



İnsan ve Toplum Bilimleri Araştırmaları Dergisi
Journal of the Human and Social Science Researches
[2147-1185]



10 th Years

[itobiad], 2021, 10 (1): 912-937.

**Understanding Food Prices in Turkey: An In-Depth Interview
Approach**

Türkiye'deki Gıda Fiyatlarını Anlamak: Derinlemesine Mülakat
Yaklaşımı

Sefa IŞIK

Dr., Ankara Yıldırım Beyazıt Üniversitesi, S.B.F.

PhD., Ankara Yıldırım Beyazıt University, Ins. of Soc. Sci.

sefa_isik@yahoo.com, Orcid ID: 0000-0002-0156-3855

Fatih Cemil ÖZBUĞDAY

Doç. Dr., Ankara Yıldırım Beyazıt Üniversitesi, S.B.F.

Assoc. Prof., Ankara Yıldırım Beyazıt University, Fac. of Pol. Sci.

fcozbugday@ybu.edu.tr, Orcid ID: 0000-0001-5841-4343

Makale Bilgisi / Article Information

Makale Türü / Article Type	: Araştırma Makalesi / Research Article
Geliş Tarihi / Received	: 05.11.2020
Kabul Tarihi / Accepted	: 17.02.2021
Yayın Tarihi / Published	: 29.03.2021
Yayın Sezonu	: Ocak-Şubat-Mart
Pub Date Season	: January-February-March

Atıf/Cite as: Işık, S , Özbuğday, F . (2021). Understanding Food Prices in Turkey: An In-Depth Interview Approach . İnsan ve Toplum Bilimleri Araştırmaları Dergisi , 10 (1) , 912-937 . Retrieved from <http://www.itobiad.com/tr/pub/issue/60435/821208>

İntihal /Plagiarism: Bu makale, en az iki hakem tarafından incelenmiş ve intihal içermediği teyit edilmiştir. / This article has been reviewed by at least two referees and confirmed to include no plagiarism. <http://www.itobiad.com/>

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Understanding Food Prices in Turkey: An In-Depth Interview Approach *

Abstract

Soaring domestic food prices, which negatively affect poverty and consumer price index, cause dissatisfaction all over the world. Turkey is one of the countries suffering from food price inflation in recent years, especially in 2018. For instance, in October 2018, food prices increased by approximately 30 percent compared to the same month of the previous year. The present study aims to determine the drivers of food prices in Turkey by using an in-depth interview approach as a qualitative method. Within the scope of this study, experts in agriculture and food sectors are interviewed, and the data obtained are interpreted with the NVivo 12 qualitative data analysis program. Based on our findings, supply-side drivers are more significant than demand-side factors in Turkey. In particular, input costs play a pivotal role in periods of depreciation of the Turkish Lira since agricultural inputs such as energy, fertilizers, animal feedingstuffs and pesticides are highly dependent on imports. Moreover, Turkey's agricultural sector has structural problems that cannot be solved for many years. These are migration and ageing rural population, low technology and productivity, fragmented and abandoned agricultural areas, the level of education, small-scale farming, non-modern greenhouses, financing, and irrigation problems. Turkey also does not have complete and well-classified agricultural data. This is one of the main obstacles to achieving better policies for Turkish agriculture. Furthermore, it is seen that import decisions harm domestic production. Most strikingly, competition challenges and collusion-prone structures across the entire food supply chain prevent a healthy price formation. On the other hand, demand-side drivers such as export, changes in food preferences, population growth, income growth, increasing number of tourists and refugees, and food waste are also significant drivers affecting food prices in Turkey.

Keywords: Agricultural Economics, Food Prices, In-depth Interview Approach, Turkey, Qualitative Analysis.

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* An Ethics Committee Decision was taken with the decision of Ankara Yıldırım Beyazıt University Ethics Committee dated 05.02.2020 and numbered 12.



"İnsan ve Toplum Bilimleri Araştırmaları Dergisi"
"Journal of the Human and Social Sciences Researches"
[itobiad]

ISSN: 2147-1185

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Öz

Gıda fiyatlarının yükselmesi yoksulluğu ve tüketici fiyat endeksini olumsuz etkilediği için dünyanın her yerinde memnuniyetsizliklere yol açmaktadır. Türkiye ise, özellikle 2018 yılında olmak üzere, son yıllarda gıda enflasyonundan olumsuz etkilenen ülkelerden biri oldu. Örneğin, 2018 yılının Ekim ayında gıda fiyatları bir önceki yılın aynı ayına göre yaklaşık yüzde 30 arttı. Bu çalışma, nitel bir analiz metodu olan derinlemesine mülakat tekniğini kullanarak Türkiye'deki gıda fiyatlarını etkileyen faktörleri belirlemeye çalışmaktadır. Bu anlamda çalışmada, tarım ve gıda sektörlerindeki uzmanlarla derinlemesine mülakatlar yapılmış ve elde edilen veriler NVivo 12 nitel veri analiz programı ile yorumlanmıştır. Çalışmanın bulguları Türkiye'de arz yönlü faktörlerin talep yönlü faktörlerden daha önemli olduğunu ortaya koymaktadır. Özellikle, enerji, gübre, yem ve tarımsal ilaçlar gibi tarımsal girdilerin ithalata bağımlı yapısı nedeniyle Türk Lirası'nın değer kaybettiği dönemlerde girdi maliyetleri önemli rol oynamaktadır. Ayrıca, Türkiye'nin tarım sektörünün uzun yıllardır çözilemeyen yapısal sorunları gıda fiyatlarını olumsuz etkilemektedir. Bunlar; kırdan kente göç ve yaşanan kırsal nüfus, düşük teknoloji ve verimlilik, parçalı ve terk edilmiş tarım arazileri, kırsal nüfusun eğitim seviyesi, küçük ölçekli işletme yapısı, modern olmayan seralar, finansman ve sulama sorunlarıdır. Türkiye ayrıca yeterli ve iyi sınıflandırılmış tarımsal verilerden yoksundur. Bu durum etkili tarım politikalarının uygulanabilmesinin önünde önemli engellerden biridir. Uygulanan ithalat kararlarının ise yurtiçi üretime zarar verdiği görülmektedir. Bunlara ilave olarak, gıda tedarik zinciri boyunca rekabete ilişkin sorunların ve mafya-benzeri yapıların olması sağlıklı fiyat oluşumuna engel olmaktadır. Diğer taraftan, ihracat, tüketici tercihlerindeki değişiklikler, nüfus artışı, gelir artışı, artan turist ve mülteci sayısı, gıda israfı gibi talep yönlü etkenler de Türkiye'deki gıda fiyatlarını önemli ölçüde etkilemektedir.

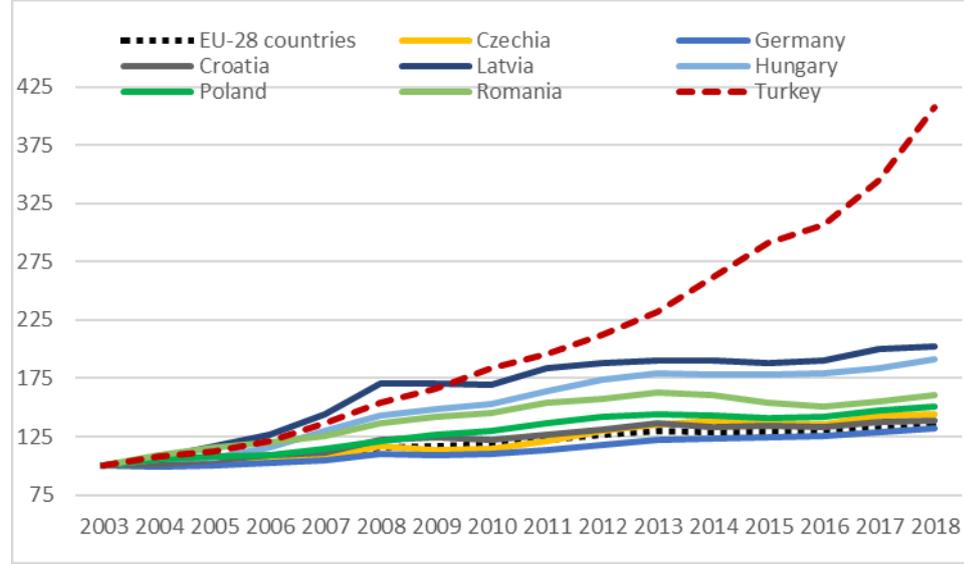
Anahtar Kelimeler: Tarım Ekonomisi, Gıda Fiyatları, Türkiye, Nitel Veri Analizi, Derinlemesine Mülakat Tekniği

Introduction

In recent years, food prices have continued to rise in Turkey. In particular, it recorded a dramatic increase in 2018. It increased by 29.26 percent in October of that year (TurkStat, 2019). Food price inflation in Turkey is also high in comparison to international levels. Figure 1 shows a negative divergence of food-CPI in Turkey from the levels of European countries. After 2009, the difference became even more pronounced.



Figure 1: Food-CPI in European Union and Turkey (2003=100)



Source: EuroStat, 2019

Increasing Turkish food prices have generated many questions. This study aims to better understand the answers to the following questions: Why have food prices gone up so much in Turkey? What are the structural factors affecting Turkish food prices?

In doing so, the study employs an in-depth-interview method as a qualitative research method to arrive at an in-depth understanding of the determinants of food prices in Turkey. A semi-structured interview method is applied with 9 experts who have an average of experience of 22 years. Open-ended questions are asked to each interviewee, and the data obtained are interpreted with NVivo 12.

The rest of this study is organized as follows. Firstly, a brief literature review is presented. The method and the result of the qualitative analysis are explained in the next sections, respectively. Finally, conclusions and policy recommendations are presented.

A Brief Literature Review

2006-2008 global food price crisis has raised concerns about food price increases for academics, researchers, institutions, and other concerned people. Numerous factors behind this crisis have been extensively analysed in the literature. Among these, there has been an agreement on four major factors leading to food price increases on the global level: (i) economic growth, (ii) biofuel production, (iii) fluctuations in exchange rate, (iv) energy price increases (Hochman et al., 2011, p.54).



At the country level, the determinants of food prices varied from country to country as demand-side factors and supply-side factors. Demand-side factors generally consist of the output gap and money supply, whereas supply-side factors typically consist of production costs (such as energy prices, wages), exchange rates, world commodity prices, and weather conditions.

Considering the studies for Turkey, many factors explain food price inflation. These generally focus on producer prices, climate conditions, export, and structural factors. Prior to 2006-2008 global food price crisis, Çıplak and Yücel (2004) examine the relationship between agriculture and food price inflation, exchange rate, and total CPI inflation by using a vector autoregressive (VAR) model. The study concludes that the increases in agricultural prices had a statistically significant effect on food price inflation and total CPI inflation.

Başkaya et al. (2008) conducted a study to determine the factors that affect processed food prices in Turkey from February 2002 to December 2007. Using the least-squares method, they find that the acceleration in processed food inflation was driven by supply-side shocks caused by drought and increases in international food prices.

Orman et al. (2010) focus on the main structural factors behind highly volatile unprocessed food prices in Turkey. They interviewed 16 experts in the food industry and asked open-ended questions. As the main factors, the interviewees mentioned (i) dependence of production on climate conditions, (ii) insufficient know-how, (iii) the high number of intermediaries in the supply chain, (iv) uncertainties about public support for the agriculture sector, (v) inadequacy in regulation and supervision structure, (vi) concentration of agricultural production in some regions, and (vii) fluctuations in external demand.

TÜSİAD (2016) issued a report to explain the structural problems of food inflation in Turkey. Their descriptive analysis claim that increased production cost, supply deficit, export, isolation from global markets, and incomplete and imperfect organization in product chains were the main drivers of food inflation in Turkey.

Balkan et al. (2015) investigate the effect of fuel prices on fresh fruit and vegetable prices using a difference-in-differences model. They show that fuel price increases had an increasing impact on wholesale fresh fruit and vegetable prices through transportation costs. In particular, they point out that the effect is more than one-to-one increases.

Utilizing a panel VAR model, Eren et al. (2017) examine the main drivers of food inflation in Turkey, focusing on 35 items with yearly data. They state



that producer prices and quantity of production were the major drivers of consumer food prices between 1994 and 2016.

Study Methods

The study aims to contribute to the ongoing discussion on the drivers of food prices. In order to achieve this goal, a qualitative research method, which has become increasingly important in the field of economics in recent years, is used more systematically. Since the agriculture and food sectors in Turkey have structural and complex problems, an in-depth analysis approach is preferred. The experts who have studied the issue in-depth or have worked in the industry for many years are included in the study, and data obtained from interviews are analysed by using NVivo 12 as a Computer-Assisted Qualitative Data Analysis (CAQDAS). Ethical approval is granted by the Ankara Yıldırım Beyazıt University, Social and Humanities Ethics Committee (Appendix 1).

In-depth interviews approach

In-depth interviewing is a process including asking questions, saving the answers, and then adding additional questions to expand or clarify a matter. Interviews can be done in person or by phone (Harrell ve Bradley 2009). There are three basic approaches of interviews: the informal conversational interview, semi-structured interview, and standardized open-ended interview (Yan, 2005).

The informal conversational interview relies “...entirely on the spontaneous generation of questions in natural interaction, typically one that occurs as part of ongoing participant observation fieldwork (Gall, Gall and Borg, 2003)”. In this approach, the interviews are conducted without a number of pre-determined structural questions to obtain detailed information on a particular subject.

Second, the semi-structured interviews are carried out in questions whose majority is not predetermined. Such interviews usually begin with more general questions or subjects and continue with questions of how or why. Information obtained from interviews provides not only answers but also reasons for the answers (Case, 1990).

The third and final approach is the standardized open-ended interview, which is highly structured in expressing the questions. Questions asked to participants are always identical, open-ended, and arranged in advance (Gall, Gall and Borg, 2003).

Data collection

For an in-depth understanding, the semi-structured interviews were considered the most convenient method in data collection. This approach



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has a significant advantage for the emergence of previously unknown information. When there are sufficient opportunities to allow participants to speak freely, new information can arise (O’Keeffe et al., 2016).

In the first step, comprehensive research was carried out for recruitment: an internet search was made to identify participants and obtain their contact information. Each expert was also asked to propose other qualified individuals who may be willing to interview. Potential interviewees were contacted by e-mail and social media and asked whether they would participate in an in-depth interview.

The number of participants was determined according to the “saturation point.” The saturation point is that the researcher makes the subjective decision that new data will not provide any further information or insight into the developing categories (Creswell, 2012, p.433).

When the data received from the participants repeated each other, the researchers concluded that the data reached the level of saturation and stopped collecting data. In this context, nine participants were interviewed and asked broad questions on topics, for example, supply-side and demand-side factors that determine food prices in Turkey, and policy recommendations.

Table 1 shows the information on participants. The study was carried out with four academics, three senior executives, an agricultural engineer, and a president of a non-governmental organization in Ankara. They have an average of 22 years of experience.

Table 1: Details of Participants

Participant	Years of Professional Experience	Position	Corporation
Participant 1	19 Years	Academic Staff	Private Foundation University
Participant 2	20 Years	Senior Executive	Ministry
Participant 3	30 Years	Academic Staff	State University
Participant 4	16 Years	Academic Staff	Private Foundation University
Participant 5	26 Years	Senior Executive	Public Corporation
Participant 6	17 Years	Academic Staff	State University
Participant 7	20 Years	Agricultural Engineer	Ministry
Participant 8	29 Years	President of Foundation	Nongovernmental Organization in Ankara
Participant 9	22 Years	Senior Executive	Public Corporation



The interviews with experts were held between January and March of 2020. Each interview occurred in the Turkish language and at the place requested by the participant. At the request of the participants, three of the interviews were conducted by phone. All interviews lasted from 29 minutes to 1 hour and 11 minutes. The average duration of the interviews was 50 minutes.

At the beginning of the interview, the participants were informed about audio recording, and their permission was received by the researcher. Participants also received assurances that their names and answers would not be associated with the study.

Questions asked were general and open-ended. Answers were deepened with questions from general to specific. Also, responses were received without directing the participants.

All interviews except one were recorded. Notes were taken for the participant who did not want to record audio during the interview. The recorded interviews were transcribed verbally and checked against the tape-recorded material.

Qualitative data analysis

Yin (2011) states that the analysis of qualitative data usually consists of five stages: (I) Compiling data, (II) Disassembling data, (III) Reassembling data, (IV) Interpreting data, and (V) Concluding (Yin, 2011, p.177).

The first step in the qualitative analysis is to constitute the database. After completing data collection, the second phase is a disassembling procedure that requires dividing the compiled data into smaller pieces or fragments. This process can be called coding. After that, the disassembled pieces are readjusted by using themes, which can be called a reassembling procedure. The last two phases are the processes of interpreting the reassembled data and concluding the entire study (Yin, 2011, pp.178-179).

The coding process is one of the most critical phases in qualitative data analysis. According to Charmaz (2006), coding is the pivotal link between data collection and explaining the meaning of the data (Charmaz, 2006, p.46). Theron (2015) also describes coding as an interpretive activity; this means that two researchers can evaluate the data in two different codes (4). A similar pattern between the codes may lead to categories (Theron, 2015, p.4).

A software package is not a prerequisite for the qualitative data analysis. Coding with CAQDAS is one of the coding methods (Maher et al. 2018). Nevertheless, since such a program would be helpful for the study, interviews with participants were analysed with the NVivo 12, which is a professional CAQDAS.



Discussion of Results

Figure 2 demonstrates themes and emergent subthemes identified by analysis of the answers given by the experts to the interview questions. The factors affecting food prices in Turkey are divided into two main themes: Supply-side impacts and demand-side impacts. However, the experts generally state that supply-side effects are more decisive than demand-side forces in Turkey.

Supply-side effects

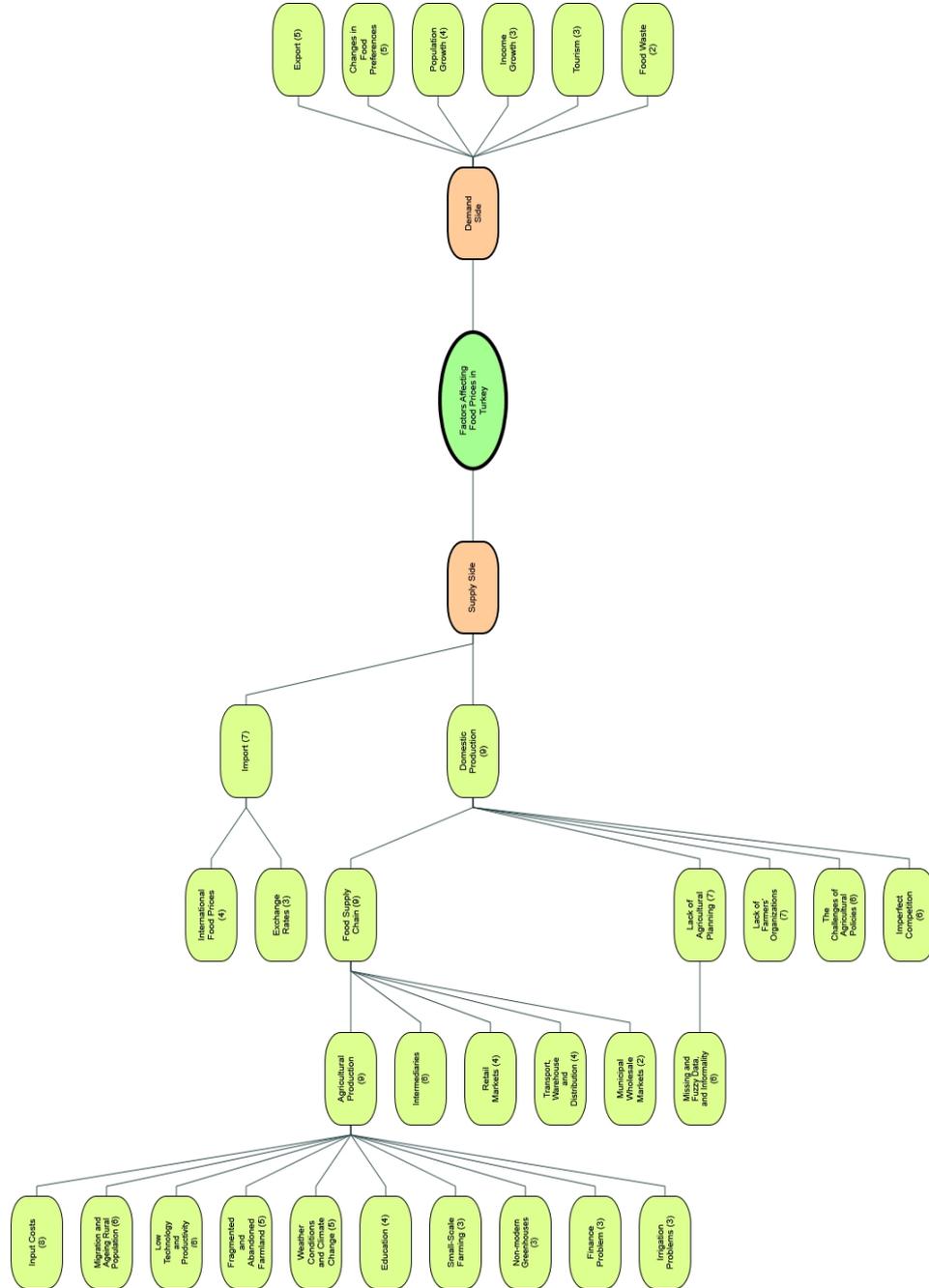
The total supply is made up of domestic production plus imports, minus exports plus/minus stock changes. Seven out of the nine experts interviewed believe that imports have an impact on Turkish food prices, while all of them view domestic production as necessary.

According to seven experts, imports affect food prices through international food prices and exchange rates.

“Looking at the supply side, some of them are imports. When we look at the import side, the exchange rate is fluctuating. World prices are fluctuating. If both of them rise simultaneously, it will have a very high impact on our prices.” (Participant 7, Agricultural Engineer)



Figure 2: Themes and Emergent Subthemes Identified in Interviewees' Responses



Note: The number shown in parenthesis is the number of experts who think this factor is important in determining food prices in Turkey.



Economic theory states that if demand is constant, increasing supply will lower the price. Experts, however, emphasized that since import discourages the farmer from production, the price of imported goods will become dependent on imports in the long run. In particular, the level of the exchange rate becomes more important for domestic prices. In such an industry, an increase in international food prices or exchange rates can raise food prices.

“Unfortunately, imports also affect food prices very seriously. It affects two ways. First, it discourages the farmer from production. However, that is another story. Second, for example, if I import the weight of chickpea from 1 dollar and today the dollar is 3 Liras, its price is 3 Liras. If the dollar rises to 6 Liras, the price will be 6 Liras. I am directly affected by the import price.”
(Participant 1, Academic Staff)

“Now, when you allow imports, you also negatively affect the domestic producer. For example, consider meat coming from abroad. Even the ground meat prices in Turkey have reached the level of 50-60 Liras, but it can be produced more cheaply abroad. This, of course, leads the domestic producer to a negative position. Because, if the price of meat is 60 Liras and you are importing it from abroad with the price of 40-45 Liras, the domestic producers will send the animal to the slaughterhouse since it cannot meet the costs. Now there are queues in slaughterhouses. Therefore, since you cannot solve the basic structural problems, you view imports as a solution. It is not a solution.” (Participant 6, Academic Staff)

On the other hand, domestic production is mentioned by all experts as the most crucial driver of Turkish food prices. Firstly, all interviewees claimed that there are major problems in the food supply chain.

Food supply chain

The food supply chain is composed of sectors at all levels, from the agricultural sector down to the retail sector (Bukeviciute et al., 2009). Experts focused especially on six issues related to the food supply chain. Agricultural production, which was stated by all participants, is the most critical issue. This is followed by intermediaries, retail markets, transport-warehouse and distribution, and municipal wholesale markets, respectively.

i) The agricultural sector is considered as the first sector in the food supply chain (Bukeviciute et al., 2009). Eight out of nine experts emphasized that rising input costs are crucial in determining food prices, especially in the last period. The fact that the inputs depend on imports is one of the most critical structural reasons for Turkish agricultural production, they emphasized. Many experts interviewed claimed that energy, fertilizer, pesticide, and feed become very sensitive to fluctuations in exchange rates.

“When we look at the production side, we have not been talking so far, but the costs of the inputs have become a fundamental problem. This is mainly because we produce by importing. You import energy. Whether it is oil, diesel, or electricity, it is imported. You import seeds. You import pesticides. You import fertilizer. Agriculture becomes a very fragile sector as you import



almost everything except labour. In other words, the movements in the exchange rates, for example, since the beginning of 2018, have affected the costs very strongly, and that has also affected your production.” (Participant 6, Academic Staff)

Six out of nine experts interviewed state that migration and ageing rural population play an essential role in food prices in Turkey. As in the rest of the world, the majority of Turkish people live in cities. As of 2018, while 44.7 percent of the total population lives in rural areas in the world, only 24.9 percent of the total population lives in rural areas in Turkey. It was 66.4 percent and 68.5 percent in 1960, respectively (The World Bank, 2019). This shows that rural-to-urban migration in Turkey is faster than the rest of the world.

“Go to a typical village of Ankara. What kind of farmer profile will you see when you enter the village? They are 65-70 years old, literate, maybe primary school or middle school graduate. You will not be able to see even the middle school graduate. There is no young person. Nobody wants to work there because of the migration from rural to urban areas. So it is not an attractive sector either. For example, what are the most talented people doing in Turkey? They are either in the financial sector or the information technology (IT) sector. They either work at Telekom or become bankers. They work in the financial sector. They also have the highest university scores. Economics, business, computer engineering, electronics, industrial engineering, or medicine. These are the best departments. They go to these departments. You do not see someone with a high score in any agricultural sector. Therefore, you continue such a vicious circle.” (Participant 6, Academic Staff)

As a third factor affecting food prices in the agricultural sector, low technology and productivity are mentioned by the six experts interviewed. Especially as agricultural land and water resources decrease, the growth in agricultural supply mainly results from the increase in agricultural productivity (Alston and Beddow, 2009, p.1209).

“No need to reinvent the wheel. The agriculture sector has similar problems all over the world. There is an aging population; rural to urban immigration is everywhere. Unfortunately, Turkey is producing in a very inefficient manner. They were talking about the numbers on social media for a day or two. Turkey is Europe’s largest agricultural producer. That is right. Production is huge in volume, but it is also a disaster in efficiency. In other words, we are one of the ten largest producers in the world and the biggest in Europe, but we have a very low level of efficiency. How will you overcome that inefficiency? The first is science, industry, technology. So, this sector has to do research and development that can compete with other sectors. This does not have to be a robot or artificial intelligence. However, even if it is very simple, we have to use technology there.” (Participant 6, Academic Staff)

One issue affecting productivity, costs, and therefore food prices in agricultural enterprises in Turkey, is fragmented and abandoned agricultural areas, said five experts. According to Simons (1985), production on fragmented lands is more costly than production on contiguous lands.



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There are two sources of these: (i) costs of additional land and labour; (ii) some cost-cutting or more efficient techniques are not feasible. As a result, land fragmentation may have some costs by negatively affecting output. This means lower productivity and higher food prices (Shuhao, 2005, p.19).

“Our land structure is fragmented, so the average amount of land per farmer in Turkey is 5.9 hectares, but development in agriculture starts with at least 15-20 hectares. So, we have to reach these levels. Our state has prepared the legal infrastructure for this. The ministry has prepared a law on the non-division of land. However, their implementation is not so easy due to past problems. Therefore, the fragmentation of land is a significant problem. It is necessary to solve this with land consolidation, laws, and awareness.” (Participant 2, Senior Executive)

In addition, weather conditions and climate change, the level of education, small-scale farming, non-modern greenhouses, financing, and irrigation problems are mentioned as other factors affecting food prices in the Turkish agricultural sector.

“The information needs of farmers are not adequately met. We call it agricultural extension. We have consultancy service. In agricultural extension service, farmer’s problems are conveyed to research institutions or universities. These institutions produce solutions for these problems, transmit them to farmers, and show the innovations and technological developments to farmers. This system does not work well in Turkey. The information flow to agricultural producers cannot be met adequately. Their problems cannot be solved.” (Participant 3, Academic Staff)

An expert emphasizes the importance of “Agricultural Demonstration”:

“There is a basic principle in the sociology of the village. I share this from time to time. Farmers and producers do not believe in anything they do not see except Allah. If you say, “I found a productive type of wheat, I found a productive type of barley,” farmers do not listen to you. However, if you rent a part of farmers’ land, and try there for a year or two years, and show farmers how efficient that barley type or wheat type, then farmers listen to you. Do you know what the reason for this is? Look, farmers cannot go on an adventure. Imagine that you are a farmer, someone comes to you and says that this type of wheat gives more yield. It takes a year to harvest it and earn money. A farmer does not easily take a yearly risk; this is not a daily risk. So, it is essential for farmers to see and experience.” (Participant 2, Senior Executive)

“Greenhouse technologies are not good, either. Greenhouses are made of nylon and all sides are full of holes. These are not so technological greenhouses. Therefore, prices are rising due to greenhouse-field transitions, seasonality, exacerbation of exports during these periods, and unplanned organization.” (Participant 1, Academic Staff)

“Since the scale is so small, it becomes very difficult to get assurance when they apply for a loan to a bank. If they can’t get the official loan from the bank, they will get in an unofficial way. How? They are going to the merchants, which are mostly gas station owners. Providing credits to manufacturers is the second job of gas station owners in Turkey. Informal loans... When the farmers are short of money, they get 10 thousand Liras from them. Gas station owner or trader, that is, the input supplier who gives pesticides, seeds, and fertilizers says that “I will give you 10 thousand Liras, but you will bring me whatever you produce at the end of the season.” The



producer cannot get what he deserves here because his hopes are broken. In other words, he cannot price his own product 3 Liras or 4 Liras. Because he has to transfer that product to that merchant in exchange for the debt he received. This is a problem.” (Participant 6, Academic Staff)

ii) Intermediaries

One of the challenges farmers face is that they do not have much choice on where to sell their crops (Ferreira, Goh and Valavi, 2017, p.2). They usually sell their products to middlemen or local markets. Yet, the intermediaries are often accused of exploiting farmers.

The issue of intermediaries in the Turkish agricultural sector is an ongoing debate. Some people, including government executives, blame intermediaries for raising food prices and think they should be removed. On the other hand, some people in the sector share the opinion that intermediaries are necessary for the delivery of food to consumers, but the food chain length is long.

Six of the nine experts interviewed argue that intermediaries play a critical role in determining food prices in the food supply chain.

“It is necessary to follow the flow diagram of a product. For example, I am a manufacturer; I must sell this to someone. How will I sell it? There are many ways to do this. One, I can sell it directly. Two; you are a merchant; I will give it to you. The merchant gives it to the second merchant or the wholesaler. There is a different flow diagram for each product. It continues that way. The problem there is this; the number of intermediaries is many. So, in general, this acceptance is true, and the number of intermediaries is many. So, each is a cost item. Everyone sets the price of the final product by putting the profit margin on their own cost.” (Participant 7, Agricultural Engineer)

iii) Retail markets

One of the sectors in the food production chain is food retailers. The share of supermarkets (large retail stores) are proliferating in developing countries (Minten and Reardon, 2008, p.480). Rapid urbanization, population growth, and similar factors have affected this growth in both Turkey and the world (PwC, 2016).

According to Arda (2006), there is a difference between developed and developing countries in terms of food prices in supermarkets and small shops. Food prices in supermarkets in developed countries are considerably lower than in neighbourhood markets, while food prices in supermarkets in developing countries are higher. This is more pronounced in the price of fresh fruits and vegetables.

On the other hand, supermarkets can be potential price leaders. “Price leadership refers to a situation where prices and price changes established by a dominant firm, or a firm are accepted by others as the leader, and



which other firms in the industry adopt and follow," the OECD defines (OECD, 2002). As an example, Seaton and Waterson (2013) examine the pricing behaviour of Tesco and Asda in the British supermarket industry and find considerable evidence that leadership exists.

In Turkey, the first five supermarket chains are A101, BİM, ŞOK, Migros, and Ekomini in terms of the total number of branches (Ortakalan, 2019). These dominant firms play the role of price leadership in the industry by preventing price competitiveness, the four experts claim. Also, an expert emphasizes the importance of greengrocers for the retail market competition.

"There are intermediaries, but I think the retail side is more important than intermediaries. Especially because of the concentration of 3 or 4 firms in Turkey's retail sector, it is becoming much more difficult to know what is happening. This is the case all over the world. So, whether you look at Europe, America, or England, retailers really make good money from this business. In the UK, for example, a significant part of the apple production, a significant part of the meat production, a significant part of the bread production is released to the market via retailers. People always do their shopping from retailers. Where is shopping done in Turkey? Now even in the village, chain markets are open. Besides, you can see the same chain stores in the town, every neighbourhood, even next to each other. You can even see 3-4 chain stores side by side. People also shop a lot in these markets. So intermediaries are significant, but I think retailers are more significant in the formation of food prices. There are around twenty thousand markets in Turkey. Two-thirds belong to A101, Bim, Şok. I also shop at the street market. When I ask about how they determine prices, they say they look at the chain markets. There is a wholesale market price, but if the product is sold for 8 Liras at Migros, the seller in the street market does not sell it for 5 Liras. For instance, it sells for 7 Liras. Well, there is a margin between the chain market and the street market, but he is always watching the chain market. Because the difference in the margins is not too high, either." (Participant 6, Academic Staff)

"Greengrocers should become prevalent. Because product loss and cost are lower. Since products are bought from municipal wholesale markets, it is also easy to monitor. Moreover, it increases competition." (Participant 8, President of Foundation)

iv) Transport, warehouse, and distribution

After the production phase, food products need to go through some stages, including packaging, storage, distribution, and transportation to urban areas. All these services need to be efficiently provided and managed. Otherwise, the various costs for each of the above stages will be higher than necessary. Also, food losses will increase (Aragrande and Argenti, 2001).

According to four interviewees, inefficient processes in transportation, warehouse, and distribution can lead to higher food prices in Turkey.

"Actually, we have 20-25% wastage. We produce 50 million tons of fresh fruit and vegetable products annually. 12 million 500 thousand tons of this production is wasted. This amount meets the needs of a country of 50 million. However, conditions, environment, shipping



difficulties, lack of cold chain, lack of licensed warehouses, lack of modern municipal wholesale markets, and lack of modern packaging facilities in production areas cause this waste."

(Participant 8, President of Foundation)

v) Municipal wholesale markets

Although improved efficiency in the food distribution pipeline is the primary purpose of the wholesale markets, the following five functions are expected to be performed by them: (i) physical exchange of product, (ii) classification of products according to standard criteria (weights, measures, and quality), (iii) formation of an equilibrium price for produce, (iv) information exchange between buyers and suppliers; and (v) risk management and hedging against price fluctuation risks (Tollens, 1997, p.5).

Two experts consider that municipal wholesale markets in Turkey do not work effectively.

"They always say that the municipal wholesale markets do not work very effectively; there are even mafia-like structures in some. These are sources of trouble. They are not written everywhere, but we know more or less between us that it occurs. For example, a manufacturer that enters a municipal wholesale market has its own right to sell. At least a certain amount of area should be reserved for the producer. That place cannot be reserved. Even if the place is reserved, the producer is sent. The producer-side is restricted in entering the municipal wholesale market. These are always due to ineffective structures." (Participant 5, Senior Executive)

"There are approximately 180 municipal wholesale markets in Turkey. They are very local, and the transaction volume of the market is shallow. So, I think this may affect food prices. In more central locations in the middle of cities, there may be markets with much better infrastructure. In the current markets, the infrastructure is fragile. No cold storage, no forklift facilities. Since there are no plastic or wooden crates facilities, 10-15 percent additional waste occurs depending on the product type... There should be 30-40 hub in Turkey. Each of these should serve several cities. It should be in accessible areas. Trucks should have easy entry and exit. Their land should be wide. Its infrastructure should be excellent. Producer organisations should also own a shop here. They should get a share from here. Thus, they have sustainability. Perhaps logistics should be done through organisations. The products come to the producers' organisations first. Then the producer organisations sell from there. That is the only way to create a sustainable and permanent incentive. However, the ministry of agriculture and the state must monitor these producer organizations. If not, structures like mafia will reappear." (Participant 1, Academic Staff)

Lack of agricultural planning

Agricultural planning is considered as an effective tool in the use of scarce agricultural resources such as land, labour. However, farmers in Turkey make production decisions based on their intuitions and their past experiences (Isin and Miran, 2005).



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In our study, seven experts out of nine mainly point out that the authority (such as ministry or food committee) does not lead the sector. They complain about the lack of agricultural planning.

“The Ministry of Agriculture does not have agricultural policy planning for the sector of fruits and vegetables in Turkey. This leads to excessive increases and decreases in food prices at the end of the season, in transition phases of seasons, in bad weather conditions or in the selection of a wrong seed or pesticide.” (Participant 8, President of Foundation)

Six experts mention that agricultural planning and stock management cannot be done due to the problems in agricultural data in Turkey.

“The ministry of agriculture is the ministry that should make the most of technologies such as big data, machine learning, and artificial intelligence. Because it has great data sources such as meteorology, soil, precipitation, or crop. However, there is not even a bit of data. This is the case, unfortunately. In addition, we see the apple and pear as almost a single product. There is a problem if you consider cocktail tomatoes, tomatoes of Ayaş, and standard tomatoes of Antalya as the same tomatoes. Their markets are different. There is no measurement. We do not know the supply. We do not know anything about who produces what and where. Since the measurement side is not clear, what do we see as inflation, and what are we talking about? This issue should be seriously discussed. TurkStat and the Ministry of Agriculture need to invest heavily in this business. For instance, there are European Commission classifications in Europe. I am not exaggerating, but there are 60 different eggs. The commission classified them according to their colour and size. They can follow the market over 60 products. When we say eggs, one kind comes to mind.” (Participant 1, Academic Staff)

Also, a model applied in many countries is recommended by an expert.

“The model of the agricultural observatory in Spain is necessary to adapt to Turkey. These developments in the world started after the world food crisis in 2007-2008. These studies were carried out at the European Union level, at the level of the United Nations and in many countries. However, the Spanish started this system in 2001. It works very well. ... Technical studies are carried out in the lower ranks of an agricultural observatory. Reports are being prepared. Decision-makers listen to presentations and make decisions. Such an observatory model needs to be established within the ministry of agriculture. The Ministry should examine the system in Spain and establish in Turkey.” (Participant 3, Academic Staff)

Lack of farmers' organizations

The lack of farmers' organizations is regarded as one of the determinants of the food prices in Turkey by seven out of nine experts.

“On the organization side, we cannot develop the producer organization. We have very good examples such as Tar-ış or Tire cooperative or Marmara Union, but their number does not exceed 10. Therefore, we have serious problems in farmers' organization. We must somehow build producer organization system in agriculture. While trying to do this, we put a spanner in the works. We encourage cooperative organizations, but we also prevent producer associations from marketing. A producer union is established as a producer union, but the producer union



cannot sell products. We already have problems in cooperatives, we bring producers' associations as an alternative, but we also prevent them from functioning effectively. Looking at the European Union today, 90% of marketing functions in some agricultural or food products are carried out by cooperatives. 60-80-90% on some products." (Participant 7, Agricultural Engineer)

The challenges of agricultural policies

The private sector has some limitations to raise agricultural productivity and to modernize the agricultural sector. Difficulties such as high transaction costs or poor infrastructure limit the functioning of the private sector. Thus, the importance of government intervention in the agricultural sector is recognized by all governments around the world (COMCEC, 2017, p.1). However, entire agricultural policy in Turkey is criticized by six experts and is seen as one of the determinants of food prices. Moreover, the experts provide significant policy recommendations.

"We are not able to manage the entire agricultural policy. With rural to urban migration, the average human capital of the farmer fell. The better of the farmers always come to the city. In parallel with this, unfortunately, there are serious decreases in human capital in agriculture-related policies and institutions. For instance, the Ministry of Agriculture and the Ministry of Forestry have merged, and now it has become one huge institution with 150,000 employees. It cannot manage itself. People spend all their efforts on internal correspondence and similar work. The ministry is self-governing. They do not have the energy to look outside. Everything is done gropingly. There is no data. There is no crop estimate. Their capacity to utilize information technologies is zero. They did a project called TARBiL (Agricultural Monitoring and Information System). Millions of dollars spent. This project changed 4-5 ministers. They poured money into companies. There is no such thing as TARBiL now. They cancelled. Let me tell you that at least 200-300 million dollars were spent on this project." (Participant 1, Academic Staff)

"Unfortunately, the public administration does not work very effectively. The policies it produces are also not very effective. They are not long-term, always short-term. Policies change when the minister changes. Ministries are restructured." (Participant 6, Academic Staff)

"While giving agricultural subsidies for tomatoes, it is given to standard tomatoes. It is not given to a local seed. I do not know why, but we try to destroy local seeds. Every region has such beautiful tomatoes. There are green tomatoes, pink tomatoes, and fragrant tomatoes. Unfortunately, the agriculture ministry is trying to standardize. Producers ask, for example, what seed should we plant? The ministry proposes a standard tomato seed. It does not even give agricultural subsidies if you do not plant it. There are stories like this. Naturally, the added value goes to zero." (Participant 1, Academic Staff)

"The ministry should support producers as much as they produce and should not provide agricultural subsidy without producing. The grant should not be given to those who do not produce. Area-based agricultural subsidies should not be given. Do you know what is done with



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support? They change their car or buy a house. Production-based incentives should be given. You should reward them for producing.” (Participant 8, President of Foundation)

“Impact assessment of the agricultural supports should be done. Significant agricultural support is provided in Turkey. How much of these transforms into production and productivity? These subsidies should be monitored after they are given. According to the result, it is important to re-evaluate agricultural supports.” (Participant 9, Senior Executive)

Imperfect competition

The concept of competition has an essential role in economics. Perfect competition, which is the opposite of a monopoly, is considered an ideal market type. Economists generally give the agriculture sector as an example of perfect competition (Sykuta, 2013). However, six experts mentioned that there is a failure in competition at almost every stage of the food supply chain in Turkey. In other words, they stated that the price leadership issue mentioned above in the retail industry is valid in the Turkish food system.

“There is also a system amongst traders with no municipal to restrict their activities that they set up to increase the price in the market by placing hundreds of thousands of tons of goods into the warehouse. Let me give an example of this. 4-5 large companies are engaged in potatoes and onion businesses in Turkey. I also told about them to the ministry. Each of these companies places fifty thousand or one hundred thousand tons of products in the warehouse, and it costs 1 TL/kg. Then, by giving 3 TL/kg to the small producers in that region, they buy 5 tons, 7 tons, or 10 tons of goods each. Look, the market price is automatically 3 TL/kg. All the producers there do not want to give their goods down at this price and do not. They say the market price is 3 Liras. In doing so, traders launch one hundred thousand tons of goods, which cost 1 Lira, from 2.25 to 3 Liras. Until they sell all the goods in the warehouse, villagers cannot sell their goods. Because they cannot sell their goods for 3 Liras. That is, traders are raising the market price.” (Participant 8, President of Foundation)

Demand-side effects

Although the experts interviewed primarily focused on supply-side factors as the most important determinants of food prices in Turkey, demand-side factors are mentioned as important. According to these experts, export, changes in food preferences, population growth, income growth, tourism, and food waste are the main demand-side factors driving the food prices in Turkey.

The five experts interviewed state that export has a role in the food prices in Turkey.

“There is also an unexpected export on the demand side. Every now and then, an unexpected demand is coming from a country. As the prices are higher, we immediately turn to exports. We do not take into account what price is, what supply is. I think that if the increasing export in those periods raises the prices seriously, precautions should be taken there. From time to time, exports cause the prices to go up in the country. Sometimes the price of chicken meat or eggs



risers in a week. Why? Egg demand is coming from Iran. There is a demand for chicken meat from Iraq. You export it, but this increases the domestic market price. It causes food inflation."

(Participant 3, Academic Staff)

Five experts interviewed mentioned that the changes in Turkish consumers' preferences for food led to changes in food demand and food prices, especially for red meat.

"Different habits form in Turkish society. For example, the restaurant habit did not exist before. Nobody would go. Now a restaurant culture has started to settle. Various demands began to develop for different types of products. As an example, we can give beef. While the taste of our society was prone to lamb, we are now consuming more beef. In the past, our consumption was 70 percent lamb, 30 percent beef. Now, this has changed to 90 percent beef and 10 percent lamb. So there are some dynamics on the demand side. We are not a cattle-breeding country. When demand shifts to beef, naturally, cattle deficit starts to emerge. For example, there is the Unity Project in Agriculture on the agenda. In this regard, we are now subsidizing lamb. However, lamb is not demanded. For instance, my wife does not eat lamb. She says it smells bad."

(Participant 1, Academic Staff)

Population growth (by four experts), income growth (by three experts), and the increasing number of tourists (by three experts) are shown as the demand-side factors affecting food prices in Turkey by experts interviewed. Since food supply has not been able to meet food demand throughout the recent period, Turkish food prices have increased.

"The population side is not spoken too much, but it is important. Our population is growing steadily. There are also Syrian refugees, Iraqis and Afghans. In addition to our population, more than 4 million people as refugees or immigrants from these countries are putting pressure on the demand side. That is, this is one of the reasons for the increase in prices." (Participant 6, Academic Staff)

"Household income increases in Turkey. Income for all income groups increases. In my work on poverty, I see that income increases in all groups. In fact, the rate of increase in the income of the lowest group is higher than the others. Increasing the income of lower income groups changes food demand. Food demand increases." (Participant 4, Academic Staff)

"Another determining factor on the demand side is tourism. The number of tourists visiting to our country is increasing every year. This increases the demand for food." (Participant 9, Senior Executive)

In sum, this study contributes to the existing literature in several ways. First, the qualitative analysis confirms the main results of existing studies that also emphasized production costs, weather conditions, producer organizations or exports. The most conspicuous factor asserted by the participants regarding food price increases in this study is input costs due to their dependent structure to import entries. Thus, significant depreciation of the Turkish Lira in 2018 increased food prices through input costs. Second, the study is stated that there are structural problems that have not been solved in the



agricultural sector for years: migration and ageing rural population, low technology and productivity, fragmented and abandoned agricultural areas, the level of education, small-scale farming, non-modern greenhouses, financing and irrigation problems. Third, the study underlines the importance of agricultural data and agricultural policies. The data are missing and not well classified. Thus, effective policies and strategies cannot be developed. In addition, the Ministry of Agriculture and Forestry is unable to balance the supply and demand due to various problems such as the lack of skilled human capital, and the frequent replacement of ministers, as well as data problems. Fourth, we draw attention to the fact that import decisions damage the industry in the long term. Although agricultural imports decrease food prices in the short term, the structure that becomes dependent on imports in the long term is vulnerable to shocks like the coronavirus pandemic. Countries responding to the coronavirus pandemic by closing their borders show that import opportunities are not always possible and self-sufficiency in food is critical. It is a fact that import decisions which are not evaluated well, discourage Turkish farmers, who cannot obtain enough profits, from production. Fifth, we emphasize that competition challenges across the entire food supply chain prevent a healthy price formation. Moreover, collusion-prone structures affect the market negatively. Sixth, the analysis states that the change in Turkish people's tastes and preferences has an impact on food demand, as in demand for veal. Finally, other demand-side drivers such as, population growth, income growth, increasing number of tourists and refugees, and food waste are also significant factors in terms of food price increases in Turkey.

Conclusions and Policy Recommendations

Food prices in Turkey dramatically increased in 2018. While the food price inflation was 9.8 percent on average between 2008 and 2017, it reached about 30 percent on an annual basis in October 2018 (TurkStat, 2019). The present study aims to determine the drivers of food prices in Turkey by using qualitative data analysis of expert opinions. Nine experts are interviewed, and the data obtained in the interviews are analysed with NVivo 12, a qualitative data analysis software.

According to the participant experts, the input costs in the agricultural sector have a leading role in food prices because many agricultural inputs are imported from abroad. The depreciation of the Turkish Lira in the last period has caused an increase in production costs and food prices.

Migration and aging rural population, low productivity, and agricultural education are considered as remarkable sources of food price increases. Finance problems cause unofficial solutions that harm producers. Moreover, other problems in the food supply chain (the number of intermediaries, inefficiency in municipal wholesale markets, or low competition in retail markets) have a considerable effect on the food prices.



Most strikingly, 7 out of 9 experts emphasize the lack of agricultural planning. Ministry of Agriculture and Forestry is unable to design the sector and establish the supply-demand balance. Also, there are crucial problems with agricultural data. When the data are not sufficient and accurate, it is difficult to manage the entire industry. Agricultural policies generally do not meet the expectations of the experts. Import decisions harm the farmer and the domestic production in the long run, as the producers have not earned enough to continue production. Moreover, agricultural supports cannot lead the industry.

Even though the supply-side drivers are more decisive, the demand-side factors have an impact on food prices. Exports, changes in food preferences, growth in income, population growth, and tourism are factors influencing food prices in Turkey. Based on the participant experts' opinions, this study provides the following policy suggestions.

- i) Since the problems in the agriculture and food sectors in Turkey are mostly structural problems, the solutions should have long-term focus. However, short-time solutions such as import can be used due to the high sensitivity of agriculture to weather conditions. Great care must be taken when making import decisions. These decisions should not discourage Turkish farmers from production.
- ii) Agricultural planning and stock management should be done effectively.
- iii) Policies to reduce agricultural input costs should be developed.
- iv) Land consolidation and irrigation efforts should be accelerated.
- v) Strategies should be developed to increase the education level of farmers. In addition, educated people should be encouraged to agricultural production.
- vi) The system of agricultural supports should be revised, and an efficiency analysis of these supports should be done.
- vii) Agricultural statistics should be improved. Also, informality in the agricultural sector should be prevented.
- viii) Product-based policies should be developed by evaluating all relevant sectors and products.
- ix) Cooperatives and producer organizations should be expanded in harmony with the urban sociology, the lifestyle of the producer, and the expectations of the producer.
- x) Proposal for a new model of municipality markets and producer organizations:



xi) The number of greengrocers should be expanded to increase competition in the retail industry:

xii) Efforts to rent agricultural land abroad can be continued after an effective evaluation of agricultural areas within the country. These efforts should not harm domestic producers. It should be carried out within the framework of an agricultural plan.

xiii) The number of modern greenhouses should be increased, and existing greenhouses should be modernized.

xiv) The use of technologies that increase productivity should be expanded by protecting optimal scale family business.

In brief, this analysis, which confirms the results of previous studies for Turkey, extends the existing literature by using qualitative data analysis method. Also, it provides specific policy recommendations. These suggestions can lead to low food price inflation and thus eliminate the adverse impacts of high food price increases on the economy and society. On the other hand, this current study conducted before the coronavirus pandemic and therefore does not include the impact of the pandemic on food prices. This should be examined in further studies.

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