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RESEARCH ARTICLE

Market Failures in Agricultural Markets

İsmail UKAV*

Account and Tax Department, Adiyaman University, Adiyaman, Türkiye

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***Corresponding Author:**

iukav@adiyaman.edu.tr

ABSTRACT

In this study, the effects of market failures on the agricultural sector are revealed. Situations where resources are not used effectively and are distributed inefficiently in free markets are referred to as market failure. Market failure occurs due to reasons such as monopolistic structures with high prices and idle capacity, excessive consumption and negative externalities that impose costs on third parties, public goods not provided in the free market, asymmetric information, etc. Market failures are also frequently encountered in agricultural markets. Agriculture, along with industry and services, is a very important sector in national economies. In recent years, global market instabilities, economic crises, infectious diseases and climate changes have negatively affected agricultural markets, and have also brought about concerns about food supply shortages in agricultural markets due to the increase in the world population. In the study, market failure factors that occur in agricultural markets have been determined and examined with a theoretical approach, and government interventions in preventing failure have been emphasized. Legal regulations, taxes, agricultural planning, subsidies and inventories aiming at stabilizing prices can be considered as solutions to prevent agricultural market failures.

INTRODUCTION

The first humans made their living by hunting and gathering. Approximately ten thousand years ago, with the development of human intelligence, they began to dominate nature, to cultivate the land with the tools and equipment they developed, and to domesticate animals and get benefit from them. This situation reshaped human life by playing an important role in the initiation and development of settled life (Mazoyer and Roudart, 2010). Thus, agriculture offered people the opportunity to live what they believed would be safer lives with access to shelter and food. While agriculture solved the problems related to people's food needs, it also produced devastating consequences such as diseases, malnutrition, war, famine, etc. During the industrial revolution (1760-1830), especially in England, with the adaptation of the steam engine to industry, machine production and the transition to the factory system had a great impact on important developments taking place in people's daily lives. These developments were also reflected in agricultural processes, leading to major increases in agricultural productivity. The use of new agricultural tools and machines and animals, especially in agricultural activities, was the biggest factor in these production increases. The increase in production and therefore in productivity led to savings in agricultural labor, triggering migration from rural areas to urban centers, as well. The workforce needed by the industry at that time was provided in that way.

Developments in agriculture and industry were examined by Adam Smith and other scientists, and the foundations of the economy were scientifically revealed, and in this process, the idea of a free market that balances and regulates itself according to supply and demand became widespread. The market economy encompasses the goals of efficiency, profit and freedom, which were the goals of the industrial revolution. The market economy theoretically allows people to make their own choices and shape their lives.

In a free market economy, farmers needed to reduce costs and increase their incomes to compete. In order to achieve this, producers began to apply various industrial techniques, tools and methods in their fields. These practices led to the birth of industrial agriculture. Today's industrial agriculture is characterized by genetic engineering, chemical fertilizers, pesticides, expensive machinery, large plantations of genetically identical organisms, market dominance of concentrated agribusiness and technology companies, and farmers acting like factory managers (Shahar, 2018). The contribution of agriculture to the abundant and affordable production of agricultural food needed by individuals is extremely important. However, this importance has also led to a tendency towards monopolization, and negative effects on national economies have begun to be seen in terms of standards that must be adhered to and consumer and environmental health.

In agricultural markets, public goods, positive and negative externalities, common pool resources, monopolistic power and asymmetric information, etc. can be shown among the factors leading to market failures. Market failures are when certain aspects of a market make it uncompetitive, thus making it inefficient and unable to produce socially and mutually beneficial outcomes. The two most common market failures in this context are the excessive control of market power and negative externalities such as the harm industrial agriculture causes to consumers and ecological health.

Markets are theoretically environments where consumers seek to maximize their benefits and besides producers come together to maximize their profits. In markets where perfect competition is achieved, resource allocation is optimal. In this case, known as Pareto optimum, the assumption that it is not possible to increase the welfare of one person without decreasing the welfare of another is assumed to be true. If this does not happen, that is, if Pareto optimum cannot be achieved, market failure occurs (Öztürk, 2004).

Factors such as the comparative advantage structure of agriculture compared to other sectors, its multifaceted effects from climate, diseases and pests, its heavy dependence on international trade, the number of consumers on the demand side, their tastes and incomes, and the cost of technology, labor and capital can create sources of uncertainty. This situation may cause instability in agricultural product prices. In such cases, interventions on prices may lead to inefficiency and ineffectiveness in resource allocation. Market failure may occur as a result of inefficiency and ineffectiveness.

There are factors that lead to market failures in agricultural markets such as public goods, positive and negative externalities, common pool resources, monopolistic power and asymmetric information. Market failures occur when certain aspects of a market make it uncompetitive, thus making it inefficient and unable to produce socially and mutually beneficial outcomes. The two most common market failures in this context are the excessive control of market power and negative externalities such as the harm that industrial agriculture causes to consumers and ecological health.

In this study, market failures have been discussed within the framework of economics theory and their reflections on agricultural markets have been emphasized. It is known that fluctuations in agricultural product prices, changes in agricultural supply, producers' generally low and variable income, externalities and the monopsony power of product buyers can lead to market failures in the sector. The fact that this subject has not been sufficiently addressed in the literature will add value to the study and is expected to form the basis for further studies.

The aim of the research is to reveal the factors leading to market failures in the agricultural sector. In the study, firstly, market failure has been explained theoretically and evaluations have been made on the market failures experienced in agricultural markets in various economies. It is expected that this study will form the basis for future studies on the subject.

LITERATURE REVIEW

The issue of market failure has become one of the important research topics in many fields. However, this issue has not been sufficiently researched in agricultural markets. Some of the studies on the subject in the literature are given below.

A study examining both adverse selection and moral hazard effects on Kansas wheat producers found that adverse selection and moral hazard problems were insurmountable for private insurers and that inadequate information used to rate contracts and difficulties in monitoring the activities of insurance agents led to moral hazard (Goodwin and Smith, 1996).

Chalfant et al. (1999), showed that known rating systems are inadequate to solve the classical adverse selection problem associated with asymmetric information about product quality, thus causing asymmetric rating errors, that is, a low-quality product may be mistakenly classified as high-quality. In the study, the effects of asymmetric rating errors on producer returns are shown in the created model. Accordingly, in the application related to the prune industry, it has been determined that classification errors reduce the incentives for the production of more valuable, larger plums.

In the study discussing the obstacles faced by private crop insurance markets, it is stated that contractual issues related to adverse selection and moral hazard may limit the development of private insurance markets, and that significant systemic risks inherent in crop insurance may make private insurance costly or even unusable (Goodwin, 2001).

Gramig et al. (2009), found that producers had specific knowledge about preventing or limiting an infectious disease outbreak in domestic animals, about the preventive biosecurity measures they adopted on their farms before the outbreak (moral hazard), and about whether their herds were infected after the outbreak (adverse selection).

In the agricultural sector, high transaction costs arise due to factors such as inadequate access to information, weak agricultural infrastructure, and credit restrictions, which lead to market failures (Boulay, 2015).

Dillon and Barrett (2017), examined agricultural factor market failures in five countries in Sub-Saharan Africa (Ethiopia, Malawi, Niger, Tanzania, and Uganda). The study found strong evidence of factor market failures in all five countries. It was determined that market failures were not specific to gender, geography, human capital, or land quality, but were general and structural in nature.

As a result of the increase in red meat prices in Türkiye, the government aimed to ensure food safety by removing restrictions on red meat imports. However, the continuing increase in meat prices has shown that public interventions in the sector have not ensured food safety and this has led to market failure (Sarısoy and Akay, 2018).

The application of unobservable chemical insecticides by maize producers to the product they intend to sell, but not to the maize they intend to consume, is a potentially important and under-recognized adverse selection problem in informal food markets in developing countries. In this context, there is a lack of enforceable quality standards, third-party approval, and insufficient price premiums that would encourage vendors to invest in practices that improve quality and reduce risks to consumers (Kadjo et al., 2020).

Goodhue (2000), points out that when there is an adverse selection problem, the buyer can reduce information rents by controlling the non-labor inputs used in the restrictive case of the Cobb-Douglas production function. Here there is a comparation that two traditional cases of perfect information and "pure" asymmetric information, where the farmer has zero information about the use of non-labor inputs unless the buyer controls the input.

In the study examining whether the lack of information between producers and consumers in the drinking milk market leads to asymmetric pricing, the long-term relationship between producer and consumer price series has been analyzed using co-integration analysis, and the short-term relationship has been analyzed using the error correction model. According to the analysis results, it was determined that price series move together in the long term and the permeability of producer milk prices and retail milk prices in the milk supply chain is asymmetric (Taylan and Önder, 2021).

Within the scope of support provided to small-scale farmers, the concepts of adverse selection, moral hazard and opportunistic behavior of farmers have been extensively examined and discussed, and then studies on the subject have been presented through a systematic literature review. The study it has been determined that the relevant units (service providers, farmers and government officials) involved in the process of providing support to small-scale farmers acted in a way that took advantage of the gaps in the system. It has been suggested that efforts should be made to minimize self-interested behavior in order to reduce transaction costs and increase the effectiveness of the support provided (Zantsi et al., 2021).

Rodríguez (2023), identified widespread market failures in his study analyzing the Colombian coffee production market. These are the existence of land sizes that lead to labour inefficiency, mismatches

between labour and capital demands and coffee farm household characteristics, and the dependence of efficiency in single factor allocation on choices of other factor levels and markets.

THEORETICAL AND CONCEPTUAL FRAMEWORK

In this section, the theoretical foundations of market failure are emphasized and the related concepts are explained.

In classical economics theory, it is stated that the economy will be in balance through the price mechanism and this will be achieved through the invisible hand. The invisible hand is Adam Smith's famous metaphor for the unseen market forces that lead to society's best interests when everyone acts in their own self-interest in a competitive, free market economy. Smith's invisible hand concept states that the most equitable outcomes for society can occur when each individual acts according to his or her own economic interests. The self-interest that Smith speaks of (narrowly conceived as the profit motive) does not represent the broader interests that he considers to improve one's situation (Smith, 2009). Smith, in particular, thinks that self-interest includes respect for others, which he calls moral sentiments. A market driven by moral sentiment as well as economic self-interest produces outcomes that are not only efficient but also fair. Therefore, justice, which is a very important aspect of markets, is the main pillar that keeps the whole structure standing. When deviations from this understanding occur for various reasons, the environment is prepared for market failure.

Market failure occurs when the marginal social costs for a particular good or service do not equal the marginal social benefits. That is, market failure occurs when market prices do not equal marginal social costs (Dollery and Wallis, 2001). In order to achieve Pareto optimum, which indicates economic efficiency, while ensuring the optimal distribution of produced goods among consumers (efficiency in consumption), it is also necessary to ensure the optimal distribution of various goods of production factors in the production area (efficiency in production) (Dinler, 2005).

According to traditional economics theory, the factors that lead to market failure are imperfect competition, external economies, economies of scale and natural monopolies, and public goods. In addition, asymmetric information and transaction costs also cause market failures (Aktan, 2016; Aktan and Yay, 2019).

The main factor that leads to market failure is imperfect competition. Today, perfect competition markets are rarely encountered (some agricultural products and stock markets), and the vast majority of markets are malfunctioning markets. Theoretically, perfect competition markets are a market model where there are many buyers and sellers, entry and exit to the market are free, homogeneous goods are available, and buyers and sellers have full information.

External economies are one of the factors that lead to market failures. External economies are defined as the benefits or costs incurred by another economic unit as a result of the production or consumption activity of an economic unit. External economies can be both positive and negative. Positive and negative external economies (external benefits and costs) can prevent the market economy from functioning at an optimal level.

Economies of scale (natural monopoly) are another factor that causes market failures. The main reasons for the failure of economies of scale in the markets are the large volume and high technology level required for this production activity. Economies of scale are known as markets where costs decrease as production levels increase. Therefore, as the scale increases, the return also increases. According to traditional economics theory, markets fail when one or a group of firms dominate the entire market or when natural monopolies emerge as a result of economies of scale (Tepe and Ardıyok, 2004).

The existence of a single firm in economies of scale may cause injustice in the market for the company can make excessive profits by setting the production level at a low level and selling at a high price. Since the price will be set above the marginal cost of production, theoretically total social welfare will remain below the maximum attainable level. Therefore, traditional economists argue that such natural monopolies represent market failure and that this requires government intervention to regulate prices and the level of output in such a sector where the price will be closer to the marginal costs of production (Aktan and Karaaslan, 2009).

Another factor that causes market failures is public goods. Public goods are goods that are consumed without any cost to others and that are not prevented from being consumed by any individual. In this context, education and health services can be given as examples of semi-public goods (Aktan, 2019).

Asymmetric information also causes market failures. Akerlof (1970), described the way in which asymmetric information between buyers and sellers distorts the efficiency of markets. Although the seller knows the real value of his goods, the buyer does not have complete information about the quality and price of the goods. This phenomenon, referred to as information asymmetry, is the inability of one party to fully know what the other party knows. This can disrupt the efficiency of markets. Asymmetric information is when one economic agent in the market has more information than the other. Asymmetric information, which is described as a market failure, refers to the fact that buyers and sellers have different information about goods and services. In this case, information symmetry is disrupted and asymmetric information, known as market failure, occurs and is moving the market away from balance. In the study analyzing the price structure of the American beef market using weekly beef producer, wholesale and retail prices, price asymmetry was identified between wholesale and retail prices (Goodwin and Holt, 1999).

There are two main problems regarding asymmetric information problems. These are hidden information and hidden action. Hidden information or adverse selection is characterized by a situation in which the agent has some private information about costs that are unknown to the principal. Hidden action, also called moral hazard, is explained as a situation where the agent can take an action that cannot be observed by the principal and affects his benefit (Viaggi et al., 2020).

Transaction costs, which include the cost of ensuring social order and the fulfillment of contracts within the economic system, are another factor that leads to market failures. Transaction costs arise as search and information costs, bargaining costs, and monitoring and enforcement costs. Therefore, increasing transaction costs leads to market failure.

MARKET FAILURE IN THE AGRICULTURAL SECTOR

Agriculture is an economic activity carried out to produce plant and animal products using production factors and to obtain value-added products from these products. After the hunting and gathering phase, agriculture played an important role in the transition to settled life. It became a sector that had a say in the fate of humanity for approximately ten thousand years until the industrial revolution (Mazoyer and Roudart, 2010).

Factors such as the comparative advantage structure of agriculture compared to other sectors, its multifaceted impact from climate, diseases and pests, its heavy dependence on international trade, the number of consumers on the demand side, their tastes and incomes, and the cost of technology, labor and capital can create sources of uncertainty. This situation may cause instability in agricultural product prices. In such cases, interventions on prices may lead to inefficiency and ineffectiveness in resource allocation. The emergence of inefficiency and inefficiency will cause market failure.

In many countries, access to accurate and reliable information about agricultural markets, climate conditions and basic research is provided through public means, and this is largely financed by governments. Of course, although producers and firms bear the cost of these inputs, much of the final or economic impact is passed on to consumers. The additional production costs that arise are transferred to product prices at higher rates (Freebairn, 2010).

Agriculture is seen all over the world as a strategically important sector that cannot be left to market economy conditions and therefore requires government intervention. The agricultural sector, which stands out with factors such as the nutrition of the country's population, food security and safety, transferring resources to industry and income distribution, is supported by the government by allocating large amounts of resources when necessary.

The seasonal nature of agricultural activities and their dependence on climate by nature cause irregularities in product prices, resulting in fluctuations in producer incomes, which makes it difficult for producers to achieve a balanced and adequate standard of living. In this respect, governments are faced with the responsibility of reducing the instability in agricultural product prices and improving low agricultural incomes within the scope of supportive activities and policies. Agriculture also contributes to the development process as countries industrialize. With industrialization, the share

of agriculture in national income decreases, but agriculture continues to maintain its strategic importance due to its relations with the sectors it contributes to. The connections between agriculture and the market economy manifest themselves in different ways, such as meeting people's need for food products, ensuring the flow of savings to industry, expanding the markets for industrial products, obtaining foreign exchange from exports to purchase imported inputs, and producing agricultural inputs to be processed in industry. In addition, with the migration of labor from agriculture, where there is hidden unemployment, to industry, a cheap labor source becomes available for industry. This situation meets the need for productivity, which is an important problem of development, by ensuring that labor with low productivity in agriculture works effectively and efficiently in the industrial sector (Tokatlıoğlu et al., 2018).

Some practices that qualify as market failures in agriculture are: The first is the problem of incomplete information/asymmetric information. The information provided by the government regarding the agricultural sector can be considered as a public good. It is possible for the knowledge that a producer in agriculture acquires and starts to use, to be used by his neighbors in a society that lives within traditional patterns. This positive externality is used to ensure the efficiency of the support provided to producers, especially in the adoption of new technologies. Secondly, irrigation services in agricultural activities are of a public nature. In some countries, the government allocates resources to irrigation projects and provides this service to producers. Imperfecft competition market conditions in agricultural insurance and credit areas are also among the reasons leading to market failure. In developing countries, agricultural workers are not fully insured against the production and price risks they face. Rural credit markets, like agricultural insurance markets, are markets where imperfect competition conditions apply (Gönel, 2010). All these factors show why state intervention in agriculture is necessary.

While there is a competitive market in the agricultural products market due to the large number of producers, the fact that input markets exhibit imperfect competition (monopoly or oligopoly) has become a problem on a global scale. This situation may lead to the agricultural sector becoming unprofitable and the production amount decreasing, thus increasing the product prices. Some of the goods and services needed by consumers are supplied by the government and some by the private sector. The government can enter the market and produce some goods and services due to their technical features. In this context, the production of goods that are compulsory for the society by monopolies, the possibility of production with decreasing costs and zero marginal cost, joint consumption features, under- or over-production of goods and services that create positive or negative externalities by the market can cause market failures (Şener, 1998).

RESULTS AND DISCUSSION

In the study, failure examples in agricultural markets such as public goods, asymmetric information, externalities, etc. have been identified and evaluations have been made regarding them.

Although food and agricultural production have economic as well as social importance, various disruptions in the sector are noteworthy. Problems such as productivity, efficiency, marketing and organization in the sector cause negative effects for consumers as well as producers. This situation puts the sector in a risky situation in developing countries and makes it more vulnerable to external shocks (Demez and Ökde, 2023).

Adverse selection due to incomplete information on product quality is a concern in many agricultural commodity markets. Ranking is one way to alleviate the adverse selection problem. However, the rating may often contain errors. Possible premiums and price discounts related to product quality may encourage market participants to classify quality attributes. Many sizing methods can have an inherent adverse selection bias due to grading error, which can have a deterrent effect on the production of high-quality product. Errors in classifying products may lead to adverse selection. From here it can be said that low quality goods can push high quality goods out of the market. That is, adverse selection can occur without resorting to asymmetric information and heterogeneity (Chalfant et al., 1999).

Adverse selection problems can occur in agricultural crop insurance. Insurance rates may not accurately reflect the true probability of loss for farmers. High-risk producers may pay lower premiums than they should, while low-risk individuals may pay higher premiums. Insurance

premiums may provide an advantage for high-risk producers, while being disadvantageous for low-risk producers, resulting in a risky premium pool. This is an example of adverse selection (Goodwin, 2001). In addition, the insurance of buildings and machinery, which is one of the risk management strategies, leads to information asymmetry and market failure problems in the economy. However, greater problems are encountered when it comes to insurance against climate factors and yield changes. Ultimately, this situation can create moral hazard and adverse selection problems, leading to market failure (Freebairn, 2010).

In the context of food safety, threats such as pesticide residues and aflatoxin contamination in staple foods can often go unnoticed by both buyers and sellers. However, producers have more information about food quality than consumers. Such information asymmetries can hinder market development and harm human health. For example, if consumers cannot monitor pesticide residues themselves, cannot easily test for residues, and cannot obtain reliable information on grain quality from a third party, price adjustments based on quality are unlikely because buyers cannot easily distinguish between quality and poor quality grain (Kadjo et al., 2020). Lack of information leading to market failure makes it difficult for producers to know what products are needed in what quantity, when, in what quality and at what price to supply the market. Consumers also need similar information.

Asymmetric information arises from producers' decisions to adopt practices that may alter unobservable corn quality, such as applying chemical pesticides to corn that protect corn from insect attacks but may pose adverse health risks when consumed by humans. There is also a high probability that producers have incomplete knowledge about the health risks associated with applying chemical pesticides to corn (Kadjo et al., 2020).

In general, sellers' subjective beliefs about unobservable quality attributes may create more than adverse selection in informal markets. Adverse selection discourages market participation and can lead to significant health risks for consumers. In addition, inadequate information on food safety and proper storage practices leads small-scale farmers to use poor quality grains from markets or stocks, and this results in creating risks and causing negativities in informal markets (Kadjo et al., 2020). In addition to focusing on increasing production volumes in eliminating these disruptions, improving product and service quality is also important.

Asymmetric information is often the case when planning agricultural environmental contracts. The opportunity costs associated with alternative practices in the agricultural sector depend on variables that the producer is aware of, but that the regulatory establishment is not easily aware of (Canton et al., 2009).

There are many reasons why producers prefer input control under contract farming, some of which involve asymmetric information (Goodhue 2000). Some examples of asymmetric information may occur in a buyer-producer relationship involving multiple inputs. For example, the buyer is less informed about the nature of the production function than the producer. When information is asymmetric in this sense, it may be costly for the buyer to determine the input mix. The farmer may choose a combination that he can improve on. Moral hazard may be an issue if the farmer's effort cannot be observed in terms of its effects on quantity or quality of the product and the effect depends on the use of other inputs (Sexton, 2013). In economics, moral hazard occurs when a person takes more risks than others and bears the costs of the risks. Moral hazard can occur when one party's actions may change to the detriment of the other party after a financial transaction has occurred. The concepts of moral hazard and adverse selection are often used interchangeably, but they are not strictly synonymous. On the one hand, adverse selection occurs when there is a lack of symmetric information between buyer and seller prior to a deal. Moral hazard occurs when there is asymmetric information between two parties and a change in the behavior of one of the parties occurs after an agreement is made. Both expressions are used to describe situations where one party is at a disadvantage compared to the other (Mkhabela, 2018). It is assumed that moral hazard can be prevented by a combination of incentives and restrictions. Monetary incentives such as profit, dividend and bonus payments for meeting and exceeding quality and quantity requirements minimize the risk of moral hazard. The restrictive factors identified as having a negative impact on moral hazard include environmental control of production and the control and implementation of general good agricultural practices (Mkhabela, 2018).

Other motivations for providing inputs, depending on the farmer's characteristics, include easing the farmer's credit constraint, if any, liquidity constraint, or redistributing risk if he is risk averse. Quality issues are also important, including but not limited to those involving asymmetric information (Goodhue and Simon, 2016).

Through various mechanisms for monitoring contracts, adverse selection and moral hazard costs can be reduced both pre- and post-contract. In order to reduce the costs resulting from the emergence of moral hazard, either one of the parties must bear the costs, or social pressures, incentives or group contract incentives must be put in place (Ncube, 2020).

With agricultural contracts, it is ensured that the preferred products are grown and produced in appropriate and agreed places and times. In addition, it is important to have incentives for the coordination of the relevant parties and to provide these incentives at the lowest possible costs. To achieve this, contracts must be designed to overcome market failures and distribute risk and control differently among contract participants (Ncube, 2020). The adoption of monetary reforms in a period of increasing market failures was associated with the rapid increase in the use of agricultural contracts in Africa in the 1980s, with the result of that, economic liberalization and institutional reforms reduced government interventions in service delivery (Ncube, 2020).

GOVERNMENT INTERVENTIONS IN PREVENTING FAILURE IN AGRICULTURAL MARKETS

Agriculture is seen all over the world as a strategically important sector that cannot be left to market economy conditions and therefore requires government intervention. The agricultural sector, which stands out with factors such as the nutrition of the country's population, food security and safety, transferring resources to industry and income distribution, is supported by the government by allocating large amounts of resources when necessary.

Government intervention may occur as a result of the price mechanism, which forms the basis of the functioning of the market mechanism in classical economics, losing its functionality and therefore failing to play an effective role in resource allocation (Wallis and Dollery, 1999). This situation is observed more clearly in the agricultural sector. The impact of climate conditions on agriculture creates risks and uncertainties in the sector. In addition, the low supply and demand flexibility of agriculture, the difference in the production process compared to other sectors, and more importantly, market failures in agricultural markets make interventions in agriculture necessary.

In general, governments can intervene in the agricultural sector by providing public services such as the provision of information and transportation infrastructure, the legal enforcement of contracts in the sector, and agricultural research, and by making indirect regulations on quantities and prices. In addition, many countries directly intervene in the agricultural sector by establishing official marketing systems. Taban ve tavan fiyat, price and quantity controls, direct interventions in markets, imposition of non-tariff barriers and other public interventions are among the state interventions that are frequently seen in agricultural markets (Comcec, 2017; Lundberg, 2005; Andreosso-O'Collaghan, 2003).

Public authorities can use intervention in agriculture as a policy tool to influence and change the economic and social structure around the world. For this purpose, increasing efficiency by ensuring coordination in the sector, affecting the distribution of agricultural income and ensuring food security are also indicators of government interventions in agriculture (Lundberg, 2005). In this context, the reasons for government intervention in the agricultural sector can be shown as disruptions in credit and insurance markets, public goods and increasing returns, incomplete information, externalities and disorders in income distribution (Stiglitz 1987).

Therefore, governments intervene in the agricultural sector in order to ensure food security, to be self-sufficient in food products, to reduce rural poverty, to ensure stability in agricultural product prices, to increase competition in the sector, to realize agricultural industry, to encourage rural development, to increase the participation of the private sector, in short, to reduce the impact of market failures (Standing Committee for Economic and Commercial Cooperation of the Organization of Islamic Cooperation [Comcec] 2017). However, in interventions to correct market failures, ensuring alignment between the public and private sectors may incur additional costs. These interventions may lead to social costs and reduce economic efficiency. The adoption of monetary

reforms in a period of increasing market failures was associated with the rapid increase in CF (Contract Farming) implementation in Africa in the 1980s, and consequently, economic liberalization and institutional reforms reduced government interventions in service delivery (Ncube, 2020).

The differences in economic policies implemented by countries also differentiate the market failures that countries face, and this also affects the government policies to be implemented against failures (Sağdıç and Çakmak, 2021). Therefore, each country must first determine the causes of market failure and then develop policies to reduce the impact of this failure (Stiglitz, 1987). The economic policy to be implemented should consist of goals/targets based on a specific logical justification and the tools developed or designed to achieve these goals/targets. In this context, agricultural policies can be examined in two categories (AndreossoO'Collaghan, 2003). In the first stage, there are agricultural support policies that include policies affecting agricultural prices. The support given to producers and consumers is rearranged every year. The regulation of structural policies is in the second category. Such policies, which aim to influence the structure of the agricultural sector and the actors in this sector, cover a long-term period.

In short, externalities and other similar market failures can be overcome by ensuring that cost-effective measures and practices are taken, such as understanding major changes in natural resources, valuing marginal changes in the provision and use of environmental assets and ecosystem services and including them in economic decisions, and investing in infrastructure and environmental R&D to minimize market failures (Taş and Kütükçü, 2022).

CONCLUSION

This article has discussed the impact of market failure on the agricultural sector. Factors that lead to market failure are imperfect competition, external economies, economies of scale, natural monopolies and public goods. In addition, asymmetric information and transaction costs also cause market failures.

Market failure occurs in free market economies when resources are allocated to inefficient areas, and market failures are observed as a result of the existence of monopolistic structures, negative externalities, lack of information, public goods, etc. One of the sectors where market failure is seen is agriculture.

In recent years, climate changes in the world, fluctuations in oil prices, ineffective and inefficient use of resources, instabilities in imported input prices due to changes in exchange rates, especially in developing countries, and supply-demand imbalances due to epidemics have created significant fluctuations in the prices of agricultural products.

In agricultural markets, in addition to factors such as public goods, externalities, monopolistic behavior and information asymmetry; allocation of land and water resources between agriculture and the environment, natural monopoly characteristics of agricultural infrastructure, information asymmetry between buyers and sellers regarding food quality and safety, externalities related to external costs of soil, air and water pollution arising in the agriculture-based food industry have also been determined to lead to market failures.

The differences in information that producers and consumers have about the characteristics of products and inputs can cause market failure in terms of creating a balanced market. This can lead to productivity losses. Areas where asymmetric information has the potential to cause market failure in the agricultural sector are food quality and safety and insurance.

In order to reduce the problems that information asymmetry may create, companies protect their reputation, provide assurances, facilitate product returns and use qualified brand names, while governments ensure that processing techniques and other production activities are regulated, labeling is mandatory, standards and "quality" levels are implemented and lawsuits against sellers are low-cost to protect consumer rights.

Policy interventions such as customs duties, quotas, fertilizers, fuels, export subsidies, etc. can distort the efficiency of resource allocations and cause market failure in the sector. Therefore, instead of directing growth through subsidized agricultural input and output prices, governments should focus on productivity increases in the sector.

Countries should first identify the factors that lead to failure and develop appropriate intervention policies against market failures that they may encounter. The policies to be implemented should be directed towards improving market efficiency and correcting market failures such as reducing poverty. It is expected that the results of this study will be useful for the parties in the agricultural sector, farmers, investors, managers and policy makers.

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