

A Sectoral Analysis of Businesses Operating in Food Industry in Bursa, Turkey

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Abstract: One of the most socio-economically important sectors in Turkey is Food sector and it has grown rapidly in recent years. Bursa has become a brand city in Turkey, particularly in terms of fruit, vegetables and processed products industry, dairy industry, and beverages sector. When the export figures are analyzed, the food industry of Bursa has a significant proportion of the Turkey's export figures. The purpose of this study was to conduct a sectorial analysis of food companies operating in Bursa and to determine their Research and Development (R&D) and test-analysis needs. In addition, this study aimed to find the problems experienced in this sector and to propose possible solutions to these problems. Based on the analysis, we found out that businesses operating in food industry in Bursa are in need of laboratory tests and analysis and have a lack of qualified employees for their R&D departments. We argue that universities can have an important role in solving these problems and that the collaboration between universities and industry can be enhanced by introducing some additional regulations to the universities' policies.

Key Words: Food Industry, research and development, test-analysis, sectorial analysis.

Bursa İlinde Faaliyet Gösteren Gıda Sanayi İşletmelerinin Sektörel Analizi

Özet: Ülkemizin sosyo-ekonomik açıdan en önemli sektörlerinden biri olan gıda sektörü son yıllarda hızla gelişim göstermektedir. Bursa, özellikle meyve, sebze ve mamülleri sanayi, süt ve ürünleri sanayi ve içecek sektörü açısından ülkemiz de marka şehirlerden biri haline gelmiştir. Özellikle ihracat rakamları incelendiğinde Bursa gıda sanayinin, ülke ihracat rakamları arasında önemli bir yere sahip olduğu görülmektedir. Bu çalışma, Bursa'da faaliyet gösteren gıda firmalara yönelik sektörel analizin yapılması, Araştırma-Geliştirme (Ar-Ge) ve test-analiz ihtiyaçlarının belirlenmesi amacıyla yapılmıştır. Buna ek olarak bu alanlardaki sorunlarının belirlenmesi ve çözüm önerilerinin

geliştirilmesi hedeflenmiştir. Sonuç olarak, Bursa'da faaliyet gösteren gıda sanayi firmalarının laboratuvar test ve analiz ihtiyaçları ve Ar-Ge çalışmalarında görev alacak nitelikli personel ile ilgili eksiklikleri olduğu belirlenmiştir. Bu sorunların giderilmesinde üniversitelere önemli bir rol düştüğü ve üniversite politikalarında yapılacak düzenlemeler ile üniversite sanayi işbirliğinin daha da arttırılabileceği düşünülmektedir.

Anahtar Sözcükler: Gıda endüstrisi, araştırma ve geliştirme, test-analiz, sektörel analiz.

Introduction

Companies, an important amount of whose raw material used in production is made of agricultural products, or which process and make use of agricultural products are called food industrial businesses (Çetin, 2012). Regarded as one of the sectors having the most socio-economically important effect in today's world, food industry is composed of several sub-branches. Food industry has 10 sub-sectors which are as follows: (1) Meat and meat products, (2) Dairy products, (3) Seafood products, (4) Bakery products, (5) Fruit and vegetable processing, (6) Vegetable oil and vegetable oil products, (7) Sugar industry products, (8) Sugary and cacao products, (9) Other food products, and (10) Feed manufacturing products (Çetin, 2012; Bulu et al., 2007). The food industry in Bursa has developed significantly because the city is close to the areas that have a high potential for agriculture and food manufacturing and processing businesses are also close to the areas where agricultural production is carried out. Since fruit and vegetable production is quite high, fruit and vegetable processing industry has an important place, followed by dairy product industry, beverages, and oil industry (Anonymous 2013a).

As observed in many other economies, the food sector that processes agricultural products is going through a fast change and improvement in Turkey. Increasing population leads to a rapid increase in the demand for food products, which requires businesses to increase the production of food products one the one hand and to produce safe and quality products on the other hand (Kuşat and Kösekahyaoğlu, 2012). In addition, small and medium sized businesses make up a high proportion of the businesses in this sector, causing difficulty in making production under hygienic circumstances, leading to a failure in the operations of quality-control mechanisms, and making a quality production within standards more difficult as well (Kaya et al., 2010).

Such features of the food industry as being indispensable for human life, being more based on labor-intensive manufacturing when compared to other manufacturing sectors, and having a close relation with agricultural and industrial sector have an important role in the increasing number of the companies in this sector (Kuşat and Kösekahyaoğlu, 2012). Hence, companies often apply for R&D activities in order not to be adversely affected by the increasing competition. Besides, companies need test and analysis services to produce safe, in terms of health, and quality products.

In Bursa, 21 companies have R&D Centers, and Bursa ranks second after İstanbul in terms of the number of R&D Centers. Bursa is also the second city, after İstanbul, in terms of patent, useful model and industrial design registration applications. When the export figures for 2012 are analyzed, Bursa has a high potential with its export worth 807.202.000\$ and export volume worth 21.439.412.000\$ (Anonymous b, 2013). When the share of food industry in export figures is analyzed, fruit, vegetables and processed

products rank first with the export figure worth 118.502.109\$, followed by the export of fruit and vegetable juice worth 42.117.509\$ and the export of non-alcoholic beverages and alcoholic beverages worth 25.927.023\$ (Vural et al., 2013).

This study was carried out to conduct a sectorial analysis of companies with more than 50 employees in food sector that is the leading industrial sector in Bursa and to determine their R&D and test-analysis needs. It also aimed at finding out the problems experienced in these fields and offering possible solutions.

Material and Method

Thirty-nine food companies with 50 or more than 50 employees located in Bursa were selected. Among 39 companies, only 25 accepted to participate and the data were collected from these selected companies by survey method. The data were analyzed by using SPSS package program.

Results and Discussion

Among 25 companies that participated in the study, 11 companies operate in fruit, vegetable and products industry, 5 companies operate in beverages industry, 4 companies operate in dairy industry, 2 operate in sugar and cacao products, and 1 operate in bakery products, 1 operates in oil industry, and 1 operates in other food products industry. In the surveys, capital structures, export figures, presence of R&D departments, Production Development (P&D) activities, the laboratory activities within the companies, the outsourced laboratory services were questioned.

Table 1 shows the capital structures, export levels, and R&D and P&D activities of the companies. Based on survey, 84 percent of the companies have domestic capital, 80 percent export their products and 72 percent have R&D Departments or P&D activities.

Table 1. Descriptive Statistics

| Capital | N | % |
|---|----|----|
| Domestic | 21 | 84 |
| Joint | 4 | 16 |
| Exporting goods | N | % |
| Yes | 20 | 80 |
| No | 5 | 20 |
| Presence of an R&D Department or P&D Activities | N | % |
| Yes | 18 | 72 |
| No | 7 | 28 |

About 89 percent of companies that have R&D departments or P&D activities have domestic capital and 11 percent have joint capital (**Table 2**). These data indicate that the companies that have domestic capital have a need for R&D and P&D (76 %) and that they try to meet this need on their own.

Table 2. R&D departments or P&D activities

| Capital | Presence of an R&D departments or P&D activities | | |
|-----------------|---|-----------|--------------|
| | Yes | No | Total |
| Domestic | 16 | 5 | 21 |
| | %76 | %24 | %100 |
| | %89 | %71 | %84 |
| Joint | 2 | 2 | 4 |
| | %50 | %50 | %100 |
| | %11 | %29 | %16 |
| Total | 18 | 7 | 25 |

Similarly, the relationship between the capital structures of companies and whether they export their products or not is shown in **Table 3**. In this regard, 86% companies with domestic capital and 50% of the companies with joint capital stated that they export their products. This results indicates that the companies with domestic capital are willing to export their products. However, most of the companies with foreign partners try to sell the products which they develop in another country.

Table 3. Capital Structures and Exporting Goods

| Capital | Exporting Goods | | |
|-----------------|------------------------|-----------|--------------|
| | Yes | No | Total |
| Domestic | 18 | 3 | 21 |
| | %86 | %14 | %100 |
| | %90 | %60 | %84 |
| Joint | 2 | 2 | 4 |
| | %50 | %50 | %100 |
| | %10 | %40 | %16 |
| Total | 20 | 5 | 25 |

However, 16 companies that export their products have R&D departments and product development activities as expected (**Table 4**). When the qualifications of the employees working in the R&D departments of these companies were analyzed, results demonstrated that that there are no employees with PhD degree but 4 companies have employees with Master's degree, indicating that there is a lack of qualified employees in food industry, particularly in their R&D departments.

Table 4. Presence of an R&D Department and P&D Activities and Exporting Goods

| Exporting Goods | Presence of an R&D Department or P&D Activities | | |
|-----------------|---|----------|-----------|
| | Yes | No | Total |
| Yes | 16 | 4 | 20 |
| | %80 | %20 | %100 |
| No | %89 | %57 | %80 |
| | 2 | 3 | 5 |
| No | %40 | %60 | %100 |
| | %11 | %43 | %16 |
| Total | 18 | 7 | 25 |

Among the companies that participated in the survey, 18 have R&D departments but none of them have an accredited laboratory or test. Also, this result suggests that none of the companies that participated in the study have an accredited laboratory or test regardless of their capital structure.

Among the companies that participated in the study, only 3 of them stated that other companies could also use their laboratories. Two of these companies do not export their products. In addition, of these 3 companies, 2 have domestic capital and 1 has joint capital. Based on this finding, it can be argued that the companies that do not export their products need tests or analysis less and they are not as much competitive as the companies which do export.

Conclusion

Food industry, one of the driving force of Turkish economy, is rapidly changing and making a remarkable progress. When the companies operating in food industry in Bursa are analyzed, most of them are from fruit, vegetables and products industry, dairy industry and beverages industry. 84 percent of the companies participated in the survey have domestic capital, 80 percent export their products, and 72 percent have R&D departments and carry out P&D activities. In addition, most of these companies buy their laboratory services from outside sources since they do not have laboratory infrastructure, qualified employees, accredited laboratories or tests. Moreover, there were some problems or deficiencies in the test and analysis services they bought because of various other reasons. These results indicate that there is a need for an accredited food laboratory in Bursa that can render wide-range services. It is obvious that universities are the institutions to undertake the biggest responsibility. Enhancing the current collaboration between universities and food industry and promoting new collaboration should be among the priorities of the universities. It can be argued that accredited laboratories being established within the universities will meet the test/analysis needs of food industry while this maybe result in new partnerships and collaboration. It is necessary to take essential steps to train qualified laboratory staff that food industry need, regularly organize training programs with certificates and/or without certificates, and facilitate the coordination required.

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