

## **Role of Universities in Enhancing the Competitiveness of Palestinian Agribusiness: Applying Porter's Diamond Model**

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### **Abstract**

*The purpose of this research paper is to study the determinants affecting the competitiveness of agribusiness firms in Palestine and to discuss the role of Palestinian universities in enhancing the competitiveness of these firms. Both quantitative and qualitative methods of research are used. Questionnaires are administered on a sample of firms working in agribusiness sector in Palestine to assess the determinants affecting their competitiveness, applying Porters Model. Semi-structured interviews are also conducted, with four local universities and other three players in this sector to assess the quality and skills of agribusiness graduates and how can these universities enhance the competitiveness of agribusiness sector. A workshop is also conducted to validate the methodology used and to draw vital implications by the attendances from the private sector and academia. The main findings are the following: identifying the factors influencing the competitiveness of the agribusiness firms such as: skilled labor; availability and cost of infrastructure; cost of input, size of the local market; and firms' strategies in addition, to the related and supporting industries such as banks, and universities. As well, the quality of the related programs' graduates is assessed in order to recommend suggestions for developing agribusiness education, training and research initiatives to enhance the competitiveness of agribusiness sector.*

**Keywords:** Competitiveness, Agribusiness, Porter Theory, and Palestine

### **1. Introduction**

Palestine has the potential to establish a vibrant and profitable agricultural sector. A range of private and public efforts has demonstrated strong potential and that growing markets can be wide open. Donors have supported expansion of agribusiness capacity and access to technical solutions over the past few years in key sectors such as export vegetables and herbs, olives and dairy. However, despite the underlying good intentions, the installed capacity remains under-utilized and significant potential unexploited. The supply base remains weak and disorganized and the vast majority of poorer Palestinians are yet to benefit.

In Palestine, four categories of stakeholders and actors are involved in food and agriculture. The first stakeholder is education implementers such as universities, colleges, and training centers. The second stakeholder is education regulators, supporters and funders such as ministries, and specialized non-governmental organizations (NGOs), and many donor and development agencies. The third stakeholder is value chains operators such as producers, industrialists, businesspersons, exporters, farmers' associations, faire trade associations, and rural community organizations. The fourth stakeholder is value chains supporters such as Palestine Standards Institute; Palestine Trade and Export Centre, Palestine Union of Food Industries, banks, insurance and logistics firms. Most of the key stakeholders believe that there is a gap between education outcomes (i.e. supply side) and market needs (i.e. demand side).

Obviously, there are several root causes as well as implications of this problem in the education system concerned, which are to be found in two opposite trends and pace of evolution (World Economic Forum, 2012):

**Relative rapid evolutions** in markets, technologies and knowledge & skills needs in agribusiness involved food value chains, from farm to fork, from commercial farm production to export of processed and fresh food. Because business is profitable in many cases, there is expansion (when consumer markets allow) and some innovation service oriented businesses are getting to the market. Even if most of these dynamics mostly exist without direct involvement of academic knowledge and services from universities and colleges, many business leaders expressed interest in cooperation with relevant education and training stakeholders.

**Slow evolution, if not stagnation**, in (old) educational systems, erratic curriculum and course contents development, too little use of available modern education technology and methods for both learning and teaching practices. Traditional organization and management of university faculties and departments, running education programs containing too little practical lessons for students and too little research by teacher-researchers, which cannot keep up with economic realities and rapid knowledge evolutions, where there are no established mechanisms to stay informed, to collect and analyze feed-back and to learn and update courses. Palestinian universities are seen as potential facilitators of the competitiveness of agribusiness firms. This requires universities' commitment for innovation capacity development.

## **2. LITERATURE REVIEW**

The literature review is developed in two sections. The first part intends to explore the keywords working environment of agribusiness firms within the context of Palestine in connection with the first research question (Q1: *What are the main factors influencing the competitiveness of agribusiness firms in Palestine applying Porter Diamond (1990; 1998)?*). The second part intends to explore the role of universities in connection with the second research question (Q2: *How can universities play a vital role in enhancing the competitiveness of agribusiness firms in Palestine?*).

### **2.1 Competitiveness of Agribusiness**

Unemployment, poverty, inflation and lack of viable investment opportunities are just some of the economic hardships from which the Palestinian Territories suffer. Political instability has been a main obstacle in the economic development of Palestine. This brings us to a key weakness in the economic development of Palestine; its dependence on donations for the growth and even mere survival of the economy. The main remedy for this is enhancing our agribusiness competitiveness (Perry, 2010).

Desmond and Siebert (2009) defined agribusiness to include farming-primary agribusiness and all transactions, processes, and services deliver which deal directly with primary producers-secondary agribusiness. This definition will include cooperatives, input, supply companies, financial institutions and other services, delivers, processors, etc. linking with the farmer. According to D.W Block Associate agribusiness includes three major sectors Producers, Agricultural Input firms, and Agricultural Output firms. Due to the globalization and the industrialization of agriculture many large agribusiness companies today are vertically integrated and may include all three of these sectors (D.W Block Associate, 2014).

Palestinian agribusiness has been subjected to increase international and regional competition. The impact of this competition is in part evidenced by trend decline in the West Bank and Gaza Strip agricultural exports in one hand, and the increases in agricultural imports on the other. The empirical results indicate that the performances of domestic and import market shares could be increased through improving the productivities of the major production factors such as land, labor and capital. Applying this policy would enhance the competitiveness of Palestinian agribusiness firms by increasing local production to replace imports from Israel. On the other land, competitiveness of agribusiness firms will be closely linked to improvements in production, marketing efficiency and removing non-tariff trade barriers (NTBs) imposed by Jordan and Israel (Al Jaffari, 2010).

Competitiveness could be defined as the progress and the productivity or even the superiority of being different by progressing and producing using tools as mobilizing capital, employment, technology and knowledge (Nikolic et al., 2011 & Peres and Viana, 2012). On another aspect, in his study Hussein (2007) argued that a sector could be competitive only if it performs well. Performance variables such as quality, reliability, and efficiency are priorities of competitiveness. As stated in the study Zylbersztain and Fitho (2003), most of traditional studies have taken comparative cost and market participation of countries as the main variables in their study of agribusiness competitiveness.

One of the well-known approaches to study the competitiveness is the study of Porter (1990, 1998). In his study on competitive advantage, Porter (1990) identified six (6) factors as determinants of competitive advantage. These conditions are:

- ✓ Factor conditions: the nation's position in factors of production such as skilled labor, quality of production factors, natural resources, fuel, machinery and infrastructure, necessary to compete in a given industry;
- ✓ Demand conditions: the nature of home demand for the industry's products and services. These include nature of the local customers, internalization of the customers, concerns on ethics, the size and growth of the domestic market;
- ✓ Related and supporting industries: the presence or absence of supplier industries and related industries that is internationally competitive. These include availability and access to credit facilities, scientific research institutions, universities, telecommunication, electricity;
- ✓ Firm strategy, structure and rivalry: the conditions governing the establishment, organization and management of companies as well as the nature of domestic rivalry. These include investment in research and development, the source of competition in the local market and, approaches in human resource;
- ✓ Chance conditions: the occurrences that have less to do with circumstances in a nation and that are mainly beyond the influence and power of firms and local government. These include the significance of crime, HIV and AIDS in the country, the impact of the exchange rate and the political environment; and
- ✓ Role of Government: this includes the effect of the tax system, trade policies, and administration regulations. Moreover, government plays a vital role by influencing the above five (5) conditions, which could be either positive or negative. The policies formulated by government influences domestic investments, exports, which have a bearing on competitiveness. Porter's (1990) diamond model provides a qualitative description of factors for determining the competitive success of an industry in a specific country. Quantitative description can also be determined using the model, where different industries' competitiveness in a particular country can be compared. Furthermore, Porter's analysis can be used to determine the trends in the factors influencing the competitiveness of an industry, if the analysis is made regularly.

## **2.2 Role of Universities**

There is a huge global trend in the media and the academia of the importance of the agribusiness sector. Moreover, there is a real urge and calls on universities to consider new paradigms for conducting research, extension and teaching on the issue of agribusiness competitiveness especially in the U.S (Harvison and Kennedy, 1997). Moreover, one of the major practical implications in the study of Nikolic at al. (2011) is empowering institutions, which have to provide services in order to enhance the agribusiness competitiveness.

Four Palestinian universities are offering academic education and professional training programs in food, agriculture and rural development related fields in West Bank. According to the count by the Ministry of Education and Higher Education (MoHE), more than one thousand students are enrolled in the various food and agriculture related professional and higher education studies, as being offered by the four Universities.

Most of the Palestinian universities are focused on providing education. The concept of university as a driver of innovators is emerging, although some successful cases appear. Therefore, Palestine is encouraged to develop national strategies that stimulate entrepreneurship while recognizing the complementary roles of universities and industry.

However, there are some threats in the promotion of innovation. Universities focus their efforts for innovation independently of the training and research capabilities and the institutional capacities developed under the education and research missions should not be ignored when planning innovation initiatives. Another reason is that triple helix literature has been developed under the assumptions of symmetrical power relations between universities, governments and firms (Gunasekara, 2006). However, this is not the case in Palestine.

In conclusion, there is a significant role for local universities to play in order to enhance the competitiveness of Palestinian agribusiness firms.

## **3. RESEARCH PROBLEM AND RESEARCH QUESTIONS**

In Palestine, the market share of food products varies between (90%) for meat products to (30%) for dairy products with the average about (50%) in the domestic market. The food industry exports mainly to Arab countries.

Olive oil and other fair trade products have been exported to many countries around the world (PFI, 2011). Although, the Palestinian Food Industries Association (PFIA) coordinates the food industries with almost 220 members and 8000 workers estimate the labor force, the cluster within the food-processing sector is underdevelopment, and it is not well positioned from a competitiveness perspective.

The Palestinian agribusinesses firms are facing difficulties in selling their products in Israel due to the inability to obtain relevant authorization from the Israeli Ministry of Health, lack of “Kosher” certification of Palestinian food products and due to quality issues (i.e. packaging, shelf life, and consistency of taste). In addition, border crossings for trucks carrying food products have to go through lengthy security checks, and the Palestinian products have to use the Israeli vehicles for transportation within the Israeli controlled areas. By contrast, the Palestinians pointed out that the Israeli food products enter the Palestinian territory with relative ease, and that (99%) of manufactured inputs and raw materials designated for the Palestinian food industry are imported from Israel (PFI, 2011). Traditional models of universities engaged in agricultural development through training, basic and applied research and technology transfer agribusinesses. However, universities role in Palestine has been underutilized due to the weak mandate for development-oriented research and poor university–private sector dialogue. Even when universities assume a holistic approach towards university-industry linkages, there is a little agreement about the strategies to address these linkages.

Therefore, the two research questions are the following:

*RQ (1): What are the main factors influencing the competitiveness of agribusiness firms in Palestine applying Porter Diamond (1990; 1998)*

*(RQ (2): How can universities play a vital role in enhancing the competitiveness of agribusiness firms in Palestine?*

#### **4. Research Objectives**

This research paper seeks to determine the factors prompting the competitiveness of the agribusiness firms in Palestine. With such knowledge, appropriate strategies and interventions could therefore contribute to changing the situation. The objectives of this study are to identify the determinants that lead to the competitiveness of the agribusiness firms in Palestine using Porter Diamond theory (1990; 1998), with special focus on the role of Palestinian universities in enhancing the competitiveness of these firms. Universities could focus on three kinds of learning: competence building (e.g. training and education), research and development, and Innovation (Edquist, 2005). While Palestinian universities have been traditionally entitled to the role of instruction, the role of research and innovation is relatively new for them. Nonetheless, due to skill-based technology changes, universities are becoming increasingly important also for industries that typically are not considered research intensive such as agribusiness.

#### **5. Methodology**

##### **5.1 Research Design**

There are two approaches on how to conduct research studies, either qualitative or quantitative (Mangan, Lalwani, and Gardner, 2004). Employing both qualitative and quantitative methods offers an opportunity to probe deeply into the issues raised by the research (Sekran & Bougie, 2013). Although questionnaires may be used as the only data collection method, it is usually better to link them with other methods in a multi-method approach (Labaw, 1980). A questionnaire, as a quantitative tool, was distributed to collect data from the agribusiness firms working in Palestine while the semi-structured interviews, as a qualitative tool, was utilized to gather data from the universities that offer related programs. The rationale behind the choice of the qualitative approach, in addition to the survey, is to understand the what, how and why questions of the studied phenomenon, since qualitative approaches help in studying the cases in their habitat and helps to look at how the cases act in their environment and how they deal with problems.

##### **5.2 Sampling, Data Collection and Data Analysis**

Questions should be raised on what strategy should be adopted for sampling, such as what is the best sampling method for the study? Who can provide the best information related to the asked questions and what criteria should be used to select the units that will be interviewed? For this study the random sampling strategy is used. The total number of agribusiness firms listed in the Palestinian Food Industries Union is 200. With a margin error of 5%, and 95% confidence level, the minimum sample size is 90 firms.

A self-administered questionnaire is used to gather the opinions of the agribusiness executives on issues that influence the agribusiness factor's competitiveness. The questionnaire is designed to have six sections: factor conditions, demand conditions, related and supporting industries, firms' strategy and rivalry, government and chance. Primary data from the four universities were collected using the face-to-face interviews. Data were collected about their relevant education and training programs and their strategies to bridge the gap with the private sector. A secondary data is collected from published research papers, reports, books, websites, journals, publications and other locally and internationally published documents in the fields of competitiveness and agribusinesses. The gathered data from the survey were analyzed using the Statistical Package of Social Scientist (SPSS). Qualitative content analysis could be used to analyze text using category system. Based on the categories that will be developed, themes are developed to analyze the collected data.

### 5.3 Validity and Reliability

To ensure the validity and the reliability of this research, academics have reviewed and commented on the questionnaire and interview questions. The questions are translated to Arabic to ensure a full understanding of the questions before being answered then revised to English. Moreover, the data collected is recorded and analyzed based on scientific papers. Lastly, the questions of the interviews are semi-structured to give the interviewees freedom to give their opinions with less involvement from the interviewer to ensure no bias in the results; this certifies an outcome that could be transferable and can be able to be used in future qualitative and quantitative studies related to the topic of this study.

A validation workshop was organized to present the main findings of the research and to draw some implications that were induced from the discussion that took place among the audience.

## 6. Results and Discussion

This section discusses the main findings of the survey and semi-structured interviews.

### 6.1 Location, Year of Establishment, and Size of Firms

Palestine Central Bureau of Statistics (PCBS) estimates that agricultural land represents 42% of the total Palestinian land area of 6,069,000 (6069k) dunams, with 72% currently under cultivation. The sector is dominated by West Bank production (more than 90% of cultivated area, largely dominated by olive production). More than half of the respondents (52%) are located in the north of West Bank, while 17% of the agribusiness firms are located in the south of West Bank, and 31% are located in the mid of West Bank.

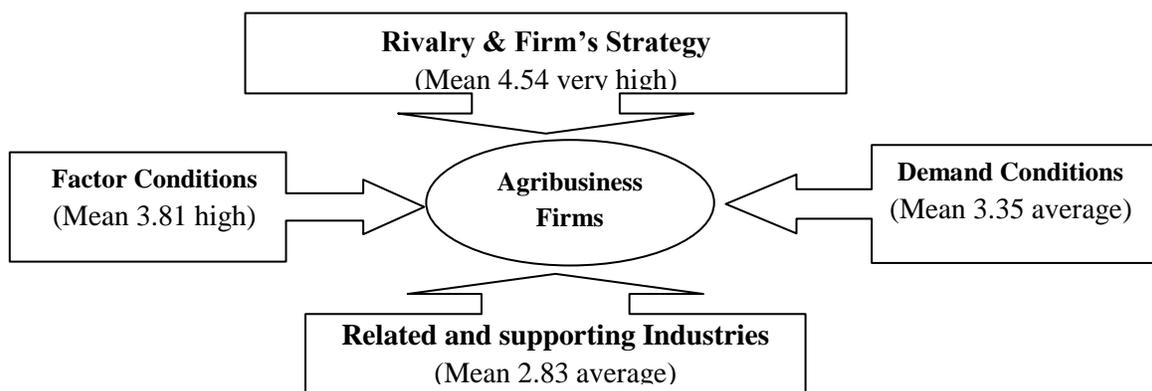


Analysis of the data shows that (62%) of agribusiness factories were established before 1994 (i.e. the year when the Palestinian Authority took over), and (38%) of the respondents were established after the year of 1994. What is remarkable is the significant range of firms' size. The sample consists of a firm with one employee (i.e. micro sized enterprise) and a firm that hires 465 employees (a large-scale enterprise).

As well, there is a wide range of firms' products. Some of the firms produce one product while the largest firm produces more than 170 types of products.

## 6.2 Agribusiness Working Environment

Results of the survey (as shown in the figure below) that the highest mean is for the “Rivalry and Firms’ Strategy” with an average of (4.54), followed by the “Factor Conditions” with an average of (3.81), then “Demand Conditions” with an average of (3.35), and lastly the “Related and Supporting Industries” with an average of (2.83). Therefore, results show that the agribusiness firms are working in a challenging environment, which implies that the agribusiness firms are facing many barriers such as high competition, limited markets, limited networking and clustering.



Findings show that the average of rivalry and firms’ strategy determinants is very high. The agribusiness firms are facing high competition from the Israeli and other imported products. Palestinian firms are aware of the limitations in their strategic positions, internal management and financial procedures.

As a result, Palestinian agribusiness firms need to shift the rule of rivalry from price-based to innovation-based competition. This could be achieved by upgrading the quality of demand that creates the potential for success in more sophisticated segments. The interaction with universities can help agribusiness firms to attain these goals. In most of the interviews, it was revealed that the Israelis checkpoints were the most important determinant that plays a very negative role in the competitiveness of the Palestinian agribusiness products. Followed by other determinants such cost of infrastructure, as laws and regulations, infrastructure availability, and availability of technical skills. There is a need to invest more on the human resources by providing training and counseling to the people who are working in the technical and management issues. The technical people need to be aware of the efficient methods of production, technical specifications, and packaging. Above all, there is a need to develop and enhance the university curricula to reflect the needs of the market.

The level of innovation is still too low in the Palestinian agribusiness sector due to the weaknesses in R&D spending. Low university R&D spending and low levels of university interactions with firms are factors that directly affect firms' incentives to invest in R&D. Thus, promoting a cluster organization and university-linked networking institutions often play a particularly important role in the diffusion of new management best practice. Surprisingly, the respondents show that the Palestinian brand for the agribusiness products has a good image in the region. Therefore, Palestinian firms could take this opportunity in expanding their businesses abroad. A nation's firms gain competitive advantage if the domestic buyers are sophisticated (Porter 1990). Unfortunately, the majority of buyers in Palestine are not so sophisticated. That is why these unsophisticated buyers do not put pressure on local firms to meet high standards in terms of product quality, features and service. The respondents highlight that logistical firms, banks, insurance companies, universities and governmental institutions are not excellently collaborating with the agribusiness firms. Results of the survey and interviews show the significant gap between what Palestinian universities are offering and what agribusiness firms are looking for. The respondents believe that Palestine universities are playing a passive role and they do not really support or actively partner with the sector.

## 6.3 Collaboration with Universities

**Table (1) below shows that (74%) of the respondents are aware of the agribusiness and related programs offering by the local universities, and (40%) of them already hired agribusiness graduates and more than half of them are female.**

Statements	Yes	No
I am aware with the related programs offered by the local universities	74%	26%
I hired graduates that hold related specialization	40%	60%
I hired male graduates more than female graduates	46%	54%

Until now, “there are no spinoffs success stories recorded” as the dean of agribusiness college of Khdouri stated. Findings shows that (57%) of partnerships are limited to workshops basic academic research and training as shown in table (2).

Scientific Research	Training	Workshops and Seminars	Other Activities
6%	11%	62%	21%

Table (3) below presents the reasons of low collaboration between agribusiness firms and local universities. The first reason could be the “minimum years of experience”, followed by “no need for hiring a specialized staff”; “graduates do have the needed technical skills”; “graduates do have the needed technical skills”; and finally graduates “do not have the needed managerial skills”

Statement	Mean	Degree
Years of experience needed	4.13	high
No need for hiring a specialized staff	4.10	High
Do not have the needed necessary life skills	3.40	high
Do not have the needed necessary technical skills	2.71	average
Do not have the needed necessary managerial skills	2.40	low
<b>Mean</b>	<b>3.35</b>	<b>average</b>

On the contrary, results demonstrate that agribusiness firms that already hired agribusiness or related fields show their high satisfaction about their performance and achievement in comparison with others. They also admit their advanced technical and life skills (see table 4).

Statement	Mean	Degree
Every specialized graduate goes for additional training	4.69	Very high
Performance level of specialized graduates is more than non-specialized ones	4.58	Very high
Graduates are empowered with the needed managerial skills	4.56	Very high
Achievement level and development level of specialized graduates is more than non-specialized ones	4.44	Very high
More training is needed for specialized graduates	4.33	Very high
Graduates are empowered with the needed technical skills	4.19	High
Graduates are empowered with the needed life skills	3.56	High
<b>Mean</b>	<b>4.33</b>	<b>Very high</b>

As a conclusion, we notice that the effects of main university functions, such as creation of knowledge through research, building human capital through teaching and the technology transfer are still limited. In the future, small and medium-sized agribusiness firms need larger amounts of technical assistance to incorporate essential new management techniques. Although this would involve provocative firm specific work, we argue that university agricultural staff should help to provide the required technical assistance. This cooperative effort leads to a win-win scenario that produces public benefits, and competitive small and medium-sized agribusiness firms.

## **7. Conclusion and Recommendations**

More than half of the surveyed agribusiness firms are established before the Palestinian Authority took over in 1994, which gives an indication that the Palestinian Government did not significantly enhance the enabling environment to encourage new businesses to be created. Almost half of the respondents are located in the northern part of West Bank and this due to the surplus of water and fertilized soil in that area.

The agribusiness firms are working in a very competitive environment where they face high competition from Israeli, Jordanian, Egyptian and Turkish products. These products have an edge over the Palestinian ones on either price or quality. In Palestine, the production costs (i.e. transportation, water, and electricity) are relatively high and most of the agribusiness firms do not invest much on research and development or closely work with local universities to improve the quality of their products. In addition, most of the agribusiness firms are using old technologies in their productions. There is an enormous gap exists between the agribusiness firms and local universities. Many surveyed firms are not aware of what universities are offering in terms of education and research. As expected, 60% of the respondents never hire agribusiness graduates. They claim that university graduates lack the minimum practical experience while respondents who hired agribusiness graduates showed their satisfaction about their achievements. The policy recommendations are addressed to national government; local universities; and agribusiness firms. Palestinian Government need to provide a good infrastructure (i.e. roads, electricity and water) at a reasonable price; regulate the local market and protect consumers; provide information about potential markets; apply a reduced set of regulatory obligations; make business registration processes more transparent and accessible; and sensitize local banks to finance agribusiness firms in order to obtain new production lines. In addition, the Government need to develop the policy to encourage cooperation between academia and private sector. Universities need to revise their agribusiness programs to reflect the need of the private sector; focus on applied research; provide their students with practical trainings; and establish direct channels with the private sector. From their side, agribusiness firms need to either build in-house R&D units or substitute that by strengthening their cooperation with local universities. Cooperation can take different modes such as mutual research studies, workshops, internship programs and factory to faculty exchange programs. Furthermore, agribusiness firms need update their production lines and production methods.

### Acknowledgments

Financial support for this study was obtained from the Scientific Research Committee at Birzeit University.

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