

General Analysis of Recent Changes in Red Meat Consumption in Turkey

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Abstract: Today, the meat and meat products consumption levels of the population of the countries are considered as one of the criteria for development. The purpose of this study is to examine results of recent changes in red meat consumption in Turkey between the years of 2001 to 2017 based on the data of Turkish Statistical Institute. The trend analyses are conducted for the period up to 2023 by using the red meat (cattle, sheep and goat) consumption values that occurred in the past years. Turkey's population has increased by an annual average of 1.46% between the years of 2001 and 2017, whereas the number of animals has increased by 0,017%. The average consumption in this 17-year period was calculated as 9.48 kg/capita which is less than the developed countries. According to the results of the trend analysis, the consumption of red meat per capita in 2023 will be 19.85 kg and it is 39.5% higher than in 2017 in Turkey. Red meat consumption is effected by many factors such as, price, income, annual population growth rate and changes in the population structure, consumer preferences, quality of products, distribution, consumers' education level, characteristics of meat, religious beliefs, health problems, climate, traditions, food related news have effects on consumption. There are structural problems in the livestock sector in Turkey and this situation affects consumption. Proactive policies and practices are more needed rather than reactive ones to solve red meat problems in Turkey.

Keywords: Livestock, Red meat consumption, Trend Analysis, Turkey

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I. Introduction

People need to consume food to meet their biological needs and maintain their vital activities. Therefore, food consumption is one of the most basic needs of people. The diversity and required consumption amount is also extremely important as well as adequacy of consumption of foods consumed by individuals [1]. Depending on the growing population in the world and Turkey, food consumption is also increasing. This creates pressure in terms of quantity, quality and adequacy on foods. Today, due to the increase in the world population, the nutritional and food problem is also increasing. In addition to adequate nutrition, balanced and proper nutrition has positive effects on mental and physical development, work efficiency and social well-being. The meat in the healthy nutrition of the society, the location of red meat in the total meat consumption, especially for individuals who are in the age of development is very important. Proteins are nutrients that cannot be stored in the body and must be taken from outside. The amount of daily protein to be taken with food varies according to age and gender, on average, 0.8 grams per kg/body weight. This means about 45-55 grams of protein per person. For healthy and balanced nutrition, at least half or 2/3 of the proteins required to be taken daily should be from animal origin foods [2]. Nutrition is therefore a matter of concern to all actors of society [1] and it is also important to examine this matter with economic research's [3].

In many regions of the world, the inability to produce animal products, the inability to meet the domestic demand, and consequently the price increases are experienced. For such reasons, nutrition is becoming more and more cereal-based, and animal protein consumption of individuals is restricted [4]. Today, the nutrition level of the population is considered as one of the development criteria. Per capita consumption of animal products is considered as an important criterion in the comparison of the level of development of countries [5]. Balanced nutrition, adequate animal protein intake has become a priority for all countries, regardless of their level of development. Therefore, in addition to technology and industrialization policies in all countries, animal husbandry policies within the agricultural sector have maintained their strategic importance. In order to ensure healthy and balanced nutrition of the population, it is important to increase the production amount and quality of meat and meat products [6]. On the other hand, livestock sector is also important in terms of issues such as increasing the quality of meat and milk for consumption and their quality as well as providing

raw materials for the industry, increasing national income, employment, providing balanced development and increasing social welfare [6].

Around 30% of the meat production in the world is met by cattle and around 5% by ovine. Since ham has not been in consumption in the Turkey, therefore meat production is met by cattle of 88%, and 12% are obtained from ovine (sheep and goats) [7]. Due to population growth, the number of animals and red meat production in the world is increasing each year. In addition, consumption is also increasing. According to the USDA data, the production of 289 million head of cattle was realized in 18 countries where Turkey also took place among these countries and beef production was around 60 million tons in the 53 countries. It is estimated that over 61 million tons of beef production and more than 293 million cattle were produced in these countries in 2017. The total cattle presence in these 18 countries was around 1 billion 280 million heads as of 2016, and it is estimated that in 2017, 1 billion 292 million heads and the global production of beef will increase by 2% in 2018 to 62.6 million tons. The countries with the highest number of cattle animals in the world are India, Brazil, China and the United States, respectively [7,8]. According to USDA data, Turkey's production by 2018 As of October 1 million 600 thousand tons and consumption was estimated at the level of 1 million 628 thousand tons [8, 9].

II. Materials and Methods

The main material of this study is the data which is obtained from Turkey Institute of Statistics Institute (TUIK, in Turkish abbreviation). Data on the number of livestock and animal products [10] and population data [11] obtained from TUIK data and which were used in trend analysis. A data set was created in Excel from TUIK data and the analyses were done in Excel. Here, projections have been made until 2023 by using data from previous years between 2001-2017. In addition, other studies and surveys that have been made on the subject, are used in the interpretation of results.

III. Results and Discussions

In the analyzes, the numbers of animals (cattle, sheep and goat) and the amounts of red meat obtained from them were used. According to Turkey's years of population change in Fig. 1, the change in the number of animals over the years is given in Fig. 2. Turkey's population has increased by an annual average of 1.46% between the years of 2001 and 2017. In addition, by means of the Immigration Administration of Turkey which is a branch of the Interior Ministry, is recorded with biometric data by the number of Syrian refugees in Turkey is around 3.6 million [12]. The efforts to register refugees are still ongoing. Although these figures are not included in the Turkey's population, but refugees are living and making consumptions in Turkey. On the other hand, in the cited period, whereas the number of animals has increased by 0,017% in Turkey. The source of red meat productions are cattle, sheep, goat and mandate (water buffalo) in Turkey. Cattle, sheep and goats are mostly used in meat production and consumption. These animals are generally grown in small family businesses with traditional characteristics and adapted to ecological conditions. However, there are also enterprises that provide intensive breeding [13]. Although Turkey is a rich country in terms of the presence of different species and breeds, and the efficiency derived from animal unit is low. Turkey experienced a sharp decline in the number of cattle until 2003 and after 2003, there were no major changes until 2010. After 2010, the number of cattle is started to increase. Again, the number of small ruminants decreased significantly until 2009 and after 2009 is began to increase. The increase in migration from rural areas to cities and the fact that the rural population is elderly is one of the most important factors in decreasing the number of animals. Also, the high cost of animal husbandry input and the lack of adequate support to animal husbandry in these years were also effective in decreasing the number of animals [7].

The sum of the per capita consumption of animal products, to meet the needs of animal protein should take by the population as compared with developed countries, Turkey is not self-sufficient country in animal production [16]. The quantities consumed by the individuals fall below the actual demand, and as a result, an adequate and balanced nutrition could not be provided. Based on a nutrition of mostly plant foods instead of animal protein is evident in Turkey [6]. Meanwhile, in Turkey, between the years 2011 to 2016 average 11,102 tons/year [7] and 23,582 tons of red meat imports have been made in 2017 [17]. The graph of red meat consumption per capita between 2001 and 2017 in Turkey, based on my TUIK data, is shown in Fig. 3. According to the red meat consumption between the 2001-2017 years, the least red meat consumption was in 2003 by 5.46 kilogram (kg)/capita, while the maximum was 14.82 kg/capita in 2015 in Turkey. The average consumption in this 17-year period was calculated as 9.48 kg/capita. These consumption values do not include water buffalo, unrecorded slaughter of animals' and consumption made during festival of sacrifice and consumption of hunting animals. On the other hand, consumer values in Syrian refugees living in Turkey should also be considered. There are no reliable data to make evaluations about these in analyzes. The annual amounts of red meat consumption per capita in Turkey is less than the developed countries. The countries with the highest meat consumption per capita in the world were Hong Kong with 123,6 kg, USA with 108,9 kg,

Argentina with 99,1 kg, Brazil with 97,4 kg and Australia with 92,2 kg. EU countries average was 77.1 kg. The country with the least meat consumption per capita was India with an average of 4 kg. It should be kept in mind that pork consumption is also in these countries. On the other hand, it is present in individuals who do not consume red meat because of their religious beliefs, too. In the same period, per capita consumption was 32.6 kg in Turkey [14]. Considering only the consumption of red meat based on cattle and sheep, the most average consumption per capita took place in the world was Argentina by 55,7 kg, and followed by Paraguay 49,1 kg, Brazil 41,2 kg, USA 38,4 kg and Australia 35,4 kg respectively. EU countries had an average of 18.3 kg, while 12.2 kg of average in the same period in Turkey. In the same period, the least average consumption per capita in the world was India by 1.7 kg, followed by Indonesia 2.3 kg, Vietnamese 3.1 kg, Philippines 3.8 and Taiwan 5.8 kg, respectively [14]. Their graph is given in Fig. 4. The average consumption value of the countries in Fig. 4 was calculated as 18.34 kg/person. This value is over the average value of 50.3% of Turkey. One of the main reasons for the low consumption of red meat in Turkey, as well as all over the world, which is more expensive than other foods [16]. The average consumer prices on the 11-year period, between 2008 and 2018 years in Turkey, are shown in Fig. 5 [7]. Average consumer prices were used between January and October for 2018 [18]. In 2008, the average beef meat was 15.32 Turkish Liras (TL)/kg and in 2018 it was 42.86 TL/kg. Accordingly, meat prices increased by 280% as compared to the starting year. In the same period, the average lamb meat prices were 12.75 TL/kg in 2008 and 47.64 TL/kg in 2018. Fig. 6 shows the change. Accordingly, lamb meat prices increased by 374% as compared to the starting year. Red meat consumption is effected by many factors, besides economic reasons such as, annual population growth rate and changes in the population structure, consumer preferences, quality of products, distribution, consumer education, hygienic characteristics of meat, religious beliefs, health problems, climate, traditions, food related news have effects on consumption [17, 19].

The global red meat sector is an advanced industry. Turkey is performing at the high cost of meat production and cannot find much place of global competition. In general, the country-wide meat trade is determined by the different resource structures of each country, consumer preferences in the selection of meat and the domestic industry structure. Countries that produce low-cost meat have the advantage of competing more in the world trade [7]. Low-cost meat production is also related to productivity and animal feeding. The increase in animal feed prices occurred between 2014 and 2017 in Turkey [7] is given in Fig. 7. Accordingly, as compared to 2014 which was taken as reference year, animal fattening feed price was increased by 23.4% in 2017. When the last five-year period is examined, the amount of world meat imports varies between 6.5-8 million tons. The major importing countries are the US, China, Japan, South Korea and Russia. On the other hand, Brazil, India, Australia and the USA are the most important exporting countries. These countries account for 65% of the world's total exports [7]. Turkey is made the annual average of 13.182 tons/year of meat imports, while 79.26 tons/year of exports in the same period. Turkey was in a position to meet the needs of their meat, in other words, self-sufficient country, as well as one of the main live animals and meat supplier to the Middle East countries until 1980 [15]. Turkey has become an importer country with its import-oriented policies based on the privatizations of public institutions that started in the following years. Based on the data of TUIK between the years of 2001-2017, the consumption values of Turkey that will be formed until 2023 are calculated by trend analysis. The resulting graph is shown in Fig. 8. According to the results of the trend analysis, the consumption of red meat per capita in 2023 will be 19.85 kg and it is 39.5% higher than in 2017 in Turkey. On the other hand, the trend analysis graph for animal numbers for the same period is given in Fig. 9. Accordingly, the number of animals expected to be in 2023 increases by 2% as compared to 2017 in Turkey. According to the results of trend analyses at Fig. 8 and 9, it will continue to increase problem in meeting demand for red meat in future in Turkey, if the public does not undertake remedial interventions from the outside to the livestock system and additional public policies for increasing the number and/or yield of animals are not implemented. In such a case, consumption per person will decrease, prices will increase and Turkey will be a country that makes more imports in future. In the period up to the present day in Turkey, political measures for the agricultural sector and support has been provided mostly for crop production. The sufficient and necessary importance was not given to animal husbandry in Turkey after 1980's. Turkey also followed in the post-1980 agricultural policies could improve the country's livestock. Depending on the process, the number of animals and animal production decreased year by year until 2010. The effective policies, which have started to increase in public sector since 2010 which are still not enough to solve the problem. Due to the inadequate agricultural policies followed in the past years, the problems in animal husbandry and plant production continue today in Turkey [20]. If effective measures are not taken, it seems to continue in the future, too.

IV. Figures

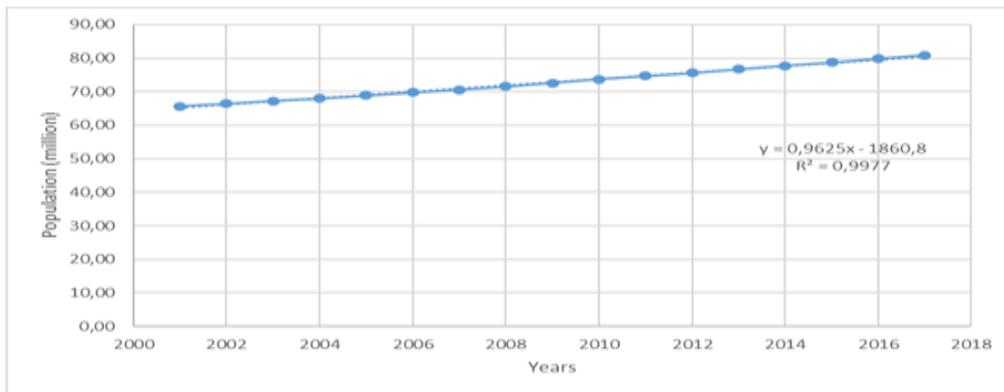


Figure 1. Turkey's population changes between the years of 2001-2017

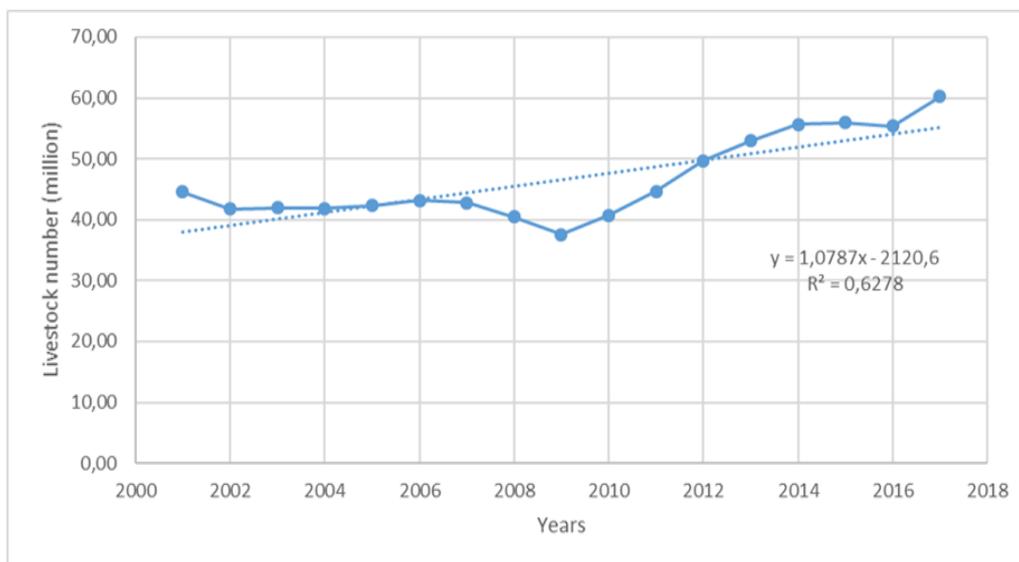


Figure 2. Turkey's animals (cattle, sheep and goats) change by the number of years between 2001-2017

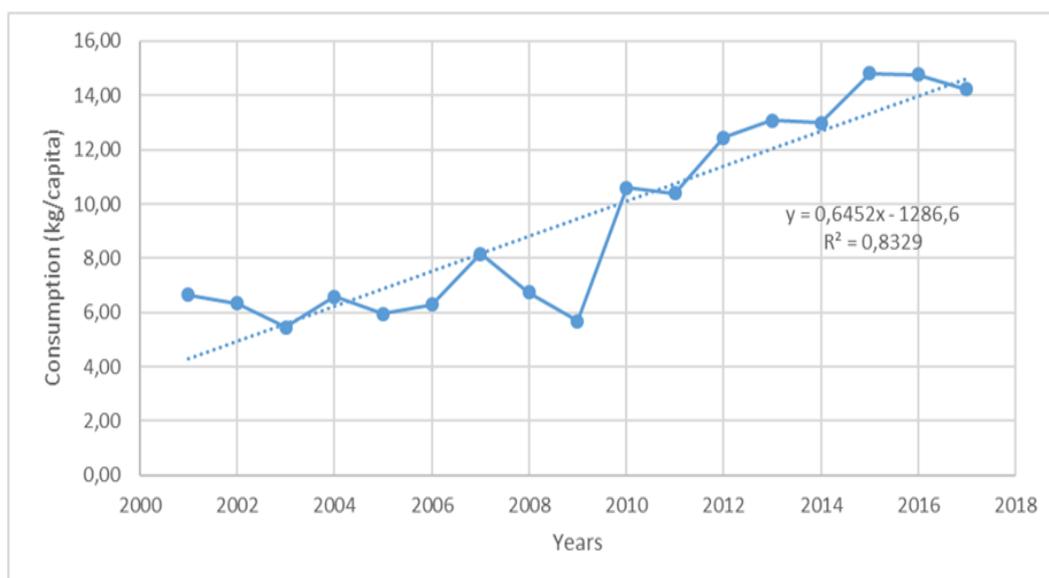


Figure 3. The changes between the years 2001-2017 the amount of red meat consumption per capita in Turkey

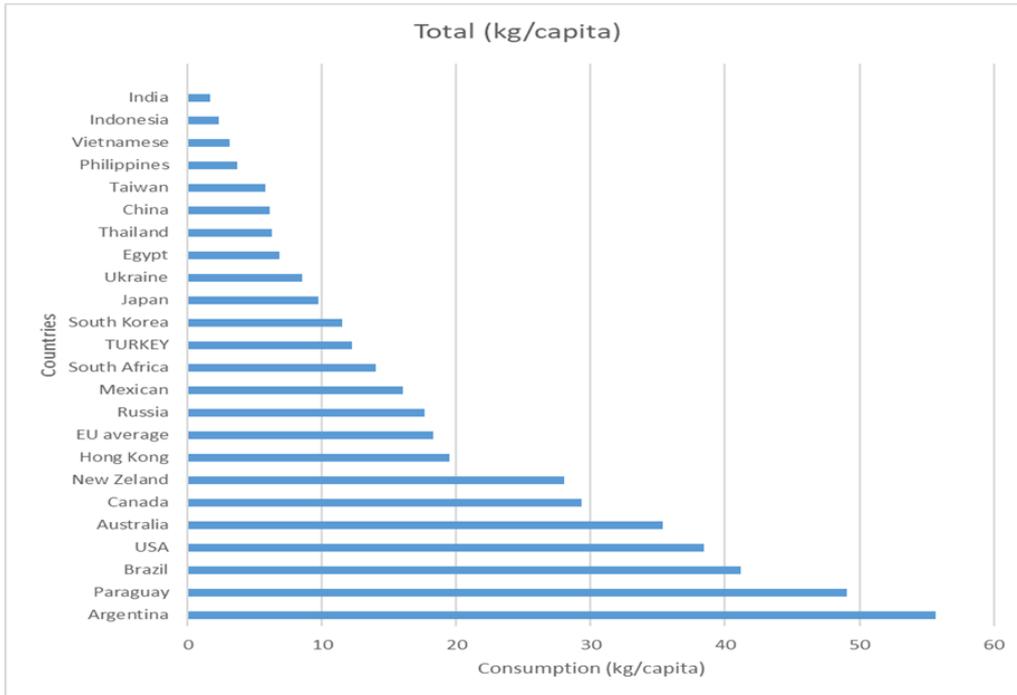


Figure 4. Red meat (cattle and sheep) consumption values of various countries (kg/capita)

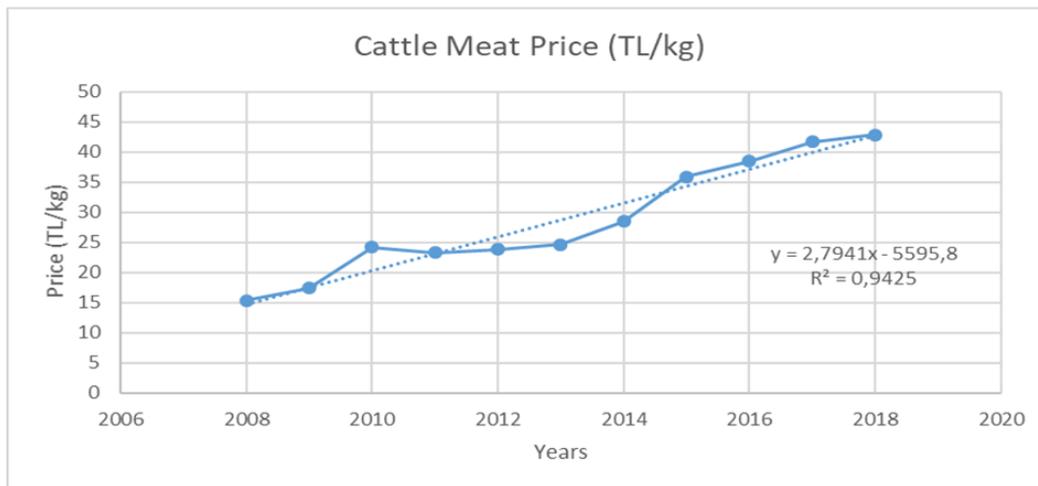


Figure 5. Consumer prices change in beef meat between 2008-2018 years

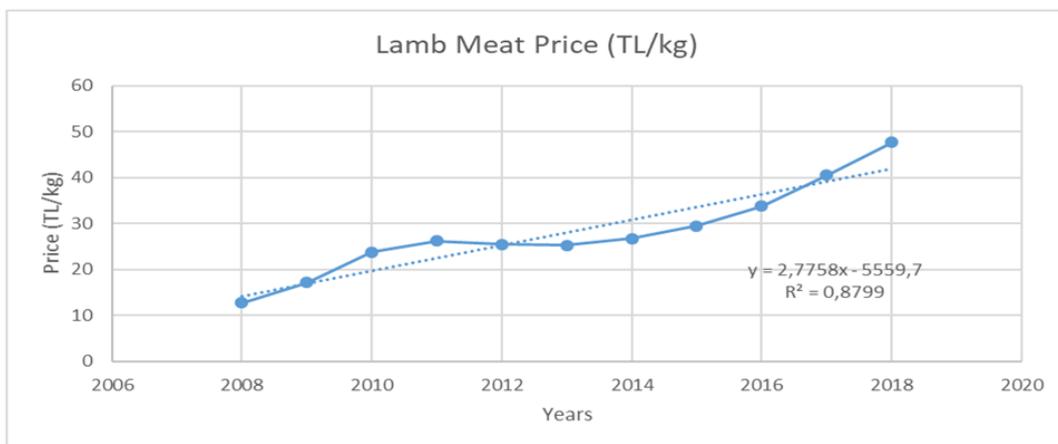


Figure 6. Change in lamb meat prices between 2008-2018 years

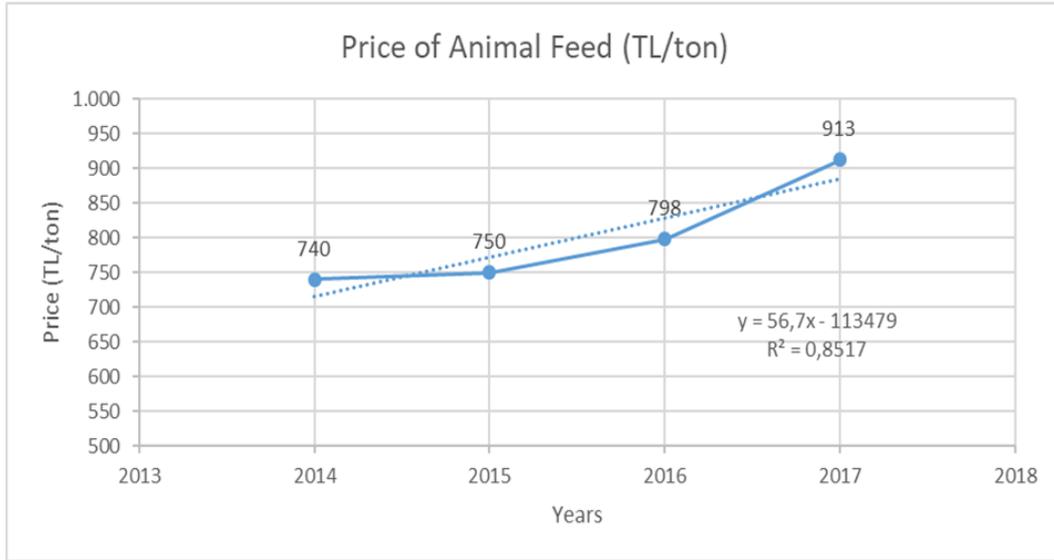


Figure 7. Change in animal feed fattening prices for the years between 2014-2017.

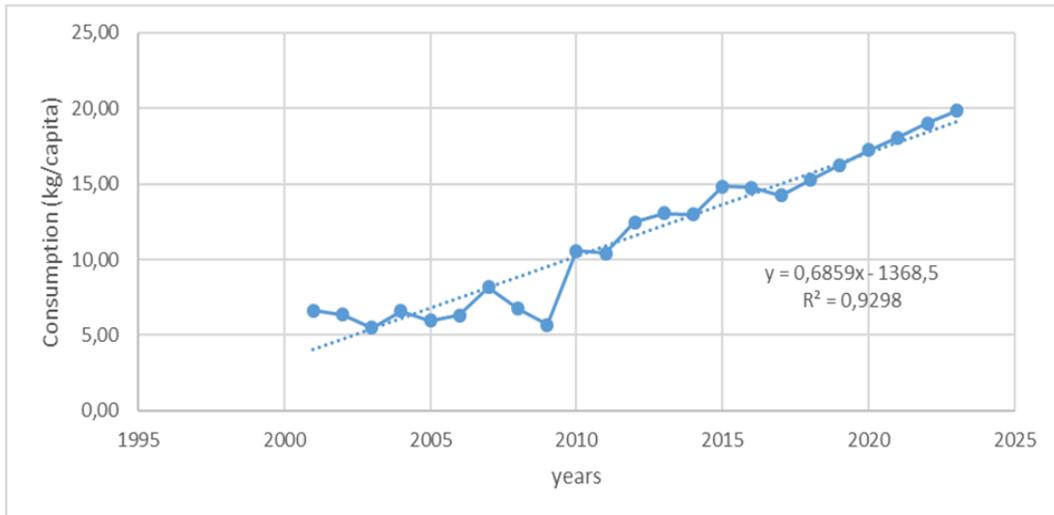


Figure 8. The analysis of trends in per capita consumption of red meat and is expected to be in Turkey

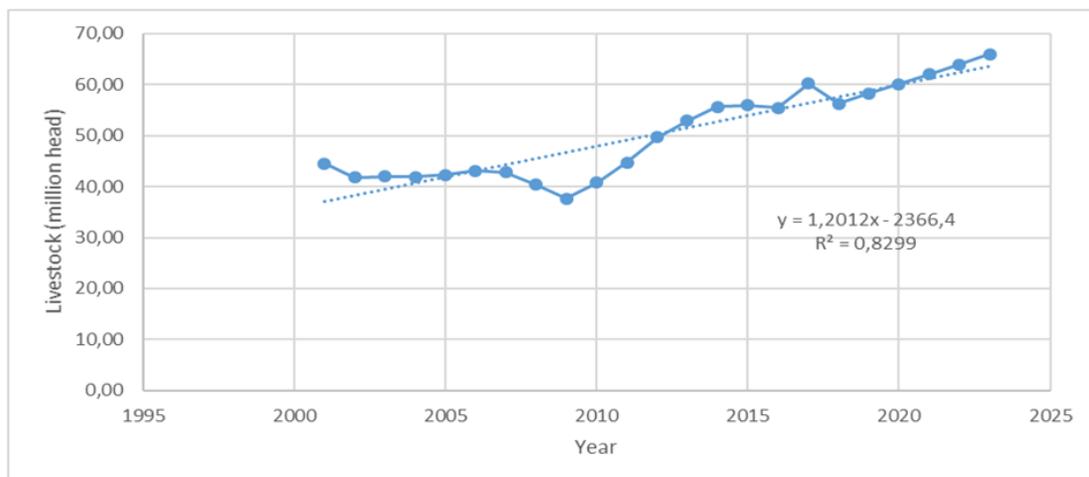


Figure 9. Trend analysis of the number of animals exist in past and expected to be future in Turkey

V. Conclusion

Today, the meat and meat products consumption levels of the population of the countries are considered as one of the criteria of development. It is important to increase the consumption of meat and meat products per capita in order to ensure healthy and balanced nutrition of the population. Domestic red meat consumption varies depending on meat prices and average income per capita. In particular, increased meat prices may cause a decrease in meat consumption, as in other foods [21]. Red meat industry is an important food industry that provides the human to animal protein needed for a balanced and healthy nutrition. There are some problems in this industry, in addition to its contribution to human nutrition, the employment and their contribution to national development. The low purchasing power of consumers due to economic reasons and meat price is high in disposable income of the consumers are result to reduces the amount of meat consumption per capita in Turkey. The formation of small and disorganized family businesses in terms of the number of animals, the lack of an adequate level of forage production, imbalances in input prices does not enable an adequate assessment of the potential of animal production in Turkey. A large proportion of unqualified and inadequate pasture in Turkey are hampering the pasture-based cattle breeding. On the other hand, the cultivation of forage crops as first or second crops is limited in agricultural lands. One of the most important inputs for livestock breeding is feed.

There are structural problems in the livestock sector in Turkey. A number of arrangements have been made for the development of animal husbandry in recent years in Turkey. The significant changes were made in animal husbandry support policy and 30 provinces were determined as breeder area in 2017. In these provinces, additional support was provided to livestock breeders. These policies are positive developments to contribute to the solution of the problem. On the other hand, the support of animal husbandry in recent years and the increase in this support every year, these investments made an increase in the number of animals. On the other hand, support for animal husbandry in recent years and the increase of this support every year, although these investments have led to an increase in the number of animals but the lack of enough young population in rural areas and the continuation of migration to the city remain an important problem [7]. The applied policy support should be given as to the long-term policies in Turkey. For the country's economy, livestock should be turned into a profitable activity throughout the country. For this purpose, together with policies to increase productivity, it is necessary to produce their own breeding animals instead of importing of the animals. Further studies should be done to improve the existing pastures and to increase these areas, to expand the cultivation areas of fodder crops such as alfalfa, vetch, sinfonia, to reduce feed prices with feedstuffs and to provide feeds to livestock breeders in more favorable conditions. For a permanent solution to the problems of the livestock sector in Turkey which cannot be able to solved by reactive approach and proactive approach is needed.

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