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## THE IMPACT OF AGRICULTURAL SECTOR ON BOOSTING THE LEBANESE ECONOMY THROUGHOUT THE ECONOMIC CRISIS

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### ABSTRACT

Every developing country aims to achieve high-income status as a primary objective. To achieve this aim and other vital development objectives like guaranteeing food security and promoting nutrition, agriculture plays a crucial role. Therefore, agricultural transformation must become a reality to eradicate hunger and undernutrition while boosting economic development. Only a few nations have acquired high-income status after starting poor. However, those that accomplished it began with farming and went through an economic transition that boosted growth and eliminate hunger and undernutrition. The research implemented a methodology approach throughout online meetings for any of the interviews. The researcher began the interviews by asking open-ended questions to get to know the interviewees better and to set a casual tone for the conversation. The research sought to use open and probing questions that enable respondents to explain and identify the events or circumstances as they view them. Farmers in Lebanon are fighting to make ends meet as the value of the dollar versus the Lebanese lira continues to climb. This might become worse if Saudi Arabia imposes a ban on agricultural goods. Lebanon's economic crisis has taken a heavy toll on the country's agriculture industry.

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### INTRODUCTION

Every developing country aims to achieve high-income status as a primary objective. To achieve this aim and other vital development objectives like guaranteeing food security and promoting nutrition, agriculture plays a crucial role. Therefore, agricultural transformation must become a reality to eradicate hunger and undernutrition while boosting economic development (Amao *et al.*, 2021).

Only a few nations have acquired high-income status after starting poorly. However, those that accomplished it began with farming and went through an economic

transition that boosted growth and eliminate hunger and undernutrition. For instance, between 1978 and 2016, China's GDP per capita increased from \$155 to \$8,123 in current US dollars as a result of such a change (Khan, 2021). Transformation of an economy to a high-income service economy, often known as "structural transformation," refers to a movement in the relative contribution of a country's various economic sectors and sectors' technologies to its total Gross Domestic Product (GDP). The agriculture sector must be upgraded for this process to be effective. Exports and more foreign exchange are two ways in which agriculture

modernization helps to set the stage for further industrialization. Farmers' earnings and productivity are increased, food costs are lowered, and nutrition is improved via modernization. Modernizing agriculture may boost human capital by feeding the people and minimizing the long-term debilitating effects of malnutrition, such as the stunting of children. Consumers' capacity to buy manufactured items and invest in agricultural modernization improves as agricultural production and wealth rise.

### **Significance of the Study**

As agricultural productivity rises, rural farm occupations are being replaced by industrial ones in cities. Even though agricultural modernisation may result in a decline in agricultural GDP and employment, this process is vital to economic transformation and ensuring food security and better nutrition (Prasannath, 2020).

To bring about a meaningful agricultural revolution, two things must be done. First and first, it is essential to provide access to cutting-edge technology. National governments must play a major role in funding agricultural research and development, even though contemporary agricultural innovations may originate from both the private and public sectors (R&D). Since private companies have a hard time reaping the advantages of inventing new technology, this is understandable. Agricultural extension programs and national agricultural research institutions must collaborate at the provincial level to develop new technologies that are appropriate for regional circumstances.

Farmers may not employ contemporary technology even if they are accessible, which is the next major area of agricultural development. Water, inputs, and the know-how required for many technologies, such as high-yielding seeds, are critical. As a result, governments must take steps to ensure that farmers have access to these inputs and can sell their agricultural products. Developing human capital is also essential to guarantee that a competent labour force can learn new technologies, manage logistics, and enhance each node of the value chain (Ismail and Kabuga, 2016).

Structural change is necessary for economic growth, and agriculture is the primary catalyst. Agricultural modernization and economic change are also aimed at eliminating hunger and undernutrition. Even though only a few nations have attained high-income status, the

potential exists for all of them, and the first step is to modernize agriculture.

However, Lebanon had been suffering from a twin crisis since 2019 which are the COVID-19 pandemic crisis and the economic crisis and the currency depreciation, thus this paper will study the economic impact on the agricultural sector in Lebanon based on a qualitative approach depending on interviews with founders of agricultural companies and farmers to study the impact of the economic crisis on the agricultural sector in Lebanon.

### **Economic Crisis and Agricultural Performance**

research studies have examined how agricultural firms fared during the 2008–2009 crisis and the distribution of shocks. A study by (Kassem, 2021) who looked at agricultural enterprises' performance in 42 nations, found that the crisis had a greater impact on firms that were more sensitive to aggregate demand and international trade.

With the use of cross-country data, the researchers were able to demonstrate that bank recapitalization and monetary policies benefited agricultural enterprises that were more dependent on external finance. There is a strong correlation between the duration of a long-term economic downturn and the number of small enterprises impacted. SMEs' minimal financial resources and reliance on bank funding puts them at a disadvantage during times of crisis, making them disproportionately affected. As a result, they are forced to pay higher interest rates than larger corporations (Ismail and Kabuga, 2016).

Agribusiness cooperatives are known for their ability to weather economic storms. It is widely believed that cooperatives are crucial in helping farmers find profitable markets for their goods. Farmers' cooperatives can help farmers remain flexible and resilient in an agricultural market that is continuously evolving (Ismail and Kabuga, 2016).

Another research on the Greek dairy sector conducted before the financial crisis revealed that only market share had a positive and statistically significant impact on the profitability of dairy enterprises (from 2006 to 2008). A company's profitability increases as it grows, according to this theory.

During the economic crisis, market share, liquidity, and debt all had a substantial impact on earnings and may be used to explain disparities in profitability across dairy

enterprises. When a crisis occurs, companies with huge and loyal client bases are more successful and competitive. During the financial crisis, the liquidity coefficient was also positive and large, demonstrating the necessity of liquidity for dairy enterprises' survival and competitiveness (Woldeyohannes, 2021).

### **Effects of a pandemic on the food supply chain**

Agricultural production, postharvest management, processing, distribution/retail/service, and consumption all fall under the umbrella of the food supply chain. To assure the safety and quality of food, there are two processes in place. In the first scenario, norms are mandated by rules and laws, and state officials keep an eye on compliance with those standards. If you're looking for standards, another option is to consult market legislation or international organizations (Hamade *et al.*, 2014).

There are several ways to guarantee that food flow is maintained at each phase, including personal hygiene and usage of protective equipment such as helmets and gloves, sanitation of work surfaces/surroundings, safe handling/preparation/delivery of food and sanitization of working environments and surfaces. As the food supply chain progresses, the number of possible victims increases, necessitating further safety measures. Because it is not transmitted by animals or agricultural goods, the COVID-19 pandemic has no effect on productivity like foot and mouth disease, avian flu, *Escherichia coli*, or *listeria* (Kenny, 2019).

Worldwide limitations on commodities and labour mobility have been imposed by countries in response to the epidemic (by land, sea, and air). Food delivery trucks in France have dropped from 30% to 60% after the Ebola epidemic due to stricter rules. In rising and developing nations, the use of temporary employees for short-term jobs like sowing seeds, sorting harvests, or harvesting fruits and vegetables is prevalent (Hoteit *et al.*, 2021). As a result of lockdown-imposed travel restrictions or illness, the supply chain suffers a major impact. When a patient's health or mobility is directly affected by illness, food safety and production capacity for others are also affected. The COVID-19 issue had a substantial impact on labor-intensive industries including cattle husbandry and horticulture (Praburaj *et al.*, 2018). However, there was a scarcity of farmworkers even before the COVID-19 epidemic. A plea for jobless people to labor in France's fields has been launched due

to restrictions on the entry of harvest-skilled employees from other nations. The UK's Pick for Britain initiative attracted 70 000 native-born workers to assist with harvest and fields. As a result of employee sickness, farmers and agricultural enterprises are forced to maintain long distances to keep up with output (Gollin *et al.*, 2002).

Deliveries of food and agricultural inputs were delayed, and difficulties arose in maintaining regular food supplies for markets as a result. Supply chain disruptions tend to harm enterprises that rely on local markets for their raw materials, rather than national ones. Because of their limited shelf life, high-value items are weakened even more by logistical restrictions that interrupt the food supply chain. Agricultural operations must be able to adapt swiftly to changing conditions due to the major influence that seasonality and weather have on most of them.

The butterfly effect may result in significant yield and production losses since every operation and step of the supply chain is interconnected. The Dairy Farmers in America Co-operative estimates that 14 million litres of milk are wasted every day due to a broken supply chain. Milk production in England is in jeopardy, according to the head of the country's dairy industry (Praburaj *et al.*, 2018).

According to studies, tea plantations in India are also in danger of extinction because of logistical difficulties. As a result, in times of global crisis, the food business must maintain high levels of logistical efficiency. The industry's two biggest hurdles are obtaining raw materials and ensuring a constant supply of food from farmers to customers. Food quality, freshness, and safety might be negatively impacted if these issues are not handled. This will make it more difficult to reach markets and raise the cost of food (Woldeyohannes, 2021). As the epidemic progresses, the food supply chain must keep pace. Different factors, including agricultural inputs, product type, and national location, influence the impact of pandemics on agricultural systems. More labor-intensive methods requiring a considerable amount of capital are more common in nations with higher incomes in agricultural output (Amao *et al.*, 2021). There should be no interruptions in the supply chain, with a specific focus on logistics difficulties, which is another way of expressing that the supply chain should flow smoothly. From cattle to ready-to-eat meals to dairy, fruit, and vegetables, the food industry has it all.

The amount of money spent and the number of people employed may, however, divide the food and agriculture supply chain into two primary divisions. There are two groups of foods in the first category: wheat, maize, and other cereal grains; and soybeans and other oilseeds. Fisheries, which includes fruits and vegetables, is the second-largest producer of high-value items in the country. Staples are an expensive need. There may be disruptions in the provision of necessities if cross-border distribution is prohibited. High-value items, in contrast to requirements, necessitate a significant investment in labour. Contrary to popular belief, even while agricultural operations are time-sensitive and productivity requirements grow with time, agricultural transformation, defined as technological progress and workforce upskilling, may lead to agricultural transformation.

Due to limits on travel (such as border closures on a national or international scale) and variations in consumer demand, there have been considerable difficulties. Rather than going out to dine, consumers cook at home to evade the constraints. Customers often avoid shopping at marketplaces and supermarkets for fear of picking up COVID-19. Labour-intensive food processing factories are also part of the supply chain, which impacts more than simply farmers, wholesalers, and retailers. COVID-19-positive workers who were afraid to work because of the pandemic largely worked in meat-processing food firms at the time of the pandemic outbreak. Because of these challenges, pork production capacity in the United States declined by almost 25 percent by the end of April. In the United States, there were at least 462 meatpacking factories, 257 food processing plants, and 93 farms and industrial enterprises impacted by COVID-19 occurrences. As of this writing, more than 54,000 individuals have tested positive for COVID-19, and 232 people have died as a consequence (184 of whom work in meat packing, 34 of whom work in food processing, and 14 farmers) (39,905 of whom are in the meat packaging industry, 8,343 of whom work in the food processing industry, and 5,788 of whom are farmers). Two thousand four hundred slaughterhouse workers from 18 cities in Brazil tested positive for the COVID-19 virus.

### **Overview of the Agricultural Sector in Lebanon**

Because it accounts for just 5% of the GDP and 8% of the labour force, agriculture in Lebanon has little impact on

the national economy. An additional 5% of Lebanon's GDP is generated by the country's agricultural sector, making it one of the country's most important economic sectors. In Lebanon, just 12% of the population lives in rural regions, yet those who do are much poorer than the rest of the population (Kassem, 2021).

Farming is a major source of employment for a large percentage of the working population, including seasonal family labour. In the poorest regions of the country, such as Akkar, Dinnyeh, Northern Bekaa, and the South, agriculture generates up to 80% of the local GDP. Families in rural areas are more likely to engage in non-agricultural economic activities than their urban counterparts. Due to the continuing turmoil in Syria, Lebanon continues to face a heavy burden. A total of 1.048 million Syrian refugees have been registered by the United Nations High Commissioner for Refugees (UNHCR), together with tens of thousands of Palestinian refugees from Syria and Lebanese residents who have returned from Syria. More than 20 percent of Lebanon's population is now made up of Syrian refugees, according to a per-capita estimate. The influx of migrants has placed great pressure on the country's physical and social infrastructure, leading to an increase in host-refugee conflicts.

### **GDP effect on Agricultural Goods**

The graph below depicts the rise in GDP from 2013 to 2020. There was a -1.93% drop in GDP in 2018, which was further exacerbated in 2020 when it reached -20%.

### **Income effect on Agricultural Goods**

As real earnings rise, so will demand for products and services (the extent to which depends on the marginal propensity to consume). There will be a surge in demand for imported goods as a result of this growth in demand for products. Due to this, Lebanon's trade balance will be negatively impacted by an increase in import spending. Lebanon's net trade would rise if its import spending fell as a result of lower real earnings.

### **METHODOLOGY**

The research implemented a qualitative methodology throughout conducting face-to-face interviews, the sample targeted included two farmers and two entrepreneurs working in the agricultural field. The researcher began the interviews by asking open-ended

questions to get to know the interviewees better and to set a casual tone for the conversation. The research sought to use open and probing questions that enable respondents to explain and identify the events or circumstances as they view them. As a technique of obtaining relevant information, probing questions have been devised. As a consequence, the researcher has made an effort to avoid leading questions that might influence the results. Everyone should be able to

comprehend the inquiry, otherwise, it might be misunderstood. A pilot study had been implemented before conducting interviews with the respondents to ensure that our research equipment and questions were functioning properly. The data were collected using face-to-face interviews and were recorded and then transcribed using the NVIVO statistical tool to generate codes and themes for further development.

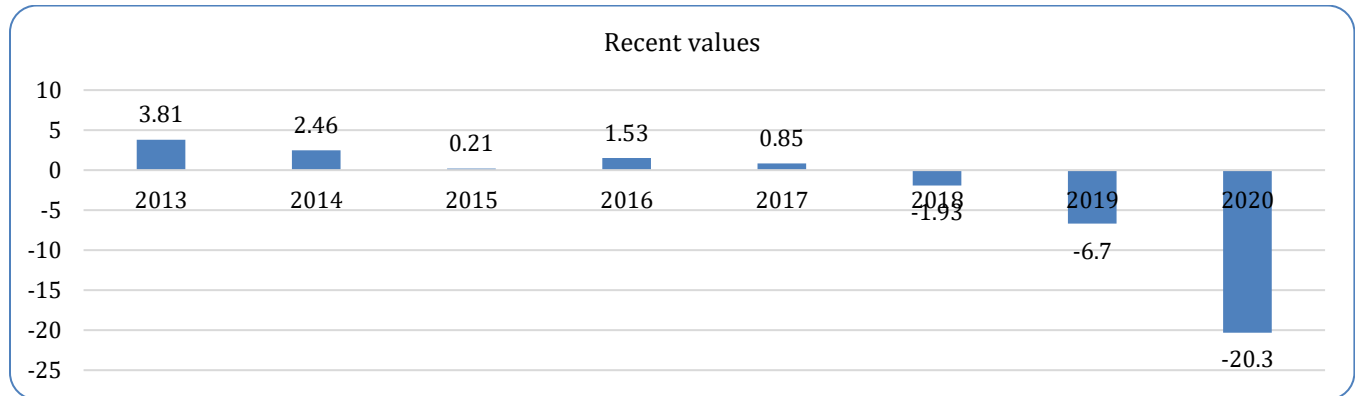


Figure 1. Agriculture and its Contribution to GDP.

Table 1. Interviews data (made by co-authors).

Interviewee	Date of Interview	Length of Interview	Type of Interview
Interview 1	10-10-2021	25 minutes	Zoom
Interview 2	12-10-2021	19 minutes	Teams
Interview 3	15-10-2021	35 minutes	Skype
Interview 4	16-10-2021	15 minutes	Teams

**RESULTS**

As a starting point, we want to highlight the substantial problems and concerns that workers, particularly the most vulnerable ones, confront today in terms of employment, income, current economic conditions, and near-future prospects. When it comes to this examination, looks at how the Lebanese agriculture industry has been impacted by the epidemic and economic crisis.

**Lebanese agriculture: Hobby rather than business**

Farmers are hampered not just by a lack of social security, but also by their inability to market their goods. "When food and vegetables are purchased at cheap costs, they are sold at inflated rates by traders. Small farmers and local businesses suffer as a result of this kind of behaviour "Abbas made the statement.

The Lebanese government does not seem to place much emphasis on agriculture. Despite accounting for 5% of GDP, the industry receives very little investment. Only around 20% of the local need is met by agricultural output. Therefore, Lebanon relies heavily on imports for most of its meals. The Baalbek Community Farm co-founder, Ramy Lakkis, told DW that the government has failed to help farmers, and its carelessness is impacting output. "We built this farm because farmers lack the know-how and connections to dealers to produce in huge quantities. Humanitarian agriculture is considered more as a business than as a humanitarian industry "Lakkis commented.

**Lebanese farmers struggle amid toughening economic crisis**

Farmers in Lebanon are fighting to make ends meet as the value of the dollar versus the Lebanese lira continues

to climb. This might become worse if Saudi Arabia imposes a ban on agricultural goods. Lebanon's economic crisis has taken a heavy toll on the country's agriculture industry. According to the World Bank's most recent rankings, Lebanon's present crisis is in one of the top 10 most severe worldwide since the mid-19th century. Lebanon's GDP dropped from \$55 billion (€45.2 billion) in 2018 to \$33 billion in 2020, leaving 55 percent of the population in poverty. Agricultural producers in Lebanon are struggling to make ends meet in a dollarized economy where the nation is largely reliant on imports, with the lira devaluing by 90% since late 2019. Lebanese farmers face some challenges, including a lack of revenue. Another issue is a lack of social safety nets. In Lebanon, farmers' rights were not safeguarded since they were not part of a collective bargaining structure, according to Hasan Abbas, president of the Lebanon Syndicate of Agriculture Workers. The organization has set up a fund to cover the expenses of farmers' health care since farmers aren't paid when they are unwell.

Fatima, who is now 50, is also struggling to make ends meet. She, too, wanted to stay nameless, just like Mariam. "The family's financial situation is precarious at best. I can eat if I work, but I can't eat if I don't work. There is no substitute for money. It is necessary for me to purchase medication and clothing. For the last four years, I've worn the same set of office clothing "she said.

### **Exchange Rate and Agriculture Sector**

Because of the worldwide economic slump, Lebanon's agricultural business is most affected by the exchange rate of the US dollar versus the Lebanese Pound. By Melhem Melhem, a 52-year-old fruit and vegetable seller in the Beqa Valley region, he's seen his business suffer greatly as a result of Egypt's currency crisis. I buy my goods in dollars but sell them for Lebanese lira, therefore I don't make a profit," one of the respondents said.

Lebanon's principal agricultural products are fruits and vegetables. On some level, 23% of the country's people work in agriculture, according to the Food and Agriculture Organization (FAO). Since a consequence of the civil war in Syria, Syrian refugees have played an increasingly important role in agriculture, despite their substantial agricultural

expertise and special qualities, as they may labor for a cheaper salary.

Working in the food processing industry, Mariam is a 36-year-old woman who asked to remain anonymous. She makes a livelihood as a farmer in addition to preserving her own food. "One problem I have is that prices for glass jars have risen dramatically in recent years. It's a good thing my products can be stored for a long time, since the recession means fewer people are buying them "she said.

### **The threat of a Saudi ban**

On top of that, Lebanon's exporters might lose a significant market since Saudi Arabia has decided that it would no longer allow the importation of fruits and vegetables from Lebanon. Saudi police discovered cocaine smuggled into the country from Lebanon in fruit and vegetable shipments in April 2021. An estimated \$24 million in annual commerce is at stake, according to Lebanese Agriculture Minister Abbas Mortada. The most important market for Lebanese agricultural goods is Saudi Arabia. However, according to the head of the farmers' association, Hassan Abbas, not all of his members' goods would be affected by the new regulation. The impact will be minimal on most farmers, but finding alternative markets is imperative. However, Lakkis believes that the restriction might harm the reputation of agriculture. "Small farmers sell their goods at the neighborhood market, which will be less impacted than large retailers. As a result, the prohibition might pose a risk to Lebanon's agricultural industry in the future, which is very unpredictable "he said. In terms of assessing the effects of ban so far, there are no concrete numbers since it hasn't begun yet and may only come into effect in the next month or so. However, it seems that Lebanese farmers are more concerned by the present development of their own economic problem, which threatens to suspend production owing to high material prices. Afterwards, they may not have enough money to purchase the meals they need.

### **The impact of financial and economic crisis**

Restrictions on USD account withdrawals and money movement prohibitions have far-reaching consequences across the agrifood supply chain. An increasing number of importers found themselves in a situation where they couldn't access their dollar-denominated bank accounts

and were forced to pay back their loans at far greater rates than they normally would. Private sector agricultural financing is no longer possible because of currency shifts and the fact that most of their expenditures are in USD while their revenue is in LBP.

As a result of this, agriculture was immediately impacted. Producers have traditionally borrowed money from wholesalers and intermediaries to pay for inputs, which they subsequently returned when the crop was complete. With no financing available to farmers, they are forced to buy in cash at face value in USD or LBP using an unofficial exchange rate, putting even more strain on farmers who are already used to difficult economic conditions. Last but not least, wholesalers used to provide a portion of their harvest as an early payment to farmers to maintain cash flow, and these payments were reimbursed in kind when the crops were harvested. Wholesalers, like supply suppliers, took use of the credit facilities offered by commercial banks. Credit lines were slashed and farmers were unable to get their payments on time. Liquidity is crucial for farmers since it allows them to pay for inputs, they've already acquired on the credit of input suppliers or have financed via wholesalers. Another urgent short-term concern is farmers' inability to get financing and inputs. This must be addressed immediately.

### **The impact of the COVID-19 crisis**

To respond to the COVID-19 outbreak, the Lebanese government will proclaim a state of full mobilization on March 16, 2020. The COVID-19 outbreak has thrown the world's economic system into a loop, affecting both supply and demand (i.e. household income reduction). Foreign value chains have been severely interrupted, making it more difficult to import and export during the shutdown. Domestic value networks have been mostly untouched. COVID-19 had little effect on local agrifood markets, compared to the enormous impact of an inflated exchange rate between the LEB and USD, which led to skyrocketing food costs. It is clear that the demand side impact of COVID-19 on the current economic depression is significantly more serious, exacerbates existing weaknesses and increases the vulnerability of all Lebanon citizens. There was an increase in food insecurity as a consequence of restrictions on migration, job losses, and decreased income.

### **CONCLUSION**

Compared to last year, one in three households saw a fall in their annual income. Job losses and salary decrease impacted almost one in three Lebanese individuals. Women and young adults in Lebanon between the ages of 25 and 34 have been particularly badly hit by the decline in their salaries. Things are even worse for refugee families. Affected sectors include building, as well as services and sales such as accommodation and tourist, restaurants, and the food and beverage industry, in general. It is estimated that two-thirds of agricultural workers have been laid off or have had their earnings reduced by more than one-third of those employed in this sector. One-quarter of those surveyed indicated they had lost their jobs or had their earnings slashed in the months before the COVID-19 epidemic, making this industry especially susceptible. As the alarming data above shows, the combination of the financial and economic problems with the COVID-19 pandemic offers a significant threat to the well-being of a significant portion of the population. Those who are most at risk are the poor and those who depend on others, such as women and young people, who suffer the most. In agriculture, this is particularly true for smallholder farmers. To preserve lives and encourage recovery and development, these communities must have a means of earning money.

### **Policy recommendations**

The following section addressed the contributions and policy recommendations that should be implemented to enhance the research in the future.

### **Opportunities for the development of the Agri-food Value chain**

#### **Apple**

The apple industry may become more competitive in four key areas. As demand for high-quality apples grows both domestically and regionally, boost production of the suitable types' The production and post-harvest systems must be improved to attain this increase in yield. As a second stage in assisting Lebanese exporters to improve their analytical ability to respond to export market opportunities, facilitate new relationships and contacts with regional food buyers through research trips, trade show participation, and buyer visits. To reduce production costs, increasing farm margins via better investments in new orchards and plant protection

technologies are two more options to consider. Processing operations must be supported and improved so that rural processors can diversify sales channels (e.g., incentive sorting and incentives for quality apples) to minimize the risk for producers of unsold apples as well as for processors not having an adequate supply of cheap apples for processing, thereby reducing both the risk to producers and the risk to processors of not having an adequate supply of apples for processing.

### **Cherry**

The competitiveness of the cherry value chain may be improved in two ways. In Europe and Russia, exporters argue that Lebanese pricing for cherry goods is competitive; in the Middle East (especially the GCC and the UAE), they feel that the area has the potential to gain market share from Syria and Iran, respectively. For all these reasons and more, the exporters feel that the European and Russian cherry markets provide potential to grab market share in Syria and Iran respectively. Using new methods, it is feasible to improve the quality and quantity of Lebanon's cherries while also extending the harvest season. Cherry producers will be able to sell more cherries at a higher price for a longer period if they manage their production appropriately.

### **Grapes**

Increased grape exports to the GCC and EU might improve market relations and technical standards. High-quality grapes are finding new homes in the Gulf Cooperation Council and Europe. Table grape exports will be ramped up as soon as the required information on growing practices and chemical residues are received. The second objective is to export high-quality grapes to the Arab Gulf nations. Increased involvement of small farmers in export markets and access to financial and technical assistance might help Lebanon enhance the value chain of grapes. As a result of domestic vertical integration, small and medium-sized farmers may be able to improve their involvement in export market channel processing via better organization into specialized cooperatives.

### **Olive Oil**

There are two strategies to improve the value chain of Lebanon's olive oil. Modern mills and better production techniques can produce extra-virgin olive oil of the

highest quality and export it to specialized markets. The private sector's investment in milling and storing extra virgin olive oil is expected to expand production (which has a potential export market). Profits may also be made from unused cooperative sector assets for processing and storing contributions. The sale of olive oil directly to customers for their own use is another way for small and medium-sized producers to raise revenue.

### **Potato**

Infrastructure and quality standards improvements after harvest may assist expand potato value chain by enabling farmers to release crops at the proper price. Expanding export markets and maybe raising the price of products sold there might be achieved by installing additional facilities that include adequate cleaning and packaging equipment.

Increasing the amount of money available may help expand the supply of high-quality inputs. In the case of farmers, this policy change may result in increased productivity and the ability to invest in more complicated irrigation systems. Manufacturers would be able to compete with more expensive items. Existing producer groups must be reinforced and encouraged to interact more in order to create a value chain with a longer lifespan.

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