

## Agriculture Since Transition Period to Farmer Registration System in Turkey: A Comparative Analysis

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### Abstract

In this study that developments in rural in Turkey were examined in the period 2001-2019, the data Turkey were compared with the results of research conducted in Yozgat. Both primary data and secondary data were used in the research. The data obtained via the surveys from farms in four districts of Yozgat province were used as primary data and Turkey Statistical Institute (TSI), the data of the Ministry of Agriculture and Forestry, and related organizations as secondary data. According to the research findings, in the examined period it was determined that there was a loss in rural resources both in Turkey and in the research area. In Turkey, the total cultivatable agricultural area decreased by 12.3%, the number of rural population 74.8%, and the number of agricultural enterprises 19.5%. These rates were respectively calculated as 25.4%, 60.3%, and 18.4% for Yozgat province. In the study, whether the correlation of not use rationally the farmland with the high input prices was statistically significant according to the farmland sizes was tested with Chi-square. The average farmland size of Turkey was found as 111 decares, and that of the research area as 130.83 decares, and effective proposals on rural resource use problems were also submitted.

**Keywords:** Agricultural enterprise, Farmer registration system, Rural development, Rural population

### INTRODUCTION

It is an important deficiency that the agricultural sector is seen as an occupation that meets the food needs of the country's population by engaging only in plant and animal production activities and allows to export the production surplus (Erkuş et al., 1995). The agricultural sector also contributes to investment and employment by transferring capital and labor to other sectors of the economy, and creates a demand potential for industrial goods (Cinemre and Kılıç, 2011). Thus agriculture in Turkey has always been a sector that maintains its importance in terms of population and employment, production, nutrition, investment, demand creation, foreign trade and national income (Açıl, 1984; Rehber and Çetin, 1998).

In Turkey, on 21 June 2001, Farmer Registration System (FRS) was constituted, and 2 588 666 farmers were registered until the end of 2001. FRS is used in the implementation,

monitoring, and controlling of agricultural supports and in the constitution of agricultural policies (Anonymous, 2020a). In short, FRS is a registration system that requires farmer informations to be collected in a central database (Saçlı, 2009).

In Yozgat province, the number of registered farmers was 64 062 in 2001. This was 42 732 in 2019 (Anonymous, 2020b). In the study, it was observed that there was also a similar development in the agricultural area, rural population, and rural employment (Anonymous, 2020c).

In this study, 2001 year when it was passed to FRS in Turkey was based on. In the study, from 2001 to 2019, emerging developments in the use of rural resources were examined, and developments in Turkey were compared with the results of research conducted in Yozgat province. In this respect, the study is important in terms of providing an opportunity to review agricultural policies by revealing of the developments in rural resource use among regions.

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## MATERIALS AND METHODS

The main material of this study consisted of both primary and secondary data. The data of the Turkey Statistics Institute (TSI) and the Ministry of Agriculture and Forestry, and other organizations concerned with the subject were used as secondary data in this study.

$$n = \frac{N \cdot \sum N_h \cdot S_h^2}{N^2 \cdot D^2 + \sum N_h \cdot S_h^2} \quad (1)$$

$$n_h = \frac{N_h}{\sum N_h} \cdot n \quad (2)$$

$$D^2 = \frac{d^2}{Z^2} \quad (3)$$

In formulas are

d: An error margin,

Z: Standard normal distribution table value according to error margin,

N: Total population,

$S_h^2$ : Variance of strata,

$S_h$ : Standard deviation of strata,

$N_h$ : Distribution of total population to strata,

n: Sample size and

$n_h$ : Distribution of sample size to strata.

In the stratified sampling, the normalization of the distribution was achieved by excluding the extreme farm sizes (very small or very big farms) that was contrary to the distribution. The farms were divided into three strata according to land size, which was 1-50 decares, 50.01-150 decares, and 150.01-500 decares. The standard deviation of the first strata was calculated to be 11.98, that of the second strata to be 27.39, and that of the third strata to be 85. Thus, the sample size was determined as 181 for an error margin of 5% and a confidence interval of 95%

In the study, the data obtained from farms through surveys were used as primary data. The surveys were conducted in 2018, and based on the data of 2017. In the research, Merkez, Sorgun, Yerköy, and Şefaati districts of Yozgat province were selected to be the research area, and the sample size was determined by stratified sampling method. The following formulas (1, 2, 3) were used in this method (Yamane, 1967).

Secondary data used in this study were arranged by the purpose of the study and interpreted by creating tables. In order to be able to monitor the changes and developments in the agricultural sector during the examined periods, the index was calculated. Some analysis results obtained by the analysis of primary data were compared with secondary data, interpreted, and evaluated.

In the study, the following formulas were used in the analysis of the data:

$$\text{Percent change (\%)} = \frac{\text{Final number} - \text{first number}}{\text{First number}} \times 100 \quad (4)$$

$$\text{Rural population ratio (\%)} = \frac{\text{Rural population}}{\text{Total population}} \times 100 \quad (5)$$

$$\text{Agriculture's share in exports (\%)} = \frac{\text{Agricultural exports value}}{\text{Total exports value}} \times 100 \quad (6)$$

$$\text{Average enterprise size} = \frac{\text{Total agricultural area (hec., da)}}{\text{Number of agricultural enterprises (adet)}} \quad (7)$$

$$\text{Yield per decare} = \frac{\text{Total production quantity (tons, kg)}}{\text{Production area (dec.)}} \quad (8)$$

$$\text{Fertilizer/pesticide consumption per decare} = \frac{\text{Total consumption (kg, gr)}}{\text{Total area (decare)}} \quad (9)$$

## RESULTS AND DISCUSSION

### A Comparative Analysis of Agricultural Sector Since Transition Period to Farmer Registration System (FRS) Total Agricultural Land

In the study, developments in the total agricultural area and average farm size of Turkey in the periods 2001-2017-2019 and average farm size of the research area in 2017 when the research was conducted were determined and given in Table 1. As can be seen from the table, while the total agricultural area of Turkey in 2001 when it passed to FRS was 26 350 475 hectares, it decreased by 23 346 598 hectares in 2017 and 23 099 503 hectares in 2019 (Anonymous, 2020d; Anonymous,

2020e). These respectively; were 825 133 hectares (2001), 598 059 hectares (2017), and 615 107 hectares (2019) in Yozgat. In 18 year-period the total agricultural area in both Turkey and both in Yozgat seemed to have decreased significantly. This rate was 12.3% in Turkey and 25.4% in Yozgat.

In the research, average farmland sizes by periods were also determined. Accordingly, the average farmland size in Turkey was 68 decares in 2001, 111 decares in 2017, and 110 decares in 2019. As a result of the analysis of the primary data, the average farmland size in the research area was determined as 130.83 decares in 2017. From this information, it was

observed that the average farmland size in the research area was higher than that in Turkey.

**Table 1.** The average farmland sizes in Turkey and Yozgat province in the period examined

Turkey						Research area		
2001		2017		2019		Index (2001=100) (2001-2019)		2017
Total cultivated area (hec.)	Average farmland size (dec.)	Total cultivated area (hec.)	Average farm size (dec.)	Total cultivated area (hec.)	Average farmland size (dec.)	Total cultivated area	Average farmland size (dec.)	Average farm size (dec.)
26 350 475	68	23 346 598	111	23 099 503	110	87.7	161.8	130.83

When questions about whether the farmland was using rationally were asked to the farms examined in the research area, 79.56% of the farms stated that they were not using rationally. When the reasons for this were asked to the farms stating that the farmland was not using rationally, the information in Table 2 was obtained. According to this, high input prices (34.03%), low product prices (31.94%), high agricultural tools and machinery rents (15.28%), poor fertility of the soil (11.81%), other reasons such as misuse of soil, climatic changes, and drought (6.94%) were the reasons for

not using rationally the farmland. In the research, it was stated that they were lost as a result of not using rationally the farmland

In the study, whether the correlation of not use rationally the farmland with the high input prices was statistically significant according to the farmland size groups was tested with Chi-square. Accordingly, it was determined that there was no significant difference between the groups for an error margin of 5%. ( $X^2_{\text{test}} = 0.1033$ ).

**Table 2.** Reasons for not using rationally use farmland according to the farms examined

Reasons	Farm sizes (dec.)							
	1-50		50.01-150		150.01-500		Total	
	Number	%	Number	%	Number	%	Number	%
High input prices	15	34.09	22	33.33	12	35.29	49	34.03
Low product prices	14	31.82	21	31.82	11	32.35	46	31.94
High agricultural tools and machinery rents	8	18.18	10	15.15	4	11.77	22	15.28
Low yield	5	11.36	8	12.12	4	11.77	17	11.81
The other (misuse of soil, climatic changes, drought etc.)	2	4.55	5	7.58	3	8.82	10	6.94
Total	44	100.0	66	100.0	34	100.0	144	100.0
General total	53	83.01	84	78.57	44	77.27	181	79.56

### Fertilizer and Pesticide Use

Inefficient soils are poor in point of nutrients. They enrich with nutrients by adding chemical fertilizers to inefficient agricultural soils (Yılmaz, 2004). Fertilization of the soil is important not only for increasing productivity but also for the development of sustainable nutrient management strategies and better use of important inorganic and organic nutrient reserves in the soil. In other words, chemical fertilizers enriched with nutrients are of great importance in maintaining soil fertility.

Plants are highly damaged by insect pests, diseases, and weeds, and plant protection measures come into prominence in protection against these damages. These measures (Öğüt, 2012), called pesticide, which are used against pests living on or around plants, humans, and animals constitute a wide range of plant protection: Insecticides, fungicides, herbicides, rodenticides, various plant diseases, and plant growth

regulators, etc. Chemical pesticides are increasingly being relied upon to control increasing production losses. For a permanent increase in agricultural productivity and farm income, it is necessary to use various pesticides in agriculture. For this purpose, as in the world, is also more increasing pesticide use in Turkey.

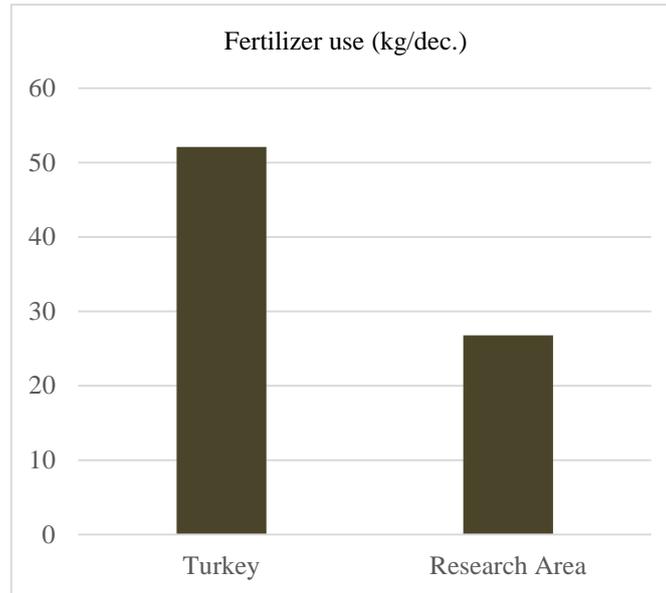
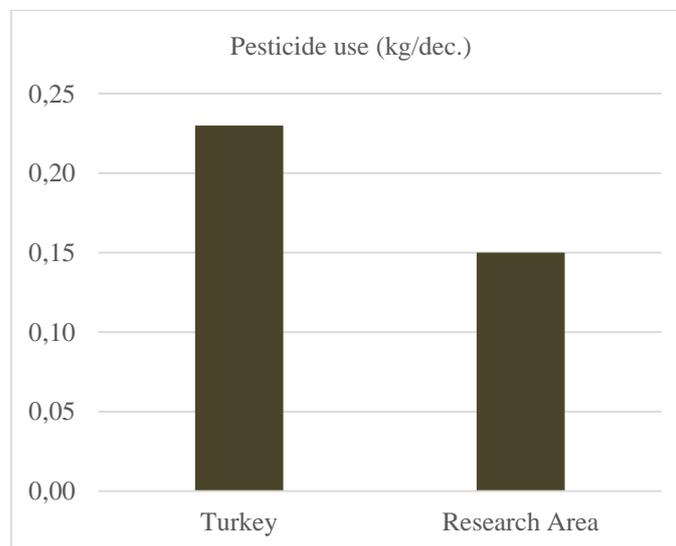
In the study, chemical fertilizer and pesticide use per unit area in both Turkey and the research area were calculated separately and given in Table 3. Accordingly, in Turkey in 2001 while 6.3 kg of fertilizer per decare was used, 52.1 kg used in 2017, and 52.7 kg in 2019. Pesticide use per decare; was 100 gr in 2001, 230 gr in 2017, and 220 gr in 2019 (Arslan and Çiçekgil, 2018; Anonymous, 2020f). In the research area also, it was determined that 26.8 kg of fertilizer per decare and 150 gr of pesticide per decare were used. In the research area, it was observed that fertilizer and pesticide use per unit area was below Turkey's average.

**Table 3.** Input use per unit area in Turkey and the research area in the period examined

Input use	Turkey (kg/dec.)				Research area (kg/dec.)
	2001	2017	2019	Index (2001=100) (2001-2019)	2017
- Fertilizer use	6.3	52.1	52.7	836.5	26.8
- Pesticide use	0.10	0.23	0.22	220.0	0.15

Fertilizer and pesticide use per unit area in Turkey and in the research area were also given in Figure 1a and Figure 1b.

When Figures were examined, it is seen that fertilizer use per unit area in Turkey was close to double the research area.

**Figure 1a:** Fertilizer use per unit area in Turkey and in the research area**Figure 1b:** Pesticide use per unit area in Turkey and in the research area

### Productivity

Productivity in agriculture is calculated by the ratio of outputs to inputs (Erkuş and Demirci, 1985; İnan, 2016). Productivity contributes to profitability and competition since it makes it possible to increase the reproductivity in farms and for farmers to obtain more output with less input (Anonymous, 2020g; Erkuş et al., 1995). Some sources of productivity in agriculture are; agricultural mechanization, high-yielding varieties, fertilizers, pesticides, management and

entrepreneurship training, irrigation, and genetic engineering (Anonymous, 2020h). Productivity is important in the sustainability of agriculture.

In the study, and yields of elected some field crops in Turkey and in the research area were determined and given in Table 4. According to this information, yields per decare of some crops in Turkey were; 274 kg (wheat), 293 kg (barley), 120 kg (chickpea), 129 kg (green lentil), 267 kg (dried beans), 6 234 kg (sugar beet), 264 kg (sunflower), 3 772 kg (dried

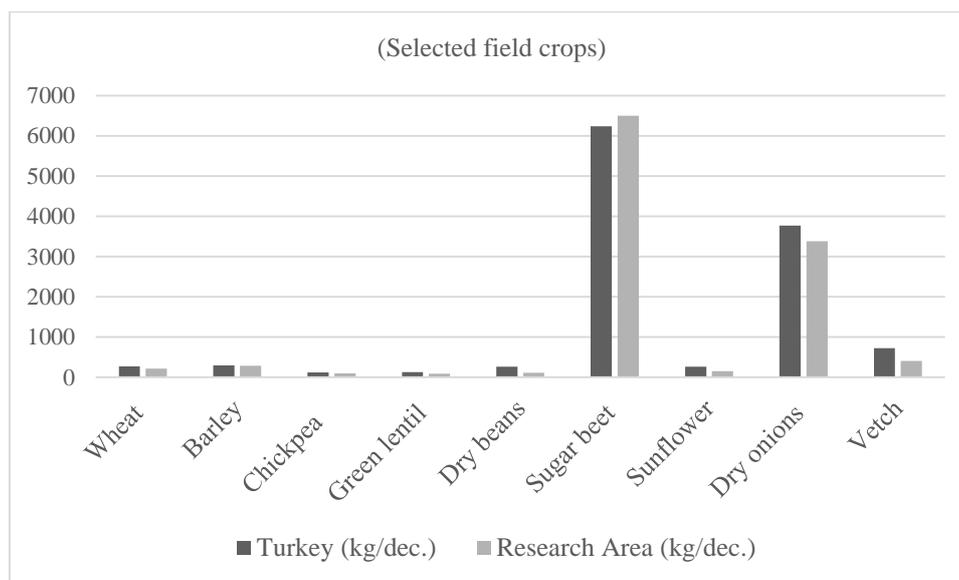
onion) and 722 kg (vetch). In the research area, these were respectively; 217 kg, 287 kg, 95 kg, 91 kg, 114 kg, 6 498 kg, 151 kg, 3 381 kg and 403 kg. According to this, although the research area was above Turkey's average in terms of sugar beet yield, it was below Turkey's average in terms of yields of wheat, barley, chickpea, green lentil, dry bean, sunflower, dry onion, and vetch. When yields of selected field crops in Turkey were compared, to the periods, yield increased in 2019

according to 2001, however, it decreased as a partial according to 2017. The crop grown most grown in Turkey and in the world is wheat. The wheat yield per decare of Turkey was 274 kg, that of EU 554 kg, that of China 537 kg, that of USA 414 kg, and that of Canada 352 kg. It was while 345 kg as the world average. (Anonymous, 2020i). Available data show that wheat yield in Turkey and the research area was below the world average.

**Table 4.** Yields of some field crops selected in Turkey and the research area in the period examined

Selected crops	Turkey (kg/dec.)				Research area (kg/dec.)
	2001	2017	2019	Index (2001=100) (2001-2019)	2017
Wheat	203	274	278	136.9	217
Barley	206	293	265	128.6	287
Chickpea	83	120	121	145.8	95
Green lentil	86	129	110	127.9	91
Dry beans	129	267	253	196.1	114
Sugar beet	3 521	6 234	5 754	163.4	6 498
Sunflower	127	264	279	219.7	151
Dry onion Vetch	2 589	3 772	3 585	138.5	3 381
	53	722	712	1 343.4	403

Yield cases of some field crops in Turkey and the research area were also shown in Figure 2. When Figure 2 examined, it is seen that the average yield per decare in sugar beet both in Turkey and in the research area was above 6 tons.



**Figure 2:** Average yields of some field crops selected in Turkey and in the research area

### Rural Population and Agricultural Enterprise Potential

In Turkey, on October 28th of 1927 when the first population census was carried out, while 75.80% of the population was rural and 24.20 % of it was urban, this rate has changed completely in favor of urban within 92 years. In 2019, the rate of those living in urban increased by 92.78%, and the rate of those living in rural decreased by 7.22%. The urban population has increased rapidly due to the increase of rural migrations since the 1950s. The rural population increasing by 51.76% in 1927-1950, also decreased by 61.8% in 1950-2019.

In Table 5, in the period 2000-2017-2019, the data about the numbers of the rural and urban population of Turkey and Yozgat was given. Accordingly, in 2000, the total population of Turkey was 67 803 927 (Anonymous, 2020i), and 35.1% of

it consisted of the rural population. In 2017 and 2019 these rates were respectively; 7.5% and 7.2%. As for Yozgat province, while the ratio of the rural population to the total population was 53.9% in 2000, this rate was 35.7% in 2017 and 34.7% in 2019. From Table 5, when the change ratio of the rural population was examined in 19 years, it is seen that it decreased by 74.8% in Turkey and by 60.3% in Yozgat.

The relevancy of decrease in rural population with rural migration was also demonstrated in various studies. Yilmaz (2015), in the study entitled "Change in Rural Population in Turkey and its Distribution According to Provinces (1980-2012)," stated due to low income in agriculture and educational opportunities in urban, that rural employment decreased, there was migration from rural to urban and thus,

rural population diminished. The study entitled "Migration to Urban from Rural and Agricultural Productivity: The Case of Turkey" conducted by Cengiz and Baydur (2010) was explained that basically an economic decision of the immigration and it resulted in the reduction of the rural population. In the study entitled "Rural Migration and Its Effects on Agricultural Production" conducted by Eren Yalçın and Öcal Kara (2016) were also stated that economic reasons such as the decrease in production and productivity in agriculture and the increase in rural poverty caused migration from the rural to the urban. Finally, the

fragmentation of agricultural lands for various reasons, a small-scale and low-income structure of farms, and economic factors and some social factors also cause population in the rural turn towards the urban (Eren Yalçın and Öcal Kara, 2016). Likewise, due to climate changes, drought and becoming barren in recent years, the inefficiency of agricultural soils and decreasing of rural income, fragmentation of agricultural areas through inheritance and emergence of labor surplus due to mechanization in agriculture encouraged migration from rural to urban (Büyükyılmaz, 2017).

**Table 5.** Developments in the rural population in Turkey and Yozgat in the examined period

Population	Turkey						Index (2000=100) (2000-2019)
	2000		2017		2019		
	(Persons)	(%)	(Persons)	(%)	(Persons)	(%)	
Rural	23 797 653	35.1	6 049 393	7.5	6 003 717	7.2	25.2
Urban	44 006 274	64.9	74 761 132	92.5	77 151 280	92.8	175.3
Total	67 803 927	100.0	80 810 525	100.0	83 154 997	100.0	122.6
Population	Yozgat						Index (2000=100) (2000-2019)
	2000		2017		2019		
	(Persons)	(%)	(Persons)	(%)	(Persons)	(%)	
Rural	367 763	53.9	149 316	35.7	146 174	34.7	39.7
Urban	315 156	46.1	269 334	64.3	275 026	65.3	87.3
Total	682 919	100.0	418 650	100.0	421 200	100.0	61.7

In the research, it was also determined the number of agricultural enterprises in Turkey and Yozgat, and given in Table 6. According to this, in Turkey, there were a total of 2 588 666 agricultural enterprises in 2001, a total of 2 100 000 agricultural enterprises in 2017, and a total of 2.083 000 agricultural enterprises in 2019 (Anonymous, 2020j;

Anonymous, 2020k; Anonymous, 2020l). These respectively were 51 736, 43 272, and 42 227 in Yozgat. In the 18 years covering the period 2001-2019, the number of agricultural enterprises decreased by 19.5% in Turkey and 18.4% in Yozgat.

**Table 6.** The number of agricultural enterprises registered to FRS in Turkey and Yozgat in the period examined

Turkey				Yozgat			
2001	2017	2019	Index (2001=100) (2001-2019)	2001	2017	2019	Index (2001=100) (2001-2019)
2 588 666	2 100 000	2 083 000	80.5	51 736	43 272	42 227	81.6

In the research area, 79.56% of the examined farms did not find agriculture income sufficient. When farms not finding agricultural income sufficient were asked questions about the effects of income inadequacy on rural, 37.57% of them enterprises stated that rural migrations emerged (Table 7). The farms were also asked questions about whether there was a decrease in the number of rural population and farmers, and it

was stated that both of them also decreased. According to the farms examined, other effects of income insufficiency in farming on rural respectively were also; unwillingness in agricultural activity (33.70%), not the cultivation of farmland by its owner, and renting or sharing it (17.68%), disposing of it through sales (7.73%) and not cultivating, idling it, etc. (3.32%).

**Table 7.** Effects of an income insufficient in farming on rural according to farms examined.

Effects	Farm sizes (dec.)							
	1-50		50.01-150		150.01-500		Total	
	Number	%	Number	%	Number	%	Number	%
Rural migration	20	37.74	32	38.10	16	36.36	68	37.57
Unwillingness in agricultural activity	18	33.96	28	33.33	15	34.09	24	33.70
Renting or sharing farmland	9	16.98	15	17.86	8	18.19	32	17.68
Disposing of farmland through sales	4	7.55	7	8.33	3	6.82	14	7.73
Other (not cultivating, idling farmland)	2	3.77	2	2.38	2	4.54	6	3.32
Total	53	100.0	84	100.0	44	100.0	181	100.0

## Rural Employment Level

Employment, as a word, means activating and using. In a broad sense, employment is the full use of existing production factors in production (Demirci and Arıkan, 2001).

In Table 8, sectoral distribution of employment in Turkey and the TR72 Region (Yozgat, Kayseri, Sivas) was given. Accordingly, while 18.2% of total employment was in the agricultural sector in Turkey in 2019, 19.8% of it in the industrial sector, and 62.0% of it in the services sector. In the 2001-2019 period, agricultural employment decreased by

51.59%. As for the TR72 Region, which includes the Yozgat province, the share of the agricultural sector in the total employment was 25.3% in 2017 and 21.6% in 2019 (Anonymous, 2020m; Anonymous, 2019). In the region, the share of agriculture in total employment decreased though, it was above Turkey average. Agricultural employment both in Turkey and the TR72 Region decreased in favor of the services sector. In 2019, the ratio of those employed in the services sector was found as 62.0% in Turkey and 51.2% in Region.

**Table 8.** Sectoral distribution of employment in Turkey and TR72 Region (Yozgat, Kayseri, Sivas) in the period examined (age 15+)

Sectors	Turkey			TR72 Region	
	2001 (%)	2017 (%)	2019 (%)	2017 (%)	2019 (%)
Agriculture	37.6	19.4	18.2	25.3	21.6
Industry	17.5	19.1	19.8	28.4	27.2
Services	44.9	61.5	62.0	46.3	51.2
Total	100.0	100.0	100.0	100.0	100.0

## Agricultural Foreign Trade

One of the most important items of a country's balance of payments is also foreign trade. In Table 9, in the periods 2001-2017-2019, the total foreign trade (exports and imports) data of Turkey and Yozgat and the share of agriculture were given. The Table was examined, in the 18-year period, the total export revenue of both Turkey and Yozgat increased. While the share of agriculture in total export revenue declined in

Turkey, it increased in Yozgat province. While the share of agriculture in the total export revenue of Turkey was 13.1% in 2001, it was 3.1% in 2019. These rates, in Yozgat, respectively were 1.4% and 4.9%. In the same period, while the share of agriculture in total imports decreased in Turkey, it increased in Yozgat. While this rate was 5.9% in Turkey and 11.7% in Yozgat in 2001, it was 4.7% in Turkey and 31.7% in Yozgat in 2019 (Anonymous, 2020n; Anonymous, 2020o).

**Table 9.** Total foreign trade and share of agriculture in Turkey and Yozgat province in the period examined

Total foreign trade	Turkey					
	2001		2017		2019	
	Total (million \$)	Agriculture's share (%)	Total (million \$)	Agriculture's share (%)	Total (million \$)	Agriculture's share (%)
Exports	31 300	13.1	164 495	3.4	180 833	3.1
Imports	41 412	5.9	238 715	3.9	210 345	4.7

Total foreign trade	Yozgat					
	2001		2017		2019	
	Total (million \$)	Agriculture's share (%)	Total (million \$)	Agriculture's share (%)	Total (million \$)	Agriculture's share (%)
Exports	6.2	1.4	12.7	0.7	13.5	4.9
Imports	5.1	11.7	31.8	50.3	23.5	31.7

## Gross Domestic Product and Share of Agriculture

Gross Domestic Product (GDP) is the expression of final goods and services produced in a year with market prices of that year (Eraktan, 1991). GDP is one of the macroeconomic concepts that clearest and best show growth or contraction in the country's economy. In the study, in the periods 2001-2017-2019, GDP per capita of Turkey and Yozgat province, and the

agriculture's share in GDP was examined and given in Table 10. Accordingly, in 2018, the GDP per capita of Turkey was \$ 9 511 (Anonymous, 2020p), and the agriculture's share in GDP was 6.42%. The share of agriculture in GDP was 6.42% in Yozgat. That this ratio was higher than Turkey in Yozgat was that agriculture received a significant share in the province's economy.

**Table 10.** Gross Domestic Product and agriculture's share in Turkey and Yozgat province in the period examined

	Turkey					
	2004		2017		2018	
GDP per capita (\$)	Agriculture's share (%)	GDP per capita (\$)	Agriculture's share (%)	GDP per capita (\$)	Agriculture's share (%)	
6 011	9.42	10 640	6.08	9 511	6.42	

	Yozgat					
	2004		2017		2018	
GDP per capita (\$)	Agriculture's share (%)	GDP per capita (\$)	Agriculture's share (%)	GDP per capita (\$)	Agriculture's share (%)	
3 387	31.6	6 286	22.2	5 458	21.2	

## CONCLUSION AND SUGGESTIONS

In the 18 years, in this study that the change in the rural structure of Turkey and the research area was examined and compared, it was determined that agricultural sources were not used rationally, thus, agricultural land and agricultural enterprises were lost and agriculture's sectoral share decreased.

That agricultural land is not used rationally in the research area was based on the high input prices. The other factors respectively were; low product prices, high agricultural tools and machinery rents, low yield, and other reasons.

In the study, it was determined that agricultural land was lost both in Turkey and Yozgat province in the examined period. In 18 years, the total agricultural area decreased by 12.3% in Turkey and by 25.4% in Yozgat.

In the study, both in Turkey and in the research area, it was determined that the yield per unit area was also low. The yield was 30-50% lower than that of developed countries. In order to increase productivity, modern technological inputs (high-yielding seed types, fertilizers, mechanization, etc.) should be used in agriculture.

In the period examined, the number of farmers registered to FRS decreased. The decreasing ratio was 19.5% in Turkey and 18.4% in Yozgat. The decrease ratio in the rural population was 74.8% in Turkey and 60.3% in Yozgat. In the study, it was determined that rural migrations were effective in decreasing both the number of farmers and the rural population. According to 37.57% of the farms examined income insufficiency in agriculture results in rural migration.

In the examined period, the share of agriculture in the total employment, foreign trade, and gross domestic product both in Turkey and Yozgat also decreased. This issue reveals the necessity of making agriculture an attractive sector.

Agriculture's too much dependence on nature and the fact that it is a sector most affected by climate changes reveals that it should be constantly supported. It is important to develop a system that will accelerate irrigation investments and provide the agricultural supports to be given before starting production.

In addition to the loss of agricultural soils in rural, they are fallowing too much and a cropping system is not implemented. 23.85% of agricultural land in Turkey and 27.87 % of that in the research area have been fallowed. This means that one-quarter of the total cultivated area has been idle. The cropping system on agricultural lands should be definitely implemented

Another effective policy for the agricultural sector is to ensure the sustainability of agricultural resources, to conduct researches on natural resource management and use. Studies on soil fertility, soil and water conservation, biological diversity, combating erosion, conservation of plant and animal genetic resources are the most important of those.

It is necessary to develop an institutional and organizational system that provides technical inputs to farmers on time and at affordable prices. This is important in terms of increasing productivity, lowering production costs, research, and innovation. Meanwhile, agricultural policy researches should be also among the priority issues.

## CONFLICT OF INTEREST

There is any conflict of interest

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