AGRICULTURAL VALUE CHAIN PERSPECTIVE ON THE PADDY-RICE SECTOR: THE TURKISH CASE

Fatih Boran

Doctoral Student - Corresponding Author
Ankara University, Faculty of Agriculture, Department of Agricultural Economics
Ankara, Türkiye

&
Dr. Erdoğan Güneş
Professor
Ankara University, Faculty of Agriculture, Department of Agricultural Economics
Ankara, Türkiye

Abstract

This study conducted a value chain analysis of the paddy product. The analysis process covers the stages from paddy production to the delivery of the final rice product to the consumer. The process begins with paddy production and import, continues with rice processing activities in paddy factories, and concludes with consumption.

The research utilized both primary and secondary data based on the value chain methodology. Primary data was obtained from key actors in the value chain (producers, processors, distributors, and retailers) and through participatory interviews with these actors. Secondary data was obtained from the analysis of information and data obtained from public and private sector reports and sectoral trend studies.

Based on the findings, a comprehensive SWOT analysis was conducted, considering all actors in the value chain with a holistic approach. The current status of the sector was evaluated based on the data obtained from the SWOT analysis, and conclusions and recommendations were developed for policymakers and industry stakeholders.

Among the key findings of the study are that Türkiye is not self-sufficient in paddy production, that the sustainability of the production process must be ensured, and that this requires increasing the profitability of actors in the value chain. In this regard, structural improvements are needed to increase production efficiency, reduce import dependency, and ensure a more equitable distribution of added value in the chain.

Keywords: Paddy, Rice, Value Chain, Corum-Türkiye, sustainable agriculture, SWOT analysis

1. Introduction

Rice, one of the world's staple foods, is a key source of nutrition, particularly in Asian countries and in developing economies like Türkiye. Rice, produced by processing the paddy plant (Oryza sativa L.), is a strategic product in terms of both nutritional and economic value. With a global production of over 500 million tons, it is the third most produced field crop after wheat

and corn (FAO, 2023). Paddy is a plant that can be cultivated in wide areas around the world, except for the Antarctic continent, and has the advantage of being produced with higher yields in tropical and subtropical regions. Paddy production differs from other agricultural products due to its high water requirement, special land conditions and complexity of the processing process. Considering the climate factors, the factors that most affect paddy cultivation are temperature and rainfall (Taşlıgil and Şahin, 2011).

Paddy (Oryza sativa L.) is cultivated in more than 120 countries worldwide and stands out as a strategic crop that provides the primary food source for more than 3.5 billion people. Worldwide, paddy cultivation areas are approximately 160 million hectares and annual production is over 500 million tons (FAO, 2023). The Asia-Pacific region, in particular, accounts for approximately 90% of world paddy production; countries such as China, India, Indonesia, Bangladesh and Vietnam are the main producers. In these countries, paddy production forms the basis of the rural economy and provides a source of livelihood for millions of small-scale farmer families. India stands out as the country with the largest paddy production area and has been one of the countries benefiting from high-yield paddy varieties since the mid-1960s (Siddiq, 2024). China ranks first in terms of production volume. Production is generally carried out with monsoon-based irrigation systems and is vulnerable to environmental threats such as climate change, water scarcity, and soil degradation (IRRI, 2022).

Türkiye ranks 55th in the world in terms of paddy cultivation area and 41st in terms of production amount, and Türkiye achieves high efficiency in paddy cultivation. The provinces with the largest share in paddy production in Türkiye are Edirne (40.8%), Samsun (17.5%), Balıkesir (15.3%), Çorum (5.8%), Çanakkale (5.8%), Çankırı (3.5%), Sinop (2.8%), Kırklareli (1.6%), Kastamonu (1.1%) and other provinces (5.8%). Production is concentrated in the Marmara and Black Sea regions (Arslan, 2024). However, limited production areas, concerns about the sustainable use of water resources and increases in input costs are among the main problems faced by paddy producers (Karakaya & Duru, 2021). In addition, Türkiye has to import significant amounts of paddy and rice from time to time because domestic production is insufficient to meet demand. This situation necessitates the strategic evaluation of paddy production not only in terms of agricultural production but also in terms of food security and import balance (TÜİK, 2023).

An examination of Türkiye's foreign trade in the global market reveals that Türkiye's imports, which stood at US$171,095,000 in 2014, declined with fluctuations in subsequent years, reaching US$6,845,000 in 2022. However, the import value rose to US$32,412,000 in 2023. Fluctuations in local production in Türkiye may be one of the main factors affecting paddy imports. Exchange rates and agricultural policies also influence this situation. Türkiye's export values remained low compared to other countries, reaching only US$295,000 in 2023. This figure was US$2,122,000 in 2014, but a significant decline was observed in subsequent years. The reason for Türkiye's low paddy exports is that paddy production cannot meet domestic consumption, local production is focused on meeting the domestic market, and export capacity is limited.

Despite high global production levels, productivity and sustainability issues remain prominent in paddy production. Yields are low, particularly in African and some Latin American countries, due to inadequate production techniques, inadequate infrastructure, and limited financial support mechanisms. In this context, global paddy production plays a critical role not only in food security but also in alleviating poverty, supporting rural development, and combating climate change (World Bank, 2021).

Although there are problems due to the current situation in Türkiye, paddy offers significant opportunities in terms of the value-added chain. Located within a multi-stage system extending

from agricultural production to processing, packaging, logistics, and retail sales, paddy has the potential to contribute to rural development, employment generation, and improved income distribution.

Located in a multi-stage system starting from agricultural production to processing, packaging, logistics and retail sales, rice has the potential to contribute to rural development, employment creation and improvement of income distribution (Demirtaş & Uçar, 2020). In this context, a holistic analysis of the paddy value chain is critical for increasing sectoral efficiency and effectively shaping national agricultural policies.

This study aims to reveal the supply chain and value chain of paddy in detail in the province of Çorum, where paddy production is widespread and famous for its name "Osmancık", to evaluate the effectiveness of the actors in the chains, and to determine the strengths and weaknesses of the sectoral structure and actors, opportunities and possible threats. The study aims to outline steps for improvement in the value chain to benefit each actor, especially the essential paddy producers, and to address recommendations.

2. Literature Review

While value chain analyses for paddy are limited in number, the theoretical foundations and methodological approaches of value chain studies on agricultural products have a long history. The initial theoretical framework for these studies was presented in Coase's (1937) work "The Nature of the Firm," which offered explanations of why and how firms organize. The widespread adoption of the value chain approach as a systematic analysis tool dates back to Porter's (1985) work "Competitive Advantage: Creating and Sustaining Superior Performance." Within this framework, value chain analyses for the agricultural sector evaluate both micro-level business decisions and macro-level sector structure and market relations.

In applications specific to the agricultural sector, Smith and McDonald (1998) pioneered sustainability-based analyses, while Dolan and Humphrey (2000) examined the impact of governance and the retail sector on fresh vegetable supply chains. As an example of regional and product-based studies, Brázdik (2006) analyzed the technical efficiency of paddy farms in Indonesia; Güngör (2007) and Oğuzhan & Özalp (2008) focused on paddy production and productivity in the Thrace Region. Value chain analyses conducted in Türkiye on various products such as olives (Gül Özdoğan, 2009), oranges (Bülbül, 2011), milk (Sarı, 2012), tea (Savcı, 2012), tomatoes (Bozdemir et al., 2021), and Siirt pistachios (Öztep, 2023) are notable for their similar methodological approaches and regional focus. Studies specifically focused on paddy, while limited in number, offer significant findings. Yılmaz (2017) investigated the environmental impacts of paddy production in Edirne, while Aydoğan (2018) examined agricultural innovation systems among paddy producers in Samsun. Similarly, Bahadır (2021) evaluated the yield and quality characteristics of various paddy varieties in Samsun. In the context of the integration of the value chain into the agriculture-food system, Adanacıoğlu et al (2018) and Başer & Bozoğlu (2018) highlighted the sustainability and value creation dimensions; (2018) and Başer & Bozoğlu (2018) highlighted the sustainability and value creation dimensions, while Semerci & Everest (2019) examined the perceptual impact of support policies on paddy producers. Internationally, Tarekegn et al. (2020) presented export value chain analyses for bananas, and Leeters & Rikken (2016) for the fruit and vegetable sector. Alamyar and Boz (2019) also discussed the problems faced by paddy farmers in Afghanistan and their proposed solutions.

These studies make significant contributions to the application of value chain methodology in agricultural economics across different products and geographical contexts. However, the limited number of holistic and actor-based value chain analyses specifically for paddy in Türkiye makes this study unique and current in the literature.

3. Methodology

3.1 Data Collection Method and Implementation Process

In this study, a multifaceted data collection process was conducted using both qualitative and quantitative methods to ensure a robust analysis of the paddy value chain. In this context, firstly, all the main stakeholders in the paddy value chain and the functional roles of these stakeholders within the chain were analyzed in detail. Structured face-to-face interviews were conducted with producers, processors, wholesalers, transporters, retailers, and consumers. Through these interviews, the actors' positions within the process, the challenges they faced, their expectations, and their value creation capacities were examined in depth. Based on this information, a SWOT analysis was conducted for each stakeholder group, and the interactions between the actors were evaluated with a holistic approach, focusing on strengths, weaknesses, opportunities, and threats.

The study's quantitative dataset was obtained through surveys conducted throughout Çorum province. In this regard, a comprehensive field study was conducted covering four main actor groups. Firstly, 89 surveys were conducted with a sample group selected from producers who had a license for paddy cultivation; Secondly, processing processes, production capacity, and quality control practices were evaluated through surveys conducted with all 19 paddy processing factories in the region. The third and fourth groups consisted of wholesalers and retailers who play important roles in the marketing of paddy products. Similar surveys were conducted with 44 wholesalers and 103 retailers in five provinces.

In addition, because paddy products are not limited to Çorum but reach a widespread consumer base across Türkiye, surveys were also conducted with 321 consumers in various provinces. In this way, important information such as product consumption trends, reasons for preference and perceived quality level was collected. In addition, semi-structured interviews were conducted with village headmen, representatives of the chamber of agriculture and irrigation unions, along with producers, in order to reveal the relationship between production and marketing processes and organizational structures at the local level. This qualitative data supported the survey results and enabled the integration of local knowledge into the analysis.

The primary data collected allowed the current structure of the paddy value chain to be revealed in detail; The functioning of each link in the chain, the problems it encounters and the potential values it carries have been systematically analyzed. On the other hand, the secondary data set of the study was obtained through current statistical data published by the Turkish Grain Board (TMO) and the Ministry of Agriculture and Forestry, academic research reports, and interviews with public institutions and non-governmental organizations. Thus, a multidimensional and interdisciplinary analysis framework based on both quantitative and qualitative data sources was created.

3.2 Theoretical Framework and Structuring of the Paddy Value Chain

The chain intended for this study is designed to examine the linear path of the first link in the chain, which begins with production in Çorum. In his 1985 work, Competitive Advantage, Porter developed a value chain model that contributes to businesses' competitive advantage.

However, in this study, Porter introduced the elements of horizontal and vertical competition and, through the concept of the value chain, linked a firm's profitability to its ability to manage value-added activities.

GZT (2007) states that a common characteristic of many value chain approaches is that stakeholders in the value chain are examined in interconnected clusters. This idea is visualized in Figure 1. The general elements of the basic linear value chain map are presented in five basic clusters. These clusters are shown as Input, Production, Processing/Transformation, Trade, and Final Sale.

In the basic linear value chain, clusters are in direct or indirect relationship with each other. Some stages can be skipped and continued.
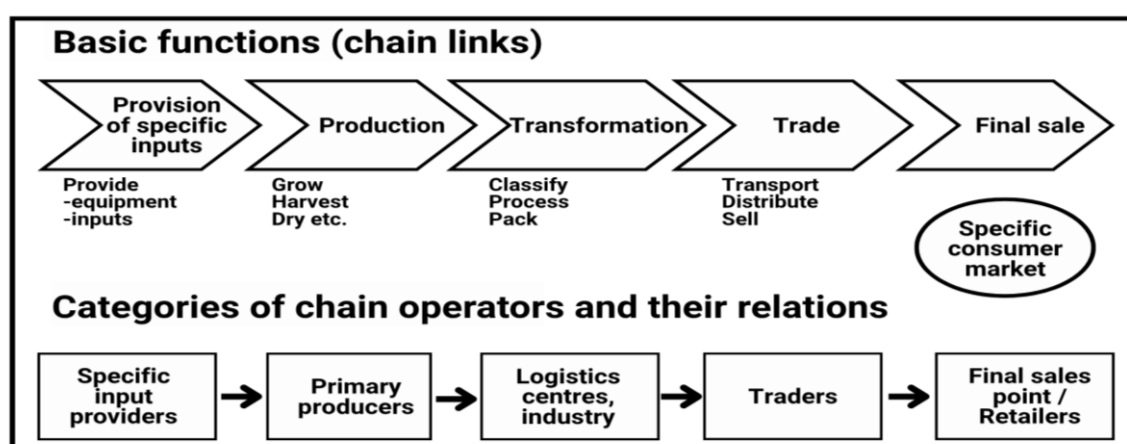

Figure 1. General Elements of the Basic Linear Value Chain Map (GTZ, 2007)

4. Research Findings and Discussion

4.1 Assessment of the Paddy Value Chain: Findings Based on Survey Data

Due to its structure, the paddy product is not suitable for direct consumption in its raw form. To transform it into a consumable form, the outer husk must be removed and it must undergo various processing stages to be transformed into rice. Therefore, the entire paddy product necessarily enters the manufacturing process; it is processed and transformed into rice, the final product offered to consumers.

In Türkiye, there are limited holistic and systematic academic studies on the distribution points to which rice is directed after the paddy crop is harvested and the quantitative determination of the supply quantities to these points. In addition, by evaluating the interviews with industry representatives, sales points and estimated sales volumes declared by the companies, sector reports published by the Rice Millers Association, data from the Turkish Grain Board (TMO) and the Turkish Statistical Institute (TÜİK), and field observations, the basic structure and direction of rice distribution in the supply chain could be estimated. These findings contribute to making the post-processing distribution leg of the paddy value chain more transparent and measurable.

Fertilization, harvesting, marketing, and pesticide application expenses constitute the highest costs for producers during the paddy production process. Since paddy production in Türkiye is an activity subject to licensing, all cultivation areas are expected to be registered in the Farmer Registration System (FRS). A field survey conducted in Çorum province found that 96.67% of producers were registered with the FRS. It has been understood that unauthorized plantings

mostly consist of small pieces on the edges of the fields and sections within the existing field boundaries.

Field studies show that rice marketed in retail outlets and processing factories is largely sold under the trade names Osmancık (medium grain) and Baldo (long grain). However, it has been determined that in practice, medium grain varieties other than Osmancık and long grain varieties other than Baldo cannot be distinguished from each other and these varieties are generally marketed under the same names. This situation makes it difficult for the consumer to make an informed choice based on product information and creates a discrepancy between labeling and content.

Producers state that paddy farming provides higher income compared to many other field crops. Therefore, they stated that they will continue to cultivate rice as long as there are no restrictions on access to natural resources. However, producers emphasize that if paddy prices are not announced by the government, they will be forced to sell their products at very low prices, which will weaken their competitiveness. In addition, it has been stated that while market prices are expected to rise in situations such as famine, products supplied to the market through imports suppress this rise.

The Turkish Grain Board (TMO) stands out as the institution that has the greatest impact on prices, and the majority of producers demand that TMO remain active in the market and that price announcements be made simultaneously with the harvest. Similarly, traders and manufacturers point out that price uncertainty can create hardship.

Historically, the first paddy mill established in Türkiye was located in the Tosya district of Kastamonu, and this number soon increased to four. The Tosya region is considered to be in the same agricultural region as the Kargı and Osmancık districts of Çorum province, and the factories established here pioneered the development of the paddy processing industry in Çorum.

In the field research conducted in Çorum, it was determined that all of the operating paddy factories were family companies. The management staff consists mostly of family elders between the ages of 46 and 65, and the businesses are managed like small-scale workshops rather than the classical industrial facility structure. It was determined that 38% of the managers have university degrees, but no factory has a professional manager. This situation leads to limited implementation of corporate governance principles.

Additionally, contract manufacturing practices are frequently encountered in factories. For example, some brands produce on their own behalf and determine the physical properties of the ingredients, such as the crushing rate or grain type. Although the 5% breakage rate is declared on the label, this rate may be higher in actual content; Similarly, it has been determined that imported rice can be mixed with domestic products to provide a cost advantage. Such practices fall within the scope of imitation and adulteration, contrary to food legislation; However, since variety identification in rice is technically quite difficult, this situation becomes difficult to control. The superior aromatic structure of paddy grown especially in the Çorum region makes it more difficult for the consumer to notice such differences.

Paddy mills, the main component of the paddy value chain, theoretically have the power to set prices, but they act according to the supply-demand balance in the market. In particular, chain markets sell at lower prices than the market, putting pressure on factories' exit prices. While consumers are sensitive to local varieties, it is observed that lower-cost products are generally preferred in mass consumption areas (dormitories, dining halls, etc.).

Analysis across all chain actors reveals that very limited profit margins are applied in the transition from producer to consumer. Keeping final sales prices low creates a positive situation

for the consumer, but puts the profitability levels of producers, processors and distributors under pressure. This situation is considered a structural problem that could threaten the long-term sustainability of the chain.

The channels in the paddy and rice value chain analysis, based on primary and secondary data and information obtained in the research area, are explained in Figure 2. 96% (950 thousand tons) of the amount of paddy supplied to the market in Türkiye comes from domestic production, while 4% (38 thousand tons) is included in the system through imports.
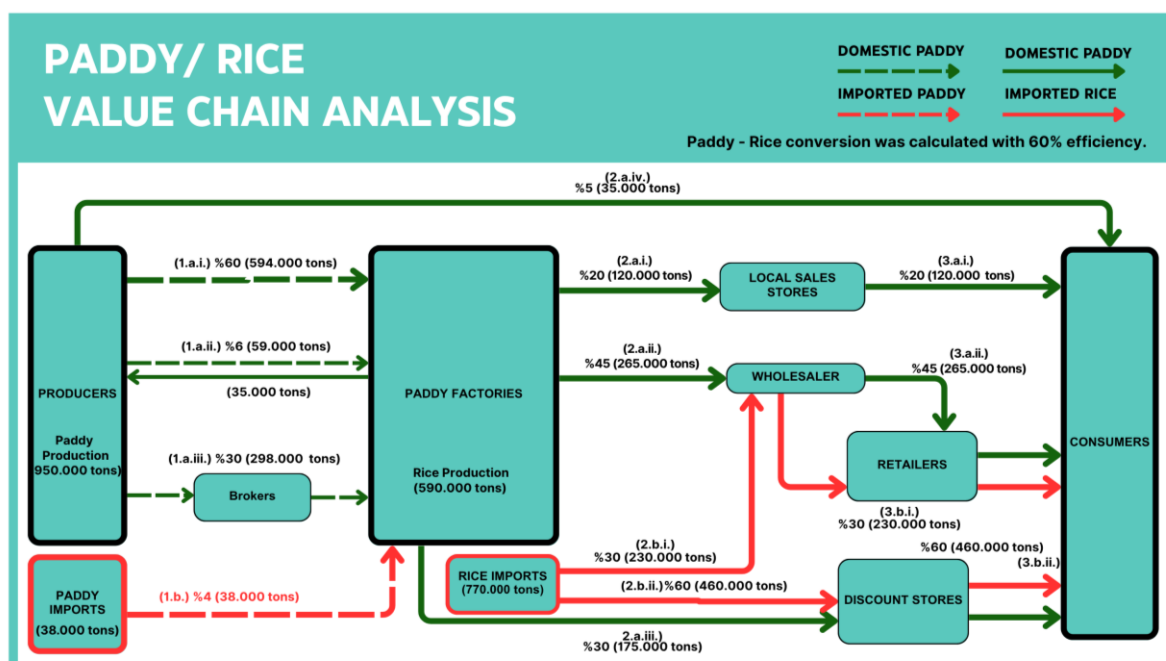

Figure 2. Paddy/Rice Value Chain Map in Türkiye (Research result analysis)

The numerous actors and processes within the paddy value chain create a complex structure, making it difficult to holistically understand the flow from production to consumption. Therefore, in order to analyze the transitions between channels clearly and systematically, it is necessary to collect the different stages of the chain under certain functional groups. This type of grouping approach more clearly reveals both the internal dynamics of each stage and their interactions, thus enabling analytical monitoring of flows along the supply and value chain.

1. **Step:** This stage involves the supply of padddy. The chain begins with the paddy produced by the producers (950 thousand tons) and the 38 thousand tons of paddy imported. A total of 988 thousand tons of paddy are supplied. In the first stage, the paddy movement starts from producers and importers.
   a. Sales from Producers: Producers sell their products;
      i. 60% directly to paddy mills (593,000 tons).
      ii. Delivering paddy to factories and receiving rice: 6% (59,000 tons)
      iii. Delivering to factories through brokers: 30% (298,000 tons)
   b. Selling products to factories by paddy importers: 4% (38,000 tons)
2. **Step:** 988,000 tons of paddy were converted into 590,000 tons of rice. Additionally, 770,000 tons of rice were imported. Total rice supply is 1,360,000 tons.
   a. Domestic paddy from paddy mills:
      i. Sold to local markets and regional sales points: 20% (120,000 tons)
      ii. Sold to wholesalers: 45% (265,000 tons)

        iii. Sold to chain markets: 30% (175,000 tons)
        iv. Sold directly to consumers by producers: 5% (35,000 tons)
    b. 10% of imported rice is transferred as stock, and the remaining balance is supplied to the market. Accordingly:

        i. 30% sold to wholesalers (230,000 tons)
        ii. 60% sold to chain markets (460,000 tons)
3. **Step:** This stage is the stage before rice reaches the consumer.
    a. All domestic rice from Step 2:
        i. Sold to consumers through local markets and regional sales points,
        ii. Sold from wholesalers to retailers and consumers, respectively,
        iii. Sold from chain markets to consumers,
    b. Imported rice from Step 2:
        i. Sold from wholesalers to retailers and consumers, respectively,
        ii. Sold from chain markets to consumers, respectively.

The distribution structure after the paddy product is converted into rice varies according to the supply chain organizations of regional production centers. Approximately 45–50% of the rice obtained from paddy processing factories operating in the Black Sea Region, especially in the provinces of Samsun and Çorum, is distributed to wholesalers, 25–30% to national chain markets, and 20–25% to local markets, grocery stores, and regional sales points. These rates become evident in relation to production volume and logistics possibilities.

In Edirne, where paddy production is most concentrated in Türkiye, approximately 50–55% of rice production is directed to wholesalers, 25–30% to chain markets, and 15–20% to local sales channels. In Balıkesir, one of the other important production centers, the distribution structure exhibits a relatively balanced appearance: wholesalers' share is 30–35%, chain markets' share is 35–40%, and local sales channels' share is 25–30%.

In line with the regional data in question, an estimated model was created regarding the distribution structure of domestically produced rice throughout Türkiye. Accordingly, approximately 45% of domestic rice from paddy mills is directed to wholesalers, 30% to chain markets, and 25% to local markets and local sales outlets. On the other hand, the distribution of imported rice exhibits a different structure; While approximately 75% of these products are delivered directly to the end consumer through chain markets, 25% are offered to the market through wholesalers. This distribution shows that imported rice enters circulation mostly through national-scale channels that reach consumers directly.

4.2 Actors in the Value Chain

Paddy Producers (Farmers): Farmers cultivate paddy in paddy pans for which they have obtained paddy cultivation licenses. In Türkiye, 900,000 tons of paddy were produced on 112,000 hectares of land during the 2023/24 production period (Arslan, 2024). Because paddy requires high water requirements and is grown in pans, it is grown in river basins in Türkiye. Paddy cultivation areas have remained virtually unchanged over the years, but production has gradually increased due to increased yields.

Paddy Factories: These are facilities that receive paddy products from producers and process them into rice and by-products. Some of these factories also perform the drying and storage processes of the paddy products. To maintain production and ensure the supply of the desired variety and quality of product, paddy factories may occasionally contract production. In this context, paddy factories also provide input and advance payments to producers. Because

Türkiye lacks self-sufficiency in paddy and the capacity of paddy mills is very high, almost all of the paddy produced is processed in paddy mills.

Wholesalers: Approximately 45% of the rice produced by the mills is distributed to wholesalers. In addition to the mills, imported rice also arrives at wholesalers. This quantity supplied to wholesalers is then distributed to retail channels. Wholesalers operate with 2-3 months' worth of stock. Generally, wholesalers supply products to wholesalers on an order-by-order basis.

Final Marketing Channels (Local and local sales points, retailers, chain markets): Retailers, chain markets, and local and local markets are designated as different distribution channels within the chain. This is because the quantities supplied to these channels and the prices vary. Wholesalers supply domestic and imported products to retailers and chain markets. Chain markets can also purchase products from factories. Consumers are provided with products through these channels under all circumstances.

4.3. Other support institutions in the value chain

Turkish Grain Board (TMO): TMO, which has the task of regulating grains, pulses and paddy, plays a critical role in the paddy market in Türkiye. It intervenes in the market through various instruments such as buying and selling to prevent the prices of products from falling too much to the detriment of the producer or from rising too much to the detriment of the consumer. It generally plays a decisive role in price formation by setting paddy purchase prices during the harvest season. By making unlimited purchases at these prices, it prevents downward price movements. During the sales season, it prevents price increases by selling products in its stock. Sometimes performing this function may cause public harm.

Central and Local Governments: Agricultural production is regulated within the framework of laws and other regulations. The permit, support and protection requirements of producers are provided by the public authority. The aim is to shape production through agricultural publications.

Agricultural Finance Institutions: The financial needs of the actors in the chain, especially the producers, are met.

Input Suppliers: Inputs such as fertilizers and pesticides necessary for production are supplied by businesses established by entrepreneurs.

Cooperatives: Irrigation and development cooperatives are located in many paddy cultivation areas. Because irrigation is a core activity in paddy production, irrigation management requires a separate structure. Irrigation cooperatives ensure water management and regulation at the local level.

4.4. SWOT analysis for the paddy value chain

The current state of the rice value chain requires a holistic analysis of the strengths and weaknesses of the system and the opportunities and threats it faces. A SWOT analysis conducted within this context provides an important tool for identifying strategic development areas for the sector.

Strengths

• The limited number of stages in the paddy value chain, from production to consumption, offers a significant advantage in terms of traceability and controllability.

• The need for product differentiation is limited; rice is accepted in the market as a standardized product by nature.

• The product purchase guarantee, deposit storage, and advance payment systems offered by paddy mills to producers contribute to the financial sustainability of the production process.

• The unique aromatic structure, flavor, and pleasant aroma of domestic rice varieties have a positive impact on consumer preferences.

• Consumer trends indicate a high level of demand for domestic rice.

• Low flexibility among value chain actors ensures that the system has a more stable and predictable structure.

Weaknesses

• As with many other agricultural products, the confinement of paddy production to a specific period of the year causes inventory costs to spread throughout the year.

• The marketing of imported rice mixed with domestic rice not only exposes consumers to misleading practices but also creates unfair competition in the sector.

• Due to its ecological characteristics, paddy rice cannot be grown on every agricultural land; this limits production areas and leads to regional concentration.

Opportunities

• Türkiye's failure to reach self-sufficiency in paddy production offers significant potential for increasing production capacity.

• Interventions by regulatory bodies such as the Turkish Grain Board (TMO) to stabilize price and supply fluctuations provide a strategic advantage in maintaining market stability.

• Timely and appropriate implementation of foreign trade policies can protect the sector from import pressure.

• Diversifying price and consumption risks through processing and export channels facilitates the sector's resilience to external shocks.

• Developments in agricultural technologies (drip irrigation, drone spraying and cultivation, etc.) offer significant opportunities in terms of efficiency and water savings in paddy production.

Threats

• The high volume of low-cost imported products in the domestic market seriously weakens the competitiveness of domestic producers.

• Increased production costs due to high input costs of domestic production reduces the level of profitability.

• The shrinkage in water resources due to global climate change poses a serious threat to the sustainability of water-dependent crops such as paddy.

5. Conclusion and Recommendations

In addition to being a strategic agricultural activity, paddy production in Türkiye plays a critical role in ensuring domestic rice supply security and revitalizing the rural economy. Despite this importance, various structural and functional problems throughout the value chain, from production to consumption, limit the chain's effectiveness and undermine the sustainable value creation of actors. Based on the findings of the study and the SWOT analysis results, recommendations based on both the overall functioning of the chain and actor-specific impacts are presented below.

a. Sustainable Production Processes and Input Efficiency

Because paddy is highly dependent on water, it is at risk for sustainable production in the context of climate change and water resource depletion. Therefore, the expansion of efficient irrigation techniques such as drip irrigation and the support of modern agricultural practices are crucial. Technology-based solutions should be developed for fertilization, spraying, and harvesting, which are among the high-cost inputs. In this regard, practices such as the use of drones can create cost advantages by transforming them into shared systems through cooperatives or producer associations. In this process, primary producer actors should be facilitated in accessing technology, ensuring that sustainable production and productivity levels are positively reflected throughout the chain.

b. Ensuring Product Quality and Standards in the Chain

Although rice products derived from paddy rice are sold in the market under variety names such as Osmancık and Baldo, it has been determined that in practice, varieties are being mixed, and standardization is being disrupted. This situation not only damages consumer confidence but also paves the way for unfair profits within the chain. Quality classification infrastructures should be developed and labelling and packaging systems should be more strictly controlled so that processor (factory) actors can distinguish products more effectively. Furthermore, given the prevalence of imitation and adulteration practices, increased inspections at the factory stage can be considered a measure to prevent quality loss in subsequent links of the chain.

c. The Impact of Imports on the Supply Chain and Uneven Competition

Mixing imported rice with domestic rice or directly presenting it as domestic creates uneven competition that negatively impacts all actors along the chain. Primary producer and processor groups, in particular, face the risk of losing their market place in the face of these practices that do not provide cost advantages. Therefore, traceability of the movement of imported rice products from the factory to the end consumer should be ensured, and product origins should be recorded through digital audit systems such as blockchain. During this process, regulatory institutions (TMO, Ministry of Agriculture and Forestry) should be more actively engaged in effective control and market surveillance.

d. Licensed Warehousing and Access to Financing

One of the most challenging issues for processors and producers in the chain is storing products under appropriate conditions and securing financing until they are placed on the market. In this context, encouraging and expanding the licensed warehousing system in paddy production regions will both contribute to price stability by providing flexible supply timing and provide collateral-backed credit opportunities to producers. This will increase the financial resilience of the chain and preserve the bargaining power of producers and processors.

e. Distribution of Profit Margins Among Chain Actors

The findings of the research indicate that profit margins throughout the paddy value chain are quite low and close between actors, negatively impacting the equity process. This situation, while relatively advantageous for the consumer, threatens the economic sustainability of all actors operating within the chain, such as producers, manufacturers, wholesalers, and retailers. Structural interventions are needed to support producer and processor profitability, particularly for the efficient operation of the chain. Input subsidies, tax incentives, and special support programs for the supply chain can be beneficial in this regard.

f. Developing Industrial Use Opportunities

Rice consumption in Türkiye is predominantly table food, but its industrial uses remain quite limited. However, rice is a versatile raw material that can be utilized in the food industry in various products such as starch, baby food, desserts, and bakery products, as well as in the cosmetics and chemical sectors. In this context, R&D and private sector investments aimed at the industrial use of rice can be encouraged to add new links to the chain; thus, agricultural products can be utilized not only for consumption but also for their transformation into processed added value.

These holistic recommendations are aimed at optimizing the functioning of the paddy value chain and strengthening the sustainability of the agricultural system by increasing the efficiency of each actor within the chain. Multi-level cooperation is required between policy makers, the private sector and civil society actors to achieve a more competitive, transparent and value-added-oriented structure in the chain.

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