

Economics of Agriculture and Sustainability of Agro-Economy

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Abstract

Agricultural finance is an important and complex structure involving actors such as suppliers, farmers, food processors, logistics, wholesalers, retailers and governments in the agricultural food supply chain. Efforts to increase the unit area yield and quality of field crops that have strategic importance in human life are a matter of curiosity for the scientific community. At this point, food safety and food security emerge as the most important issues in addition to the field crops as well. Agri-food supply chain management is a philosophy that envisages supply chain members working as a single business in order to increase efficiency and added value in the journey of food products from farm to fork. In order to combat all these challenges and ensure that people have access to quality food at adequate and reasonable prices, the proper management of the agricultural-food supply chain with the participation and contribution of all actors, from farmers to consumers, from businesses to states, will be among the most important issues in the future, as it is today. Although the subject of the agri-food supply chain is plant and animal products, only the field crops aspect is discussed in this study because the subjects are very broad. This study was prepared in the light of science to address the problems in this regard, to reveal the developments, and to examine the situation of the sector over the world.

Key Words: *Agricultural economy, Agricultural policy, Business administration, Strategic crops*

Introduction

The survival of human beings and the continuity of healthy generations depend on meeting nutritional needs under the right conditions. At this point, food safety and food security are the most important issues. Nutrition directly affects daily activities by taking and using the nutrients required for human beings to be productive and productive in order to continue their lives. The agricultural-food supply chain must be managed in a way that is appropriate for the purpose in order for people to have access to quality and sufficient food. Economic growth, the factors that trigger growth, the components of growth and the limits of growth are the oldest and most important topics in economic literature. The agricultural sector shows itself at multiple points in almost every field related to humans on earth. At the same time, it has a semantic integrity that develops a relational network within extremely complex, different socio-economic activities and application areas.

Recent studies have focused on the impact of CO₂ emissions in order to achieve sustainable development, reduce global warming, improve environmental quality and develop necessary measures and policies (Stern, 2011). Developed and developing countries were compared (Tiffin and Irz, 2006) and concluded that agriculture is a driving force for growth in developing countries. When the competitiveness of developed countries is ignored, the impact of the agricultural sector on growth is limited. Since agricultural and food products are perishable products, they require more sensitivity than other products in processing, packaging, wrapping, storing, shipping, offering for sale, in short, delivering them to the consumer (Manzini and Accorsi, 2013). About 58.97% of the total agricultural and food products transported in the world (ton*km) were transported by sea and 40.87% by road. Only 0.16% were transported by air (Poore and Nemececek, 2018).

The state has expectations from agricultural entrepreneurs such as complying with the rules and paying taxes, and sustainability in transferring a livable world to future generations (Ministry of Development, 2018). Today, the concepts of sustainability of development besides sustainability have gone far beyond for field of natural based resources including forestry management and also have entered to the discourses and practices as well in urban based development, tourism, politics, education, agriculture, manufacturing, logistics and all other areas of trade (Heinrichs et al., 2016). Issues such as food supply fear, pollution, and animal welfare are becoming important in consumer attitudes in order to evaluate past events and predict future behaviors in line with research in food and agricultural marketing (Walley et al., 2016). This study was prepared in the light of science to address the problems in this regard and to reveal the developments.

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Agricultural activities and farming of plants is kind of science which focused on plant and animal production, the preservation of these products under appropriate conditions, their processing and evaluation, and their distribution.



Food or food is non-drug substances that living beings must consume in order to continue their lives. Growth in sectors other than the agricultural sector creates an increase in the wages of agricultural sector employees (Estudillo and Otsuka, 1999). An entrepreneur is an innovative person who takes precautions against competition and develops himself and his business and manages the business successfully (Manimala and Thomas, 2017). All stages in the marketing channel of agricultural products create a food value while creating shape, time, place, and property benefits (Norwood et al., 2021).

The increase in net output in the agricultural sector will cause an increase in the amount of product in the country. This increase will primarily affect net total growth, and secondly, an increase in per capita production will be provided (Kuznets, 1961). There is a risk at every stage of the agricultural-food supply chain. This risk is relevant both in terms of food safety and losses. Agricultural marketing activities, which consist of many interrelated activities likewise planning of production, raising and harvest, trashing, classification, packaging, transportation, warehouse-silo-storage, agricultural and food based processing, organizing and allocation, advertisement and sales, are among the issues that concern agricultural producers in terms of decisions regarding which product will be grown, when it will be harvested, in which markets it will be offered for sale and its storage (Vadivelu and Kiran, 2013). Marketing is the correct identification and meeting of consumers' demands and needs in order for the business to achieve its goals (Ritson, 1986). In a world that is becoming more interconnected, people at every level of marketing systems have to act together to implement marketing strategies and plans (Armstrong et al., 2014). The supply chain is defined as a network of organizations that come together through upstream and downstream connections that create value for the end consumer as a product or service as a result of different processes and activities (Christopher, 1992). When an example is examined on the subject, it is seen that exports exceeded imports in the 2017-2018 period when India's agricultural product imports and exports were examined as a result of the implemented policies. However, it is seen that India experienced fluctuations in the production of agricultural products due to problems in irrigation infrastructure and structural deficiencies (Sheeba and Reena, 2019). Researchers examined the effects of R&D expenditures made through domestic and foreign channels on agricultural productivity in 30 Sub-Saharan African countries between 1981-2011 years. Their studies indicate that knowledge accumulation and investments made in this field are very important (Adetutu and Ajayi, 2020).

For a comprehensive perspective, life cycle analyses have come to the forefront and all stages of production processes from input production to waste generation should be analyzed (Smith, 2008). Production process losses due to adverse climatic conditions, product losses remaining in the field due to inadequate prices, and losses resulting from products not accepted for export are also in question. Economic reforms such as the removal or reduction of regulatory institutions in the agricultural sector, the reduction of the role of the public in issues such as subsidized credit, etc. for agriculture, and the regulation of regional and seasonal product pricing strategies have major impacts on agricultural markets (Kindness and Gordon, 2001). It is also observed that the use of new technologies in the agricultural supply chain is increasing. The Internet of Things, block chain, and big data technologies are seen as potential providers of a sustainable agriculture-food supply chain (Kamble et al., 2019). For example, China, which largely meets its needs on a product basis, is an important country in the world agricultural sector as both a producer and a consumer with its high population (FAO, 2020).

An agricultural entrepreneur is someone who starts a business with an entrepreneurial spirit in small-scale farming or who uses managerial skills to grow their business (Morgan et al., 2010). Sustainability of supply chain and its management has been emerged as a type of growing issue that is progressively gaining attention in its field (Seuring and Müller, 2008). Approximately 1/3 ratio of products in agricultural-food supply chains are wasted throughout the chain. Almost by 40% ratio of the lost by underdeveloped besides developing defined countries formed in logistics based processes (storage, transportation and packaging), while 40% of the losses in developed countries occur in retail and consumption processes (Giroto et al. 2015). It is stated that environmental degradation may increase in the early stages of economic growth in a country, but that economic growth will lead to lower levels of environmental degradation in later stages (Rothman, 1998). Managing sustainability in global supply chains continues to be a challenging task. Because sustainability scandals are still repeated for companies with global supply chains (Koberg and Longoni, 2019). On the other hand, the transition from traditional methods to chemical methods in the fertilization system in the agricultural sector leads to serious environmental damage. On the other hand, green technology and eco-innovation reduce the negative effects of pollution by creating new products/services and business methods (Boleti et al., 2021). The transportation of agri-food products must be carried out from a quality, safety and sustainability perspective (Akkerman et al., 2010). The EKC (Environmental Kuznets Curve) hypothesis concluded that there is a kind of inverted U-shaped relations among the country's economic growing and greenhouse gas emissions (Grossman and Krueger, 1991). On the other hand, Cooperatives are organizations operating in the entire agricultural value chain, from the cultivation of agricultural products to animal husbandry, and the industrial processing of agricultural products and animals (Lerman and Parliament, 1991).

Sustainable development requires the use of natural and human resources for the future and at the lowest possible consumption rate, considering the needs of future generations (Keating, 2003). Concerns about the difficulty of energy supply to meet demand, combined with concerns about global warming and nature, lead to continued



interest in researching the relationship between variables related to energy, economic growth and environmental damage (Chandran and Tang, 2013). In order to ensure the continuity of development and to guarantee human life, the continuity of resources should also be ensured (Harrison, 1993). Since the size of the agricultural sector means that the factors affecting agriculture have great effects, the impact of macroeconomic variables and the concept of agricultural productivity on each other is considered reasonable (Gollin, 2010).

The main objectives of agricultural entrepreneurs are to sustain their existence and grow their agricultural enterprises by producing/marketing agricultural products to make a profit (Dias et al., 2019). The verifiability of traceability, which is seen as an important criterion in food quality and food safety, is increasingly demanded by consumers in different parts of the world (Opara, 2003). Population growth, combined with current unsustainable and wasteful food consumption and production patterns, further exacerbates environmental threats, putting more pressure on climate change, natural resources and the environment (Rohmer et al., 2019). Although the world aims to reduce the impact of climate change, bringing about tangible change requires significant resources and funds in most developing countries (Levinson and Taylor, 2008).

Economic growth is important among policy makers because it is one of the basic macroeconomic indicators. In this context, the EKC hypothesis, the link between economic growth and environmental degradation, is a highly controversial issue. While many studies support the EKC hypothesis (Grossman and Krueger, 1991; Pata, 2018; Malik et al., 2020), some studies did not find the hypothesis valid within the scope of the examined country or country groups (Bartlett, 1994; Apergis, 2016; Adu and Denkyirah, 2019). The raw materials of food products are generally agricultural products, and agricultural products are largely composed of field crops and are also called unprocessed food products. In the production of agricultural products, seeds, seedlings, fertilizers, pesticides, water, agricultural machinery and equipment are required. Inflation in agricultural product prices directly affects food product prices. A decrease in inflation in consumer prices can be achieved with strong cooperatives, effective planning and control, efficient marketing and logistics. We are experiencing a period in which agricultural business management and entrepreneurial spirit come to the fore, according to the knowledge and skills needed to produce according to changing customer demands and new technologies.

Conclusions

The production structure in the global economy is undergoing a rapid transformation. The complexity of agricultural production and financial relations is increasing due to the impact of globalization, and significant challenges are being faced due to factors such as climate change and the Covid-19 pandemic. In order to combat all these challenges and ensure that people have access to quality food at adequate and reasonable prices, the correct management of the agricultural-food supply chain with the participation and contribution of all actors, from farmers to consumers, from businesses to states, will be among the most important issues in the future, as it is today. The increase in consumer prices for agricultural products is far beyond producer prices. In other words, while the producer sells the product cheaply, the consumer continues to consume the same product expensively.

While the contribution of the agricultural sector to the national income of countries is below 10% in most countries, it is of great importance with the healthy nutrition of the population, the place of agriculture in foreign trade, the employment it provides, and other effects (energy, food, supportive medicine, cosmetics). The fact that the agricultural sector provides input for many branches of industry, the gradual decrease of scarce resources, changes in consumer behavior, increasing costs, environmental protection and the increasing importance of human health cause the interest in agricultural marketing practices to increase even more. While the level of customer service increases with technological developments, it is of great importance to ensure operational excellence by carrying out supply chain processes faster, more accurately and efficiently, and to conduct multidisciplinary research based on sustainability.

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