,000,001 and above	27	32.5
Missing system	1	0.3	Missing system	10	12
Total	83	100	TOTAL	83	100
Internationalization levels				n	%
We export on some occasions to destock				3	3,6
Our focus is on the internal market, but we seek opportunities in international markets				25	30.1
We frequently sell our products in foreign markets				35	42.3
We conduct detailed market research in foreign markets to be available globally				20	24
Total				83	100

Correlation analysis was used to specify the relationship between export performance, firms' characteristics, and innovation capability. The analysis data are shown in Table 2.

Table 2

The Results of Correlation Analysis Between the Firms' Characteristics, Export Performance and Innovation Capability

INNOVSCALE	r	p	n
Exper	0.629**	0.000	83
Export earnings as part of revenues	0.198	0.083	78
Export value	0.107	0.366	73
Year of operation	-0.071	0.521	83
Exporting period	0.095	0.398	82
Internationalization levels	0.166	0.135	82
Size	0.178	0.111	82

Note. **Correlation is significant at the 0.01 level (2-tailed).

According to the results of the correlation analysis, there was a statistically significant positive correlation ($r = 0.629$) between innovation capability and export performance. According to this result, it may be stated that they increase together and the H1 hypothesis is accepted. There was not statistically significant correlation between innovation capability and the firms' characteristics. According to these results, the H2, H4, H6, H8, H10, and H12 hypotheses were rejected.

In this part, the purpose is to analyze the differences of innovation capability by firm characteristics and internationalizations level of the exporting firms. Innovation capability is the dependent variable and firm characteristics and globalization levels of the exporting firms are the independent variables. Analysis of variance (ANOVA) was applied to the data collected through the questionnaire. As the results of this test indicate, innovation capability of the firms differed in terms of firm size and export earnings.

The results of the ANOVA are presented in Table 3. As the results of this test indicate the firms differed in terms of firm size ($p = 0.028$) and yearly exporting values ($p = 0.008$). On the other hand, innovation capability did not differ in terms of exporting periods, sector, share of export earnings in the whole revenue, years of operation, and internationalization levels. According to these results, the H3 and H13 hypotheses were accepted but the H5, H7, H9, H11, and H14 hypotheses were rejected.

Table 3

The Results of ANOVA Between Innovation Capability and the Firm Characteristics

	Firm size			
	Small	Medium	Large	
n	29	31	32	
Mean	3.9286	3.7409	4.1861	
Std. deviation	0.69470	0.52119	0.53591	
Homogeneity of variances, sig. = 0.341, F = 3.739, $p = 0.028$				
	Yearly exporting values (\$US)			
	Less than 2,000,000	2,000,001-4,000,000	4,000,001-6,000,000	6,000,001 and above
n	29	8	8	28
Mean	3.7929	3.9038	4.1050	4.2967
Std. deviation	0.61764	0.57233	0.54287	0.44791
Homogeneity of variances, sig. = 0.562, F = 4.266, $p = 0.008$				
Exporting periods	Homogeneity of variances, sig. = 0.498, F = 0.101, $p = 0.959$			
Operating sector	Homogeneity of variances, sig. = 0.708, F = 2.086, $p = 0.065$			
Export earnings as part of revenues	Homogeneity of variances, sig. = 0.062, F = 1.930, $p = 0.114$			
Operating years	Homogeneity of variances, sig. = 0.226, F = 0.561, $p = 0.643$			
Internationalization levels	Homogeneity of variances, sig. = 0.545, F = 1.909, $p = 0.135$			

Table 4 shows the results of multiple comparisons for firm size. As it may be seen from Table 4, these differences arose from the difference between medium and large businesses. The mean values indicate that medium sized exporting firms (3.7409) differed from large scale exporting firms (4.1861). As mentioned in the literature review, to some extent, this may be an expected result.

Table 4

The Results of Multiple Comparisons for Firm Size

Multiple comparisons for firm size		
Small	Medium	0.515
	Large	0.215
Medium	Large	0.025*

Note. *The mean difference is significant at the 0.05 level.

Table 5

The Results of Multiple Comparisons for Export Earnings

Multiple comparisons for export earnings		
Less than 2,000,000	2,000,001-4,000,000	0.956
	4,000,001-6,000,000	0.482
	6,000,001 and above	0.005*
2,000,001-4,000,000	4,000,001-6,000,000	0.881
	6,000,001 and above	0.282
4,000,001-6,000,000	6,000,001 and above	0.816

Note. *The mean difference is significant at the 0.05 level.

Table 5 shows the results of multiple comparisons for firm size. As it may be seen from Table 5, these differences arose from the difference between the groups with values of lower than 2,000,000 and above

6,000,001\$US. The mean values indicate that firms with export earnings lower than 2,000,000 (3.7929) differed from those with export earnings over 6,000,001 (4.2967). As mentioned in the literature review, to some extent, this may be an expected result.

Different approaches are available in the literature on the relationship between innovation and export. Regression analysis was conducted to determine to what extent the independent variable of innovation capability explained the changes in the dependent variable of export performance. For this purpose, the results of the regression analysis are shown in Table 6.

Table 6

The Results of Regression Analysis

	Standardized beta	<i>t</i>	<i>p</i>
Exper	0.629	7.282	0.000
R = 0.629, R ² = 0.396, F = 53.032, <i>p</i> = 0.000			

According to the results in Table 6, the positive relationship among innovation capability and export performance was statistically significant ($p < 0.05$). It was determined that 39.6% of the change in export performance depended on the level of innovation. This result shows that export performance ($Y = a + bx$, $Y = 1.998 + 0.535x$) increased in direct proportion with innovation levels.

Conclusions

Nowadays, both countries and enterprises allocate great resources to innovation activities in order to be one step ahead of their business opponents. Besides the advantages provided by operating innovation activities, they also bring huge costs. The World Economic Forum Global Competitiveness Index ranked Turkey in the category of efficiency-based countries in terms of competitiveness. When assessed in parallel with the growth rate, it is seen that Turkey is behind the expected level in the index of competitiveness. Turkey ranked 45th out of 144 countries in terms of the Global Competitiveness Index in 2014-2015 period and ranked 51st among 140 countries in the period of 2015-2016 (World Economic Forum 2014-2015 Global Competitiveness Report; World Economic Forum 2015-2016 Global Competitiveness Report). In the 2015-2016 World Economic Forum Global Competitiveness Index, Turkey regressed in the general rankings and subcommittees. Adoption of technology-intensive methods in Turkey, in particular, through increasing Research & Development activities by developing innovative approaches and the development of high added value areas will bring great momentum to the economy. In parallel with this, increase in competitiveness and growth will be inevitable.

The main finding is that innovation correlates positively and significantly with export performance, confirming other research on technology and innovation orientation effects on export performance (Anderton, 1999; Sterlacchini, 2001; Guan & Ma, 2003; Gourlay & Seaton, 2004; Arnold & Hussinger, 2005; DiPietro & Anoruo, 2006; Lachenmaier & Wößmann, 2006; Kirbach & Schmiedeberg, 2008; Solberg & Olsson, 2010; Golovko & Valentini, 2011; Love & Roper, 2013). Uz Kurt, Kumar, Semih Kimzan, and Eminoğlu (2013) stated that innovation has a direct and positive effect on firm performance dimensions. The findings of the study are largely consistent with the theoretical framework. In other words, investments made in innovation provide contribution to exports. Giving greater emphasis on innovation should be an important policy objective for sustainable growth. There is no doubt that there are variables other than those included in this study that are

also important. Besides the variables used, it is possible to carry out studies in which other variables are included and analyzed. It is thought that this study will lay out a foundation and a direction to future studies.

The aim of this study was to determine the innovation capacity and export performance of Turkish export firms. Another aim was to examine the relationship between firm characteristics and innovation capacity. General firm characteristics of the firms are as follows: (a) Most firms, which consist of the sample of the current research, operate in the textile (21.7%) and furnishing (16.9%) sectors; (b) Approximately 38% of the exporting firms surveyed are medium sized, 35% are small sized, and 26% are large scale; (c) Approximately 61% of the exporting firms have been continuing their operations; (d) 36% of the participating firms' yearly exporting value was lower than 2,000,000 US dollars and 32.4% had a yearly exporting value of above 6,000,001 US dollars; (e) Nearly 90% of the exporting firms have been exporting for 1-20 years; (f) Most of the exporting firms in Kayseri aim to access to international markets by frequently selling their products in foreign markets. This indicates a high level of globalization. Almost half (45.6%) of the enterprises that are included within the scope of this research have been in operation for more than 20 years, yet only about 9.6% have been exporting for over 20 years. Only 24% of the enterprises conduct detailed market research in foreign markets to be available globally. In this study, the following conclusions have been made. Export performance based on their assessment of the company is not very satisfactory. Companies evaluated their export performance as moderate. Negative thoughts were related to export performance to meet the expectations of its exports. As the innovation capacity was higher, this caused exporters' reviews to result in increased expectations. The success of firms' R&D activities is based on long-term know-how and firms seek out new ways to do things. However, they cannot speedily develop and launch new products for export. There is a strong correlation between the amount of innovation capability and export performance. However, firms' characteristics do not have any significant effects on export performances or innovation capability. Regression analysis was conducted to determine to what extent the independent variable of innovation capability explained the changes in the dependent variable of export performance. It was determined that 39.6% of the change in export performance depends on the level of innovation. This result shows that export performance increases in direct proportion to innovation capability. When the mean innovation increases, export earnings increases are expected. Innovation is extremely important for providing advantage in both domestic and global markets. There is no chance to compete in any field without innovation. Export has huge impact on the economy because it is one of the most important factors of growth and large foreign exchange inflows.

The results of ANOVA indicated some significant differences by firm characteristics. Depending on the ANOVA, innovation capability differs in terms of firm size and export earnings. Innovation capability does not differ in terms of sector, years of operation, share of export earnings in the whole revenues, exporting periods and internationalization levels. Export earnings differences arise from the difference between the below-2,000,000 and above-6,000,001 groups. The mean values indicate that below-2,000,000 export earnings firms (3.7929) differ from over-6,000,001 export earnings firms (4.2967). As mentioned in the literature review, to some extent, this may be an expected result. Firm size differences arise from the difference between medium and large businesses. The mean values indicate that medium sized exporting firms (3.7409) differ from large scale exporting firms (4.1861). These results are similar to those of the relevant studies in the literature (Brouwer & Kleinknecht, 1996; McNamara, Deephouse, & Luce, 2003). Small and medium-sized enterprises (SMEs) have an important share in Turkish economy. SMEs' maintenance of their continuity in a competitive and rapidly changing environment by making a difference is associated with their innovation capability.

Limitations and Recommendations for Future Research

Like other studies, this study has some limitations, the major one is that the research was conducted in only one part of Turkey. As mentioned before, this study lacks in sample size, while further research on this subject should be conducted on a different country level. Additionally cross-country and cross-industrial comparisons would also be useful in expanding the current understanding on the issue.

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