



Econometric Analysis of Corn Production in Türkiye

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Abstract:In this research, within the specified years, corn in Türkiye by years; It is aimed to determine the existence of a causality between the production amount, cultivation area, yield, export amount, import amount and economic crises added as dummy variables. For this purpose, corn production, corn cultivation area, corn yield, corn export amount and corn import amount in the statistical tables between 1995 and 2020 published by the Turkish Grain Board (TMO; 2021). In addition, the crisis years were added to the data set as a dummy variable to see the crisis effect. In the research, Augmented Dickey Fuller method is the test that checks whether the series is stationary. After deciding that the series is non-stationary with the ADF test, the most appropriate lag length was determined with the VAR (Variance Autoregressive Model) model, and the analysis was carried out with the help of the VAR Granger Causality method. According to the estimation results, corn in the statistical tables between 1995-2020; In the data set, in which the crisis years were added as a dummy variable to see the effects of the crisis in terms of production, cultivation area, yield, export amount and import amount; First difference is stationary, Akaike Information Criterion is the smallest, 2nd lag length is the most suitable lag length, and corn; corn; It has been determined by the analysis that production amount, import amount and economic crises are a one-way cause of exports, and corn cultivation area is a one-way cause of economic crises.

Keywords: Corn, corn yield, econometrics, economic crises, years.

Türkiye'de Mısır Üretiminin Ekonometrik Analizi

Öz: Bu çalışmada, belirtilen yıllar içerisinde Türkiye'de mısırın yıllara göre; üretim miktarı, ekim alanı, verim, ihracat miktarı, ithalat miktarı ile ekonomik krizler arasında kukla değişken olarak eklenen üretim miktarı, ekim alanı, verim, ihracat miktarı, ithalat miktarı arasında nedensellik ilişkisinin varlığının belirlenmesi amaçlanmıştır. Bu amaçla, Türkiye Toprak Mahsulleri Ofisi (TMO; 2021) tarafından yayımlanan 1995-2020 yılları arasındaki istatistikî tablolarda yer alan mısır üretimi, mısır ekim alanı, mısır verimi, mısır ihracat miktarı ve mısır ithalat miktarı verileri kullanılmıştır. Ayrıca kriz etkisini görmek için kriz yılları da kukla değişken olarak veri setine eklenmiştir. Araştırmada, serilerin durağan olup olmadığını kontrol eden test, Augmented Dickey Fuller yöntemidir. Serinin ADF testi ile durağan olmadığına karar verildikten sonra VAR (Varyans Otoregresif Model) modeli ile en uygun gecikme uzunluğu belirlenmiş ve analiz, VAR Granger Nedensellik yöntemi yardımıyla gerçekleştirilmiştir. Tahmin sonuçlarına göre, 1995-2020 yılları arasındaki istatistikî tablolarda yer alan mısır; Üretim, ekim alanı, verim, ihracat miktarı ve ithalat miktarı açısından krizin etkilerini görmek için kriz yıllarının kukla değişken olarak eklendiği veri setinde; Birinci fark durağan, Akaike Bilgi Kriteri en küçük, 2. gecikme uzunluğu en uygun gecikme uzunluğu olup; mısırdaki; üretim miktarı, ithalat miktarı ve ekonomik krizlerin ihracatın tek yönlü nedeni olduğu, mısır ekim alanının ise ekonomik krizlerin tek yönlü nedeni olduğu yapılan analizlerle belirlenmiştir.

Anahtar Kelimeler: Mısır, mısır verimi, ekonometri, ekonomik krizler, yıllar.

1. Introduction

Corn is a cereal plant product that has been cultivated for thousands of years. It is estimated that the first place where agriculture was practiced was the American continent. In historical research conducted in the American state of New Mexico, it was determined that corn cob remains and grains found in caves and shelters built from rocks date back to approximately 5000 years ago. In addition, in historical research conducted in the capital of Mexico in 1954, corn flower dust was found

50-60 meters below the ground, which was determined to be approximately 7000 years old. According to the findings obtained in all historical researches, it has been determined that corn grain has a history of approximately 8,000 to 10,000 years (Babaoğlu, 2004).

Corn in the world; It is one of the three grains with the highest production, cultivation area, trade and usage. Its use in animal production as silage, green and concentrated feed has contributed greatly to the rapid development of corn in the world. In the last 20-25

years, corn yield has increased significantly in the world and in Türkiye, making silage the main feed component in the rations of dairy cattle (Korkmaz et al., 2019). The use of corn grains in industrial fields such as biofuel, edible oil, corn syrup, alcohol production and ethanol has increased. In human consumption, it has uses such as roasted, boiled, popcorn, snacks, flour, oil and starch (Özcan, 2009).

Global corn production in the world market in 2020 is 1.21 billion tons, while America is the leader in exports (63.5 million tons) and China ranks first in imports (185.5 million tons) (TMO, 2021).

The production amount of grain products in Türkiye is 38.7 million tons. Among grain products production, corn grain production ranks second with 8.5 million tons. In the 2020 market, corn production was 6.5 million, and Konya ranked first in exports (3.20 million tons) (TMO, 2021).

According to the literature review; According to the literature review; He examined the econometric analysis of soybean agriculture in Türkiye and the effects of the economic crises in Türkiye on soybean agriculture. As a result of the analysis, no significant relationship was found between the crises in Türkiye and the amount of imports, import prices and soybean yield (Unakitan and Aydın, 2012); The study aimed to reveal the relationships between agricultural R&D expenditures and agricultural growth. Within the scope of the research, an average annual growth of 0.14% in technical efficiency and 0.38% in technological change was determined in the period 1990-2010 in Turkish agriculture.

As a result, total factor productivity increased by 0.51% during the period (Subaşı and Ören, 2013); This study aims to evaluate the sensitivity of corn producers to the environment and human health in terms of the use of seeds, chemical fertilizers and pesticides in Adana province. In the study, 95 producers were interviewed by face-to-face survey method and Chi-square independence test analysis was performed. As a result of the research, it was determined that corn producers in Adana province are generally not sensitive to the environment and human health in terms of the use of seeds, chemical fertilizers and pesticides (Özalp and Güldal, 2017); This study aims to investigate the economic development of corn, which is an important source of food and industrial raw materials in the world and in Türkiye. For this purpose, field values, production amount, efficiency, production-consumption balance, import-export values, domestic and international prices of corn grown from secondary data

were analyzed. As a result of the research, it is seen that the USA is successful in domestic consumption and plays an important role in corn exports as well as domestic consumption. The qualification rate, which was determined in the qualifications of corn in the 2016/17 production year in Türkiye and was determined as 87.80% as of the year, has now been determined. It is expected that the increase in food demand due to population growth in the world, the search for alternative energy sources and the widespread use of corn will lead to an increase in demand and therefore an increase in economic value in the coming years (Bayramoğlu and Bozdemir, 2018); The study was conducted to determine the socio-economic status of corn producers in Diyarbakır province and the sources of information on production techniques and economic issues related to corn agriculture. In addition, the marketing structure and problems of corn in the province are revealed. As a result of the research, it was determined that there was a relationship between the producers' first sources of information about corn agriculture and their business size groups. It has also been revealed that there is a relationship between business size groups and marketing channels (Yaşa, 2019);

It is aimed to analyze the sustainability of agricultural activities in corn production, the solution of problems encountered in the process from planting to harvest, and the expectations of farmers. As a result of the research, it was determined that agricultural operators have future concerns about input costs, storage facilities and consumption of water resources (Bozdemir et al., 2019); In this study, the amounts of protein fractions in the grain of 120 genotypes of local maize populations were determined. In addition, protein fractions of 30 selected genotypes were determined according to their molecular weights by SDS-PAGE analysis, and a dendrogram revealing statistical relationships between them was obtained by the clustering method. As a result of the data obtained, it was revealed that local maize populations have a wide variation, and genotypes that can be used in breeding studies to develop varieties with different protein quality characteristics were identified (Akbulut et al., 2021). It is considered important in terms of repeating existing studies and developing solutions to problems.

In the years determined in this research, corn in Türkiye according to years; It is aimed to determine the existence of a causality situation between production amount, cultivation area, yield, export amount, import amount and economic crises added as dummy variables.

2. Materials and Methods

The data set in this study was obtained from the fields of corn production, corn cultivation area, corn yield, corn export amount and corn import amount in the statistical tables between 1995-2020 published by the Turkish Grain Board (TMO; 2021). In addition, the crisis years were added to the data set as a dummy variable to see the crisis effect. In Table 1. and Table 2., corn production, corn cultivation area, corn yield, corn export amount and corn import amount are given according to years.

Table 1. Corn by years; production, cultivation area, yield, export amount and import amount.

Çizelge 1. Yıllara göre mısır; üretim, ekim alanı, verim, ihracat miktarı ve ithalat miktarı.

Years	Corn Planting Area (Ha)	Corn Production Amount (Ton)	Corn Yield (Kg/Da)	Corn Export Amount (Ton)	Corn Import Amount (Ton)
1995	515.000	1.900.000	369	6132	49.239
1996	550.000	2.000.000	364	73.995	239.807
1997	545.000	2.080.000	382	162.752	453.776
1998	550.000	2.300.000	418	481.751	695.782
1999	518.000	2.297.000	443	629.400	381.780
2000	555.000	2.300.000	414	502.139	28.509
2001	550.000	2.200.000	400	26.603	9
2002	500.000	2.100.000	420	10	78.596
2003	560.000	2.800.000	500	80.763	381.193
2004	545.000	3.000.000	550	362.133	474.302
2005	600.000	4.200.000	700	207.360	660.985
2006	536.000	3.811.000	711	540.870	0
2007	595.000	3.535.000	683	282.446	0

Table 2. Corn by years; production, cultivation area, yield, export amount and import amount.

Çizelge 2. Yıllara göre mısır; üretim, ekim alanı, verim, ihracat miktarı ve ithalat miktarı.

Years	Corn Planting Area (Ha)	Corn Production Amount (Ton)	Corn Yield (Kg/Da)	Corn Export Amount (Ton)	Corn Import Amount (Ton)
2008	595.000	4.274.000	718	346.564	832.378
2009	592.000	4.250.000	718	524.654	183.467
2010	594.000	4.310.000	726	90.572	83.491
2011	589.000	4.200.000	713	362.508	47.632
2012	622.609	4.600.000	739	24	125.962
2013	659.998	5.900.000	894	67.607	1.373.444
2014	658.645	5.950.000	903	1.229.771	173.541
2015	688.170	6.400.000	930	280.296	1.752.453
2016	680.019	6.400.000	941	1.465.880	1.756.906
2017	639.084	5.900.000	923	2.539.964	204.757
2018	591.900	5.700.000	963	638.119	184.247
2019	638.829	6.000.000	939	-	-
2020	691.632	6.500.000	940	-	-

The data set obtained from the fields of corn production, corn cultivation area, corn yield, corn export amount and corn import amount in the statistical tables between 1995-2020, published by the Turkish Grain Board (TMO; 2021), was used in 2000, 2001, 2008, 2018, 2019 and The economic depression and crises that occurred in 2020 are included in the model as dummy variables.

In this research, unit root tests were used to make the time series stationary in the given data set. If there is a unit root, the time series is not stationary. Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) tests, which are used to detect the presence of a unit root, are the most

well-known methods.

γ_t The relationship of the variable to its value one period ago is formulated as follows.

$$\gamma_t = \beta_{\gamma_{t-1}} + u_t \tag{1}$$

The hypotheses are based on the model;

$H_0 = \beta = 1$ (the series contains a unit root, the series is not stationary)

$H_1 = \beta < 1$ (there is no unit root in the series, the series is stationary).

Here, u_t independent identically distributed (iid) has constant variance and zero mean

is assumed. The error term with these properties is called white noise and the equation is shown as follows

$$u_t \approx iid(0, \sigma^2) \tag{2}$$

$\beta = 1$ on the other hand, the series is under the effect of one period previous value and random shocks. If so it can be said that the series contains a unit root. $\beta < 1$ whereas γ_{t-1} of γ_t Its effect on β will gradually decrease depending on the value of β .

Here, the 'tau' (tau) statistic, which emerged in Dickey-Fuller's Monte Carlo application, is used. If τ the absolute value of the statistic exceeds the absolute value of the Dickey-Fuller critical value, it accepts the hypothesis that the time series is stationary, and in general the Dickey-Fuller test is applied to the following regression patterns:

1)Dickey-Fuller equation with no constant term and no trend:

$$\Delta\gamma_t = \delta_{\gamma_{t-1}} + u_t \tag{3}$$

2)Dickey-Fuller equation with constant term and no trend:

$$\Delta\gamma_t = \beta_0 + \delta_{\gamma_{t-1}} + u_t \tag{4}$$

3) Dickey-Fuller equation with constant term and trend:

$$\Delta\gamma_t = \beta_0 + \beta_1 t + \delta_{\gamma_{t-1}} + u_t \tag{5}$$

As a result of the Dickey-Fuller test, if the stationarity of the series is not mentioned, it is retested by taking the difference of the dependent variable. If the series becomes stationary as a result of the first difference operation, the first difference is said to be stationary. If the series does not become stationary as a result of the first difference, the second difference of the series is tested and continued. The series that becomes stationary at this stage is called second-order difference stationary. It is continued in this way for further difference taking operations. However, since the interpretation of the coefficients will be difficult and the

degree of freedom will decrease, in practice, the difference is usually stopped after the second difference (Dickey and Fuller, 1979; 1981). In case of autocorrelation in the estimated regressions, the DF test results are invalid. Extended DF test is applied to fix this problem. Simply put, the lagged values of the dependent variable are to the right of the equation. The equations to be estimated in the ADF test are as follows.

$$\Delta Y_t = \delta Y_{t-1} + \sum_{j=1}^k \alpha \Delta Y_{t-j} + u_t \text{ (without a fixed term)} \quad (6)$$

$$\Delta Y_t = \beta_0 + \delta Y_{t-1} + \sum_{j=1}^k \alpha \Delta Y_{t-j} + u_t \text{ (constant term)} \quad (7)$$

$$\Delta Y_t = \beta_0 + \delta Y_{t-1} + \sum_{j=1}^k \alpha \Delta Y_{t-j} + \alpha_t + u_t \text{ (constant term and trend variable added)} \quad (8)$$

$H_0 = \delta = 0$ If there is a unit root in the series, the series is not stationary.

$H_1 = \delta < 0$ There is no unit root in the series and the series is stationary. (Dickey ve Fuller, 1981).

The VAR (Variance Autoregressive Model) model was used to find the most appropriate lag length in the research. In VAR (Variance Autoregressive Model) model econometric studies, it is inevitable to use the simultaneous equation system in case the links between the link size are multilateral and complex. One of the methods developed as a solution method of simultaneous equations is Vector Autoregressive Models (VAR). The VAR model can be represented by the following equation for the p-value:

$$Y_t = A_1 Y_{t-1} + \dots + A_p Y_{t-p} + \beta x_t + \varepsilon_t \quad (9)$$

Here, y_t $p \times 1$ the value vector of dimension, x_t $d \times 1$ dimensional deterministic variables, A_p $p \times p$ dimensional parameter matrices and error terms vector (Johansen, 1995).

VAR models are used for time series as they do not impede the systematic model and do not need to distinguish between extrinsic and intrinsic values. In addition, since there are lagged values of dependent values in VAR models, it makes it possible to make better and stronger predictions for the future. Since the coefficients calculated with the VAR model are very complex and difficult to interpret, more variance decomposition and impulse-response analysis methods are used (Gacener, 2005). While variance decomposition tries to explain how many % of the change in the variance of each of the analyzed values has its own delay and what percentage of the other

values are excluded, impulse-response analysis tries to explain what happens when the other value or values cause a one-unit effect on any of the values. tries to explain how much he is affected (Tari, 2012).

In the following years, corn in Türkiye according to the years; The VAR Granger Causality test was used to determine the existence of a causality between the production amount, cultivation area, yield, export amount, import amount and economic crises added as dummy variables. The VAR Granger Causality test showed that using the current and past values of X_t in addition to the past values of this series while performing the prediction of Granger Y_t , X_t and Y_t being two stationary time series, yielded better results than only the values of Y_t in the past. Causality relationships between X_t and Y_t depending on time α , b_1 , β_1 and θ_1 lag coefficients m same lag length for all variables ε_{1t} , ε_{2t} with independent error terms;

$$Y_t + b_0 X_t = \sum_{i=1}^m \alpha_i Y_{t-i} + \sum_{i=1}^m b_i X_{t-i} + \varepsilon_{1t} \quad (10)$$

$$X_t + b\theta_0 Y_t = \sum_{i=1}^m \beta_i X_{t-i} + \sum_{i=1}^m \theta Y_{t-i} + \varepsilon_{2t} \quad (11)$$

is in the form. Here

- It shows that X_t causes Y_t , provided that the b_i values are different from zero at a certain significance level.
- θ_i It shows that Y_t causes X_t , provided that its values are different from zero at a certain significance level.
- Both b_i and θ_i It shows that there is a bilateral causality relationship between X_t and Y_t , provided that they are different from zero at a certain significance level.
- Both b_i and θ_i it shows that there is no causality between X_t and Y_t if it is not different from zero at a certain significance level (Granger, 1969).

3. Results

The data set in this study was obtained from the fields of corn production, corn cultivation area, corn yield, corn export amount and corn import Amount in the statistical tables between 1995-2020 published by the Turkish Grain Board (TMO; 2021). In addition, the crisis years were added to the data set as a dummy variable to see the crisis effect. In the obtained data set, as a first step, the stationarity of the series was tested with the help of Augmented Dickey Fuller (ADF) method.

In Table 3, the first differences were taken with the help of the unit root test and the data set was made stationary.

Table 3. Unit root test result.

Çizelge 3. Birim kök testi sonucu.

Variables	ADF t-statistics	Probabilities
X1t	-3.540331	0.0176
X2t	-5.838442	0.0001
X3t	-4.333990	0.0025
X4t	-3.030384	0.0483
X5t	-6.891581	0.0000
X6t	-5.805353	0.0001

* X1t = Corn Production Amount * X2t= Corn Planting Area
*X3t= Corn Yield *X4t=Maize Export Amount * X5t= Corn Import Amount * X6t= Economic Crises (dummy variable)

Table 4. Model lag length selection criteria.

Çizelge 4. Model gecikme uzunluğu seçim kriterleri.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1417.585	NA	2.33e+46	123.7900	124.0862*	123.8645
1	-1371.048	64.74741	1.05e+46	122.8738	124.9473	123.3952
2	-1309.235	53.75092*	2.43e+45*	120.6291*	124.4799	121.5976*

* indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

Table 5. The result of the test when the dependent variable is the amount of corn production.

Çizelge 5. Bağımlı değişken mısır üretim miktarı olduğunda testin sonucu.

Values	Probabilities
X2t	0.9612
X3t	0.6955
X4t	0.7918
X5t	0.9138
X6t	0.2360

* X1t = Corn Production Amount * X2t= Corn Planting Area
*X3t= Corn Yield *X4t=Maize Export Amount * X5t= Corn Import Amount * X6t= Economic Crises (dummy variable)

In Table 5. corn; It has been determined by the analysis that there is no reason for the amount of corn production because the cultivation area, yield, export amount, import amount and probability values of economic crises are greater than 0.05.

Table 6. Result of the test when the dependent variable is maize planting area.

Çizelge 6. Bağımlı değişken mısır ekim alanı olduğunda test sonucu.

Values	Probabilities
X1t	0.2818
X3t	0.2118
X4t	0.5003
X5t	0.9182
X6t	0.9688

*X1t = Corn Production Amount * X2t= Corn Planting Area
*X3t= Corn Yield *X4t=Maize Export Amount * X5t= Corn Import Amount * X6t= Economic Crises (dummy variable)

Corn in Table 8. Since the cultivation area and yield probability values are greater than 0.05, there is no reason for the amount of corn export, while corn; Since the production amount, import amount and probability values of the economic crises that have occurred are less

In Table 4., it was determined that '*' was the most and the 2nd lag length with the smallest Akaike Information Criterion was the most appropriate lag length.

Corn by years; The existence of a causality between production amount, cultivation area, yield, export amount, import amount and economic crises added as dummy variables was tested with the help of the VAR Granger Causality.

Table 7. Result of the test when the dependent variable is corn yield.

Çizelge 7. Bağımlı değişken mısır verimi olduğunda yapılan testin sonucu.

Values	Probabilities
X1t	0.8553
X2t	0.8154
X4t	0.8936
X5t	0.9825
X6t	0.6773

* X1t = Corn Production Amount * X2t= Corn Planting Area
*X3t= Corn Yield *X4t=Maize Export Amount * X5t= Corn Import Amount * X6t= Economic Crises (dummy variable)

Corn in Table 6. Since the production amount, yield, export amount, import amount and probability values of economic crises are greater than 0.05, it has been determined by the analysis that there is no reason for the corn cultivation area.

Table 8. The result of the test when the dependent variable is the amount of corn export.

Çizelge 8. Bağımlı değişken mısır ihracat miktarı olduğunda yapılan testin sonucu.

Values	Probabilities
X1t	0.0534
X2t	0.5086
X3t	0.2488
X5t	0.0000
X6t	0.0151

* X1t = Corn Production Amount * X2t= Corn Planting Area
*X3t= Corn Yield *X4t=Maize Export Amount * X5t= Corn Import Amount * X6t= Economic Crises (dummy variable)

than 0.05, it has been determined by the analysis that there is a one-way reason for the amount of corn export.

In Table 9. corn; Since the production amount, yield, cultivation area, export amount and probability values of economic crises are greater than 0.05, it has been

determined by the analysis that there is no reason for the amount of corn import.

Table 9. Result of the test when the dependent variable is corn import amount.

Çizelge 9. Bağımlı değişken mısır ithalat miktarı olduğunda test sonucu.

Values	Probabilities
X1t	0.6914
X2t	0.2829
X3t	0.0764
X4t	0.3930
X6t	0.2628

* X1t = Corn Production Amount * X2t= Corn Planting Area *X3t= Corn Yield
*X4t=Maize Export Amount * X5t= Corn Import Amount * X6t= Economic Crises (dummy variable)

Table 10. The result of the test when the dependent variable is the dummy variable.

Çizelge 10. Bağımlı değişkenin kukla değişken olduğu durumda testin sonucu.

Values	Probabilities
X1t	0.6831
X2t	0.0303
X3t	0.9832
X4t	0.1791
X5t	0.9839

* X1t = Corn Production Amount * X2t= Corn Planting Area *X3t= Corn Yield
*X4t=Maize Export Amount * X5t= Corn Import Amount * X6t= Economic Crises (dummy variable)

Corn in Table 10. It has been determined by the analysis that while the probability values of production amount, yield, export amount and import amount are greater than 0.05, there is no cause of the experienced economic crises, while the probability values of the corn cultivation area are a one-way cause of the economic crises experienced because the probability values are less than 0.05.

The difference between this research and the studies in the literature (Unakıtan and Aydın, 2012; Subaşı and Ören, 2013; Özalp and Güldal, 2017; Bayramoğlu and Bozdemir, 2018; Yaşa, 2019; Bozdemir et al., 2019; Akbulut et al., 2021) is in Turkey. corn according to years; The aim of this study is to determine the existence of a causality situation between production amount, cultivation area, yield, export amount, import amount and economic crises added as dummy variables.

4. Discussion

In this research, within the specified years, corn in Türkiye by years; It is aimed to determine the existence of a causality between the production amount, cultivation area, yield, export amount, import amount and economic crises added as dummy variables. For this purpose, corn production, corn cultivation area, corn yield, corn export amount and corn import amount in the

statistical tables between 1995 and 2020 published by the Turkish Grain Board (TMO; 2021). In addition, the crisis years were added to the data set as a dummy variable to see the crisis effect. In the research, Augmented Dickey Fuller method is the test that checks whether the series is stationary. After deciding that the series is non-stationary with the ADF test, the most appropriate lag length was determined with the VAR (Variance Autoregressive Model) model, and the analysis was carried out with the help of the VAR Granger Causality method.

According to the results of the research, the series are stationary because the probability values of the data set, whose first differences were taken by using the Argument Dickey-Fuller (ADF) test statistic in the created data set, are less than 0.05. In addition, with the help of the VAR (Variance Autoregressive Model) model, it was determined that the '*' was the most and the 2nd lag length with the smallest Akaike Information Criterion was the most appropriate lag length.

In the statistical tables published by the Turkish Grain Board (TMO; 2021), corn production, corn cultivation area, corn yield, corn export amount and corn import amount in the statistical tables and crisis years are added as a dummy variable to see the crisis effect. sweetcorn; corn; It has been determined by the analysis that production amount, import amount and economic crises are a one-way cause of exports, and corn cultivation area is a one-way cause of economic crises.

Data from the fields of corn production, corn cultivation area, corn yield, corn export amount and corn import amount in the statistical tables between 1995 and 2020 published by Turkish Grain Board (TMO; 2021) and crisis years are added as dummy variables to see the crisis effect. In order to obtain better results in the data set, it should be taken into account that the number of observations in the data set should be kept wider, economic and climatic changes should not be ignored in the selected years, and the decrease in efficiency due to natural events and global warming that has occurred in Türkiye in recent years. In order to avoid these and similar problems in future articles or thesis research, the deficiencies mentioned should not be ignored.

Author Contributions

The authors declare that they have contributed equally to the article.

Conflict of Interest

The authors of the article declare that there is no conflict of interest between them.

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