



The Design of a Contract Farming (CF) Model to Improve the Poultry Industry Value Chain in Tehran Province; Iran (Grounded Theory Approach)

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Abstract

The present study was conducted with the aim of designing a contract farming (CF) model to improve the value chain of the poultry industry in Tehran province. This study is considered a descriptive-analytical research in terms of nature, and applied in terms of purpose, and data and information were collected using the library method and in-depth interviews. The research method used was Grounded Theory. In this study, the population included 14 senior managers of poultry production units and producers, especially the Poultry Farmers' Union in Tehran province, who were selected through purposive sampling. Interviews with the target population continued until theoretical saturation was reached. Research validity was achieved by using member credibility and presenting the results to the study subjects, and the reliability of the research was achieved by using process auditing. The content analysis method was used to analyze the data using the qualitative data analysis software, MAXQDA 12. The data from the interviews were analyzed using open, axial, and selective coding, and 96 concepts and 24 categories were extracted from the data in the form of a paradigmatic model (causal conditions, strategies, context conditions, intervening factors, and consequences), which showed that several factors affect contract farming in the poultry industry value chain. The results of this research can help poultry production unit managers and producers to gain a better understanding of the importance and impact of contract farming on improving the value chain of their products and implement appropriate strategies to ensure the sustainability and growth of their businesses.

Keywords: Contract farming, value chain, poultry industry, Tehran province

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1. Introduction

The poultry industry occupies a strategic position in food systems because it connects agricultural production, animal protein supply, rural livelihoods, processing industries, distribution networks, and consumer food security. Poultry meat and related products are among the most accessible sources of animal protein in many developing and emerging economies, and their production is closely associated with employment creation, smallholder income, market integration, and nutritional improvement. However, the poultry industry is also exposed to multiple structural and operational challenges, including volatility in feed prices,

instability in product markets, weak coordination between producers and buyers, limited access to credit, production risk, disease-related uncertainty, inadequate logistics, and fluctuating consumer demand. These challenges indicate that poultry production should not be viewed merely as an on-farm activity, but as part of an integrated value chain in which input suppliers, producers, processors, distributors, retailers, financial institutions, regulators, and consumers interact continuously. Therefore, improving the poultry industry requires value-chain-oriented mechanisms that can coordinate production, reduce uncertainty, increase productivity, stabilize markets, and strengthen the bargaining position of producers [1-3].



The concept of the agricultural value chain emphasizes the full sequence of activities through which agricultural products move from input provision and production to processing, distribution, marketing, and final consumption. In this view, value is created not only through production volume but also through quality control, logistics, market access, institutional coordination, information exchange, and responsiveness to consumer demand. Recent studies on value chains show that agricultural development increasingly depends on the ability of producers and firms to participate in coordinated networks, adopt new technologies, meet quality standards, and connect to reliable markets. In livestock and poultry systems, these issues become even more important because production cycles are sensitive to input quality, feed supply, veterinary services, transportation conditions, slaughtering technologies, cold chains, and price fluctuations. Research on poultry value chains in different contexts has highlighted the need for improved coordination among chain actors, stronger institutional support, better market linkages, and more efficient supply-chain governance [4-6].

Within this framework, contract farming has been widely discussed as an institutional arrangement capable of linking agricultural producers with buyers, processors, exporters, or supporting companies through formal or semi-formal agreements. According to the Food and Agriculture Organization, contract farming generally refers to agricultural production carried out based on an agreement between farmers and buyers, where the conditions for production and marketing are specified in advance [7]. Such agreements may include provisions related to input supply, technical support, quality standards, delivery schedules, pricing mechanisms, product purchase guarantees, and risk-sharing arrangements. Contract farming can therefore operate as both a marketing mechanism and a production coordination tool. By providing producers with access to inputs, credit, technical knowledge, and guaranteed markets, contract farming can reduce transaction costs and uncertainty. At the same time, buyers and processors benefit from more predictable supply, better control over quality, and improved planning across the value chain [8-10].

The potential benefits of contract farming are particularly relevant in poultry agribusiness because poultry production requires timely access to feed, day-old chicks, veterinary services, technical knowledge, slaughtering facilities, and reliable sales channels. Unlike many crop-based activities, poultry production involves short but intensive production cycles, high sensitivity to input prices, strict health

requirements, and rapid market turnover. These characteristics make poultry producers highly vulnerable to price instability, input shortages, disease outbreaks, and marketing inefficiencies. Studies in poultry-producing contexts have shown that contract farming can help small and medium producers overcome market barriers by improving access to inputs, strengthening production planning, supporting timely product sales, and reducing exposure to market fluctuations [8, 11, 12]. In Bangladesh, for example, poultry farming has been linked to sustainable community economic development, poverty reduction, and rural livelihood improvement when supported by suitable institutional and market arrangements [11, 13, 14].

Despite these advantages, contract farming is not automatically successful. Its effectiveness depends on the structure of contracts, the credibility of contracting parties, the presence of supporting institutions, the fairness of pricing mechanisms, access to finance, and the capacity of farmers to meet agreed standards. Contract breach, opportunistic behavior, delayed payments, weak legal oversight, and unequal power relations can limit the effectiveness of contractual arrangements. Evidence from Chinese poultry farmers indicates that behavioral characteristics, including time preferences, can influence contract breach and participation behavior, suggesting that contract farming should be analyzed not only as an economic arrangement but also as a socio-institutional and behavioral phenomenon [12]. Similarly, studies of contract farming in rice production in Vietnam have shown that farmers' perceptions, perceived problems, and expectations play an important role in shaping the prospects of contractual production systems [15]. These findings highlight the importance of understanding the causal, contextual, intervening, strategic, and consequential conditions that shape contract farming in specific sectors and local settings.

The broader literature on contract farming also presents mixed evidence regarding its development outcomes. Some studies suggest that contract farming can increase farmer income, improve market participation, enhance technology adoption, and reduce food insecurity. Experimental evidence from Benin shows that contract farming can contribute to rural transformation by improving the economic position of participating farmers [10]. Evidence from Senegal indicates that contract farming in domestic grain chains can affect farmer income and food insecurity, although the effects may vary depending on contract design and implementation conditions [16]. Village-level evidence from Indonesia also suggests that contract farming can support rural economic

development when it is embedded in expanding value chains and market opportunities [17]. However, other studies caution that benefits may be unevenly distributed and may depend on farmers' bargaining power, access to information, organizational capacity, and the governance structure of the chain. Therefore, contract farming should be examined as a contingent model rather than a universally effective solution.

A key issue in the development of contract farming is market access. Smallholders and poultry producers often face difficulties in choosing profitable marketing outlets, negotiating with buyers, accessing timely price information, and meeting market requirements. Research on marketing outlet choice among farmers shows that producer decisions are shaped by factors such as price, distance, buyer reliability, market information, and institutional support [18]. In poultry systems, these factors are intensified because of the perishability of poultry products, the need for rapid transportation, and the importance of hygiene and quality standards. Contract farming can reduce these marketing constraints by creating stable buyer-producer relationships, but it may also generate dependency if producers rely on one buyer without sufficient contractual protection. Thus, marketing efficiency, customer satisfaction, product quality, and distribution management should be considered central dimensions of any contract farming model aimed at improving the poultry value chain.

Technology and innovation are also essential to modern value-chain development. Digitalization, data systems, computational intelligence, and advanced supply-chain tools increasingly shape how firms and producers coordinate production, forecast demand, manage risks, and optimize resource allocation. Recent research on digitalization and global value chains indicates that digital transformation can strengthen integration, efficiency, and competitiveness in industrial systems [19]. Although this literature often focuses on manufacturing, its implications are highly relevant to poultry value chains, where digital tools can support input tracking, disease monitoring, production scheduling, inventory management, logistics coordination, and customer responsiveness. In agricultural supply chains, computational intelligence has been used to classify and address problems related to forecasting, optimization, risk management, quality control, and decision support [6]. Therefore, a contemporary contract farming model should consider technology not as a peripheral factor but as a strategic enabler of coordination and value creation.

The development of agricultural and food value chains is also influenced by industrial policy, regional integration, and

sectoral governance. Industrial policy studies show that value-chain upgrading requires coordinated interventions across production, processing, infrastructure, finance, skills, and market development [20]. Regional value-chain analysis similarly emphasizes that agricultural transformation depends on linkages between producers, firms, institutions, and markets, particularly where national and regional industrialization objectives are connected to agricultural production systems [21]. In the poultry industry, such perspectives are important because value-chain improvement depends on more than producer-level efficiency. It also requires investment in transportation networks, slaughtering and packaging technologies, cold chains, regulatory systems, licensing procedures, and coordinated market institutions. Without these supporting structures, contract farming may remain limited to isolated producer-buyer agreements rather than functioning as an integrated mechanism for value-chain development.

The livestock and dairy value-chain literature further demonstrates that animal-based food industries require close attention to quality, safety, logistics, and institutional coordination. Studies on the dairy supply and value chain show that the performance of animal product industries depends on the alignment of production, processing, distribution, and market governance [22]. These insights are applicable to poultry because both dairy and poultry chains involve quality-sensitive products, health standards, producer coordination, and strong dependence on input and distribution systems. Moreover, cooperative participation and technology adoption have been shown to improve farmer welfare when producers gain access to collective resources, better technologies, and stronger market linkages [23]. Contract farming can perform a similar coordinating function when it is designed to enhance producer welfare, improve knowledge transfer, and reduce production and marketing risks.

In Iran, the poultry industry has faced persistent challenges related to input supply, production costs, market fluctuations, integration weaknesses, and coordination problems. Studies of the integrated poultry meat production chain in Mazandaran Province have identified structural and operational problems that constrain the effectiveness of poultry production and marketing systems [24, 25]. Research on agricultural contracts in Iran has also shown that the conclusion and implementation of contracts are influenced by economic, institutional, legal, and behavioral factors [26]. More recent work on the chicken supply chain has emphasized challenges, success factors, and human

resource limitations, indicating that managerial capability and skilled human resources are essential for supply-chain improvement [5]. These findings suggest that the development of contract farming in the Iranian poultry industry requires an integrated understanding of economic support, producer knowledge, legal oversight, technological capacity, market coordination, and institutional trust.

From a methodological perspective, studying contract farming as a model for poultry value-chain improvement requires an approach capable of capturing complex interactions among actors, institutions, behaviors, and contextual conditions. Grounded theory is suitable for such purposes because it allows researchers to extract categories, concepts, and relationships from participants' experiences and construct a conceptual model based on empirical data. Previous grounded theory research has demonstrated the value of this approach in developing models that explain complex social, educational, and organizational phenomena [27]. In qualitative research, validity and reliability depend on systematic data collection, transparent coding, careful interpretation, and the credibility of the analytical process [28]. Therefore, a grounded theory approach can provide an appropriate basis for identifying the causal conditions, core category, contextual conditions, intervening factors, strategies, and consequences associated with contract farming in the poultry industry.

Taken together, the literature shows that contract farming can contribute to agricultural value-chain improvement by coordinating production, supporting producers, reducing market uncertainty, improving access to inputs and technology, and strengthening links between farmers and markets. However, it also shows that the success of contract farming depends on local economic conditions, institutional arrangements, producer characteristics, legal oversight, infrastructure, technological capacity, and the fairness of contractual relationships. In the poultry industry, these conditions are especially significant because producers face high input dependency, rapid production cycles, price volatility, health and safety requirements, and strong pressure to meet market demand. Therefore, there is a need for a comprehensive model that explains how contract farming can be designed and implemented to improve the poultry industry value chain by integrating economic, social, technological, managerial, institutional, and market-related dimensions.

The aim of this study was to develop a contract farming model for improving the value chain of the poultry industry by identifying its causal conditions, core category,

contextual conditions, intervening factors, strategies, and consequences.

2. Methodology

This study is considered as an applied research in terms of purpose, and in terms of research approach, it is exploratory, qualitative research type and in terms of method, grounded theory, and interview tool was used to collect data. Documentary methods were used to compile generalities and theoretical foundations, and field survey was used to examine and identify the dimensions and components of contract farming in order to improve the value chain of the poultry industry in Tehran province. Information was collected by library and field methods. In this way, the most important factors were extracted after reviewing the existing literature and texts about contract farming and the value chain of the poultry industry, and were used to prepare the initial questionnaire. Therefore, this research seeks to answer the question using a qualitative approach. This research is based on the systematic method of grounded theory. Sampling in this method is non-random and the samples are selected in accordance with the purpose of the research. The data analyst decides on the selection of the next sample during the formation of the theory until the theory is presented in its final form. The number of samples is not predetermined in the grounded theory method, and sampling continues during data analysis until the theory reaches theoretical saturation (Corbin & Strauss, 2014). In this study, the statistical population included senior managers of poultry production units and producers, especially the Poultry Farmers' Union in Tehran province. Sampling was carried out purposively and by snowball method until theoretical saturation was reached, at the end of which 14 people were selected as experts in this field. Before conducting the interviews and along with the interview questions, a letter was sent with the researcher's signature stating the ethical obligation to maintain the contents of the interview and the participants' characteristics and not to publish them. Also, with the participants' knowledge, all interviews were recorded and manually reviewed to extract key points. After consent was given, the interviews were conducted with a focus on contract farming to improve the value chain of the poultry industry.

In the interviews conducted, respondents expressed their opinions on the question in question regarding the presentation of new components or indicators or the confirmation of the collected components and indicators. In

this study, in order to examine the validity, the research findings and the concepts extracted in the form of a paradigm model were presented to the study subjects (target population) based on the member validity technique, and their opinions were applied.

Finally, this research was studied and reviewed by the professors, and some points were made to modify or change the final theory; and finally, the validity of the research was achieved. For the reliability of the research, a process audit study was used. From this perspective, the findings are auditable when another researcher can follow the decision path used by the researcher during the interview with accuracy and clarity, and show the consistency of the study (Nadari et al., 2010); therefore, in this research, the researcher ensured the reliability of the data by showing the path of his decisions and also all raw and analyzed data, codes, categories, study process, primary objectives and questions were made available to experts in this field and the supervising professors and consultants, whose correctness of all steps of the research was confirmed by a careful audit of the experts. The analysis of the findings was carried out simultaneously with data collection and through the MAXQDA 12 software in three stages including open coding, axial coding and selective coding.

Step 1: Open Coding

This step of the grounded theory method is carried out immediately after the first interview. In other words, after each interview, the researcher begins to find concepts and select appropriate labels for them and combine related concepts. The steps of open coding are:

- Analysis and coding: At this stage, the researcher should pay attention to the coding of all events. Many codes may be extracted from an interview or text; but when the data is regularly reviewed, new codes are identified and final codes are determined.

- Open coding table: It consists of two parts. A table of primary codes extracted from the interviews and a table of categories extracted from the concepts along with their conceptual codes.

Step 2: Axial Coding

In the second stage of coding, called axial coding, the researcher selects one of the categories as the axial category and explores it as the central phenomenon, and determines the relationship of other categories to it. The relationship of other categories to the axial category can be realized in five ways (Corbin & Strauss, 2014).

- Causal factors:** These conditions shape the phenomenon or the focal category. These conditions refer to

a set of categories and their characteristics that influence the main category.

- **Strategies** (actions and interactions): They represent the behaviors, facts and purposeful interactions that are achieved under the influence of intervening conditions and the prevailing context.

- **Context factors:** Context refers to specific conditions that influence strategies and are difficult to distinguish from causal conditions.

- **Intervening conditions:** Conditions that are influenced by strategies. These conditions are made up of a set of mediating and mediating variables. Intervening conditions refer to structural conditions that facilitate or constrain the intervention of other factors and are causal and general in nature.

- **Consequences:** Some categories represent the results and consequences that arise as a result of adopting strategies. This coding method, which is called the axial coding paradigm model, was presented by Corbin & Strauss (2014).

Step 3: Selective Coding

This step refers to the process of systematically selecting the main category, comparing it with other categories, validating the relationships, and filling in the gaps with categories that need to be refined and expanded. This process involves several steps:

The first step involves explaining the main storyline. The second step establishes relationships between the supplementary categories around the main category using a paradigm (described in axial coding). The third step relates the categories to each other at a later level. The fourth step confirms those relationships against the data. The last step is to complete categories that need to be modified or expanded (Corbin & Strauss (2014)).

3. Findings and Results

In this study, in-depth interviews were conducted with 14 senior managers of poultry production units and producers, especially the Poultry Farmers Union, whose real names have been avoided in order to comply with research ethics. According to the descriptive results related to the demographic characteristics of the study, 87.2 percent of the sample members were male and 12.8 percent were female. The average age of the sample members was 45 years, with the lowest being 31 years and the highest being 63 years. Also, the average work experience of the sample members was 13 years (the lowest work experience was 2 years and the highest work experience was 16 years).

After collecting interview and text data, analysis and coding were carried out in three stages: open, axial and selective coding. Grounded theory method was used; therefore, the correspondence between the homogeneity of the information and the categories obtained was examined according to the information obtained from the interviews. In the open coding stage, the categories obtained in the open coding section were recombined into a paradigmatic model based on the Corbin and Strauss approach, including causal

factors, context, intervenors, strategies and consequences, in order to provide a clearer and more reasonable picture of the findings. Finally, selective coding was carried out to reach the central category. The output of selective coding is the paradigmatic model and the presentation of the underlying theory. Additional and irrelevant items were eliminated based on the interviews that were conducted, and the items with the highest repetition in the interview were extracted.

Table 1. Concepts and categories identified for the contract farming model to improve the poultry industry value chain

Paradigm component	Axial code	Concepts / initial codes with frequency
Causal conditions	Economic factors	Obtaining credit (4); evaluating entrepreneurial financial resources before starting (1); liquidity status among poultry producers (1); price of produced products (2); cooperation between the public and private sectors (4); reducing investment risk (2); support of the banking system for the industry (5); government support policies (4)
Causal conditions	Social factors	Meritocracy in the industry (1); culture of participation (5)
Causal conditions	Political factors	Legal oversight of supporting company–farmer interactions (8); role of government in the development of contract farming systems (1); government support policies (1)
Causal conditions	Technology	Access to opportunities for new production technologies (5); policymaking in the research sector (5); utilization of advanced technologies in production supply (6)
Causal conditions	Managerial factors	Use of innovative and creative methods in contract farming (1); optimal resource allocation (7); familiarizing poultry production managers with management knowledge (2); availability of specialized human resources in poultry production (2); building mutual trust between key actors (1)
Causal conditions	Customers	Study of competitors and their market share (2); development of marketing mechanisms (1); appropriate interactions with customers (3); customer satisfaction (9); solutions to reduce the cost price of chicken (4)
Causal conditions	Strategy and planning	Contract implementation time (1); awareness of poultry producers and contractors about the terms of contract farming (6); supply chain planning (5); alignment of supply chain strategy with business strategy (2); strategic thinking and attitude (2)
Causal conditions	Distribution and sales	Contract terms (4); modern management in marketing and sales (2); transportation networks (5); updating the distribution system (4)
Core category	Increased productivity	Increasing income (9); reducing production costs (5); increasing farmers' knowledge (6)
Core category	Service provision	Commitment to purchasing products (5); ensuring the necessary institutions for production and supply (2); timely sale of products (7)
Core category	Reduced perceived risk	Continuous risk assessment in relation to the financial structure of manufacturing companies (2); establishment of a low-cost costing system (6); capability for cost and revenue analysis (5)
Context conditions	Improving the knowledge of poultry producers	Acquisition of accounting skills (3); education and awareness of quality and production standards among producers (1); dissemination of knowledge to other regions (2); training on methods to increase resource efficiency (4); training on appropriate production methods (2); provision of new methods to increase performance (1)
Context conditions	Developing the economic power of poultry producers	Improving the livelihood of poultry producers (3); producing healthy and organic products (5); reducing production costs (4); increasing productivity (5); trust and assurance regarding contract terms (7); increasing the profit-to-cost ratio in poultry production companies (2); increasing income (2); reassurance of guaranteed purchase (4)
Context conditions	Managing production risk	Control of the safety and health of raw materials, including chicken feed and day-old chicks (3); control of the price of raw materials, including chicken feed and day-old chicks (5); provision of the required volume of raw materials for poultry farms, including chicken feed and day-old chicks (5)
Context conditions	Building brand and reputation	More sales and exports (4); protecting customer rights (6); increasing the ability to respond to consumer demand (5)
Intervening factors	Supporting companies	Providing production services through supporters to production units (3); supply of inputs by supporters (4)
Intervening factors	Individual-personality factors of poultry producers	Poultry producers' awareness of production standards (2); improving poultry producers' knowledge and skills (5); education level of poultry producers (2)
Intervening factors	Infrastructure	Location of activity of poultry producers (3); place of contract implementation (4); geographical location (4)
Strategies	Distribution	Government supervision over chicken distribution and transportation (2); study of competitors and their share in the product sales market (2); existence of suitable transportation lines for distribution in the value chain (5)

Strategies	Producer	Utilization of production capacity (2); proper and fair distribution of chickens in poultry farms (2); creation of a participatory culture and contractual activities (4); existence of appropriate technologies for slaughtering and packaging (3)
Strategies	Investment attraction and support	Supervision and coordination in issuing licenses (3); creating necessary coordination between investment units (2); identifying investment problems and obstacles (4); encouraging investment in the region (6); identifying investment opportunities (3)
Consequences	Product quality	Developing a competitive environment (2); increasing satisfaction among small business owners (5)
Consequences	Socio-cultural benefits	Introduction of new technologies (1); acquisition of negotiation skills (3); participation of poor producers in the market (5)
Consequences	Economic benefits	Price stability (4); prevention of foreign exchange outflow from the country (2); savings in expenses and investment (6); greater access to sales markets (4); reducing price risk (2); provision of production services on credit (3); reducing costs and investment in land purchase and acquisition (5)

The findings show that the causal conditions affecting the realization of contract farming in the poultry industry value chain consist of eight main categories: economic factors, social factors, political factors, technology, managerial factors, customers, strategy and planning, and distribution and sales. Among the economic factors, support of the banking system, obtaining credit, cooperation between the public and private sectors, and government support policies were emphasized as important prerequisites for the development of contract farming. Political and regulatory conditions were also prominent, particularly legal oversight of supporting company–farmer interactions, which received the highest frequency within this category. Technological factors, including access to new production technologies, research-sector policymaking, and the use of advanced production technologies, indicate that modernization of production and supply processes is a major causal driver. Managerial factors such as optimal resource allocation, specialized human resources, and mutual trust among key actors further demonstrate that contract farming depends not only on financial and policy support but also on managerial competence and coordinated governance.

The core category of the model centers on the main phenomenon of contract farming as a mechanism for improving the poultry industry value chain. This core category was represented by increased productivity, service provision, and reduced perceived risk. Increased productivity included increasing income, reducing production costs, and enhancing farmers' knowledge, indicating that contract farming is perceived as a mechanism for improving both economic and technical performance. Service provision was reflected in commitment to purchasing products, ensuring the necessary institutions for production and supply, and timely product sales. Reduced perceived risk included continuous financial risk assessment, the establishment of a low-cost costing system, and the ability to analyze costs and revenues. Overall, the central phenomenon suggests that contract farming can

function as a coordinated production and marketing arrangement that improves productivity, stabilizes sales, and reduces uncertainty for producers.

The context conditions influencing contract farming included improving the knowledge of poultry producers, developing the economic power of poultry producers, managing production risk, and building brand and reputation. The findings indicate that knowledge enhancement is an important contextual basis, particularly through accounting skills, awareness of quality and production standards, training in resource efficiency, and dissemination of production knowledge. The economic empowerment of poultry producers was also a strong contextual condition, including improved livelihood, healthy and organic production, reduced costs, increased productivity, trust in contract terms, and guaranteed purchase. Risk management was mainly associated with the control of raw material safety, price, and supply volume. In addition, building brand and reputation through increased sales and exports, protection of customer rights, and responsiveness to consumer demand shows that contract farming is linked not only to production efficiency but also to market credibility and customer-oriented value creation.

The intervening factors consisted of supporting companies, individual-personality factors of poultry producers, and infrastructure. Supporting companies were identified through their role in providing production services and supplying inputs to production units. Individual-personality factors included poultry producers' awareness of standards, improvement of their knowledge and skills, and their educational level, suggesting that the success of contract farming depends partly on producer readiness and capability. Infrastructure-related factors included the location of poultry producers' activities, the place of contract implementation, and geographical location. These findings show that broader environmental and operational conditions can either facilitate or restrict the implementation of contract farming strategies.

The strategic conditions extracted from the interviews were distribution, producer-related strategies, and investment attraction and support. Distribution strategies included government supervision over chicken distribution and transportation, competitor analysis, and the existence of suitable transportation lines in the value chain. Producer-related strategies included the use of production capacity, fair distribution of chickens in poultry farms, the creation of participatory and contractual culture, and appropriate slaughtering and packaging technologies. Investment attraction and support included coordination in licensing, coordination between investment units, identification of investment barriers, encouragement of regional investment, and identification of investment opportunities. These strategies indicate that the effective implementation of contract farming requires simultaneous attention to logistics, production organization, technological upgrading, and investment facilitation.

The consequences of contract farming for improving the poultry industry value chain were categorized into product quality, socio-cultural benefits, and economic benefits.

Product quality consequences included the development of a competitive environment and increased satisfaction among small business owners. Socio-cultural benefits included the introduction of new technologies, acquisition of negotiation skills, and participation of poor producers in the market, indicating that contract farming can also contribute to inclusion and capacity building. Economic benefits were reflected in price stability, prevention of foreign exchange outflow, savings in expenses and investment, greater access to sales markets, reduced price risk, provision of production services on credit, and reduced land-related investment costs. Taken together, the findings suggest that contract farming can improve the poultry industry value chain by integrating production, financing, marketing, risk management, and institutional support within a coordinated contractual framework.

Finally, a paradigmatic model of contract farming for the poultry industry value chain in Tehran province was extracted based on the Corbin and Strauss approach, which is shown in Figure 1.

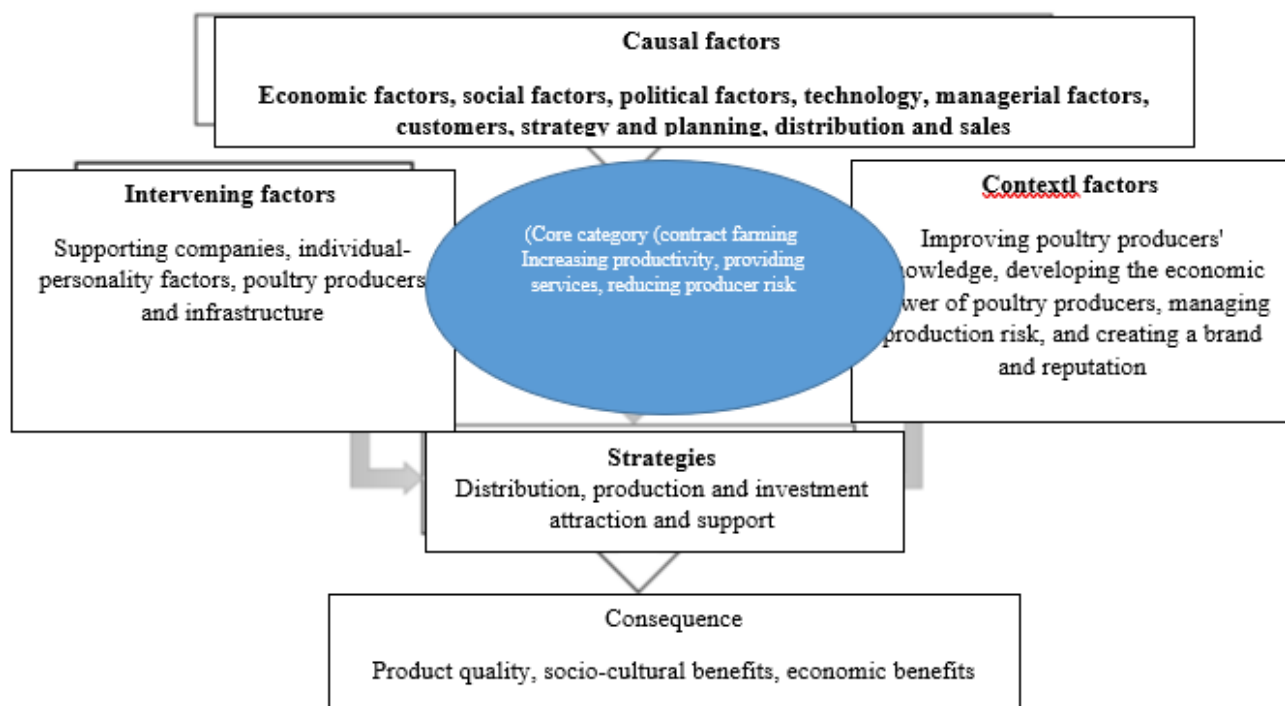


Figure 1. Conceptual Model of the Study

4. Discussion and Conclusion

The present study aimed to develop a contract farming model for improving the value chain of the poultry industry.

The findings showed that the model consists of six major grounded-theory components: causal conditions, core category, contextual conditions, intervening factors, strategies, and consequences. The causal conditions included economic factors, social factors, political factors,

technology, managerial factors, customers, strategy and planning, and distribution and sales. The core category was formed around increased productivity, service provision, and reduced perceived risk. The contextual conditions included improving the knowledge of poultry producers, developing their economic power, managing production risk, and building brand and reputation. The intervening factors included supporting companies, individual-personality factors of poultry producers, and infrastructure. The strategies included distribution, producer-related strategies, and investment attraction and support. Finally, the consequences were categorized into product quality, socio-cultural benefits, and economic benefits. Overall, the extracted model indicates that contract farming in the poultry industry is not merely a purchasing agreement between producers and buyers, but a multidimensional governance mechanism that connects production, finance, technology, logistics, market access, risk management, and institutional support within an integrated value chain.

The identification of economic factors as one of the most important causal conditions is consistent with the nature of poultry production, which is highly dependent on liquidity, credit, input supply, and investment security. In the present study, obtaining credit, reducing investment risk, banking-system support, public-private cooperation, and government support policies were identified as major economic drivers of contract farming. This finding is aligned with studies that describe agricultural value chains as systems requiring financial coordination, investment support, and institutional mechanisms to help producers participate effectively in markets [1, 2]. In poultry agribusiness, where feed, day-old chicks, veterinary inputs, transportation, and slaughtering services impose continuous costs on producers, the absence of financial support can weaken production continuity and reduce the capacity of producers to comply with contract terms. Previous research has also shown that contract farming can function as a form of partial insurance by reducing market and income uncertainty for producers [9]. Therefore, the economic findings of the present study suggest that contract farming can improve the poultry value chain when it is supported by credit access, predictable financing, cost-control mechanisms, and reliable purchase arrangements.

The emergence of political and institutional factors, particularly legal oversight of supporting company–farmer interactions and the role of government in contract farming development, shows that contractual systems require regulatory legitimacy and institutional trust. This finding is

consistent with the Food and Agriculture Organization’s description of contract farming as a structured agreement in which production and marketing conditions are specified before production begins [7]. Such agreements become more effective when legal frameworks, monitoring systems, and institutional safeguards reduce opportunistic behavior and protect both producers and buyers. Studies of contract farming in different countries have shown that the success of contractual arrangements depends not only on the written contract itself but also on the credibility of enforcement, fairness of pricing, and mutual confidence between the parties [12, 15]. The role of time preferences in contract breach among Chinese poultry farmers further confirms that behavioral and institutional dimensions are central to contract stability [12]. Accordingly, the present study supports the view that contract farming in the poultry industry should be designed as an institutionalized governance structure rather than a simple transaction.

Technology was another important causal condition in the extracted model. The participants emphasized access to new production technologies, policymaking in the research sector, and the use of advanced technologies in production supply. This finding reflects the increasing importance of technological upgrading in agricultural and food value chains. Poultry production is highly sensitive to technical efficiency, disease control, feed conversion, quality standards, packaging, slaughtering technology, and timely logistics. Therefore, technology adoption can directly influence productivity, product quality, and market competitiveness. Previous research on food supply-chain problems has shown that computational intelligence and technological tools can help address forecasting, optimization, quality control, and risk-management issues in complex food systems [6]. Similarly, evidence from China indicates that technology adoption and participation in organized production structures can improve farmers’ welfare [23]. The present findings are also compatible with recent value-chain research emphasizing that digitalization can enhance coordination, information flow, and competitiveness in global value chains [19]. Thus, the technological dimension of the model highlights the need to integrate contract farming with digital tools, production monitoring, research-based policymaking, and technical extension services.

The managerial factors identified in this study, including optimal resource allocation, specialized human resources, managerial knowledge, innovative methods, and mutual trust among key actors, are especially important in

explaining why some contract farming systems perform better than others. Poultry value chains require coordinated decision-making across input supply, production scheduling, product collection, processing, distribution, and sales. Weak managerial capacity can lead to resource waste, delayed delivery, poor quality control, contract dissatisfaction, and reduced profitability. This finding is consistent with research on the chicken supply chain, which identifies challenges, success factors, and human resource limitations as key determinants of supply-chain performance [5]. It is also consistent with studies that frame value-chain upgrading as dependent on skills, organizational capacity, and coordination among actors [20, 21]. Therefore, the present study shows that contract farming should be supported by professional management, skilled personnel, producer training, and transparent coordination mechanisms.

The core category of the model consisted of increased productivity, service provision, and reduced perceived risk. This finding indicates that the central logic of contract farming in the poultry industry is to create a coordinated system that improves producer performance while reducing uncertainty. Increased income, lower production costs, and greater farmer knowledge were identified as indicators of productivity. Commitment to purchasing products, timely product sales, and provision of production and supply institutions reflected service provision. Continuous risk assessment, low-cost costing systems, and cost-revenue analysis represented reduced perceived risk. These findings are consistent with studies showing that contract farming can improve rural income, strengthen market access, and reduce insecurity when contracts are effectively designed and implemented [10, 16, 17]. In poultry systems, the importance of reduced perceived risk is even more pronounced because producers face volatile input prices, product perishability, disease threats, and short production cycles. The present findings therefore suggest that contract farming improves the poultry value chain by transforming uncertain production and marketing relations into more predictable and coordinated arrangements.

The contextual conditions extracted in this study further clarify the environment in which contract farming can become effective. Improving the knowledge of poultry producers was reflected in accounting skills, awareness of quality and production standards, knowledge dissemination, resource-efficiency training, and appropriate production methods. This result supports the argument that value-chain participation requires producers to develop technical, managerial, and financial capabilities. Without sufficient

knowledge, producers may not be able to understand contract terms, calculate costs, comply with standards, or negotiate effectively. Previous research on agricultural value chains and extension models emphasizes that producer learning and knowledge transfer are essential for improving productivity and market participation [1, 2]. The finding is also compatible with studies on poultry and livestock systems showing that smallholders require knowledge, training, and institutional support to improve food security and livelihood outcomes [13, 14]. Therefore, the knowledge dimension of the model indicates that contract farming should be accompanied by continuous education, advisory services, and financial literacy training.

Developing the economic power of poultry producers was another major contextual condition. The findings showed that improved livelihood, production of healthy and organic products, reduced costs, increased productivity, trust in contract terms, higher profit-to-cost ratio, increased income, and guaranteed purchase contribute to producer empowerment. This finding is consistent with evidence that contract farming can be an important tool for market participation and income improvement when farmers are connected to stable buyers and receive appropriate support [9, 10]. Studies of poultry agribusiness in Ghana also show that contract farming can operate as a marketing strategy to improve poultry enterprise performance [8]. In Bangladesh, poultry farming has been associated with women's entrepreneurship, food security, poverty alleviation, and sustainable community economic development when embedded in supportive market arrangements [11, 13, 14]. Thus, the present study reinforces the idea that contract farming can promote producer empowerment, but only when contracts are fair, reliable, and economically beneficial.

Managing production risk was identified through controlling the safety, health, price, and volume of raw materials such as chicken feed and day-old chicks. This finding is central to poultry production because feed and chicks constitute major cost and quality determinants. If these inputs are unreliable, expensive, or unsafe, the entire production cycle is placed at risk. Studies of integrated poultry meat production chains in Iran have similarly highlighted problems in supply-chain coordination, input provision, and production management [24, 25]. Research on poultry value chains in Nigeria has also emphasized that the performance of the poultry sector depends on the effective coordination of production, marketing, and support services [4]. Therefore, the present findings show that contract farming can improve the value chain when it helps

regulate input supply, stabilize feed and chick availability, and reduce the exposure of poultry producers to production shocks.

The intervening factors of the model included supporting companies, individual-personality factors of poultry producers, and infrastructure. Supporting companies were important because they provide production services and supply inputs to production units. Individual-personality factors included awareness of standards, knowledge and skills, and education level. Infrastructure included location of activity, place of contract implementation, and geographical location. These findings suggest that contract farming outcomes are shaped by broader conditions that mediate the relationship between contract design and practical implementation. In other words, even a well-designed contract may fail if producers lack skills, if supporting companies are unreliable, or if infrastructure is inadequate. This is consistent with research showing that agricultural contract implementation is influenced by economic, institutional, behavioral, and operational factors [26]. It is also aligned with research on marketing outlet choice, which shows that producers' access to markets depends on location, buyer reliability, and market-related constraints [18]. Accordingly, the present study indicates that contract farming requires both capable actors and enabling infrastructure.

The strategies identified in the study included distribution, producer-related strategies, and investment attraction and support. Distribution strategies included government supervision over transportation and distribution, competitor analysis, and suitable transportation lines. Producer strategies included use of production capacity, fair distribution of chickens in poultry farms, participatory culture, contractual activities, and appropriate slaughtering and packaging technologies. Investment attraction and support involved coordination in licensing, coordination between investment units, identification of investment barriers, investment encouragement, and identification of investment opportunities. These findings are consistent with value-chain and industrial-policy perspectives, which emphasize that upgrading requires coordinated investment, logistics, production capacity, and institutional facilitation [20, 21]. They are also aligned with research on dairy value chains, which shows that animal-product industries depend on coordinated supply, processing, distribution, and market governance [22]. Therefore, the strategic dimension of the present model demonstrates that contract farming should be

integrated with distribution reform, producer organization, investment policy, and technological modernization.

Finally, the consequences of the model were product quality, socio-cultural benefits, and economic benefits. Product quality was reflected in the development of a competitive environment and increased satisfaction among small business owners. Socio-cultural benefits included the introduction of new technologies, negotiation skills, and participation of poor producers in the market. Economic benefits included price stability, reduced price risk, savings in costs and investment, access to sales markets, credit-based production services, and reduced land-purchase costs. These consequences are consistent with studies showing that contract farming can support rural development, improve market inclusion, reduce insecurity, and strengthen producer welfare when implemented under favorable conditions [10, 16, 17]. From a methodological standpoint, the use of grounded theory in this study made it possible to extract these interrelated categories from participants' experiences, which is consistent with qualitative research principles emphasizing credibility, systematic coding, and contextual interpretation [27, 28]. Overall, the findings suggest that contract farming can improve the poultry industry value chain by institutionalizing cooperation among producers, buyers, supporting companies, financial institutions, and regulatory bodies.

This study had several limitations. First, the findings were based on qualitative data and participants' perceptions; therefore, they should be interpreted as context-sensitive insights rather than universally generalizable conclusions. Second, although the grounded-theory approach allowed deep exploration of the phenomenon, the model reflects the experiences and viewpoints of the selected participants and may not capture all regional, institutional, and market variations in the poultry industry. Third, the study focused on the poultry industry value chain and did not quantitatively test the strength of the relationships among causal conditions, contextual conditions, intervening factors, strategies, and consequences. Fourth, some operational dimensions of contract farming, such as contract duration, price-setting formulas, enforcement mechanisms, and producer satisfaction across different production scales, require more detailed empirical examination.

Future studies should quantitatively test the proposed model using structural equation modeling or other multivariate approaches to determine the strength and direction of relationships among the identified components. Comparative studies across different provinces, production

scales, and types of poultry enterprises could help clarify whether the extracted model is applicable across diverse production and market settings. Future research may also examine the perspectives of different actors in the value chain separately, including poultry producers, supporting companies, processors, distributors, retailers, policymakers, and consumers. Longitudinal research is recommended to evaluate how contract farming affects producer income, production risk, product quality, market access, and value-chain resilience over time. In addition, future studies could investigate the role of digital technologies, legal enforcement, financial instruments, and cooperative structures in improving the effectiveness of contract farming.

Policymakers and industry managers should design contract farming systems that provide clear contract terms, legal protection, fair pricing mechanisms, guaranteed purchase arrangements, and transparent monitoring procedures. Poultry producers should receive continuous training in production standards, accounting, cost analysis, resource efficiency, negotiation, and contract management. Supporting companies should provide reliable input supply, technical assistance, timely services, and predictable purchasing commitments. Financial institutions should develop credit facilities and risk-reduction instruments tailored to poultry producers participating in contract farming. Investment should also be directed toward transportation networks, slaughtering and packaging technologies, cold-chain infrastructure, and digital supply-chain monitoring systems. By integrating financial support, producer education, infrastructure development, technological upgrading, and legal oversight, contract farming can become a practical mechanism for improving productivity, reducing risk, increasing market access, and strengthening the poultry industry value chain.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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