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Is it enough to be entrepreneurial? Enhancing the 'value added' created by SMEs in Turkey through innovation

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Abstract

Similar to other developed and developing economies in the world, SMEs play a predominant role in Turkey. Nevertheless, the contribution of SMEs to total value added (57 %) was much lower than their contribution to employment (81.3 %) in Turkey. This finding indicates a potential low level of apparent labour productivity. And the potential reasons of this situation are worth discussing. Low R&D expenditures and low employment in knowledge-intensive activities are proposed to be factors related with this situation. The sample of this study is the common member countries of both OECD and EU27.

Keywords: SMEs, Value Added, Employment, Technological Product Innovations

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1. Introduction

Similar to other developed and developing economies in the world, small and medium-sized enterprises (SMEs) play a predominant role in Turkey. Turkey adopted the EU's SME definition in 2005 (Elci, 2011). Accordingly, the SME definition in Turkey is as follows:

Table 1. SME definition in Turkey

Scale	Total number of employees	Annual turnover (million TL)*	Annual Balance Sheet (million TL)*
Micro	1-9	0 < and ≤ 1	0 < and ≤ 1
Small	10-49	1 < and ≤ 5	1 < and ≤ 5
Medium	50-249	5 < and ≤ 25	5 < and ≤ 25

Source: KOSGEB (Small and Medium Enterprises Development Organization).
* 1 million TL ≅ 0.55 million $

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There were 48009 enterprises in exports, 55119 in imports in Turkey. For exports, the proportion of the SMEs which had 0-249 employees, was 60,1%. In 2010, the rate of micro enterprises (1-9 employees) was 16,4%, small enterprises (10-49 employees) was 24,6%, medium-sized enterprises (50-249 employees) was 19,2% and large enterprises (250+) was 39,6% in exports (TurkStat, 2011).

SMEs form 99.9% of all companies in the country. They account for 81.3% of total employment and but only 57% of value added. The share of micro enterprises in SMEs is remarkably high (98.1%). The share of employment created by SMEs in the industry sector is lower than that of the services sector, and industry sector generate less value added than services. Please see the details in the table below (OECD, 2011).

Table 2. Structural indicators on enterprise population in Turkey

	Number of enterprises					Total employment					Value added (factor costs) %		
	Industry		Services		Total %	Industry		Services		Total %			
	No. Firms	%	No. firms	%		No. engaged	%	No. engaged	%		Industry	Services	Total
Micro	383577	93.8	1889647	99.1	98.1	1113081	32.5	3512942	75.9	57.4	12.2	44.4	28.2
Small	16149	3.9	12190	0.6	1.2	521934	15.2	314797	6.8	10.4	11.1	11.5	11.3
Medium	7795	1.9	4362	0.2	0.5	799763	23.3	286359	6.2	13.5	21.7	13.2	17.5
SMEs	407521	99.6	1906199	100.0	99.9	2434778	71.1	4114098	88.9	**81.3**	45.0	69.1	**57.0**
Large	1537	0.4	938	0.0	0.1	991465	28.9	514680	11.1	18.7	55.0	30.9	43.0

Source: OECD (2010) SMEs, Entrepreneurship and Innovation (OECD, Structural and Demographic Business Statistics).

Especially the value added generated by industry sector is remarkably low when the high percentage of employment in industry sector is considered. 81.3 percent of employees in total employment create only the 57 percent of value added. When compared with the other OECD member countries, the gap between these percentages in Turkey seems relatively high. Please see Table 3 for details.

Table 3. Comparison of the OECD member countries

OECD member countries	The contribution of SMEs to employment (%)	The contribution of SMEs to total value added (%)	% of value added to % of employment rate (%)
Luxembourg	61,40	67,20	109,45
Estonia	79,00	77,80	98,48
Denmark	65,60	64,50	98,32
United Kingdom	54,10	51,00	94,27
Slovenia	67,70	63,80	94,24
The Netherlands	68,30	64,20	94,00
France	60,50	56,00	92,56
Norway	69,70	64,50	92,54
Australia	64,90	59,90	92,30
Austria	67,10	60,20	89,72
Finland	59,70	53,50	89,61
Germany	60,40	53,60	88,74
Sweden	63,70	56,50	88,70
Italy	81,10	71,30	87,92
Belgium	66,30	58,10	87,63
Spain	77,60	68,00	87,63
Slovak Republic	56,00	48,80	87,14
Portugal	81,10	70,00	86,31
Greece	84,60	71,00	83,92
Czech Republic	68,10	55,30	81,20
Poland	68,10	54,00	79,30
Ireland	69,20	51,80	74,86
Turkey	81,30	57,00	70,11
Hungary	71,20	47,20	66,29
OECD average	**68,61**	**60,22**	**88,13**

Source: OECD (2010) SMEs, Entrepreneurship and Innovation (OECD, Structural and Demographic Business Statistics).

As seen in the table above; Czech Republic, Poland, Ireland, Turkey and Hungary have relatively low rates in the % of value added by SMEs to % of employment in SMEs when compared with the other OECD member countries. On the other hand, countries like Luxembourg, Estonia and Denmark have relatively high rates in the % of value added by SMEs to % of employment in SMEs. This significant difference can easily be seen in Figure-1.

The SMEs accounts for 99% of firms in the OECD area, and 47-67% of value added across these countries. SMEs innovate, but not as much on average as large firms and they are also on average less involved in collaboration for innovation activities. There are some barriers to innovation in SMEs like; lack of qualified personnel, difficulty in finding co-operation partners for innovation, lack of funds within enterprise, and uncertain demand for innovative goods. In addition to access to finance – a traditional concern of small firms – the OECD statistics show that a key obstacle is lack of suitably qualified personnel, both scientific and managerial (OECD, 2011).

As mentioned above, the contribution of SMEs to total value added (57 %) was much lower than their contribution to employment (81.3 %) in Turkey. This result indicates that there is a significant low level of apparent labour productivity in Turkey. In our opinion it is worth to analyze the possible reasons of this situation. Maybe one of the evidence that we must focus is the high percentage of micro scale enterprises in Turkey. 98.1 percent of enterprises in Turkey are micro scale. When we compare this finding with the other OECD member countries, we see that Turkey is one of the leading countries for micro scale percentage in total number of enterprises.

Micro scale enterprises can be creative and make inventions but being innovative requires more than these. If one accepts that inventions are new discoveries, new ways of doing things, and those products are the eventual outputs from the inventions, that process from new discovery to eventual product is the innovation process (Trott, 2005). According to Trott;

> *The conception of new ideas is the starting point for innovation. A new idea by itself, while interesting, is neither an invention nor an innovation, it is merely a concept or a thought or collection of thoughts. The process of converting intellectual thoughts into a tangible new artefact (usually a product or process) is an invention. This is where science and technology usually play a significant role. At this stage inventions need to be combined with hard work by many different people to convert them into products that will improve company performance. These later activities represent exploitation. However, it is the complete process that represents innovation. This introduces the notion that innovation is a process with a number of distinctive features that have to be managed.*

The management of those distinctive features in micro scale enterprises is not so easy. This situation may play a significant role in the low percentages of value added created by SMEs. Our research questions were appeared in this point; Are there any significant differences between OECD member countries in "% of value added to % of employment" rate? What are the main factors that correlate with the low percentages of value added created by SMEs in Turkey and similar other countries?

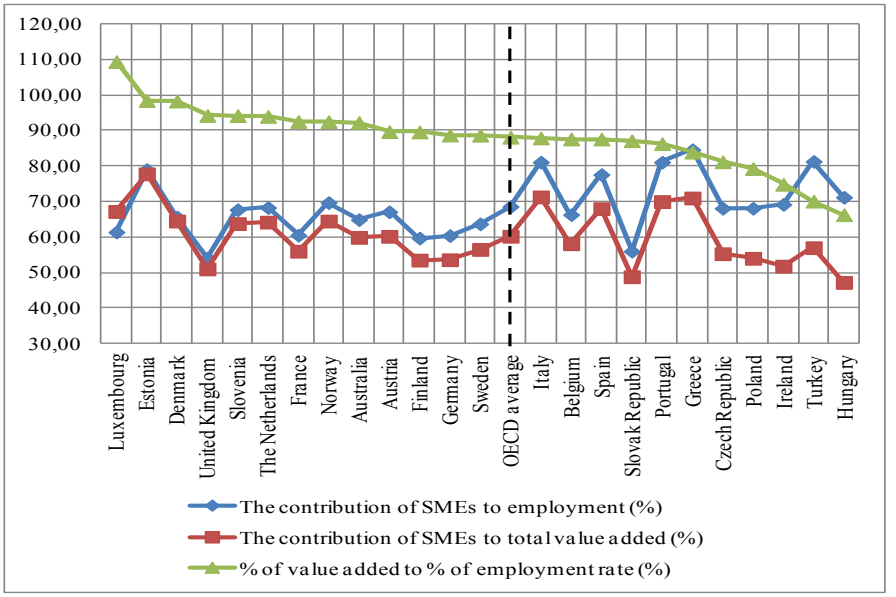

Figure 1. Comparison of the OECD member countries

2. Theoretical Framework

This study will attempt to answer the two main research questions: Are there any significant differences between OECD member countries in "% of value added to % of employment" rate? Therefore, the main variables of this study are; the contribution of SMEs to employment (%) and the contribution of SMEs to total value added (%). In addition, the second research question: What are the main factors that correlate with the low percentages of value added created by SMEs in Turkey and similar other countries?

The hypotheses of this study are;

H_1: There is a significant correlation between the contribution of SMEs to employment (%) and the contribution of SMEs to total value added (%) in OECD member countries.

H_2: There are significant differences between OECD member countries in % of value added to % of employment rate of SMEs (%).

H_3: There is a significant correlation between the % of SMEs introducing technological product innovations and % of value added to % of employment rate of SMEs (%).

H_4: There is a significant correlation between the % of SMEs introducing technological process innovations and % of value added to % of employment rate of SMEs (%).

H_5: There is a significant correlation between the % R&D expenditure as % of GDP and % of value added to % of employment rate of SMEs (%).

H_6: There is a significant correlation between the "Innovation Performance Index" in Innovation Union Scoreboard 2011 and % of value added to % of employment rate of SMEs (%).

H_7: There is a significant correlation between employment in knowledge-intensive activities (manufacturing and services) as % of total employment and % of value added to % of employment rate of SMEs (%).

H_8: There is a significant correlation between Innovative SMEs collaborating with others as % of SMEs and % of value added to % of employment rate of SMEs (%).

3. Methodology of the Research

3.1. Research Goal, Sample and Data Collection

The purpose of this study is to identify the main factors that correlate with the above mentioned gap between the SME percentage of total employment and SME percentage of value added in some OECD member countries like Turkey. Thus, the study can be defined as a quantitative (both descriptive and correlational) research. The sample of this study is the common member countries of both OECD and EU27. The non EU27 member OECD countries and non OECD member EU27 countries were excluded from data analyses. The data was collected from secondary data sources like; OECD, PRO INNO Europe (The innovation policy initiative of European Commission), Small and Medium Enterprises Development Organization of Turkey (KOSGEB) and Turkish Statistical Institute (TURKSTAT or TUIK).

4. Findings

4.1. Hypothesis testing and results

In the first hypothesis we proposed that there is a significant correlation between the contribution of SMEs to employment (%) and the contribution of SMEs to total value added (%) in OECD member countries. We used Spearman's Nonparametric Correlation test for the first hypothesis and as a result H_1 was supported. Results are shown in Table 4.

Table 4. H_1 Correlations Table

			The contribution of SMEs to employment (%)	The contribution of SMEs to total value added (%)
Spearman's rho	The contribution of SMEs to employment (%)	Correlation coefficient	1,000	,849**
		Sig. (2-tailed)	.	,000
		N	26	26
	The contribution of SMEs to total value added (%)	Correlation coefficient	,849**	1,000
		Sig. (2-tailed)	,000	.
		N	26	26

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

In the second hypothesis we proposed that there are significant differences between OECD member countries in % of value added to % of employment rate of SMEs (%). We used NPar Binomial test in order to test the difference of Turkey from other countries is significant or not. And we found a significant difference. In addition we made a Hierarchical Cluster Analysis using Ward Method in order to test H_2. As a result we found significant differences between OECD member countries in % of value added to % of employment rate of SMEs (%). Scatter diagram of the cluster analysis is shown in Figure 2.

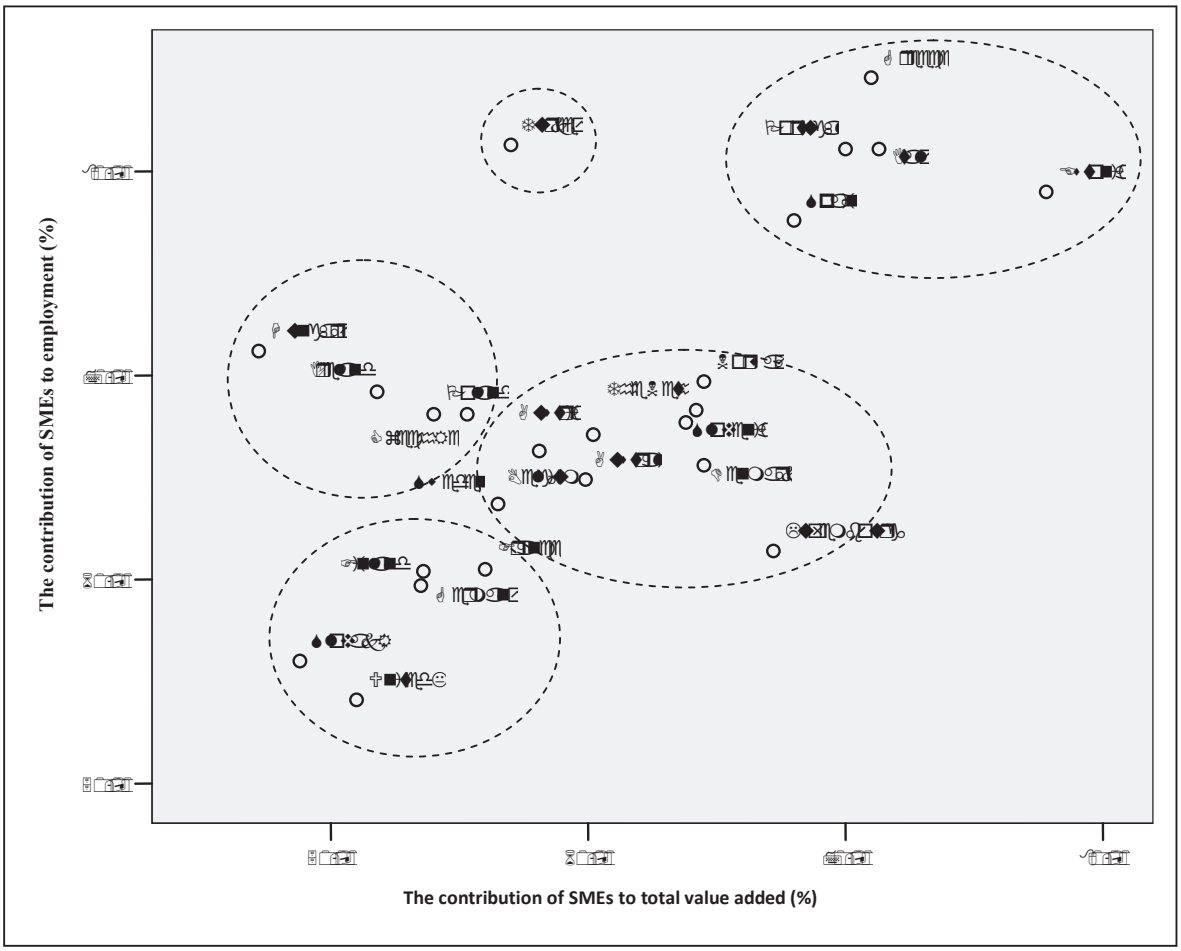

Figure 2. H_2 Scatter Diagram

As seen in the figure above, Turkey is totally separated from other OECD member states. The Dendrogram gives five clusters which are;

[1]; Australia, Austria, Belgium, Denmark, Luxembourg, Norway, Slovenia, Sweden, The Netherlands.
[2]; Czech Republic, Hungary, Ireland, Poland.
[3]; Estonia, Greece, Italy, Portugal, Spain.
[4]; Finland, France, Germany, Slovak Republic and United Kingdom.
[5]; Turkey.

In the third hypothesis we proposed that there is a significant correlation between the % of SMEs introducing technological product innovations and % of value added to % of employment rate of SMEs (%). We used Spearman's Nonparametric Correlation test for this hypothesis and as a result H_3 was supported. Results are shown in Table 5.

Table 5. H_3 Correlations Table

			the % of SMEs introducing technological product innovations	% of value added to % of employment rate of SMEs (%)
Spearman's rho	the % of SMEs introducing technological product innovations	Correlation coefficient	1,000	,457 *
		Sig. (2-tailed)	.	,029
		N	23	23
	% of value added to % of employment rate of SMEs (%)	Correlation coefficient	,457 *	1,000
		Sig. (2-tailed)	,029	.
		N	23	24

*. Correlation is significant at the 0.05 level (2-tailed).

In the fourth hypothesis we proposed that there is a significant correlation between the % of SMEs introducing technological process innovations and % of value added to % of employment rate of SMEs (%). We used Spearman's Nonparametric Correlation test for this hypothesis and as a result H_4 was not supported. Results are shown in Table 6.

Table 6. H_4 Correlations Table

			the % of SMEs introducing technological process innovations	% of value added to % of employment rate of SMEs (%)
Spearman's rho	the % of SMEs introducing technological process innovations	Correlation coefficient	1,000	,146
		Sig. (2-tailed)	.	,505
		N	24	23
	% of value added to % of employment rate of SMEs (%)	Correlation coefficient	,146	1,000
		Sig. (2-tailed)	,505	.
		N	23	25

In the fifth hypothesis we proposed that there is a significant correlation between the % R&D expenditure as % of GDP and % of value added to % of employment rate of SMEs (%) in OECD member countries. We used Spearman's Nonparametric Correlation test for this hypothesis and as a result H_5 was supported. Results are shown in Table 7.

Table 7. H_5 Correlations Table

			% of value added to % of employment rate of SMEs (%)	R&D expenditure as % of GDP
Spearman's rho	% of value added to % of employment rate of SMEs (%)	Correlation coefficient	1,000	,548**
		Sig. (2-tailed)	.	,006
		N	24	24
	R&D expenditure as % of GDP	Correlation coefficient	,548**	1,000
		Sig. (2-tailed)	,006	.
		N	24	26

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

In the sixth hypothesis we proposed that there is a significant correlation between the "Innovation Performance Index" in Innovation Union Scoreboard 2011 and % of value added to % of employment rate of SMEs (%). We used Spearman's Nonparametric Correlation test for this hypothesis and as a result H_6 was supported. Results are shown in Table 8.

Table 8. H_6 Correlations Table

			Innovation Performance Index	% of value added to % of employment rate of SMEs (%)
Spearman's rho	Innovation Performance Index	Correlation coefficient	1,000	,617**
		Sig. (2-tailed)	.	,002
		N	23	23
	% of value added to % of employment rate of SMEs (%)	Correlation coefficient	,617**	1,000
		Sig. (2-tailed)	,002	.
		N	23	24

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

The scatter diagram of the correlation between Innovation Performance Index and % of value added to % of employment rate of SMEs (%) is shown in Figure 3.

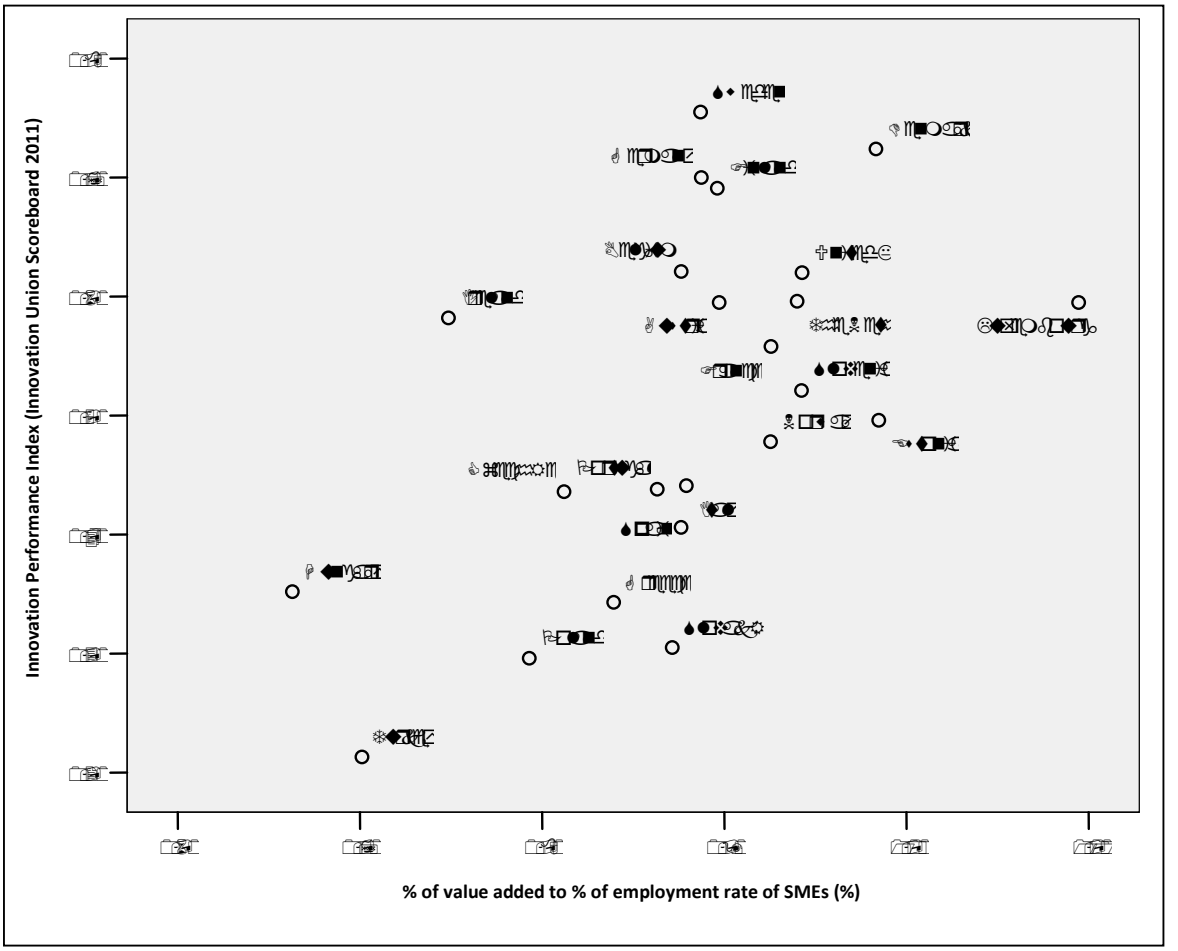

Figure 3. H_6 Scatter Diagram

In the seventh hypothesis we proposed that there is a significant correlation between employment in knowledge-intensive activities (manufacturing and services) as % of total employment and % of value added to % of employment rate of SMEs (%). We used Spearman's Nonparametric Correlation test for this hypothesis and as a result H_6 was supported. Results are shown in Table 9.

Table 9. H_7 Correlations Table

			Employment in knowledge-intensive activities	% of value added to % of employment rate of SMEs (%)
Spearman's rho	Employment in knowledge-intensive activities	Correlation coefficient	1,000	,469 *
		Sig. (2-tailed)	.	,024
		N	23	23
	% of value added to % of employment rate of SMEs (%)	Correlation coefficient	,469 *	1,000
		Sig. (2-tailed)	,024	.
		N	23	24

*. Correlation is significant at the 0.05 level (2-tailed).

In the eighth hypothesis we proposed that there is a significant correlation between Innovative SMEs collaborating with others as % of SMEs and % of value added to % of employment rate of SMEs (%). We used Spearman's Nonparametric Correlation test for this hypothesis and as a result H_8 was supported. Results are shown in Table 10.

Table 10. H_8 Correlations Table

			% of value added to % of employment rate of SMEs (%)	Innovative SMEs collaborating with others as % of SMEs
Spearman's rho	% of value added to % of employment rate of SMEs (%)	Correlation coefficient	1,000	,646**
		Sig. (2-tailed)	.	,001
		N	24	23
	Innovative SMEs collaborating with others as % of SMEs	Correlation coefficient	,646**	1,000
		Sig. (2-tailed)	,001	.
		N	23	24

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

5. Conclusion

The business environment should be conducive to the creation, growth and development of SMEs and to entrepreneurial activity in general. The main objective of SME policies of developing countries must be improving the productivity of the SMEs, to increase their share within total value added and to enhance their international competitiveness. It is of great importance to develop the SMEs, which have positive impacts on creating a competitive market, increasing employment, development of entrepreneurship and improvement of income distribution (YOIKK, 2012). On the other hand, in our opinion it is not enough to be entrepreneurial. With more than 2 million SMEs, Turkey comes forward in enterprise number in Europe. Nevertheless the contribution of those SMEs to total value added created in Turkey is nearly the same with only 2500 large enterprises. This result indicates that there is a significant low level of apparent labour productivity in Turkey. When compared with the other OECD and EU27 member countries, the gap between these percentages in Turkey seems relatively high.

In this study, firstly we test the significance of the above mentioned difference. We found that, the contribution rate of the SMEs in Turkey is significantly differs from other countries. Not only Turkey differs from others in this relation. The contributions of SMEs to employment and to total value added are relatively high in most of the Southern European countries when compared with other European countries.

In order to find the answer to the research question that; "What are the main factors that correlate with the low percentages of value added created by SMEs in Turkey and similar other countries?" we proposed that there can be potential linkages between technological product and process innovations and contribution of SMEs to total value added. The hypotheses results supported product innovations and not supported the process innovations. This result is meaningful because while product innovations raise the contribution to value added, process innovations didn't make directly the same effect. For example, according to TURKSTAT data; today's "Manufacturing industry" has by far highest share of the foreign controlled production with the rate of 56,4% in Turkey. The foreign controlled production in manufacturing industry is concentrated in the activities with medium-high technology but the value added created by product innovations of those firms are not national. In addition, Turkey is more often seems as an assembly industry with low cost of employee when compared to other European countries. Thus, foreign controlled firms only bring their blue-prints and do not ever need technological product innovations in Turkey but, technological process innovations may lower the production costs while the contribution of process innovations to value added is below from the contribution of product innovations.

In addition we found a strong correlation between "R&D expenditures" and "value added to employment rate of SMEs". Turkey have relatively low gross domestic expenditure on R&D as a percentage of GDP (0,72) when compared with OECD average (2,28). This finding shows us that R&D expenditures is one of the main factors that correlates with the low percentages of value added created by SMEs in Turkey and similar other countries.

We also search a correlation between OECD's "value added to employment rate of SMEs" with European Unions' "Innovation Performance Index". As expected, we found a strong correlation between those two data sets. Turkey has the lowest (0,213) Innovation Performance score within EU27 and considered as a "Modest Innovator" country.

The two indicators used in European Unions' Innovation Union Scoreboard 2011; "Employment in knowledge-intensive activities", "Innovative SMEs collaborating with others as % of SMEs" are other potential factors that correlates with the low percentages of value added created by SMEs in Turkey and similar other countries. As a result, we found correlations between those variables. However we did not search a regressive relation between those two variables, the conclusion that an increase in Employment in knowledge-intensive activities may foster the value-added/employment rate of SMEs is indeed logical. As a last finding, we found a strong correlation between the % of Innovative SMEs collaborating with others the with value-added/employment rate of SMEs.

Of course there are many factors that correlate with the low percentages of value added created by SMEs in Turkey and similar other countries like informal employment, informal economy, financial factors, cultural factors and etc. but as a conclusion; being innovative, more importantly creating new product innovations, increase in employment in knowledge-intensive activities and collaborating with others can foster the contribution to total value added by SMEs in Turkey. We think that, the differences between country clusters of value-added/employment rate of SMEs will be an issue that should be taken into consideration for further research.

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