

The role of media advertising in shaping consumer behaviour: The case of Türkiye

Medya reklamlarının tüketim davranışlarını şekillendirmedeki rolü: Türkiye örneği

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Abstract

The purpose of this study is to examine the relationship between advertising expenditures and household consumption expenditures in Türkiye during the 2000–2024 period from an econometric perspective. Using data from the Central Bank of the Republic of Türkiye and the Advertising Association, the guiding effect of advertising on consumption was analysed using the Toda–Yamamoto causality test. This method allows the direction of causality to be determined independently of the degree of integration of the series. The findings show that there is a two-way causality between advertising expenditures and household consumption expenditures. An increase in advertising statistically significantly increases consumption; rising consumption, in turn, encourages businesses to expand their advertising investments. Consequently, this mutual interaction between advertising and consumption is of strategic importance for economic growth and demand management. Therefore, designing advertising policies aligned with macroeconomic planning will help achieve sustainable development goals.

Keywords: Advertising Expenditures, Household Consumption Expenditures, Media Economics, Toda–Yamamoto Causality Analysis

Jel Codes: E21, M37, C22

Öz

Bu çalışmanın amacı, 2000-2024 döneminde Türkiye'de reklam harcamaları ile hanehalkı tüketim harcamaları arasındaki ilişkiyi ekonometrik bir bakış açısıyla incelemektir. Türkiye Cumhuriyet Merkez Bankası ve Reklamcılar Derneği'nden elde edilen veriler kullanılarak, reklamın tüketim üzerindeki yönlendirici etkisi Toda-Yamamoto nedensellik yöntemi ile analiz edilmiştir. Bu yöntem, serilerin entegrasyon derecesinden bağımsız olarak nedensellik yönünün belirlenmesine olanak tanır. Bulgular, reklam harcamaları ile hanehalkı tüketim harcamaları arasında iki yönlü bir nedensellik olduğunu göstermektedir. Reklam harcamalarındaki artış, istatistiksel olarak tüketimde önemli bir artışa neden olur; artan tüketim eğilimleri ise işletmeleri reklam yatırımlarını artırmaya teşvik eder. Sonuç olarak, reklam ve tüketim arasındaki bu karşılıklı etkileşim, ekonomik büyüme ve talep yönetimi açısından stratejik öneme sahiptir. Bu nedenle, makroekonomik planlamaya uygun reklam politikaları tasarlamak, sürdürülebilir kalkınma hedeflerine katkıda bulunacaktır.

Anahtar Kelimeler: Reklam Harcamaları, Hanehalkı Tüketim Harcamaları, Medya Ekonomisi, Toda–Yamamoto Nedensellik Analizi

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Introduction

Advertising is one of the most powerful communication tools shaping the economic and cultural structure of modern societies. In today's world, advertising is not merely a promotional activity; it is a multifaceted mechanism at the centre of the interactions among media, culture, and the economy. As the carrier of this interaction, the media is the fundamental platform for producing, circulating, and delivering advertising messages to consumers. In this respect, the media, as an invisible component of the economic system, both guide the promotional strategies of manufacturing companies and shape consumers' perceptions, desires, and behaviours.

The media-advertising relationship is a communication process that extends beyond the transfer of information and directly affects economic value. Advertisements on television, digital platforms, social media, and traditional press influence individuals' consumption patterns, thereby altering overall demand. In this context, the media functions as the "consumption engine" of the economic system, serving as a bridge between production and consumption through advertising. Advertisements redefine not only individuals' needs but also their desires, creating a cycle that sustains the consumer society.

In today's economies, where consumer culture is on the rise, the media has become not only a channel of information but also a "symbolic production space" that guides economic behaviour. The development of targeted advertising, especially in digital media environments, has made consumer behaviour measurable and predictable. Thus, the media has taken on a decisive role in the strategic decisions of economic actors, and advertising budgets have become directly linked to consumer trends. This transformation has increased the importance of advertising expenditures not only for companies' competitive power but also for their impact on consumption and national economic growth dynamics.

This study aims to examine the impact of media-shaped advertising activities on household consumption expenditures within an economic framework. Using data from Türkiye for the period 2000–2024, the relationship between advertising expenditures and consumption levels was tested using the Toda–Yamamoto causality approach. This method allows for the assessment of the two-way interactions in the media-advertising-consumption triangle, independent of the degree of integration of the series. Using indicators compiled from data from the Central Bank of the Republic of Türkiye (TCMB) and the Advertisers Association, the study analysed whether advertising investments drive consumption behaviour and, conversely, whether increases in consumption affect advertising budgets.

The findings demonstrate that advertising is not merely one of the marketing tools used by companies; rather, it has become a decisive factor in economic decision-making alongside the media's guiding power. As a channel that ensures the continuity of consumer culture, the media transforms both individual preferences and societal consumption patterns. Therefore, examining the impact of advertising on the economy through the media contributes significantly not only to the field of communication but also to economic policy.

In conclusion, the existing literature largely examines the relationship between advertising and consumption at the micro level, focusing on its impact on consumer attitudes, brand loyalty, and purchase intention. In contrast, studies examining the reciprocal relationship between advertising expenditures and household consumption expenditures using macroeconomic time-series data are limited. Particularly in the case of Türkiye, empirical research testing the direction of causality between the two variables using long-term data remains insufficient. This study aims to fill this gap in the literature by analysing the relationship between advertising and consumption from a bidirectional causality perspective using a dataset covering the 2000–2024 period. Furthermore, a causality test independent of the integration levels of the series is applied using the Toda–Yamamoto approach, thus providing a more robust methodological framework.

Advertisement and advertising

Derived from the Latin verb "advertere," meaning "to turn toward," the concept of "advertising" has undergone numerous changes over the centuries to reach its current meaning. (Goddard, 2001; Yalınz and Hülür, 2021). Although historically, it can be said that the phenomena of products, consumption, trade, markets, and, therefore, advertising date back to very ancient times, it is more appropriate to consider advertising in the context of the modern era. This is because understanding and analysing today's advertising correctly is only possible with a perspective that accounts for the changes and transformations throughout history. Economic, social, political, cultural, and technological systems constantly interact and exhibit dynamic structures. Advertising is seen as both an influencer and an influenced entity within these systems (Yalınz and Hülür, 2021). In today's intense competitive

environment, advertising stands out as an indispensable element of integrated marketing communication, enabling businesses to solidify their market position, secure a lasting place in consumers' minds and hearts, and establish an effective communication network with them. Advertising essentially emerged as a product of modern industrial societies. It has developed particularly significantly in industrialised countries and those undergoing industrialisation (Elden, 2016).

Advertising is a one-way, paid form of communication used to disseminate information about products or services (Zamin Abbas and Bari, 2011). The need for advertising arose from developments such as population growth, the rapid expansion of cities with large shopping centres, mass production in factories, and the emergence of new distribution channels that enabled goods to be delivered to different regions. The proliferation of popular newspapers also supported this process. Thus, product quality and features began to be promoted to consumers living in regions far from production centres through advertising. In this context, advertising can be considered a complementary element of marketing activities, reducing the physical and communicative distance between producers and consumers and conveying the necessary information about the product (Elden, 2016).

Advertising refers to the process of promoting a product or service to a wide audience by purchasing specific space and time slots in mass media, with the cost clearly stated. Advertising encompasses directing individuals to engage in certain behaviours of their own volition, persuading them to adopt a particular mindset, or raising awareness of a product, service, idea, or organisation. Advertising, with its attention-grabbing structure, aims to convey its message to its target audience while influencing their attitudes and habits and encouraging them to adopt a certain perspective (Özkan, 2014). The American Marketing Association defines advertising as the process of sharing announcements and messages prepared within a specific time frame by businesses, public institutions, non-governmental organisations, or individuals to inform or persuade the target audience about a product, service, idea, or institution (Yıldız, 2022).

Advertising plays a significant role in the survival of any organisation. It is a means of promoting sales and awareness of the organisation's product or service. Therefore, advertising can also be defined as the act of drawing the public's attention to a product or service in exchange for monetary value. Thus, advertising is an action and is not limited to print media, television, the internet, or any other media. On the other hand, advertising is a public announcement made to influence or inform the public (Daniel, 2019). In general terms, advertising is the promotion and acceptance of individuals, institutions, goods, and services to the public. From a marketing perspective, advertising is the transfer of institutions, goods, services, and ideas to the target audience through impersonal channels in exchange for a fee paid to the advertising medium (Özkan, 2014). In contemporary marketing practices, advertising also creates a need for the product in consumers' minds. It means influencing consumers' minds to develop a desire for the product, regardless of whether they need it (Zamin Abbas and Bari, 2011). In this context, the fundamental purpose of advertising is to create a specific impact on the target audience, guiding their thoughts, attitudes, and habits, thereby influencing their purchasing behaviour and increasing the business's profitability. Through advertising, businesses reshape consumers' cost-benefit perceptions of products in their favour, thereby strengthening their competitive advantage in the market (Topsümer and Elden, 2015). Consequently, companies invest heavily in advertising campaigns.

Advertising is a form of communication that directs, informs, and persuades an audience to purchase a specific product or service. It can be defined as a non-personal, paid communication process in which ideas, concepts, products, services, or information are promoted through the media by a specific sponsor to influence behaviour or shape attitudes. Advertising is considered one of the most powerful tools in marketing due to its ability to reach large audiences and its lasting impact on viewers. As a promotional strategy, advertising plays an important role in creating product awareness among potential consumers and shaping their purchasing decisions. While advertisements in all media are effective on the target audience, television is considered one of the most powerful advertising environments due to its wide reach. Television advertisements can influence not only individuals' attitudes, behaviours, and lifestyles, but also the long-term cultural structure of society. (Manandhar, 2018).

Advertising is a vital force for various reasons. First, advertising is an important competitive tool among companies. In a free market, companies constantly compete for sales by offering consumers better quality, lower prices, or both. Furthermore, companies use brand names to represent a consistent level of quality at specific prices. Companies use advertising to communicate to consumers what these brand names represent, at what prices, and where they can be found. Various forms of advertising enable companies to communicate quickly and effectively with consumers when needed. For this reason,

advertising is indispensable for the efficient functioning of competitive markets. Secondly, advertising is the primary means by which companies inform consumers about new or improved products (Tellis, 2003).

Advertising and consumption

Advertising, in the simplest terms, is a promotional activity. It can be considered a planned communication and consumption guidance process carried out by a business, institution, or organisation to present its new products or services to the public in exchange for payment. In societies where consumer culture is strongly felt, according to Bauman, the ideal is that everything is temporary and discontinuous. At this point, no product or value should be permanently adopted by the consumer. No need should be fully satisfied either. Consumers, who are constantly exposed to advertising messages across various media channels in their daily lives, often feel the desire to benefit from the marginal utility promised by products featured in advertisements, even if they do not have a real need for them. This situation causes individuals to develop new desires and pursue products that they assume they need (Demirel, 2021). Advertising can shape consumers' perceptions, tendencies, and preferences toward certain products. Advertising content generally consists of stages of attracting attention, arousing interest, creating desire, and prompting action. The phenomenon of consumption arises from the impact these elements have on consumers. The primary goal of advertising is first to capture the target audience's attention and then develop their interest in the product or service. The next stage is to stimulate the consumer's desire to purchase. Ultimately, it aims to prompt them to take action and purchase the product or service. In this process, advertising serves as a communication tool that encourages individuals to purchase by leading them to believe they need the product or service (Özkan and Erciş, 2024). Consequently, advertisements foster a positive attitude toward the brand until the consumer purchases the product and, through this attitude, elicit emotional responses. According to traditional hierarchy-of-effects models, exposure to advertising leads to brand awareness and advertising-related awareness. This, in turn, leads to attitudes toward the advertisement and the brand, ultimately influencing purchase intention (Manandhar, 2018).

Today, advertisers bombard consumers with interesting messages or reminders from the moment they wake up until they fall asleep. Advertisements appear in the news programs consumers watch, the entertainment content they search for, on billboards on their way to and from work, on websites while browsing the internet, and even in their classrooms and offices. Therefore, advertisements significantly influence consumers' awareness and can greatly affect their thoughts, attitudes, emotions, and decisions (Tellis, 2003).

Additionally, advertisements convey all product information to millions of consumers to maintain persuasive communication. On behalf of advertisers, advertisements in mass media for a fee can convey information to consumers about existence, features, areas of interest, seller or labour services, etc. When consumers receive and understand the message, they may demonstrate purchase intent and behaviour. When purchase behaviour satisfies consumers, they develop an opinion and a reputation about the product or service, and make a purchase. Advertising not only provides information about the target product or service but also encourages consumers to develop a bias towards it, shaping attitudes and emotions. Therefore, the effect of advertising on consumer attitudes is extremely important (Chih-Chung et al., 2012). In societies where this goal is achieved, it is impossible to speak of complete pleasure, lasting satisfaction, or eliminated deficiency. This is because there will always be something that consumers will want, desire, or feel deprived of. Similarly, new products to meet these demands will be continuously offered. The development of modern advertising is closely related not only to the expansion of the consumer goods market but also to the rise in importance of lifestyles based on ostentation. Especially in modern societies where consumption has become a "spectacle," advertisements have become a powerful tool of modernisation (Demirel, 2021). Overall, advertising plays an important role because of its decisive influence on both production and consumption.

Literature review

Studies on the relationship between advertising, media, and consumption have formed an important field of research in both economics and communication sciences. The role of advertising in the economic system is not limited to its promotional function; it also serves as a mechanism for transferring information that supports the production-consumption cycle. Tellis (2003) states that advertising increases market efficiency by reducing information asymmetry between firms and guides consumer decisions. In this context, advertising is seen as a tool that helps maintain the balance between price and quality in highly competitive markets.

Özkan and Erciş (2024) theoretically examine the relationship between culture, consumer culture, advertising, and consumption. Their study shows that advertising is not only a promotional tool but also an effective social mechanism in shaping consumer culture. In this process, advertising has become an element that influences not only economic preferences but also the production of cultural meaning.

The study conducted by Yalnız and Hülür (2021) examined the effect of sponsored advertisements on Instagram on university students' consumption behaviours. Within the study's theoretical framework, the concepts of advertising, social media advertising, Instagram advertising, consumption, and consumer behaviour were discussed in detail, and their interactions were explained. Data obtained from a survey administered to 384 students at Bolu Abant İzzet Baysal University were analysed using SPSS 20. The findings revealed that sponsored advertisements on Instagram have a significant effect on students' consumption tendencies and purchasing decisions.

In a study by Elmasoğlu (2017), the role of advertising as an effective driver of the spread of consumption culture was examined using descriptive analysis. It examined the functions of advertising within consumption culture and how these functions gain meaning at the societal level. In this context, the concepts of consumer society, consumption culture, and advertising were discussed within a theoretical framework, drawing on the views of different thinkers. Within this framework, it concluded that advertising has become not only a sales tool but also a part of meaning production processes. Going beyond its traditionally assumed functions of sales and persuasion, advertising is an effective tool for reproducing social values, lifestyles, and cultural indicators.

In the study conducted by O'Cass (2000), the importance of the concept of "participation" in research aimed at understanding the purchasing and consumption behaviours of individuals and different market segments was emphasised. The research proposes four types of participation to reveal that consumer behaviour has a multidimensional structure: (a) product participation, (b) purchase decision participation, (c) advertising participation, and (d) consumption participation. Furthermore, "consumer participation" has been conceptualised as a higher-level concept encompassing all these dimensions. The study developed unique measurement tools for each type of participation, which were empirically tested using confirmatory factor analysis (CFA) and structural equation modelling (SEM). The research findings show that participation plays a decisive role in understanding consumer behaviour and that these dimensions must be taken into account to increase the effectiveness of marketing strategies. O'Cass's study provides important theoretical and practical contributions to the development of the modern marketing mix by enabling a more comprehensive assessment of consumers' interest in marketing activities.

In the study conducted by Aydın (2018), smartphone advertisements, which have become one of today's important consumption tools, were examined within the framework of Veblen's "conspicuous consumption" theory. The study emphasises that consumption is not merely an act of meeting basic needs; it is also a way for individuals to express their social status, sense of belonging, and identity. Three television advertisements, selected using purposive sampling, were analysed using discourse analysis; the lifestyles presented in the advertising texts, consumption behaviours, and symbolic meanings were evaluated. The findings show that smartphone advertisements glorify a certain lifestyle rather than promoting the product itself. Themes such as "technological development," "global consumption," "individuality," "being different," and "social visibility" stand out, suggesting that these advertisements reinforce the ideological aspects of consumer culture.

Gökaliiler and Saatçioğlu's (2016) study examined the relationship between the ritual elements brands use in their advertisements and brand loyalty. Conducted using a qualitative research approach, the study involved focus group discussions with participants selected through purposive sampling. The findings show that brands that create rituals establish stronger emotional bonds with consumers and that the rituals featured in advertisements increase their appeal. However, some participants noted that these rituals do not always translate into consumption habits. Overall, the research reveals that advertisements strengthen brand loyalty through rituals that integrate cultural values, but this effect may be limited in the long term.

The study by Kızıldemir and Dilek (2025) examines the role of advertising in the context of consumer society and, in particular, the effects of the "mere exposure" strategy on consumer behaviour, drawing on theoretical and contemporary examples. The research reveals that advertisements do not merely guide purchasing decisions; they also reproduce consumption practices, becoming part of everyday life. It emphasises that repeated advertising content creates brand familiarity among individuals, paving the way for the development of positive attitudes; this process is reinforced by algorithmic repetition on digital platforms, influencer collaborations, and the intense circulation of advertising in online media

environments. Based on a literature review, the study highlights the decisive role of advertising strategies in sustaining consumption culture. It makes a unique contribution by revealing that the mere exposure approach serves as a structural tool that shapes individuals' consumption tendencies.

In Kalay's (2025) study, the advertising discourses of banks, which play an active role in the construction and perpetuation of consumer society, were examined through discourse analysis to determine what kind of lifestyle they construct. Within this scope, advertisements published by three private banks ranked in the top ten of the "Türkiye's strongest and most valuable brands" list announced by Brand Finance for 2024 during religious holidays were selected as samples. The analysis finds that the traditional understanding of holidays has shifted away from its collective, simple structure, and that these periods have been reframed as opportunities for vacation and spending, thereby promoting a new consumption-based lifestyle. Furthermore, the inclusion of humorous elements in the advertisements is a strategic communication choice aimed at softening the formality and distance associated with the banking sector and reducing consumers' concerns about using credit. In this respect, the study reveals that banking advertisements do not merely promote financial products but also construct symbolic narratives that reproduce consumer culture.

In Demir's (2022) study, it is argued that advertising plays a central role in the construction and reproduction of consumer culture within the current economic system. It is emphasised that advertising objectifies social values and assets within the economic policy framework and puts them into circulation; it is effectively positioned in different media such as television, newspapers, and the internet as a tool that perpetuates the relationship between production and consumption. The theoretical basis of the research includes economic policy approaches, ideology theories, and media studies literature; in this context, the multi-layered relationship that advertising establishes with the world of social action and meaning is analysed. As a case study, Coca-Cola's 2011 "Ramadan from East to West" commercial, produced by McCann Istanbul, was examined using qualitative content analysis and formal analysis. The findings show that advertising within the economic-political structure not only encourages consumption practices but also reinforces today's production-consumption culture and contributes to the symbolic reproduction of social hierarchies.

The existing literature shows that the relationship between advertising and consumption is mostly examined at the level of individual behaviour, perceptions, and attitudes. Studies in communication and marketing analyse the effects of advertising on purchase intention and brand loyalty; in this context, advertising is generally viewed as a one-way tool that increases consumption. However, at the macro level, research examining the interaction between total advertising expenditures and total household consumption expenditures over long-term time series is quite limited.

A substantial body of research assumes that the relationship is mostly from advertising to consumption, and that how increasing consumption trends shape companies' advertising strategies is not sufficiently discussed. However, from a market-dynamics perspective, the relationship between advertising and consumption is not linear but exhibits a dynamic structure with feedback mechanisms. Empirically testing this reciprocal interaction is important for both demand theory and media economics literature.

This study uses the Toda-Yamamoto causality approach to perform an analysis independent of the integration levels of the series, aiming to overcome the aforementioned methodological limitation. Furthermore, the dataset covering the period 2000–2024 contributes to the literature by encompassing a long time span during which the Turkish economy underwent digitalisation, media structural transformation, and macroeconomic fluctuations. In these respects, the research fills a gap in the literature regarding empirical, methodological, and temporal aspects.

Purpose and methodology of the study

The purpose of this study is to examine the relationship between advertising expenditures and household consumption expenditures in Türkiye during the 2000–2024 period from an econometric perspective. The data set used in this study consists of annual data for the period 2000–2024, and indicators for household and advertising expenditures have been compiled from the official databases of the Central Bank of the Republic of Türkiye (CBRT) and the Advertisers Association. The dataset contains time-series values for the variables, allowing analysis of the stationarity properties and long-term relationships of the series. In this context, the effect of advertising expenditures on consumption behaviour was empirically tested, and the causality relationship between the two variables was examined using econometric methods.

One of the most common approaches for testing causality in time series analysis is the Granger causality test. However, this method is sensitive to the stationarity condition of the series and the cointegration

relationship. Especially when working with series with different degrees of integration, the traditional Granger approach can produce misleading results. This methodological limitation has led to the expanded VAR approach developed by Toda and Yamamoto (1995) gaining importance in the literature. This method allows for causality analysis based on level values, independent of the integration degrees of the series (Göksu and Balkı, 2023).

The Toda–Yamamoto approach adds lags to the standard VAR model up to the maximum integration degree of the series. It performs the causality test using the Wald statistic within the extended model (Toda and Yamamoto, 1995). This method is preferred, particularly because it reduces the risk of incorrect model specification in time series with different integration levels. Furthermore, the method offers a more flexible and reliable framework as it is not sensitive to cointegration pre-tests (Göksu and Balkı, 2023). In this study, the Toda–Yamamoto approach was preferred to ensure a sound causality analysis, given that the consumption and advertising expenditure series have different integration degrees.

In time-series analysis, the Granger causality test is commonly used to examine causal relationships between variables. However, when variables are integrated and potentially cointegrated, testing them in differenced form may lead to model misspecification and the loss of long-run information (Engle and Granger, 1987). Moreover, in the presence of cointegration, the standard Wald or F statistics used in conventional Granger testing may not follow their usual asymptotic distributions, thereby reducing the reliability of inference (Toda and Yamamoto, 1995; Dolado and Lütkepohl, 1996). Therefore, to overcome these limitations, Toda and Yamamoto (1995) developed an approach based on the Wald statistic, which allows for the direct analysis of causality using level values, independent of the series' stationarity.

The Toda–Yamamoto causality method has a more flexible structure than traditional Granger analysis and is not sensitive to the degree of integration of the series. The application process of this method can be summarised as follows (Balkı and Göksu, 2023):

- First, the optimal lag length for the variables in the model is determined.
- Then, the highest degree of integration detected between the series is added to the determined lag length.
- In the final stage, the VAR model is estimated using this total lag structure, and the causality relationship between the variables is tested with the WALD test.

In the model created in this manner, Y is taken as the dependent variable and X₁ as the independent variable; thus, the causal relationship between advertising expenditures and household consumption expenditures is reliably tested using level values.

$$\text{Consumption} = \alpha_0 + \sum_{i=1}^{k+d_{\max}} B_{1i} \text{Consumption}_{t-1} + \sum_{i=1}^{k+d_{\max}} B_{2i} \text{Adversiting}_{t-1} + \varepsilon_{1t} \quad (1)$$

$$H_0 = \text{Adversiting} \not\Rightarrow \text{Consumption} \text{ (There is no causality)}$$

$$H_1 = \text{Consumption} \Rightarrow \text{Adversiting} \text{ (There is causality)}$$

$$\text{Adversiting} = \alpha_1 + \sum_{i=1}^{k+d_{\max}} B_{3i} \text{Adversiting}_{t-1} + \sum_{i=1}^{k+d_{\max}} B_{4i} \text{CONSUMPTION}_{t-1} + \varepsilon_{2t} \quad (2)$$

$$H_0 = \text{Consumption} \not\Rightarrow \text{Adversiting} \text{ (There is no causality)}$$

$$H_1 = \text{Adversiting} \Rightarrow \text{Consumption} \text{ (There is causality)}$$

Analysis and findings

This section presents the empirical results of the econometric models used in the study and systematically evaluates the findings. The analysis first examined the series' stationarity using ADF and PP unit root tests, then determined the appropriate lag length, and finally assessed the model's reliability using autocorrelation tests. Finally, the direction of the causal relationship between advertising expenditures and household consumption expenditures was analysed using the Toda–Yamamoto causality approach.

Table 1: ADF and PP Unit Root Tests

ADF Unit Root Tests		CONSUMPTION	ADVERTISING
	Level Values/Variables		
Fixed (Level)	t-statistic	1.468439	2.618158
	prob.	0.9986	1.0000
Fixed (First Differences)	t-statistic	-4.640537	-2.361452
	prob.	0,0013***	0.1629
Fixed (Second Differences)	t-statistic	-5.285061	-7.228603
	prob.	0,0003***	0.0000***
PP Unit Root Tests		CONSUMPTION	ADVERTISING
	Level Values/Variables		
Fixed (Level)	t-statistic	1.661740	-7.228603
	prob.	0.9992	0.9995
Fixed (First Differences)	t-statistic	-4.640537	-2.406663
	prob.	0,0013***	0.1509
Fixed (Second Differences)	t-statistic	-9.765428	-7.440905
	prob.	0,0001***	0.0000***

Note: ***, ** and * indicate significance levels of 0.01, 0.05 and 0.10, respectively.

The ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) unit root tests are fundamental methods for determining whether time series are stationary (Dickey and Fuller, 1979; Phillips and Perron, 1988). Stationarity means that the mean and variance of the series remain constant over time and is an important prerequisite for obtaining reliable results in econometric analyses.

According to the ADF test performed in this study, the CONSUMPTION (Household Consumption Expenditures) variable is not stationary at the level (p-value 0.9986), but becomes statistically significantly stationary when the first difference is taken (t-statistic = -4.640537; p = 0.0013 < 0.05). This indicates that the CONSUMPTION series is I(1), i.e., first-order integrated. The ADVERTISING (Advertising Expenditures) variable is not stationary at the level (p = 1.0000) and did not reach significance in the first difference either (p = 0.1629), but when the second difference is taken, the t-statistic is -7.228603, and the p-value is 0.0000. This result indicates that the ADVERTISING series has an I(2) structure, meaning it is second-order integrated.

The Phillips-Perron test results also largely support the ADF test. The CONSUMPTION variable is not stationary at the level (p = 0.9992), but it has become stationary in a significant manner in the second difference (t = -9.765428; p = 0.0001). Similarly, the ADVERTISING variable is not stationary at the level (p = 0.9995), but when the second difference is taken, the series becomes stationary (t = -7.440905; p = 0.0000).

These findings reveal that neither series is statistically reliable for regression analysis in its raw form, but both become stationary when their differences are taken. Therefore, analyses using the first difference of the CONSUMPTION variable and the second difference of the ADVERTISING variable will reduce the possibility of spurious regression and allow for a more accurate assessment of the relationship between the variables.

Table 2: Appropriate Delay Length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-13.34595	NA	0.13021	1.334430	1.433169	1.359263
1	45.77881	102.8257*	0.000108*	-3.459027*	-3.162811*	-3.384530*
2	48.69692	4.571695	0.000120	-3.365184	-2.871491	-3.241022

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

In the Toda-Yamamoto causality framework, the first step is to determine the optimal lag length (k) of the standard VAR model. For this purpose, a VAR model was initially estimated using the variables'

level values, regardless of their integration orders. The optimal lag structure was then selected based on conventional information criteria, including the Akaike Information Criterion (AIC), Schwarz Information Criterion (SC), Hannan-Quinn Criterion (HQ), and Final Prediction Error (FPE). Estimating the VAR model in levels is consistent with the Toda-Yamamoto procedure, as it requires augmenting the optimal lag length with the maximum order of integration (dmax) to construct an augmented VAR (k + dmax) for Wald causality testing (Toda and Yamamoto, 1995). This approach ensures valid asymptotic inference even when the variables are integrated or potentially cointegrated. According to Table 2, the model's lag order is 1 based on the AIC (Akaike Information Criterion), FPE (Final Prediction Error), LR (Sequential Modified LR Test Statistic), SC (Schwarz Information Criterion), and HQ (Hannan-Quinn Information Criterion) criteria. Based on these results, the appropriate lag is 1 according to the AIC, FPE, LR, SC, and HQ criteria. Since the maximum integration order (dmax) is 2, the lag length is k + dmax = 3. Subsequently, the LM test was performed to check for autocorrelation. According to Table 3:

Table 3: Autocorrelation LM Test Results

Lag	LM Statistics	Prob.
1	1.304198	0.2966
2	1.141904	0.3793
3	0.988082	0.4983

The following hypotheses are considered for the LM test. These are:

H_0 = There is no autocorrelation.

H_1 = There is autocorrelation.

According to Table 3, H_0 hypothesis is accepted. In other words, since all lag levels are at a 0.05 significance level, there is no autocorrelation problem.

Table 4: Heteroskedasticity Tests Results

Chi-sq	Prob.
47.69052	0.0920

This test examines whether all residual variances in the model are jointly constant.

H_0 = Residuals are homoscedastic (i.e., the variance does not vary).

H_1 = Residuals are heteroscedastic (variance varies).

Table 4 presents the heteroskedasticity test results for the estimated VAR model. The Chi-square statistic is 47.69052, with a corresponding p-value of 0.0920.

Under the null hypothesis of homoskedastic residuals, the probability value exceeds the conventional 5% significance level ($p = 0.0920 > 0.05$). Therefore, the null hypothesis cannot be rejected. This finding indicates that there is no statistically significant heteroskedasticity in the model residuals.

The absence of heteroskedasticity suggests that the residuals' variance is stable over the sample period, supporting the statistical adequacy of the VAR specification. Consequently, the Wald statistics employed within the Toda-Yamamoto causality framework can be considered reliable.

Overall, the diagnostic test results indicate that the estimated model satisfies the homoskedasticity assumption and does not exhibit heteroskedasticity.

Table 5: Normality Test Results

Skewness	Chi-Square Test Statistics	Prob.
0.106676	0.041726	0.8381
0.255315	0.239014	0.6249
Joint	0.280740	0.8690
Kurtosis	Chi-Square Test Statistics	Prob.
2.116810	0.715023	0.3978
2.257497	0.505368	0.4772
Joint	1.220391	0.5432
	Jarque-Bera	Prob.
	0.756749	0.6850
	0.744382	0.6892
Joint	1.501131	0.8264

Normality test results indicate that the null hypothesis of multivariate normality cannot be rejected. Both component-wise and joint statistics support this conclusion.

Regarding skewness, the probability values for the two components are 0.8381 and 0.6249, respectively. The joint skewness statistic also yields a high p-value (0.8690), indicating no statistically significant asymmetry in the residual distribution.

Similarly, the kurtosis statistics do not suggest any deviation from normality. The p-values for the individual components (0.3978 and 0.4772) and the joint statistic (0.5432) are all above the conventional 5% significance level. This implies that there is no evidence of excess kurtosis or fat-tailed behaviour in the residuals.

The Jarque-Bera statistics further confirm these findings. Both individual equations (p-values of 0.6850 and 0.6892) and the joint test (p-value of 0.8264) indicate that the null hypothesis of normally distributed residuals cannot be rejected.

Overall, the diagnostic results suggest that the residuals of the estimated VAR model are approximately normally distributed. This supports the statistical adequacy of the model specification and enhances the reliability of the Wald statistics employed in the Toda-Yamamoto causality analysis. While small sample properties should always be interpreted cautiously, the consistently high probability values provide no indication of distributional misspecification in the model.

Table 6: Toda-Yamamoto Causality Test Results

Direction of Causality	Chi-Square Test Statistics	Prob.	Conclusion
Advertising Expenditures → Household Consumption Expenditures	4.60183	0.0319**	There is causality.
Household Consumption Expenditures → Advertising Expenditures	8.64502	0,0032***	There is causality.

Note: ***, ** and * indicate significance levels of 0.01, 0.05 and 0.10, respectively.

The Toda-Yamamoto causality test results reported in Table 6 examine the direction of causality between the variables. The Chi-square statistics and corresponding probability values indicate statistically significant causality running from advertising expenditures to household consumption expenditures ($\chi^2 = 4.60183$; $p = 0.0319$) and from household consumption expenditures to advertising expenditures ($\chi^2 = 8.64502$; $p = 0.0032$). These findings suggest bidirectional (feedback) causality between the two variables.

However, it is important to emphasise that the Toda-Yamamoto approach tests only the existence and direction of causality and does not provide coefficient estimates. The Wald statistic evaluates the joint significance of the lagged explanatory variables but does not offer direct information regarding the magnitude or the sign of the marginal effect of the independent variable on the dependent variable (Toda and Yamamoto, 1995; Dolado and Lütkepohl, 1996). Therefore, it would not be methodologically

appropriate to infer from these results whether advertising expenditures increase or decrease household consumption expenditures (Toda and Yamamoto, 1995).

Accordingly, the findings presented in Table 6 should be interpreted strictly in terms of the presence and direction of causality. Assessments of the magnitude, economic significance, or dynamic impact of the relationship would require additional analyses, such as impulse response functions, variance decompositions, or structural modelling.

In sum, the results indicate the presence of short-run causal interactions between the variables; however, they do not provide evidence on the quantitative strength or the direction (positive or negative) of the effect. Clarifying this distinction ensures consistency between the methodological framework and the interpretation of the findings.

Conclusion, discussion and implications

This study examined the relationship between advertising expenditures and household consumption expenditures in Türkiye over the period 2000–2024 using the Toda–Yamamoto causality approach. The empirical findings reveal a statistically significant bidirectional causal relationship between the two variables. In other words, advertising expenditures help predict household consumption expenditures, and changes in consumption levels also help explain subsequent movements in advertising investments. These results indicate a dynamic interaction rather than a one-sided influence structure.

From a theoretical perspective, the finding that advertising expenditures Granger-cause consumption expenditures is consistent with the traditional view that advertising functions as an information-transmitting and demand-stimulating mechanism. By increasing product awareness and shaping consumer preferences, advertising can boost aggregate spending. However, the reverse causality detected in the analysis suggests that the relationship cannot be reduced to a simple stimulus–response framework. Rising consumption trends appear to encourage firms to expand their promotional activities, reflecting a feedback mechanism embedded within market dynamics. Thus, advertising should be understood not only as a driver of consumption but also as a variable that responds to evolving demand conditions.

The bidirectional causality identified in this study supports and extends several empirical and theoretical findings in the existing literature. The finding that advertising expenditures help predict household consumption expenditures is consistent with Tellis's (2003) argument that advertising reduces information asymmetry and stimulates demand by shaping consumer preferences and purchase decisions. Similarly, the empirical results of Yalnız and Hülür (2021), who demonstrate that social media advertisements significantly influence consumption tendencies, and the theoretical framework proposed by Özkan and Erciş (2024), which emphasises the role of advertising in the construction of consumer culture, align with the present findings. Moreover, Demir (2022) argues that advertising reproduces the production–consumption cycle within the economic system, while Demirel (2021) highlights its role in sustaining consumption culture through symbolic mechanisms; the macro-level evidence obtained in this study empirically supports these perspectives by showing that advertising expenditures are structurally linked to aggregate consumption dynamics rather than being merely firm-level promotional costs.

At the same time, the reverse causality running from household consumption expenditures to advertising expenditures provides empirical confirmation of the adaptive and strategic nature of advertising decisions. Although much of the literature assumes a one-directional impact from advertising to consumption, Tellis (2003) also emphasises that firms adjust their advertising investments in response to market conditions, and the feedback mechanism identified in this study substantiates this view by demonstrating that rising consumption trends encourage firms to expand their advertising activities. Overall, the findings reinforce a dynamic and reciprocal interpretation of the advertising–consumption relationship, showing that advertising both influences and is influenced by aggregate economic behaviour.

The bidirectional nature of the relationship has important implications for media economics and macroeconomic analysis. At the macro level, consumption is one of the main components of aggregate demand, and fluctuations in consumption directly affect growth performance. The results suggest that advertising expenditures are intertwined with these demand dynamics. In periods of expanding consumption, firms may increase advertising budgets to consolidate market share, while in periods of contraction, they may adjust their advertising strategies in response to weakened demand. Therefore, advertising investments can be interpreted as both a complementary factor supporting demand and an adaptive mechanism reacting to economic cycles.

It is important to underline that the Toda–Yamamoto methodology identifies the direction and statistical significance of predictive causality; it does not directly quantify the magnitude of the economic effect. Consequently, the findings demonstrate a statistically significant interaction, but they do not quantify the impact of advertising on consumption. Future research could extend this framework by employing impulse–response functions, variance decomposition analysis, or structural models to more explicitly evaluate the size and persistence of the effects.

From a policy perspective, the results highlight that advertising activities are not merely firm-level marketing decisions but are linked to broader demand conditions within the economy. Policymakers concerned with demand management and sustainable growth may consider the advertising sector as an integral component of economic activity rather than a peripheral communication tool. At the same time, businesses should recognise that macroeconomic consumption trends shape advertising strategies and should therefore be aligned with broader economic expectations and market signals.

Several limitations should also be acknowledged. First, the analysis relies on annual data, which may mask short-term fluctuations and high-frequency dynamics. Second, the study focuses on aggregate advertising and consumption expenditures; sectoral or media-specific disaggregation could reveal heterogeneous effects. Third, structural breaks—particularly those related to digitalisation and economic shocks—may influence the relationship over sub-periods. Addressing these aspects in future studies would deepen the understanding of the advertising–consumption nexus.

In conclusion, the evidence suggests that advertising and household consumption expenditures in Türkiye are linked through a reciprocal and statistically significant causal structure. Rather than portraying advertising solely as an exogenous force shaping consumer behaviour, the findings point to a more complex interaction in which advertising both influences and is influenced by aggregate consumption trends. This dynamic perspective contributes to a more nuanced understanding of advertising's role within the broader macroeconomic system. It opens new avenues for interdisciplinary research at the intersection of media economics and economic policy.

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