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Tourism and Food Prices: Evidence from Türkiye

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Abstract

This study examines the effect of the tourism sector on food price inflation. To measure the impact of the tourism sector on food prices, a time series analysis was made with the monthly data of the Türkiye's economy covering the period January 2014 – June 2024. According to the findings, total tourism revenues (TEX) and tourism revenues per tourist (PEX) in the Türkiye's economy affect the food inflation to total consumer inflation ratio (FPI) with a two-month lag. A billion USD increase in TEX increases FPI by approximately 7.98 points after two months. A 100 USD increase in PEX decreases FPI by 2.8 points. A second model identified a parabolic relationship between PEX and FPI with a five-month lag. These findings suggest that strategic planning of the tourism sector is essential for ensuring food security in Türkiye. This parabolic relationship, an original finding of the study, has important implications for policymakers, particularly when formulating inflation, tourism, and agricultural policies. Necessary policy recommendations are presented in the conclusion section.

Keywords: Inflation, food inflation, food security, price index, tourism revenues.

JEL Codes: E31, Q00, Z32.

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Turizm ve Gıda Fiyatları: Türkiye Örneği

Öz

Bu çalışmada turizm sektörünün gıda fiyat enflasyonu üzerindeki etkisi incelenmektedir. Turizm sektörünün gıda fiyatları üzerindeki etkisini ölçmek amacıyla Türkiye ekonomisinin Ocak 2014 - Haziran 2024 dönemini kapsayan aylık verileri kullanılarak zaman serisi analizi yapılmıştır. Bulgulara göre, Türkiye ekonomisindeki toplam turizm gelirleri (TEX) ve turist başına turizm gelirleri (PEX), gıda enflasyonunun toplam tüketici enflasyon oranına (FPI) iki aylık gecikmeyle etkilemektedir. TEX'te bir milyar ABD doları tutarındaki artış, FPI'yi iki ay sonra yaklaşık 7,98 puan artırmaktadır. PEX'te 100 ABD doları tutarındaki artış, FPI'yi 2,8 puan düşürmektedir. İkinci bir model, PEX ile FPI arasında beş aylık gecikmeyle parabolik bir ilişki tespit etmiştir. Bu bulgular, Türkiye'de gıda güvenliğinin sağlanması için turizm sektörünün stratejik planlamasının elzem olduğunu göstermektedir. Çalışmanın özgün bir bulgusu olan bu parabolik ilişki, özellikle enflasyon, turizm ve tarım politikalarının oluşturulmasında politika yapıcılar için önemli çıkarımlara sahiptir. Sonuç bölümünde gerekli politika önerileri sunulmaktadır.

Anahtar Kelimeler: Enflasyon, gıda enflasyonu, gıda güvenliği, fiyat endeksi, turizm gelirleri.

JEL Kodları: E31, Q00, Z32.

1. Introduction

Recent years have witnessed a significant surge in global food prices, a trend reflected in the rising ratio of food price indices to the general consumer price index across many countries. This food inflation poses a severe threat, exacerbating problems like poverty and hunger by hindering access to food for low-income populations. The issue is particularly acute in developing countries, where rising costs directly threaten the food security of their citizens. On a global scale, this persistent price escalation is projected to worsen malnutrition and its related health complications.

Due to the nature of food products, the fact that their prices are highly affected by the demand created by the regional population makes it necessary to investigate the factors affecting the regional population in the analysis of price changes in these products. The tourism sector, which is a sector on the rise in developing countries, directly affects the population mobility in the local region. The consumers coming to the region as a result of tourism activities will have an increasing effect on the food demand. As mentioned in the literature and discussion section of the study, the imported food consumption of tourists is higher than the resident population. However, the importation of unprocessed food products may be limited due to reasons such as transportation costs and deterioration times. Therefore, according to this study, tourism activities put pressure on local food demand and may affect food prices in an upward direction.

The relationship between food prices, which are on the rise in developing countries, and the tourism sector is necessary for these countries to plan healthier long-term development and growth strategies. The uncontrolled development of the tourism sector may cause negative consequences for the economies of developing countries. Within the scope of this study, it can shed light on the adverse developments that may arise in food prices as a result of the uncontrolled expansion of the tourism sector. Based on the findings of the study, policy recommendations are presented to policymakers in the last section.

2. Literature Summary and Discussion

There are studies comparing food prices and the tourism sector in the literature. While there are studies that directly examine food prices and the tourism sector, there are also studies that can indirectly shed light on the impact of the tourism sector on food prices through the relationship between the tourism sector and the agriculture sector. This study uses the results obtained from studies comparing tourism and the agriculture sector in the literature to examine the effect of tourism on food prices. Therefore, studies in the literature are interpreted from a different perspective. This unique interpretation is aimed to make the relationship between the two sectors more understandable.

Under this heading, the impact of the tourism sector on economic development is briefly discussed, and its relationship with the agriculture sector is evaluated. The concept of agritourism is then examined for its connection to the agricultural sector. Next, the environmental impacts of tourism are explored, followed by an explanation of its relationship with premature deindustrialization. Finally, key points from the literature that support the study's hypothesis are summarized and listed.

2.1 Tourism Sector and Economic Development

There are insufficient studies in the literature on the economic and social problems that the tourism sector can cause, such as environmental pollution, food supply insecurity, and inflation. However, there is a considerable number of studies examining the economic benefits of the tourism sector. For example, Bond and Ladman (1972) construct a development strategy that focuses on the tourism sector, emphasizing that the resources needed in the economic development and development phase can be provided by the tourism sector, especially for developing countries. Some current studies argue that the tourism sector supports economic development (Faber & Gaubert, 2019). Of course, the balanced growth of the tourism sector in a way that allows for the use of idle resources will undoubtedly have a positive impact on economic development. However, unbalanced and unplanned growth in the tourism sector may cause resource transfer from other sectors. In addition, due to the increasing effect of the tourism sector on food prices, which is also the subject of this study, unplanned and unbalanced growth in the tourism sector can increase poverty.

2.2 The Impact of the Tourism Sector on Food Prices and the Agricultural Sector

The expansion of the tourism sector significantly increases the demand for food products (Sampedro et al., 2020). Therefore, while it might seem like the two sectors would feed off each other, this is often not the case. This is because the two sectors use similar inputs. Thus, economies may have to choose between the tourism and food sectors, whose production functions can be quite similar (Latimer, 1985). It should be noted that this relationship between the two sectors can be strong, especially in peripheral countries using traditional production routes. However, developed countries may also be forced to choose between tourism and agriculture (Kimhi, 2022, p. 3).

Although the tourism sector and the agricultural sector are often seen as opposing fields, some studies conclude that the tourism sector supports the agricultural sector. In his article,

Braithwaite (1993) refers to the claims that the tourism sector draws resources from the agricultural sector and comments that the two sectors can work in harmony against these claims. For instance, Yang et al. (2009) examined the development of the tourism sector in Yunnan. According to the results of the researchers, it was determined that the former agricultural product producers engaged in tourism activities used the income they obtained from tourism to produce in the agricultural sector. However, researchers stated that the tourism sector makes agricultural production difficult due to the environmental problems it creates. Of course, it should be underlined that this study was carried out in small mountainous regions in Yunnan.

There are observational studies in the literature to explain the food demand and price of the tourism sector. Bélisle (1984a, 1984b), who studies this field, observed that hotels increase food imports for various reasons in two separate studies examining hotels in Jamaica. The researcher explains this for several reasons. These reasons are the food habits of tourists, increasing the quality and diversity of food products, and lastly, the inability of the local food supply to meet the growing food demand. On the other hand, the researcher concluded that the expansion in the Jamaican tourism sector did not have significant benefits for the food sector and farmers. Two studies of the researcher show that even if food demand increases with the tourism sector, a meaningful return may not be obtained for the local food sector. This can be seen as a kind of contradiction. However, this study points out the similarity of production factors between the two sectors as the root cause of the tourism sector's inability to provide a meaningful return to the agricultural sector. The expansion of the tourism sector could increase food prices, which could make the agricultural sector more lucrative. However, on the other hand, the expansion of the tourism sector may mean that the agricultural lands and the labor force working in the agricultural sector, and even the capital, are directed to the tourism sector, especially in the surrounding countries where seasonal tourism is intense. In this case, production costs for the agricultural sector may increase and profitability may decrease.

Another reason why developments in the tourism sector increase food inflation is that the tourism sector draws production resources from the agricultural sector. In the literature, there are studies examining this relationship between the tourism sector and the agricultural sector. Pascual (2004) concluded that there is an important interaction between the agriculture and tourism sectors in his study of the Canary Islands. According to the study, it is understood that families engaged in fishing increase their tourism activities. The development of the tourism sector is driving families already engaged in fishing into it. In other words, competition arises between the two sectors in terms of resource use, and production resources are shifting from the fishing sector to the tourism sector. Wanner et al. (2021) examine the effects of developments in the tourism sector in the Alps on agriculture and conclude that there may be a conflict between these two sectors. Finally, another similar production source used by the tourism and agriculture sectors is the entrepreneur. There is serious literature on the fact that the producers of the agriculture and tourism sectors are similar and that the producers in the agricultural sector are oriented toward the tourism sector (Yuan et al., 2017).

2.3 Agritourism and Agriculture Sector

Another concept that the studies advocating the cooperation between tourism and the agriculture sector attach importance to is the concept of agritourism, which is called agricultural tourism. The effect of this type of tourism, which is based on agricultural activities, on agricultural production is a matter of debate. However, some studies argue that such tourism activities contribute to the development and modernization of rural areas (Wu, 2018). Fleischer and Tchetchik (2005), in their study based on a survey conducted in Israel, concluded that enterprises engaged in agricultural tourism use labor more efficiently and that agricultural support offered to producers engaged in agricultural tourism also revitalizes tourism. Of course, the fact that the study was based on a survey and did not examine the net agricultural product output can be counted among the important shortcomings. Despite the studies that argue that the agriculture and tourism sectors act in harmony, when the literature is examined from a broad perspective, studies that draw attention to the conflicts between the two sectors stand out.

Apart from agritourism, tourism types can be divided into various types according to tourism activity. These tourism types can be listed as gastronomy tourism, health tourism, education tourism, cultural tourism, coastal and maritime and inland water tourism, business tourism, adventure tourism, sports tourism, and wellness tourism. Tourism activities can have different effects according to their types. Since the subject of this study is not the effect of tourism types on the economy, this difference that occurs according to tourism types has not been examined. However, the findings obtained in the analysis section may indicate that the weight of tourism focused on food and beverage such as gastronomy tourism and that can affect food prices in the direction of increase is high in the Türkiye's economy. Indeed, there are studies in the literature showing that the spending behaviors of tourists change according to their characteristics and tourism activities. (Ağazade, 2024; Ji et al., 2023, p. 1065).

2.4 Environmental Impacts of the Tourism Sector

Finally, the increase in environmental pollution by tourism activities can cause a loss of production and productivity in the agricultural sector. The effects of these two sectors on the environment may first be on water consumption. It can be said that the tourism and agriculture sectors are generally competitive in terms of water demand (Kourgialas et al., 2018, p. 382). However, some studies indicate that the tourism sector increases carbon emissions and causes much environmental damage, including climate change (Munday et al., 2013; Koçak et al., 2020; Obersteiner et al., 2021; Pröbstl-Haider et al., 2021; Raihan et al., 2023; Cevik, 2023). The negative effects of the tourism sector on the environment and the climate change it causes can undoubtedly affect the productivity of the agricultural sector. In this case, food prices may tend to increase due to the agricultural sector's decrease in productivity due to drought and other environmental problems.

2.5 The relationship Between the Tourism Sector and Early Deindustrialization

Since the agricultural sector is a sector very close to the tourism sector in terms of the similarity of production resources, the tendency of tourism to attract resources from the agricultural

sector can be emphasized more. However, the tourism sector can also use the resources in other sectors, and therefore the development in the tourism sector can narrow other sectors. Some studies argue that especially the expansion in the tourism sector will cause deindustrialization as it draws resources from the industrial sector (Copeland, 1991, p. 527). In this context, the increase in the share of the tourism sector in developing countries that have not reached saturation in the industrialization process may cause the problem of premature deindustrialization. In summary, according to the studies in the literature, when the reasons for the tourism sector to affect food prices are listed, a ranking can be made as follows.

a) Increasing demand for food,
b) Transfer of resources from the agriculture sector to the tourism sector,
c) Tourism activities increase environmental pollution and environmental problems.

Therefore, it is not the only determining factor in the impact of tourism between the tourism sector and the agricultural sector on food prices. In this context, the tourism sector can increase food prices, whether there is a conflict of interest or a harmony of interest between tourism and the agricultural sector. The conflict of interest arising between these two sectors can only accelerate the increase in food prices

3. Econometric Analysis

To test the study's hypothesis, a time series analysis was conducted using monthly frequency data of the Türkiye's economy covering the period January 2014 - June 2024. Table 1 gives the variables used in the model established to measure the impact of the tourism sector on food prices.

Table 1

Definitions of Variables

Variable	Description
FPI	Food Price Index (% of CPI)
PEX	Real Average Expenditure Per Tourist ($, 1982-1984=100)
TEX	Total Real Expenditures by Tourists (Thousand $, 1982-1984=100)

Source: Central Bank of the Republic of Türkiye (CBRT) Data Bank, Republic of Türkiye Ministry of Culture and Tourism and Author's Calculation

Two different models were used to analyze the study hypothesis. The first of the models is a linear model where TEX and PEX are explanatory variables. However, it can be thought that the effect of the PEX variable on FPI may have a parabolic relationship other than a linear relationship. While the expenditure per tourist, namely PEX, has a different effect on FPI up to a certain point, its effect on FPI may be in the opposite direction from a peak or bottom point. The reason for this can be considered as PEX being an important indicator of the type of tourism activity and tourist structure. In this context, the second model is a parabolic model. The models established with the variables given in Table 1 are given in Equation 1 and Equation 2.

$$FPI_t = \beta_0 + \beta_1 PEX_{(t-2)} + \beta_2 TEX_{(t-2)} + \check{r}_t \quad (1)$$

$$FPI_t = \alpha_0 + \alpha_1 PEX_{(t-5)} + \alpha_2 PEX_{(t-5)}^2 + \lambda_t \quad (2)$$

Table 2

Augmented Dickey-Fuller (ADF) Stability Test Results

Variable	Lag	Model	Test Statistic	P- value
	0	With const.	0.440	0.9829
FPI		With const. and trend	-1.780	0.7145
		No const. and trend	2.211**	-
	1	With const.	0.639	0.9885
FPI		With const. and trend	-1.669	0.7641
		No const. and trend	2.374**	-
	0	With const.	-13.145***	0.0000
ΔFPI		With const. and trend	-13.262***	0.0000
		No const. and trend	-12.753***	-
	1	With const.	-9.084***	0.0000
ΔFPI		With const. and trend	-9.201***	0.0000
		No const. and trend	-8.619***	-
	0	With const.	-1.662	0.4506
PEX		With const. and trend	-2.544	0.3062
		No const. and trend	-0.675	-
	2	With const.	-1.489	0.5389
PEX		With const. and trend	-2.324	0.4205
		No const. and trend	-0.708	-
	5	With const.	-1.091	0.7187
PEX		With const. and trend	-1.537	0.8163
		No const. and trend	-1.027	-
	0	With const.	-14.089***	0.0000
ΔPEX		With const. and trend	-14.043***	0.0000
		No const. and trend	-14.109***	-
	2	With const.	-9.391***	0.0000
ΔPEX		With const. and trend	-9.355***	0.0000
		No const. and trend	-9.357***	-
	5	With const.	-6.007***	0.0000
ΔPEX		With const. and trend	-5.989***	0.0000
		No const. and trend	-5.899***	-
	0	With const.	-1.857	0.3526
TEX		With const. and trend	-1.845	0.6829
		No const. and trend	0.018	-
	2	With const.	-2.071	0.2565
TEX		With const. and trend	-2.036	0.5818
		No const. and trend	-0.032	-
	0	With const.	-10.717***	0.0000
ΔTEX		With const. and trend	-10.710***	0.0000
		No const. and trend	-10.732***	-
	2	With const.	-7.094***	0.0000
ΔTEX		With const. and trend	-7.126***	0.0000
		No const. and trend	-7.100***	-

H_0: Time series have unit roots.

H_α: Time series do not have a unit root.

Δ: It means that the first-order difference of the variable is taken. **: The null hypothesis is rejected with a margin of error of 5%, ***: The null hypothesis is rejected with a margin of error of 1%.

In the analysis, it is determined that the dependent variables in the linear model have a significant effect on FPI with a 2-period lag, and the dependent variables in the parabolic model have a significant effect on FPI with a 5-period lag. Due to the stationarity assumption in time series analysis, the stationarity test should be applied to the data series used in the model. In this context, the stationarity tests suggested by Dickey and Fuller (1979) were conducted. The obtained results are given in Table 2.

According to the results given in Table 2, variables other than FPI contain a unit root in the level values with a 5% margin of error, while the series become stationary when their first-degree differences are taken. FPI, on the other hand, is stationary at the level with a 5% margin of error in the no constant and trend model, but it contains a unit root in other models. FPI, like other variables, becomes completely stationary when its first difference is taken. Therefore, the first-degree differences of all variables were used in the analysis.

In order to analyze the normal distribution of the residuals in the models to be analyzed, the Jarque-Bera (JB) test developed by Jarque and Bera (1987) and the skewness and kurtosis (SK Test) developed by D'agostino et al. (1990) were applied. The results obtained are given in Table 3. According to the results, the residuals are not normally distributed at a 5% margin of error.

Table 3

Normality Test

		Model 1	Model 2
JB	Chi(2)	39.32	48.27
	P value	0.0000	0.0000
SK Test	Adj chi2 (2)	16.81	18.74
	P value	0.0002	0.0001

H_0: Residues normally distributed.

H_α: Residues not normally distributed.

The results from both tests indicate that the null hypothesis is rejected at a 5% margin of error, indicating that the residuals are not normally distributed. This suggests that methods that are resistant to the normal distribution assumption should be preferred during the analysis phase.

Tests suggested by Breusch and Pagan (1979) were applied to test the heteroscedasticity in the estimated model. The test results obtained are given in Table 4.

Since the residuals are not normally distributed, the method designed with the assumption of Independent and identically distributed (i.i.d.) error terms should be examined. According to these results, the null hypothesis cannot be rejected with a 5% error margin. Therefore, it can be said statistically that there is no heteroskedasticity problem.

Table 4

Heteroskedasticity Tests

		Model 1	Model 2
Breusch–Pagan[a]	Chi2 (1)	5.42	0.66
Fitted values of ΔFPI	Prob > chi2	0.0199	0.4159
Breusch–Pagan[a]	chi2(2)	6.70	1.09
All independent variables	Prob > chi2	0.0352	0.5793
Breusch–Pagan[b]	chi2(1)	2.59	0.30
Fitted values of ΔFPI	Prob > chi2	0.1075	0.5860
Breusch–Pagan[b]	chi2(2)	3.20	0.49
All independent variables	Prob > chi2	0.2019	0.7831

H_0: There is constant variance.
H_α: Hα: There is varying variance.

[a]: Assumption of normal error terms
[b]: i.i.d. error terms

Tests proposed by Breusch and Pagan (1980) were used to detect autocorrelation in the model. Test results are given in Table 5.

Table 5

Breusch–Godfrey LM test for autocorrelation

Lag	Model 1		Model 2	
	Chi(2)	P Value	Chi(2)	P Value
1	1.557	0.2121	1.576	0.2093
2	1.99	0.3698	1.815	0.4036
3	2.812	0.4216	2.157	0.5404
4	3.667	0.4529	3.344	0.5020
5	8.945	0.1113	10.443	0.0636
6	9.929	0.1277	11.003	0.0883

H_0: There is no serial correlation in the model
H_α: There is serial correlation in the model.

According to Table 5, the null hypothesis of the Breusch-Pagan LM test is rejected with a 5% margin of error in the analyses conducted up to lag 6. Based on the results, it can be said that there is no statistically significant autocorrelation problem.

Based on the analysis, it is observed that the model has a non-normal distribution problem. Therefore, classical OLS models may not provide statistically reliable results. Therefore, robust methods that can be used in the absence of a normal distribution must be selected. According to all the findings obtained, it was decided to analyze the models with the generalized linear models (GLM) method. The results obtained are given in Table 6.

In the analysis, the optimal lag lengths were determined to be 2 months for Model 1 and 5 months for Model 2, based on the models' significance levels and adjusted R-squared values. The 2-month lag for Model 1 is consistent with the literature, which generally suggests lags of 1-2 months for agricultural and food products. In contrast, the optimal lag length for the parabolic model was 5 months. This longer period is expected because the parabolic model is more influenced by supply-side factors, whereas the linear model is more demand-driven.

Since the transformation in the parabolic model reflects changes in the production structure, it is logical for this effect to manifest optimally over a longer timeframe, like 5 months.

Table 6

Test result (GLM methot, dependent variable ΔFPI)

	Variable	Lag	Coefficient	OIM std. err.	z	P>|z|
Model 1	ΔPEX	2	-0.02815689**	0.011310	-2.49	0.0128
	ΔTEX	2	0.00000798*	0.000003	2.58	0.0099
	_cons		-6.31629520*	0.686256	-9.20	0.0000
Model 2	ΔPEX	5	-0.39937723**	0.180125	-2.22	0.0266
	ΔPEX^2	5	0.00054887**	0.000240	2.29	0.0223
	_cons		-5.81641590*	0.450467	-12.91	0.0000

Δ: It means that the first-order difference of the variable is taken. *: The null hypothesis is rejected with a margin of error of 1%, **: The null hypothesis is rejected with a margin of error of 5%.

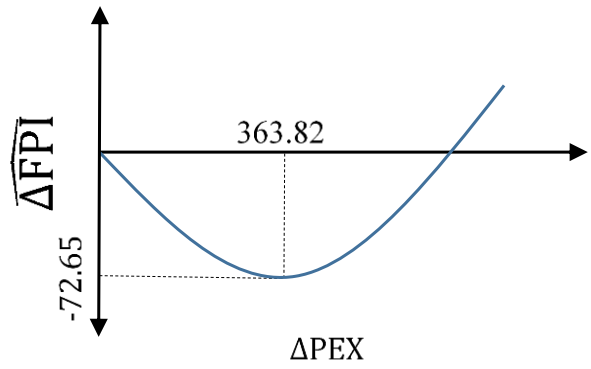
According to the results in Table 6, all coefficients are significant at 5% margin of error. According to the results of Model 1, a 1 dollar increase in PEX decreases FPI by approximately 0.028 units after 2 periods. A thousand dollar increase in TEX increases FPI by approximately 0.000008 unit after 2 periods. The reason why the effect of TEX seems small is due to the difference in the average between the units. Therefore, in other words, a one billion dollar increase in TEX increases FPI by 8 units after 2 periods. When Model 2 is analyzed, it is seen that the effect of PEX on FPI after 5 periods can be differentiated. Accordingly, while the change in PEX decreases FPI after 5 periods up to a certain level, it increases FPI after this level. This shows a parabolic model with a minimum point. In parabolic models, the value of the explanatory variable at the minimum point can be found according to the formula given in Equation 3.

$$-\frac{\beta_1}{\beta_2 * 2} = -\frac{-0.39937723}{0.00054887 * 2} = 363.81768907 \quad (3)$$

According to the results obtained from Equation 3, ΔFPI reaches its minimum level when ΔPEX is approximately 363.82. When ΔPEX is 363.82, ΔFPI is approximately -72.65. This is shown representatively in Figure 1.

Figure 1

Geometric Representation of the Analyzed Model



The predicted values of FPI at various ΔPEX values are given in Table 7. The graph based on these values is shown in Figure 2.

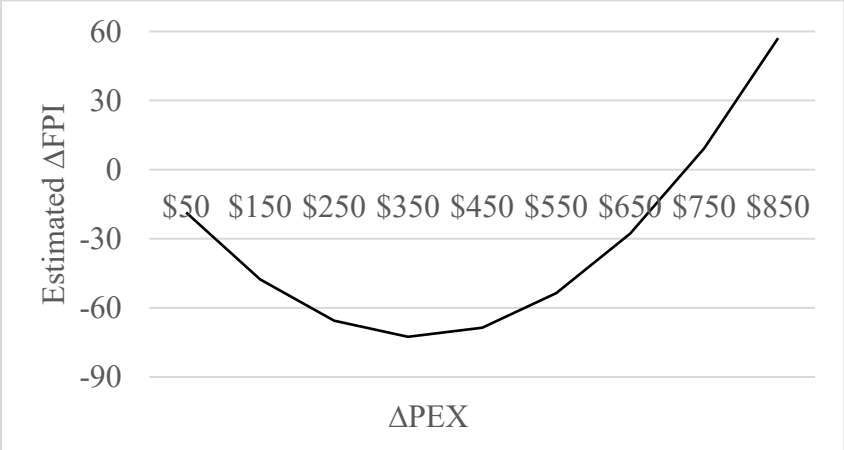
Table 7

Test result (GLM methot, dependent variable ΔFPI)

ΔPEX	Estimated ΔFPI
$50	-18.596687
$150	-47.55701
$250	-65.539933
$350	-72.545456
$450	-68.573579
$550	-53.624302
$650	-27.697625
$750	9.2064525
$850	57.0879295

Figure 2

Estimate Result



As can be seen in Table 7 and Figure 2, when the change in PEX reaches approximately 364 USD, the change in FPI first increases and then decreases, and then affects the change in FPI in an upward direction at approximately 700 USD. This situation between the two variables and the findings of the analysis section are interpreted in the conclusion section. The reason why PEX first decreases FPI and then increases it could be demand-driven or supply-driven. Indeed, the longer lag period than the linear model indicates this. This suggests that, as explained in the literature section, expansion in the tourism sector can work in collaboration with the agricultural sector to some extent (Wanner et al., 2021). However, excessive growth in the tourism sector can lead to the transfer of production resources to this sector (Latimer, 1985; Yuan et al., 2017; Sampedro et al., 2020). Therefore, the U-shaped relationship between PEX and FPI in the graph meets expectations.

4. Conclusion and Policy Recommendation

In recent years, food prices have started to increase dramatically, especially in developing countries. These increases can increase poverty, disrupt income distribution, and slow down economic growth and development. Within the scope of this study, the tourism sector is discussed to determine the reasons for the increase in food prices. Due to the structure of the tourism sector, the demand for food products, in particular, is increasing strongly in the region where tourism activities are increasing. This situation brings the necessity of questioning the effects of developments in the tourism sector on food prices.

In the literature, the relationship between food prices and the tourism sector is generally based on the connection between the tourism and agriculture sectors. In an environment where resources are scarce, it is clear that there will be an intense alternative cost relationship between the agriculture and tourism sectors. This can occur especially in the case of full use of the land and labor resources. Since the labor and land resources in the tourism and agriculture sectors are easily substituted for each other, the expansion experienced in one sector may cause a loss in the other sector. However, there are also studies in the literature that argue the opposite. These studies claim that the tourism and agriculture sectors are not in conflict of interest, on the contrary, they are in harmony. However, the fact that the tourism sector is in cooperation with the agricultural sector does not mean that the developments in the tourism sector will not increase food prices. This is because the tourism industry affects food prices for three main reasons. These are an increase in demand, increasing environmental pollution, and finally, an increase in production costs in the agricultural sector due to the shift of resources to the tourism sector.

According to the findings of the analysis, an increase in total tourism revenues (TEX) leads to an increase in the ratio of the food price index to CPI (FPI) after two months, while the effect of expenditures per tourist (PEX) after two months is negative. According to the results, a 1 billion USD change in TEX increases the FPI by about 7.98 percentage points after two periods. A $100 change in PEX decreases the FPI by about 2.8 percentage points after two periods. Therefore, when the number of tourists is held constant and tourism revenue increases due to the increase in expenditures per tourist, food prices do not increase. This may be because tourists prefer imported foods and their expenditures shift to non-food products as their income levels increase. However, with the assumption that this situation between PEX and FPI may not exhibit a linear trend, a parabolic equation between PEX and FPI was established and analyzed in the second model. According to the results, a parabolic relationship is observed between the 5-period lagged value of PEX and FPI. Accordingly, an increase of approximately 364 USD in PEX starts to decrease FPI after 5 periods. At approximately 700 USD, it causes an increase in FPI. This pattern of change is quite different from the literature. However, this finding can be explained by a supply-side rather than a demand-side explanation. In other words, high values of PEX increase push producers away from agriculture towards tourism. This may be reducing agricultural production in Türkiye and thus causing food inflation. The lag period of 5 months can be considered as another evidence of this situation.

In conclusion, in order to control food inflation and ensure food security for Türkiye's economy and economies similar to Türkiye, the share of the tourism sector should be reduced

or the production in the agricultural sector should not be directed to the tourism sector. For this purpose, the diversity of tourism activities can be increased. For example, policies that focus on different types of tourism, such as cultural tourism, may be the right choice. The findings of this study indicate a clear need to increase tourism diversity. Policies should specifically aim to manage the concentration of highly seasonal activities, such as seaside or summer tourism. An over-reliance on these activities can cause economic fluctuations and divert essential resources from the agricultural sector during peak months, potentially driving up food prices. Therefore, to ensure sustainable and equitable economic growth, policymakers should adopt these recommendations, even if it requires constraining the tourism sector to control food price inflation.

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ETHICS

The author declares that this article complies with ethical standards and rules.

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CONFLICT OF INTEREST

The author declares no conflict of interest.

References

Ağazade, S. (2024). Does tourism type concentration/diversification boost inbound tourism revenues in Türkiye? Anatolia, 35(3), 425-438. https://doi.org/10.1080/13032917.2023.2236125

Bélisle, F. J. (1984a). Food Production and Tourism in Jamaica: Obstacles to Increasing Local Food Supplies to Hotels. The Journal of Developing Areas, 19(1), 1-20.

Bélisle, F. J. (1984b). Tourism and Food Imports: The Case of Jamaica. Economic Development and Cultural Change, 32(4), 819-842.

Bond, M. E., & Ladman, J. R. (1972). Tourism: A Strategy for Development. Nebraska Journal of Economics and Business, 11(1), 37-52.

Braithwaite, N. (1993). Tourism and agriculture: Harmony not conflict. Spore, 43, 7-7.

Breusch, T. S., & Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation. Econometrica, 47(5), 1287-1294. https://doi.org/10.2307/1911963

Breusch, T. S., & Pagan, A. R. (1980). The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics. The Review of Economic Studies, 47(1), 239-253. https://doi.org/10.2307/2297111

Central Bank of the Republic of Türkiye (CBRT) Data Bank (2024). https://evds2.tcmb.gov.tr/

Cevik, S. (2023). Dirty dance: Tourism and environment. International Review of Applied Economics, 37(1), 168-185. https://doi.org/10.1080/02692171.2022.2117282

Copeland, B. R. (1991). Tourism, Welfare and De-industrialization in a Small Open Economy. Economica, 58(232), 515-529. https://doi.org/10.2307/2554696

D'agostino, R. B., Belanger, A., & D'agostino Jr., R. B. (1990). A Suggestion for Using Powerful and Informative Tests of Normality. The American Statistician, 44(4), 316-321. https://doi.org/10.1080/00031305.1990.10475751

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series With a Unit Root. Journal of the American Statistical Association, 74(366), 427-431. https://doi.org/10.2307/2286348

Faber, B., & Gaubert, C. (2019). Tourism and Economic Development: Evidence from Mexico's Coastline. The American Economic Review, 109(6), 2245-2293.

Fleischer, A., & Tchetchik, A. (2005). Does rural tourism benefit from agriculture? Tourism Management, 26(4), 493-501. https://doi.org/10.1016/j.tourman.2003.10.003

Jarque, C. M., & Bera, A. K. (1987). A Test for Normality of Observations and Regression Residuals. International Statistical Review / Revue Internationale de Statistique, 55(2), 163-172. https://doi.org/10.2307/1403192

Ji, G. M., Cheah, J.-H., Sigala, M., Ng, S. I., & Choo, W. C. (2023). Tell me about your culture, to predict your tourism activity preferences and evaluations: Cross-country evidence based on user-generated content. Asia Pacific Journal of Tourism Research, 28(10), 1052-1070. https://doi.org/10.1080/10941665.2023.2283599

Kimhi, A. (2022). Food Security in Israel: Challenges and Policies [Shoresh Research Paper]. SSRN.

Koçak, E., Ulucak, R., & Ulucak, Z. Ş. (2020). The impact of tourism developments on CO2 emissions: An advanced panel data estimation. Tourism Management Perspectives, 33, 100611. https://doi.org/10.1016/j.tmp.2019.100611

Kourgialas, N. N., Karatzas, G. P., Dokou, Z., & Kokorogiannis, A. (2018). Groundwater footprint methodology as policy tool for balancing water needs (agriculture & tourism) in water scarce islands—The case of Crete, Greece. Science of The Total Environment, 615, 381-389. https://doi.org/10.1016/j.scitotenv.2017.09.308

Latimer, H. (1985). Developing-island economies—Tourism v agriculture. Tourism Management, 6(1), 32-42. https://doi.org/10.1016/0261-5177(85)90053-6

Munday, M., Turner, K., & Jones, C. (2013). Accounting for the carbon associated with regional tourism consumption. Tourism Management, 36, 35-44. https://doi.org/10.1016/j.tourman.2012.11.005

Obersteiner, G., Gollnow, S., & Eriksson, M. (2021). Carbon footprint reduction potential of waste management strategies in tourism. Environmental Development, 39, 100617. https://doi.org/10.1016/j.envdev.2021.100617

Pascual, J. J. (2004). Littoral Fishermen, Aquaculture, and Tourism in the Canary Islands: Attitudes and Economic Strategies. İçinde J. Boissevain & T. Selwyn (Ed.), Contesting the Foreshore (ss. 61-82). Amsterdam University Press.

Pröbstl-Haider, U., Mostegl, N., & Damm, A. (2021). Tourism and climate change – A discussion of suitable strategies for Austria. Editorial: Tourism and Climate Change – an integrated look at the Austrian case, 34, 100394. https://doi.org/10.1016/j.jort.2021.100394

Raihan, A., Ibrahim, S., & Muhtasim, D. A. (2023). Dynamic impacts of economic growth, energy use, tourism, and agricultural productivity on carbon dioxide emissions in Egypt. World Development Sustainability, 2, 100059. https://doi.org/10.1016/j.wds.2023.100059

Republic of Türkiye Ministry of Culture and Tourism (2024). https://www.ktb.gov.tr/EN-249283/tourism-statistics.html

Sampedro, C., Pizzitutti, F., Quiroga, D., Walsh, S. J., & Mena, C. F. (2020). Food supply system dynamics in the Galapagos Islands: Agriculture, livestock and imports. Renewable Agriculture and Food Systems, 35(3), 234-248. Cambridge Core. https://doi.org/10.1017/S1742170518000534

Wanner, A., Pröbstl-Haider, U., & Feilhammer, M. (2021). The future of Alpine pastures – Agricultural or tourism development? Experiences from the German Alps. Journal of Outdoor Recreation and Tourism, 35, 100405. https://doi.org/10.1016/j.jort.2021.100405

Wu, T. E. (2018). Agriculture tourism and the transformation of rural countryside. Tourism Geographies, 20(2), 354-357. https://doi.org/10.1080/14616688.2018.1434819

Yang, M., Hens, L., Ou, X., & Wulf, R. D. (2009). Tourism: An Alternative to Development?: Reconsidering Farming, Tourism, and Conservation Incentives in Northwest Yunnan. Mountain Research and Development, 29(1), 75-81.

Yuan, P., Liu, Y., Ju, F., & Li, X. (2017). A Study on Farmers' Agriculture related Tourism Entrepreneurship Behavior. 5th International Conference on Information Technology and Quantitative Management, ITQM 2017, 122, 743-750. https://doi.org/10.1016/j.procs.2017.11.432