

Technological Effects of Public Support Programs on SBEs: An Investigation on “KOSGEB”

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Abstract: In legal entities in Turkey, outnumbered by far the most important institutions that powers the economy, as well as the nature of the Small and Medium Sized Enterprises (Called as KOBI – SMEs). The place of SMEs is very important both economically and socially. The changes experienced in SMEs in times of crisis and transformation in Turkey have often played a decisive role. The public support programs influence the entrepreneurs on the adaptation of information to the information age of the new century in SMEs, provide competitive advantage and facilitate business sustainability. One of the most important factors underlying such positive developments is that businesses use technology at a more efficient level. The use of technology, on the other hand, is reflected in increased productivity and subsequent profit. The public support and training programs that shed light on these developments are the main theme of this work. This study, which is made in the form of literature scans, is based on KOSGEB specific observations and KOSGEB primary data and interpreted in the light of TUIK data.

Keywords: KOSGEB, SMEs, Technology Effect, Public Support

JEL Classification: P42

1. Introduction

Today, the level of technology use by countries is important for competing in the international arena. When we look at the countries that have reached a certain level from an economic standpoint, we can determine how much they attach importance to technology investments and Research & Development (R&D) expenditures. Today, due to the validity of liberal economic conditions, countries are implementing policies that encourage the private sector. For this reason, in order for economic development to take place, the importance of state support programs is gaining in the competitive power by increasing the technology levels of SMEs.

For emerging countries like our country, the importance of government support programs provided to SMEs is even greater. Because it is close to 99% of the enterprises in our country, it carries the qualification of SME. It will not be difficult to determine that SMEs are guiding the country's economy when considering the economy's presence. For this reason, if the country's economies is in developin status, it can be realized that these SMEs have a qualified and competitive structure. At this point, SMEs are in possession of up-to-date technology and encouraging. There are several public institutions in our country that support SMEs. The most known of these institutions is KOSGEB.

In the first part of this study, information about SMEs will be given and their share in the economy will be stated. In this view, contributions from production to employment and economy will be determined. In the second part, research would point out the importance of support programs provided to SMEs and supporting institutions. In the third part of my work, I will share information on the role of KOSGEB and data on implementation.

2. Definition and Requirements of SME's and Expenditure for R&D of SME's

2.1. Definition of SME's and Requirements

With the globalization, the competitiveness of the end-tier countries has gained importance, and the necessity of defining the SMEs to be supported in this direction has emerged. The prominence of the definition of SMEs emerges at the point of support that will be given by the private sector in the private sector. As there are more than one criterion in these definitions, there is only one criterion in some countries. Below are a few examples of SME definitions that vary even from country to country and even from place to place. Later, the share of SMEs in the economy will be given and a number of evaluations will be made.

2.1.1. In USA

According to Dablan; "The Small Business Administration (SBA), which has been operating in the United States since the 1920s, has generally adopted quantitative measures of the number of sales and the number of workers employed by businesses." (Dablan, 2010 : 47)

According to SBA Standards Bureau Association definition; "The number of employees in the manufacturing industry (500-1500 people), the number of personnel in the

wholesalers and annual sales revenues (up to 500 staff and 25 million dollars sales) as well as the annual sales revenues for retailers and service businesses (3–13 Million Dollars) are considered."

2.1.2. In EU

According to Küçüktekin; "The number of SMEs in the European Economic Community, which is composed of 28 member countries, is around 23 million and the number of people employed is 75 million. The share of SMEs in the total economy reaches 99%. The only market among member countries requires a common definition for the support and protection of SMEs (Küçüktekin, 2006: 11). Table 1 provides information on the EU's SME criteria:

Table 1. SME's Criteria in EU

Business Category	Annual Employee	Annual Turnover Amounts	Financial Balance Sheet
Medium Scale	50–249	50 million euros or less (40 million euros in 96)	43 million euros or less (27 million euros in 96)
Small Scale	10–49	10 million euros or less (7 million euros in 96)	10 million euros or less (5 million euros in 96)
Micro Scale	1–9	2 million euros or less (unspecified).	50 million euros or less (not previously defined).

Source: (Commission European, 2015: 11)

According to the definition of the European Commission, enterprises with annual number of employees not exceeding 250 and with a net sales revenue of 50 million Euros or a financial balance sheet totaling 43 million Euros are SMEs.

2.1.3. In Japan

In Japan, the number of employment and the amount of working capital are important. This situation will be understood in Table 2:

Table 2. SME's Criteria in Japan

Sector	Number of Employees	Amount of Capital (Million Yen)
Manufacturing Industry And Others	<= 300	<= 300
Wholesale trade	<= 100	<= 100
Retail Trade	<= 50	<= 50
Service Operations	<= 100	<= 50

Source: (Atici, 2006: 40)

2.1.4. In Brasil

The only measure of Brazilian SME qualification is employment. This situation will be seen in Table 3:

Table 3. SME Criteria in Brazil

Business Size	Number of Employed Workers
Very Small Business	0-10 Employee
Small business	11-49 Employee
Medium Business	50-99 Employee

Source: (Müftüoğlu, 2007: 121)

As Table also argues, companies that do not employ workers in Brazil carry the SME qualification. It is also understood that between 0 and 99 SME employment measures in Brazil.

2.1.5. In Turkey

The criteria of SMEs, which are on the agenda to be expanded in our country at the moment, have been updated from year to year:

Table 4. SME Criteria in Turkey

Size	Employee		Annual Turnover (TL)		Annual Balance Sheet (TL)
Micro Business	<10		<1 million		<1 million
Small business	10-49	AND	<8 million	OR	<8 million
Medium Business	50-249		<40 million		<40 million

Source: 04.11.2012 Dated, Official Newspaper No. 28457

Employment, number of businesses as well as in the EU in Turkey from the above table, turnover and financial balance sheet total of the criteria used, the number of employees from SME criteria in Turkey is of the same nature with the EU, it is understood that while the financial criteria close together.

2.2. R&D Activities in Turkey

R&D, according to Law No. 5746 on the Support of R&D Activities; "Scientific and technological developments that provide scientific and technological development in the field with environmentally friendly product design or software activities are carried out on a systematic basis in order to increase the knowledge of culture, people and

society and to use it to design new processes, systems and applications. Activities that have original, experimental, scientific and technical content that focus on uncertainty. (Law No. 5746 on Supporting Research and Development Activities) .

According to TURKSTAT data; Turkey in the Gross Domestic R&D expenditure increased by 19.5% in 2016 compared to the previous year is calculated as 24 billion 641 million TL. The share of SMEs in all R&D expenditures is 18.3%. Within the context of R&D activities, the share of SMEs for the periods 2010–2016 is based on the following years: (KOSGEB, TÜRKİYE'DEKİ KOBİ'LERE İLİŞKİN BAZI İSTATİKİ GÖSTERGELER, 2018, s. 9)

Table 5. Annual Distribution of R&D Expenditures

	2010	2011	2012	2013	2014	2015	2016
Share of SMEs in Commercial Sector R&D Expenditures	%34,9	%37,7	%36,8	%35,7	%34,9	%35,3	%33,7
Share of SMEs in whole R&D Expenditures	%14,9	%16,3	%16,6	%16,9	%17,4	%17,7	%18,3
SME's share in commercial sector R&D human power	-	%55	%54,7	%53,2	%52,4	%53,2	%51,1

Source: (KOSGEB, Türkiye'deki KOBİ'lere ilişkin bazı istatiki göstergeler, 2018: 10)

The share of SMEs in the commercial sector in 2016 is 33.7%. According to TURKSTAT; 90.7% of these expenditures are current expenditures and the remaining 9.3% are investment expenditures (KOSGEB, Türkiye'deki KOBİ'lere ilişkin bazı istatiki göstergeler, 2018: 9)

2.3. Innovation Activities in Turkey

Today it is very important for companies to have an innovative perspective so that they can compete both nationally and internationally. When we look at firms in global scale, we can see that they have many innovative ideas in management, production, marketing and other fields.

Published together with Eurostat and the OECD, which is a source of internationally recognized for innovation Turkey's Scientific and Technological Research Council of Oslo Manual (TUBITAK) published by the Turkish translation of innovation, "innovation" being expressed, and is defined as: "Business-house applications, (goods or services) or process, a new marketing method or a new organizational method in a new or

significant improvement in the workplace organization or in external relations. " (Bintaş, 2017: 58). Statistics for the three-year periods 2006–2016 under the innovation survey by TURKSTAT are included in the following table:

Table 6. Distribution of Innovative Initiatives

	2006–2008	2008–2010	2010–2012	2012–2014	2014–2016
Initiatives with 10 or fewer employees	%37,1	%51,4	%48,5	%51,3	%61,5
Entrepreneurs with 10–49 employees	%33,8	%49,4	%46,5	%49,3	%60,4
Initiatives with 50–249 employees	%43,7	%58,9	%56,1	%57,5	%65
Initiatives with 250 or more employees	%54,4	%69,7	%66,3	%65	%65

Source: (KOSGEB, Türkiye'deki KOBİ'lere ilişkin bazı istatiki göstergeler, 2018: 11)

It can be understood from Table 6 that the ratio of SMEs that are in the activity of innovation is increased by years. This rate has recently been around 60%.

Table 7. Breakdown of Product and / or Process Innovation Activities

	2006–2008	2008–2010	2010–2012	2012–2014	2014–2016
Initiatives with 10 or fewer employees	%27,4	%33,2	%26,9	%38,0	%47,3
Entrepreneurs with 10–49 employees	%25,5	%30,9	%24,8	%36,4	%45,9
Initiatives with 50–249 employees	%35,6	%41,4	%34,4	%42,4	%52
Initiatives with 250 or more employees	%44,6	%54,4	%46,1	%54,5	%57,6

Source: (KOSGEB, Türkiye'deki KOBİ'lere ilişkin bazı istatiki göstergeler, 2018: 12)

The table above shows that the proportion of SMEs engaged in product and / or process innovation activities is between 47% and 52%.

Table 8. Distribution of Organization and / or Marketing Innovation Activities

	2006–2008	2008–2010	2010–2012	2012–2014	2014–2016
Initiatives with 10 or fewer employees	%22,7	%42,5	%43,7	%41,0	%50,8
Entrepreneurs with 10–49 employees	%20,3	%41,1	%41,9	%39,3	%49,6
Initiatives with 50–249 employees	%27,1	%46,8	%50,2	%46,5	%54,5
Initiatives with 250 or more employees	%39,3	%57,3	%60,8	%53,4	%62,4

Source: (KOSGEB, Türkiye'deki KOBİ'lere ilişkin bazı istatiki göstergeler, 2018: 12)

It can be interpreted from Table 8 that the ratio of SMEs operating in organizational and / or marketing innovation has increased by 100% or more from 2006–2008 to 2014–2016.

3. The Concept of Public Support And Financial Support In Turkey Makes Significant The SME Public Institutions

3.1. Concept of Public Support

"Public support and incentives are programs that make it easier for public institutions, non-governmental organizations and private enterprises to carry out activities in areas that will provide economic and social development under certain conditions. The concept of support is defined in the economic literature as financial or non-financial support, assistance and encouragement given in various ways by the public in order to ensure that certain economic activities develop more than others (Çam & Esengün, 2011).

Public support provided to SMEs throughout the country without distinction between developed and developing countries has several purposes. These can be listed as follows:

- **Providing Regional Development:** "Public support for regional support aims to attract new investments mainly to the backward regions. The reason for regional support is mainly the elimination of unfair competition created by the region's geographical location, transportation facilities, infrastructure, educational status and other social adversities (Çiloğlu, 2000: 13).
- **Increasing Employment:** The elimination of the unemployment problem, which is one of the structural problems of developing countries in particular, is

among the objectives of many public support programs. The incentives provided for the recruitment of additional personnel on the agenda in recent days are indicative of this.

- **Improving the Technological Level:** With the globalizing world, the increasing level of technology is one of the most important factors that enable SMEs to compete.

3.2. Significant Supporting Public Institutions to SMSs In Turkey

In practice, there are several public institutions that implement support programs for SMEs. Since the study support programs are related to the technological impacts on SMEs, the institutions that implement support programs for R & D and innovation will be mentioned below; detailed information will be shared in KOSGEB:

- Ministry of Science, Industry and Technology
- Ministry of Economy
- Ministry of Finance (Indirect)
- Social Security Institution (Indirect)
- The Scientific and Technological Research Council of Turkey (TUBITAK)
- Small and Medium-Sized Enterprises Development and Support Administration (KOSGEB)

3.3. Ministry of Development and Support for Small and Medium-Sized Enterprises (KOSGEB)

"The Small and Medium Scale Enterprises Development and Support Administration (KOSGEB) was established on 20 April 1990 with the Law No. 3624. KOSGEB; It is a "related" organization of the Ministry of Science, Industry and Technology and is a special budgeted account, which is listed in Part B of Schedule II of the Public Financial Management and Control Law No. 5018 (KOSGEB, KOSGEB 2017 ara faaliyet raporu, p.1)

KOSGEB support programs include both repayment and non-repayment support. Repayable supports are interest free. Moreover, some of KOSGEB's support programs directly and indirectly affect the technology levels / use of SMEs. KOSGEB will provide information on the amount of R & D spending in private sector expenditures by the amount and years, and will be passed on to the results and evaluation section.

Table 9. Realization Statistics of KOSGEB Supports in 2010–2017 Period (Support Amount and Number of SMEs Benefited)

Program Name	2010	2011	2012	2013	2014	2015	2016	2017
R&D, Innovation and Industrial Application Support Program	4.161.762,11 TL, 176 SME	43.294.757 TL, 830 SME	65.667.788 TL, 1.193 SME	66.218.935 TL, 1.259 SME	56.569.487 TL, 1078 SME	53.699.340 TL, 974 SME	49.896.284 TL, 897 SME	58.767.148 TL, 943 SME
Program Name	2010	2011	2012	2013	2014	2015	2016	2017
General Support Program	4.959.643,69 TL, 2.202 SME	67.538.532 TL, 15.387 SME	96.807.628 TL, 19.065 SME	134.000.356 TL, 23.776 SME	129.233.992 TL, 23.035 SME	158.734.818 TL, 25.995 SME	166.080.1772 TL, 24.583 SME	276.976.212 TL, 31.920 SME
Collaboration Cooperation Support Program	1.364.635,87 TL; 5 SME	12.451.150 TL, 46 SME	21.113.809 TL, 84 SME	13.389.287 TL, 78 SME	12.423.543 TL, 63 SME	8.332.366 TL, 50 SME	5.132.103 TL, 35 SME	9.079.029 TL, 36 SME
Program Name	2010	2011	2012	2013	2014	2015	2016	2017
Entrepreneurship Support Program	358.291,71 TL; 69 SME	26.252.955 TL, 2.416 SME	52.182.573 TL, 4.894 SME	85.618.415 TL, 8.077 SME	107.409.093 TL, 10.207 SME	126.665.386 TL, 11.828 SME	240.655.517 TL, 15.540 SME	443.419.627 TL, 22.895 SME

Program Name	International Incubator Center and Accelerator Support Program	Support Expenses Support	KOBIGEL-SME Development Support Program	Emerging Business Market SME Support Program	Thematic Project Support Program
2010	-	-	-	-	-
2011	-	-	-	-	197.611 TL, 8 SME
2012	-	-	-	135.750 TL, 3 SME	445.832 TL, 18 SME
2013	-	-	-	227.251 TL, 6 SME	868.441 TL, 22 SME
2014	-	-	-	279.327 TL, 7 SME	335.918 TL, 14 SME
2015	-	-	-	86.566 TL, 3 SME	13.171 TL, 2 SME
2016	-	95.395 TL, 104 SME	30.763.201 TL, 297 SME	80.512 TL, 2 SME	412.226 TL, 14 SME
2017	3.088.101 TL, 9 SME	452.338 TL, 424 SME	149.751.672 TL, 1.376 SME	-	653.145 TL, 17 SME

Total	Loan Interest Support	Technological Product Promotion and Marketing (Techno-market) Support Program
185.653.645,43 TL, 51.315 SME	146.886.262,45 TL, 43.310 SME	-
347.889.417 TL, 68.691 SME	170.428.783 TL, 48.217 SME	-
403.880.570 TL, 34.716 SME	109.374.849 TL, 7.408 SME	-
348.923.405 TL, 35.399 SME	4.525.026 TL, 343 SME	-
348.029.941 TL, 37.891 SME	36.443.357 TL, 3.140 SME	-
355.967.498 TL, 39.593 SME	6.158.256 TL, 597 SME	-
540.638.676 TL, 43.125 SME	31.942.098 TL, 1.069 SME	-
1.692.312.386 TL, 347.956 SME	739.411.350 TL, 289.937 SME	1.242.654 TL, 26 SME

Source: (KOSGEB, KOSGEB Ara Faaliyet Raporları)

We understand from Table 9 that the total amount of support given by KOSGEB has increased by 9 kts from 2010 until 2017. One of the reasons for this increase is the implementation of KOBIGEL Support Program (2016) and TEKNOPAZAR Support Program (2017) by giving importance to KOSGEB's production sector. It is also inevitable that these amounts will increase in the coming years. We understand this from the statements made by the KOSGEB officials and from the support programs that came into force in 2017. Because; In 2017, KOSGEB put into effect the Strategic Product Support Program and SME Technological Product Investment Support Program (SME TECHNOLOGY) with the aim of increasing domestic production, creating added value by creating new products, reducing the current deficit and imports. At the end of 2018 and in the following years, the actual amounts of the support programs will emerge. The support upper limits and support rates of the two programs mentioned in Table 10 will be mentioned.

Table 10. Strategic Product Support Program and SME TECHNOLOGY Support Program

	Support Upper Bound	Support Rate
Strategic Product Support Program	5.000.000,00 TL	70% Non-Reimbursable 100% Non-refundable + Refundable (In the case of the acquisition within the scope of the domestic property certificate, 15% is added to the non-refundable support rate and the repayment support is given up to the remaining support rate.)
SME Technology Product Investment Support Program (SME TECHNO-INVESTMENT)	5.000.000,00 TL	70% for micro-enterprises as a non-refundable, 60% for medium and small businesses (5% in case of advanced technology) 100% Non-refundable + Refundable (In the case of the acquisition within the scope of the domestic property certificate, 15% is added to the non-refundable support rate and the repayment support is given up to the remaining support rate.)

Source: (www.kosgeb.gov.tr)

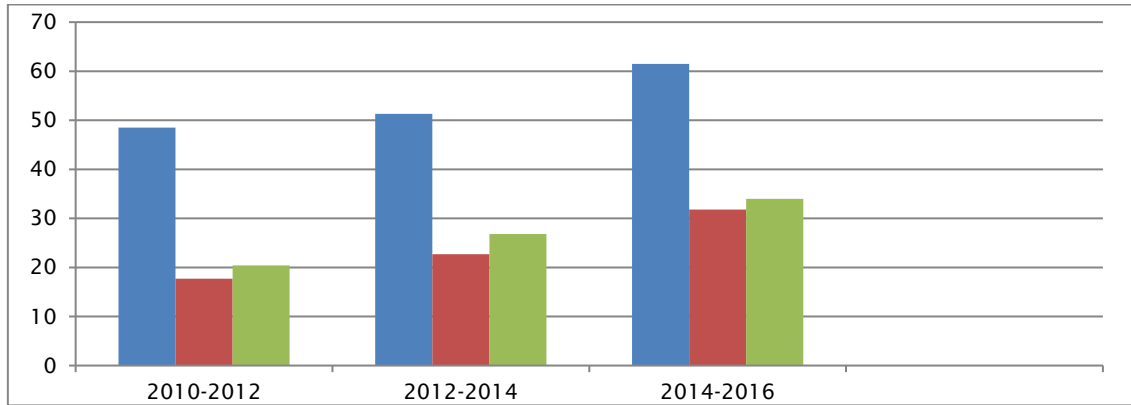
After giving information about the support amounts realized by KOSGEB, TURKSTAT data will be shared when we make a determination about the technologies of SMEs below:

Table 11. Statistics of R & D Activities of Financial and Non-Financial Companies

	R&D Personal Expenditure (TL)	Other Current R&D Exp. (TL)	R&D Investment Exp. (TL)	Total (TL)	R&D Human Resource (People)
2010	1.857.154.076	1.559.218.905	526.535.453	3.942.908.434	45.922
2011	2.310.950.262	1.779.811.243	726.510.980	4.817.272.485	55.023
2012	2.937.207.043	2.234.116.947	719.890.759	5.891.214.749	61.378
2013	3.640.398.444	2.547.075.798	844.044.732	7.031.518.974	69.018
2014	4.365.472.509	3.362.671.966	1.031.875.295	8.760.019.770	73.737
2015	5.272.535.462	4.077.339.639	958.862.588	10.308.737.689	77.551
2016	6.447.876.085	5.822.105.491	1.089.030.024	13.359.011.600	83.873

Source: (TÜİK, 2018)

The table above shows that the AR-GE spending and the AR-GE employment have increased over the years. For this reason, we can say that KOSGEB supports, which have increased with years, also contribute to this case.



* Blue: Innovative Initiatives Orange: Product Innovation Initiatives Green: initiatives that make process innovation

Figure 1. Ratio of SMEs in Innovative Venture *

Source: (TÜİK, 2018)

From the above chart, we can see that the ratio of SMEs in the initiative of innovation increases. In order to increase the amount of support provided to SMEs by KOSGEB during the mentioned periods, we can say that these supports provided to SMEs contributes positively to innovation activities.

5. Result

As in developing countries, the prospects of SMEs in our country have increased even more in recent days. We can understand this from the statistics shared above. Because of the shared information, especially the support programs given by KOSGEB in recent years have contributed positively to the increase of R&D spending and innovation initiatives by SMEs.

In practice, it has been determined that more than one public institution applies SMEs' support programs for the same issues, which leads to the ineffective and efficient use of public resources in the country already suffering from financial resources shortage. KOSGEB is the pioneer of the SMEs, who left the other supporting institutions only by giving support to the SMEs. For this purpose, by supporting SMEs which are close to 100% of the initiatives in our country, resources from different institutions can be gathered under one roof and monitoring of the given supports can be made easier.

This institution may be KOSGEB. Major initiatives that do not carry the SME qualification can be supported by banks.

Especially when we look at the economies of Asia-Tigers, like South Korea, which started importing residence in the same period as ours, we can see that they are making serious investments in technology. The result of investing in technology is a brand-valued product / process or marketing technique that brings foreign exchange to the country. Thus, this situation can contribute positively to our country which is increasing day by day. While KOSGEB supports every sector, it can produce support models for value added product production by turning to industrial production.

KOSGEB can also implement support models to produce renewable energy sources in order to reduce energy imports, one of the main causes of current account deficit. Thus, our production dependency will decrease and production costs will decrease.

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