

Future Anxiety and Consumption Adaptation under Food Price Inflation: Cross-Cultural Evidence on Young Adult Vulnerability

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Abstract

This study examines the association between food price inflation related consumer purchasing behaviors and future anxiety among the business faculty students in Türkiye and Hungary. The study uses two previously developed scales and data is collected from university students in Istanbul and Pécs. The Structural Equation Modelling (SEM) has been utilized for the testing of the proposed model. The results indicate that purchase motivations were positively associated with fear of the future in the Hungarian sample whereas the corresponding association was not statistically significant in the Turkish sample. Within-sample comparisons showed a gender difference in fear of the future in Türkiye, while the gender difference observed in Hungary concerned food shopping behaviors rather than future anxiety. In both samples, hopelessness about the future and food shopping behaviors were positively associated with fear of the future, whereas food consumption patterns were negatively associated with it. These findings suggest that the relationships between future anxiety and food price-related consumer behaviors may vary across socioeconomic and institutional contexts. However, the cross-sectional design does not support causal inference, and the country comparisons should not be interpreted as direct tests of national culture. The findings of this study will further expand upon the properties of behavioral finance, by providing additional evidence that psychological stressors are associated with consumption patterns during inflationary periods.

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1. Introduction

In recent years, the global economy has been marked by overlapping crises and quickly changing market conditions. At the same time, the accelerating pace of technical advancement, communication development and transformation across all areas of life have heightened economic instability. Eurostat and World Bank data indicate that the European Union experienced a nearly 6% reduction in GDP in 2020 followed by a weak and uneven recovery, while Türkiye recorded double-digit growth in 2021 before facing a gradual slowdown amid persistently high inflation based on Trading Economics data. During this same period, both economies saw rapid increases in internet penetration and e-commerce adoption, underscoring how technology-driven transformation has extended in parallel with heightened economic instability (Ministry of Trade, 2025). These factors have led to multidimensional shifts in consumer behavior, shaped in part by well-established psychological variables, that increase risk sensitivity in the face of perceived threats. Recent evidence from retail and consumer services research further indicates that crisis-induced inflation leads to systematic shifts in purchasing and consumer behavior (Mennekes & Schramm-Klein, 2025).

Young people, in particular, constitute a group that is financially vulnerable to these economic uncertainties and socioeconomic stresses. Eurostat data show that nearly one in four (24.1%) young Europeans (aged 15–29) reported difficulty making ends meet, while Hungary's rate is 17.9% and Türkiye's rate is 29.5% based on Eurostat data. Consequently, research on the relationship between future anxiety and price inflation has become increasingly important for its implications for mental health, financial well-being, and academic performance. High levels of food price inflation and student hunger have been widely noted, and these phenomena have been documented in relation to economic depression and crises such as pandemics (Ahamed et al. 2024; Bennett et al., 2023).

Over the years, the academic community expanded its focus from specific financial stressors associated with academic performance to a more comprehensive consideration of the psychological and cultural challenges that arise from the confrontation between lived realities and consumer behavior patterns (Ahamed and Limbu, 2024; Haiven and Komporozos-Athanasiou, 2022).

Two main constructs form the basis of this inquiry: future anxiety, defined as a chronic fear of unpredictable situations that might arise in life (Liu et al., 2022), and inflation, a persistent increase in prices resulting in difficulties in securing basic needs. Both concepts strongly influence well-being. These shape consumption patterns not only through rational economic behavior but also through perceptions of uncertainty, risk aversion, and cultural patterns.

Individual behaviors influence the degree of stress encountered and the ways in which it is managed, thereby shaping consumers' responses to economic pressure. Consumer behavior will be affected by more than income and prices; cognitive and emotional burdens also play a critical role. Factors such as limited cognitive capacity, environmental stress, and ambiguity are central to the formation of anxiety (McKercher, 2023; Thaler & Sunstein, 2008). Among students, concerns about the future, encompassing aspirations, obligations, and job expectations, give rise to future anxiety and other negative emotional states (Kara, Akın & Alp, 2020). These affective reactions vary by demographic and academic characteristics, as illustrated by medical interns who have been shown to experience high levels of professional future anxiety (Cihan et al., 2017). Sound consumer behavior appears to be weak, suggesting that improving knowledge alone may not substantially alter students' economic decision-making. A lack of self-confidence in using financial knowledge may contribute to poor consumer decisions and heightened stress. This underscores the need for educational initiatives that promote both financial literacy and self-efficacy (Kushwaha & Singh, 2023; An et al., 2024).

The study focuses on business faculty students since they have higher levels of financial awareness and exposure to the processes of economic decision-making, and therefore would be likely to be the most appropriate subjects for investigating financial literacy and the behavioral responses of people to inflation. Türkiye and Hungary were chosen as the comparative cases since they have significant macroeconomic and cultural differences: Türkiye is an emerging market with continuous inflation, and Hungary's economy may be characterized as stable, and transitional within the European Union. This is a meaningful cross-

cultural context in which to analyze how economic volatility and cultural atmosphere jointly influence the financial perceptions of young adults and their adaptive consumer behavior.

The study conceptually frames future anxiety as a multidimensional state about cognitive, emotional, and behavioral responses to financial uncertainty, while food inflation is also viewed as an economic stressor that affects access to basic needs (Kim & Murphy, 2023). The interplay between these two stressors informs consumers' behavior, and the mediating variable mechanisms include coping and cultural orientations (Marakshina et al., 2024). While both topics have been studied, studies have not looked at the combined fit of both topics into a single behavioral structure (Alhuseini, 2011). Moreover, cross-cultural research in this area remains limited; yet, there is growing evidence that uncertainty values, as well as other cultural variables, significantly affect consumer behavior (Hassan, Shiu & Parry, 2014). Retail inflation has also been examined using market-based approaches focusing on essential food baskets, highlighting how inflationary pressure manifests in retail contexts (Munoz-Villamizar et al., 2024).

The specific issue this investigation is concerned with is how future-oriented anxiety and rising food prices work together to affect consumption habits and coping behaviors among diverse group of learners across cultures. Although previous research has focused on financial literacy and coping strategies, the research findings are often mixed: in some studies, these factors appear to serve as protective mechanisms; in other studies, researchers point out the continuing vulnerability to risk that exists even with financial literacy and coping strategies (An et al., 2024; Kushwaha & Singh, 2023). Furthermore, these inconsistencies affect how to develop culturally sensitive preventative interventions for young people, which may put them at risk for negative university outcomes, attempting to cope through consumption patterns, and overall unhealthy behaviors (Oh et al., 2022; Tang & He, 2023).

This paper aims to address this gap by using two complementary scales together for the first time, locating the investigation within behavioral economics and examining the response cross-culturally. The findings contribute to an understanding of the literature around consumer behavior due to crisis, and provide policies and practitioners with alternative options to help minimize the detrimental influences of economic and psychological stressors.

Additionally, the research incorporates the stress–response framework applied in behavioral economics, indicating that, under conditions of uncertain economics, people choose to make decisions intuitively rather than rationally (Thaler & Sunstein, 2008). Future anxiety can be considered a psychological stressor that influences risk perception, and food inflation can be characterized as an economic stressor that limits access to necessary goods. Both of these contexts trigger adaptive or defensive consumer behaviors. It can be introduced from cultural psychology perspective that the magnitude and form of these responses can vary across cultural dimensions characterized by differences in individualism–collectivism and uncertainty avoidance (Hofstede, 1984). Therefore, this research develops a conceptual framework at the intersection of these viewpoints, that cultural dimensions provide an important contextual framework for understanding consumer behavior under economic and psychological stress. Therefore, the aim of this study is to examine how future anxiety, food price inflation, and cultural dimensions jointly shape consumer decision-making under economic and psychological stress.

2. Literature Review

Consumer behavior consists of a multitude of dimensions, which are affected by the interplay of psychological tendencies, economic factors, and cultural aspects. During times of uncertainty, people often do not act in accordance with rational choice and rely instead on emotional or intuitive factors. One line of research has demonstrated the influence anxiety and fear have on consumption, leading individuals to act in a risk-averse, defensive, or compensatory manner (Lerner & Keltner, 2001). Building upon this research, consumer psychology suggests that not all negative emotions drive decision-making in the same way, with future-focused anxiety being particularly interesting to investigate in a crisis context (Shavitt, Lee & Torelli, 2009).

Numerous studies evaluated, in a quantitative manner, future or financial anxiety using proven measures/statistics. These studies underscored that university students endure fearful considerations regarding finances (Ahamed et al. 2024; Ahamed and Limbu 2024). Studies have also connected financial

anxiety to demographic factors, and psychological factors such as gender, income, and financial literacy (Ahamed et al. 2024; Kushwaha and Singh, 2023; An et al., 2024). There are cultural and other contextual moderators related to financial anxiety, such as a pandemic and financialization (Haiven and Komporozos-Athanasiou, 2022; Zhang et al., 2024; Rockwell and Kimel, 2023). Overall, related studies are examined via an interdisciplinary approach that includes psychology, economics, and marketing.

2.1. Future Anxiety

Future anxiety is considered to be an ongoing and uncontrollable form of worry when it arises in relationships to future uncertainties, and it typically occurs with heightened prevalence among young adults (Zaleski, 1996). Alhuseini (2011) describes this type of anxiety leading to assimilation problems, decision-making problems, and behavioral changes in young adults. Geylani and Çiriş Yıldız (2022) developed a two-dimensional scale to assess fear and hope toward the future for university students, allowing for an assessment of the individuals' psychological state impacting their economic behaviors.

When individuals' future anxiety rises, they will perceive higher levels of risk and exhibit more careful, even emotionally reactive behavior, in how they approach and make decisions (Taylor, 2019). This behavior is most clearly evidenced in consumer behavior whereby protective strategies, a focus on everyday needs, and a reliance on defensive consumption emerge.

Most research has focused on future anxiety independently of food inflation, and very few studies have examined both factors in relation to consumer behavior. In addressing the above gap, this study highlights the relationship between future-oriented emotions and economic experiences in the context of consumption.

2.2. Inflation and Consumer Behavior

Food insecurity and rising real price levels create economic challenges that exacerbate mental health problems (anxiety, depression, and stress) for university students. These students experienced the compounded effect when a pandemic coincidentally increased levels of food insecurity along with psychological distress and increased substance use (Kim & Murphy 2023; Lawley et al. 2023).

Price levels are changing rapidly and shaping consumption preferences, especially when it comes to reduced consumption behaviors among lower income consumer groups. Haydaroglu and Bilgiç (2024) address how individuals are responding to rising food prices in terms of three consumption dimensions: food consumption behaviors (e.g., decreased variety and meal skipping), shopping behaviors (e.g. price comparisons, tracking discounts), purchasing behaviors (e.g., preference for healthy, natural, and sustainable products). Economic constraints have realigned preferences within food groups relative to decent food (e.g., choosing macaroni and cheese over fresh produce) while food insecurity has become a significant drive for change in consumer behavior related to choice and management of limited resources under financial stress.

2.3. Behavioral Economics and Economic Uncertainty

The difficulty in maintaining a stable and coherent lifestyle is represented by individuals making decisions under a set of economic preferences that may not exist in traditional economic models for understanding consumer decisions. Specifically, unlike traditional economic models, which assume individuals operate rationally, behavioral economics denotes that consumer decision making is often motivated by, and adjusted by emotional, cognitive and social constraints. For example, Thaler & Sunstein (2008) demonstrate that consumers make different decisions as a result of increasing economic uncertainty impacted by fear, response to ambiguity, and heightened anxiety, propelling individuals to rely on more automatic decision making.

There is evidence that economic crises, and a pandemic, created long-term adaptations in consumer behavior (Baydar et al 2023). Specifically, consumers have shifted to prioritize basic needs, avoided risk, and increased levels of diminishing or lack of brand loyalty. Within this frame, individuals are using short-term survival strategies, especially related to changes in day-to-day consumption dilemmas (e.g., quantities, types). Individuals use diverse coping tools to endure psychological stress and financial stress related to

consumption behaviors. Consumers employed strategies to cope with problem and emotion focused strategies to compensatory consumption behaviors, such as online and therapeutic purchasing (Mohamed et al 2022, Rahardjo et al 2023).

2.4. Future Anxiety and Food Inflation from a Marketing Perspective

The marketing literature has long studied how consumer behavior shifts as a result of economic shifts and psychological stressors. For example, Kotler and Keller (2016) state that during a crisis period, consumers are more receptive to trust-based messages (also, when there is declining or reduced consumer trust, there is also increased receptiveness to messages). Characteristics such as price, reliability, and utility increase in relevance for consumer choice.

Consumers may demonstrate value-based buying patterns or opportunistic buying during time of economic concern (Lichtenstein, Ridgway and Netemeyer, 1993). In a response to value-responsive buying behavior, brands must consider consumer behavior when making judgement in the purchase stage of buying. First price promotions are a natural response to changing economic conditions for brands, however many brands are also emphasizing values-based narratives when re-positioning products (e.g., communication features like healthy, local, natural etc. (Grunert, 2006)).

The role of digital marketing tools has also become more significant in reaching consumers in uncertain times. Social media, micro-influencers, and digital content serve not only as marketing mediums but also in ways that provide guidance and trust amid ambiguities (De Veirman et al, 2017). On the contrary, greater emotional stress associated with anxiety toward the future can trigger emotional buying behaviors in some, where consumption helps to serve as a form of psychological relief (Baumeister, 2002).

2.5. The Impact of Cultural and Economic Differences on Consumer Behavior

Consumer behavior is informed by individual psychology but also by wider cultural norms, social structure, personal values, and the economic climate of a particular country. One of the most popular frameworks for contextualizing cultural differences is Hofstede's Model of Cultural Dimensions (Hofstede, 1984). This model posits that countries characterized by a higher degree of uncertainty avoidance experience greater anxiety during economic downturns. The resulting anxiety often leads to more protective and cautious behavior when it comes to consumption (Hofstede, 1984).

A comparison of two culturally different countries, such as Türkiye and Hungary, situates both psychological patterns and economic behaviors within a cultural context. Appendix 1 provides a cultural profile of Türkiye and Hungary using the Hofstede framework. Türkiye is largely characterized as a more hierarchical, collectivist, and emotionally expressive society that avoids uncertainty. In contrast, Hungary is more individualistic, achievement-oriented, and lower in hierarchy, and their culture is relatively traditional.

These cultural factors will influence decision making, especially under conditions of uncertainty such as high inflation, employment uncertainty, and economic turmoil. In a high uncertainty avoidance country, individuals experience a significant degree of anxiety, which correlates to more defensive behaviors and cautious consumption. In contrast, when in a culture like Hungary with more individualism, people rely more on self-efficacy, and personal responsibility of when and how to adjust and bounce back from economic shocks.

Cultural values of individualism (idiocentrism) and collectivism (allocentrism) have direct influences on students' perceptions of financial vulnerability and coping behaviors. Cross-national studies show how cultural orientation provides an important modulating factor in how people respond to stressors, as related to financial behavior, that showcase differences between Western and Asian populations (Ahamed et al.,2024; Bazzoli et al.,2022; Mohamed et al.,2022; Liu et al.,2022).

In addition to culture, national economic indicators serve as important external factors that shape consumption patterns. As outlined in Appendix 2, food inflation in Türkiye was about 44%, whereas Hungary experienced a much lower rate of 4.6%. Youth unemployment is also significantly higher in Türkiye (15.6%), compared with Hungary (14.3%). In Türkiye, inflation is not sustaining real incomes, and young people are increasingly reliant on family-based financial support. In Hungary, the affiliated social

protection, EU-funded scholarships, and meal subsidies and accounts for their overall positive financial circumstances and resilience.

3. Methods

This study intends to analyze how food inflation and future anxiety compare to consumer behavior via a comparative study of university student populations. Surveys were administered utilizing two validated scales: Geylani and Çiriş Yıldız, Future Anxiety Scale for University Students (2022; see Appendix 3) and Haydaroğlu and Bilgiç, Food Inflation Impact on Consumer Behavior Scale (2024; see Appendix 4).

- The Future Anxiety Scale for University Students measures future-oriented worries, fear and hopelessness among university students. Its validity and reliability analyses consist of two subfactors (Future Fear and Despair of the Future) with 19 items. The internal consistency coefficient (Cronbach's alpha- α) is 0.91, with item-total correlations ranging from 0.179 to 0.799. The scale explains 63.50% of the total variance. In the test-retest analysis, conducted with a two-week interval, the correlation coefficient between the two measurements is 0.932, indicating a strong linear relationship.
- The Food Inflation Impact on Consumer Behavior Scale measures how rising food prices change individuals' consumption patterns, shopping strategies, and purchasing motives. It has three subfactors (Food consumption patterns, Food shopping behaviors, Food purchasing motives) and 17 items. All factors accounted for 65.85% of the total variance. The reliability index of the factors and scale exceeds $\alpha = 0.70$ (between 0.87 and 0.92) indicating all factor-total correlations were statistically significant.

The analysis centered on how students' attitudes compare with each of the culturally distinct countries. The recommendations for sample size require a total participant size reaching 5-10 per measure item (Gözüm & Aksayan, 2002). In the survey, there were a total of thirty-six items. Thus, a sample size exceeding 250 was required for target sample size.

The survey consisted of two sections; (1) demographic information and (2) items pertaining to the two scales. A total of 306 students from the Faculty of Business in Türkiye and 301 students from the Business Faculty in Hungary participated in the survey and were selected for the study sample. Demographic characteristics of the respondents are displayed in Table 3.

The Turkish sample has a more balanced spread of gender and larger spread of nationality than the Hungarian sample, which was predominantly Hungarian, and mostly female. Most participants in both countries were in the typical range of a university student, age 18-24; however Turkish participants were more represented in senior categorization of education and graduate students while the Hungarian sample was reflected in lower and mid-categories of education.

Income distribution also reveals a key contrast: while Turkish students are more evenly divided across income brackets, a majority of Hungarian students report household incomes in the lowest bracket. These demographic differences offer important context for interpreting variations in future anxiety and consumer behavior between the two groups.

The validity and reliability of the scales for Turkish students were already established by Geylani and Çiriş Yıldız (2022) and Haydaroğlu and Bilgiç (2024); therefore, we only assessed the validity and reliability of the scales for the Hungarian survey results.

Figure 1 presents the proposed theoretical framework, integrating the Stress-Response Theory with a cross-cultural context to explain how financial and psychological stressors are associated with future anxiety and behavioral responses. The framework builds on Stress-Response Theory (Lazarus & Folkman, 1984) and incorporates cross-cultural contextual perspectives (Hofstede, 2001) to develop a novel integrative model explaining future anxiety in the context of food inflation.

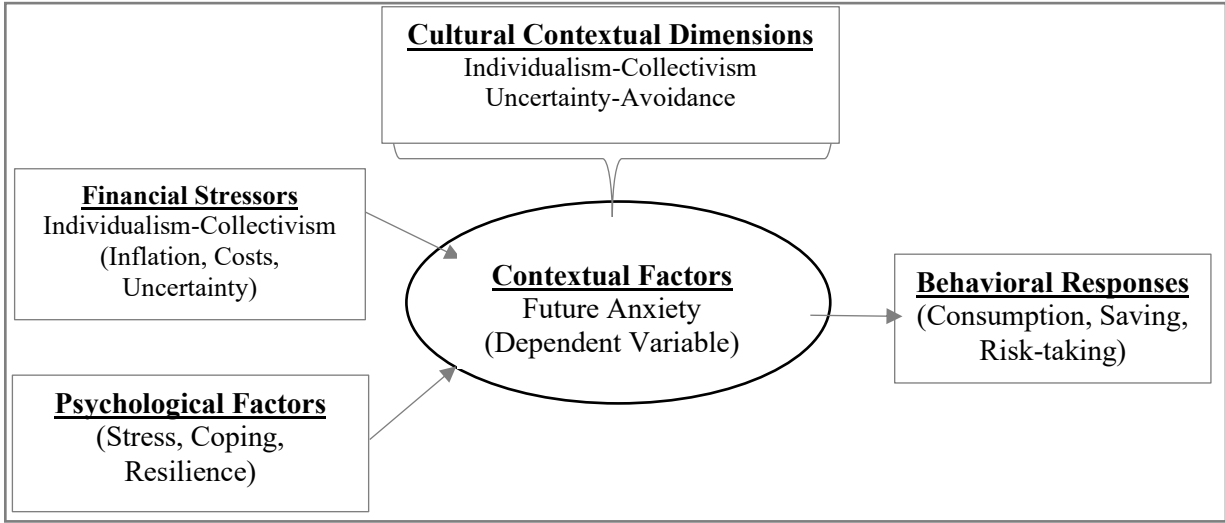


Fig. 1 Theoretical Framework: Stress-Response Theory with a Cross-Cultural Context

3.1. Study design, setting, and participants

We performed this study using a descriptive and cross-sectional design, which was organized between January 1, 2025 and April 3, 2025 through an online survey technique. The survey was conducted among university students in Istanbul, Türkiye, and Pécs, Hungary.

The aim of the study was to apply structural equation modeling (SEM) to examine the structural relationships between variables. Thereby, the sample size was calculated using the “semPower” package in RStudio (version 2024.04.2). The sample size was determined as $n = 234$ based on SEM parameters, using an effect size for the Goodness of Fit Index (GFI) of $(d) = 0.97$, degrees of freedom $(df) = 654$:

$df = [(m \times (m+1)/2 - 2m - (l \times (l-1))/2]$ whereas m : observed variables, l : latent variables], a type I error $(\alpha) = 0.05$, and type II error $(\beta) = 0.05$ and a statistical power of 95% $(1 - \beta)$ (Ellis, 2010; Moshagen & Bader, 2024). We collected data from 607 students in both Hungary and Türkiye, which constitute a sufficiently large sample size for model fitting.

3.2. Measures

Academic year and income were used to describe the sample characteristics and examine group differences in subsequent analyses. Future anxiety was measured using the Future Anxiety Scale for University Students developed and validated by Geylani and Çiriş Yıldız (2022). The scale contains 19 items containing two subdimensions: Fear of the Future (13 items) and Hopelessness about the Future (6 items). Responses were rated on a 5-point Likert scale (1 = Never to 5 = Always) for Fear of the Future and reverse-scored for Hopelessness about the Future - higher scores signify greater anxiety and pessimism regarding the future. The scales in this study showed acceptable to excellent internal consistency for both the Turkish ($\alpha = 0.90$ and $\Omega = 0.92$) and Hungarian versions ($\alpha = 0.91$ and $\Omega = 0.93$).

Food consumption patterns were measured through the Food Inflation Impact on Consumer Behavior Scale, developed and validated by Haydaroglu and Bilgiç (2024); it contains three subdimensions: Food Consumption Behaviors (6 items), Food Shopping Patterns (6 items), and Food Purchase Motivations (5 items). Items are rated on a 7-point Likert-type scale (1 = Significantly Decreased, 2 = Considerably Decreased, 3 = Slightly Decreased, 4 = No Change / Does Not Apply, 5 = Slightly Increased, 6 = Considerably Increased, 7 = Significantly Increased). A higher score still represents greater overall change, or adaptation, however, this change in food-related behaviors was under inflation conditions, supporting that factor in behaviors. Reliability was satisfactory across subscales (Türkiye: $\alpha = 0.56 - 0.87$; $\Omega = 0.81 - 0.91$; Hungary: $\alpha = 0.70 - 0.90$; $\Omega = 0.87 - 0.94$) in this study.

3.3. Procedure

Data were collected following ethical approval obtained from the Ethics Committee of Istanbul Ticaret University. The survey was administered concurrently in Türkiye and Hungary. Participation was completely voluntary. A total of 607 valid responses (306 from Türkiye and 301 from Hungary) were included in analyses.

3.4. Ethical approval

The ethical approval for the research was obtained from the Ethics Committee of Istanbul Ticaret University (Approval date: 31.12.2024, Reference: E-65836846-044-341695). All research procedures were conducted in accordance with the ethical requirements of the Istanbul Ticaret University Ethics Committee and the Istanbul Ticaret University Ethics Committee Directive. Participation was voluntary, and all participants were informed about the purpose. Before accessing the questionnaire, all participants received information about the purpose and procedures of the study, the voluntary nature of participation, confidentiality, and their right to withdraw at any time without penalty. Electronic informed consent was obtained from all participants before participation. All participants were aged 18 years or older; therefore, parental or legal-guardian consent was not applicable.

The study was conducted in Türkiye and Hungary. Under the applicable research ethics regulations of the University of Pécs, Faculty of Business and Economics, no separate or additional local ethical procedure was required for the Hungarian component because the principal investigator/research coordinator was affiliated with another institution and ethical approval had already been obtained from the coordinating institution, Istanbul Ticaret University. Following the journal's request for clarification regarding local ethical requirements in Hungary, the Research Ethics Committee of the University of Pécs reviewed the circumstances of the study and formally confirmed that no additional local ethics procedure was required (Reference No.: KEB/2026/007).

The Hungarian component consisted of an anonymous, voluntary, non-interventional online questionnaire administered to adult university students, with no directly identifying information, clinical procedures, or biological materials collected. All participants were informed about the purpose and procedures of the study, confidentiality, the voluntary nature of participation, and their right to withdraw at any time without penalty. Electronic informed consent was obtained from all participants before participation. All participants were aged 18 years or older.

3.5. Data analysis

In this work, we conducted two primary analyses: relational and structural equation analyses (Correlation Analysis and Structural Equation Modeling) and validity and reliability (Confirmatory Factor Analysis (CFA), Cronbach's Alpha, and McDonald's Omega). CFA was used to analyze the Future Anxiety Scale. For CFA and SEM, the estimation technique known as Diagonally Weighted Least Squares (DWLS) was applied. CFA and SEM were analyzed using a set of fit indicators. These indices included the following: the Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Squared Residual (SRMR), Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Incremental Fit Index (IFI), and the ratio of the Chi-Square to degrees of freedom (χ^2/df). For the CFA and SEM models to be considered satisfactory, the χ^2/df ratio must be less than five, the RMSEA and SRMR must be less than 0.08, and all other fit indices must be more than 0.95 (Jöreskog & Sörbom, 1993; Schumacker & Lomax, 2010).

Internal consistency was evaluated using McDonald's omega and Cronbach's alpha coefficients. Excellent internal consistency is indicated by values above 0.90, whereas moderate internal consistency ranges between 0.70 and 0.80. Values between 0.60 and 0.70 were considered acceptable (Bland & Altman, 1997; Kalkbrenner, 2024). The strength of the correlation was classified as follows: 0.80 – 1.00 very strong, 0.60 – 0.79 strong, 0.40 – 0.59 moderate, 0.20 – 0.39 weak, and 0.0 – 0.19 very weak (Dunn, 2001).

Prior to all analyses, the scales were examined using the Shapiro-Wilk Univariate and Henze-Zirkler Multivariate normality tests. Analyses were carried out using the Asymptotically Distribution-Free (ADF)

estimation method for variables that did not follow a normal distribution, and using parametric approaches on variables that showed a normal distribution. The significance level was set at $p < 0.05$ and $p < 0.01$ for the results.

The software RStudio Team (version 2025.10.01) RStudio: Integrated Development for R. RStudio, Inc., Boston, was used in this work for reliability, CFA, correlation, and SEM analyses. We used R packages including "tidyverse," "GGally," "ggplot2," "semPlot," "semTools," "lavaan," and "psych."

4. Results

4.1. Sample characteristics

The data were collected from 607 students, including 301 from Hungary and 306 from Türkiye. All demographic characteristics are given in Appendix 5.

4.2. Validity analysis for the future anxiety scale for Hungarian Survey

The confirmatory factor analysis validated the Future Anxiety Scale for the Hungarian survey. Two-factor model was evaluated using various fit indices, showing an acceptable or good fit ($\chi^2/df = 2.49$, RMSEA = 0.071, SRMR = 0.071, NFI = 0.98, NNFI = 0.99, CFI = 0.99, GFI = 0.99, IFI = 0.99). All items were significant in the two-factor model ($p < 0.01$). The two-factor model is presented in Table 1 and Figure 2.

Table 1
Confirmatory Factor Analysis of the Future Anxiety Scale for the Hungarian Survey

Latent Variable	Items	Beta	Std. Beta	Std. Error	t	p	R ²	Fit Index
Fear of the Future	GK1	1.000	0.759			$p < 0.0001$	0.576	$\chi^2/df = 2.49^\#$
	GK3	1.075	0.816	0.030	36.383	$p < 0.0001$	0.666	RMSEA = 0.071 ⁺
	GK5	1.013	0.769	0.029	35.138	$p < 0.0001$	0.591	SRMR = 0.071 ⁺
	GK7	1.096	0.832	0.029	37.691	$p < 0.0001$	0.692	NFI = 0.98 [#]
	GK9	1.029	0.781	0.030	34.329	$p < 0.0001$	0.610	NNFI = 0.99 [#]
	GK11	1.018	0.772	0.030	33.798	$p < 0.0001$	0.596	CFI = 0.99 [#]
	GK13	1.112	0.844	0.029	38.237	$p < 0.0001$	0.712	GFI = 0.99 [#]
	GK14	0.856	0.649	0.028	30.435	$p < 0.0001$	0.422	IFI = 0.99 [#]
	GK15	0.830	0.630	0.028	29.869	$p < 0.0001$	0.397	
	GK16	0.937	0.711	0.028	32.901	$p < 0.0001$	0.505	
Hopelessness about the Future	GK17	0.640	0.485	0.028	22.494	$p < 0.0001$	0.236	
	GK18	0.903	0.685	0.028	32.272	$p < 0.0001$	0.470	
	GK19	0.737	0.560	0.029	25.669	$p < 0.0001$	0.313	
	GU2	1.000	0.377			$p < 0.0001$	0.142	
	GU4	1.246	0.470	0.106	11.716	$p < 0.0001$	0.221	
	GU6	1.440	0.543	0.107	13.445	$p < 0.0001$	0.295	
	GU8	2.205	0.832	0.145	15.211	$p < 0.0001$	0.693	
	GU10	1.763	0.665	0.124	14.237	$p < 0.0001$	0.442	
	GU12	2.316	0.874	0.151	15.355	$p < 0.0001$	0.764	

#: Good Fit, ⁺:Acceptable Fit

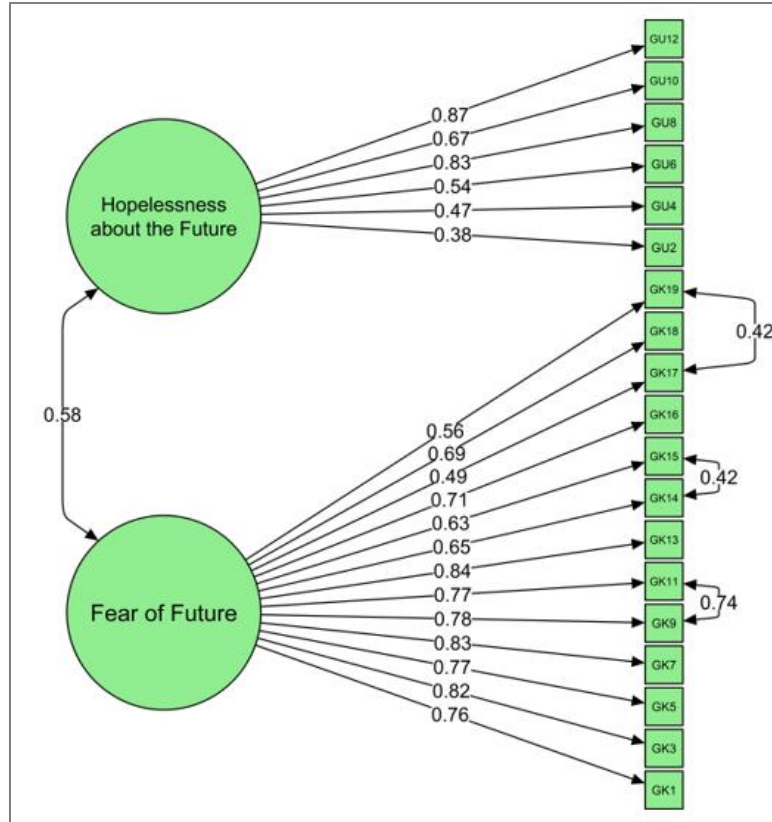


Fig. 2 Measurement model of the Future Anxiety Scale with Standardized Coefficients (Hungarian sample)

4.3. Validity analysis for the scale of the impact of food inflation on consumer behavior for Hungarian Survey

The confirmatory factor analysis validated the Impact of Food Inflation on Consumer Scale for the Hungarian survey. Three-factor model was evaluated using various fit indices, showing an acceptable or good fit (NFI = 0.97, NNFI = 0.97, CFI = 0.97, GFI = 0.98, IFI = 0.97). On the other hand, SRMR = 0.090, $\chi^2/df = 5.71$ and RMSEA = 0.125 did not meet the prespecified fit thresholds in the model. The findings provide partial rather than unequivocal support for the factor measurement structure. All items were significant in the three -factor model ($p < 0.01$). The three -factor model is presented in Table 2 and Figure 3.

Table 2

Confirmatory Factor Analysis of the Impact of Food Inflation on Consumer Behavior Scale (Hungarian Survey)

Latent Variable	Items	Beta	Std. Beta	Std. Error	t	p	R ²	Fit Index
Food Consumption Pattern	TP1	1.000	0.658			$p < 0.0001$	0.433	$\chi^2/df = 5.70$
	TP2	0.894	0.588	0.068	13.103	$p < 0.0001$	0.346	RMSEA = 0.125
	TP3	0.889	0.585	0.070	12.756	$p < 0.0001$	0.342	SRMR = 0.090 [†]
	TP4	0.741	0.488	0.055	13.545	$p < 0.0001$	0.238	NFI = 0.97 [#]
	TP5	0.683	0.449	0.063	10.806	$p < 0.0001$	0.202	NNFI = 0.97 [#]
	TP6	0.707	0.465	0.066	10.758	$p < 0.0001$	0.216	CFI = 0.97 [#]
Food Consumption Behavior	AV1	1.000	0.879			$p < 0.0001$	0.773	GFI = 0.98 [#]
	AV2	1.013	0.891	0.028	36.404	$p < 0.0001$	0.794	IFI = 0.97 [#]
	AV3	1.028	0.904	0.027	37.843	$p < 0.0001$	0.817	

	AV4	0.914	0.804	0.024	38.727	p<0.0001	0.646
	AV5	0.666	0.586	0.026	26.122	p<0.0001	0.343
	AV6	0.811	0.713	0.025	33.005	p<0.0001	0.508
	AVM1	1.000	0.699			p<0.0001	0.489
Purchase	AVM2	1.118	0.781	0.046	24.473	p<0.0001	0.611
Motivation	AVM3	1.119	0.782	0.048	23.219	p<0.0001	0.612
	AVM4	1.079	0.754	0.047	23.145	p<0.0001	0.569
	AVM5	1.265	0.891	0.053	23.938	p<0.0001	0.795

#: Good Fit, †:Acceptable Fit

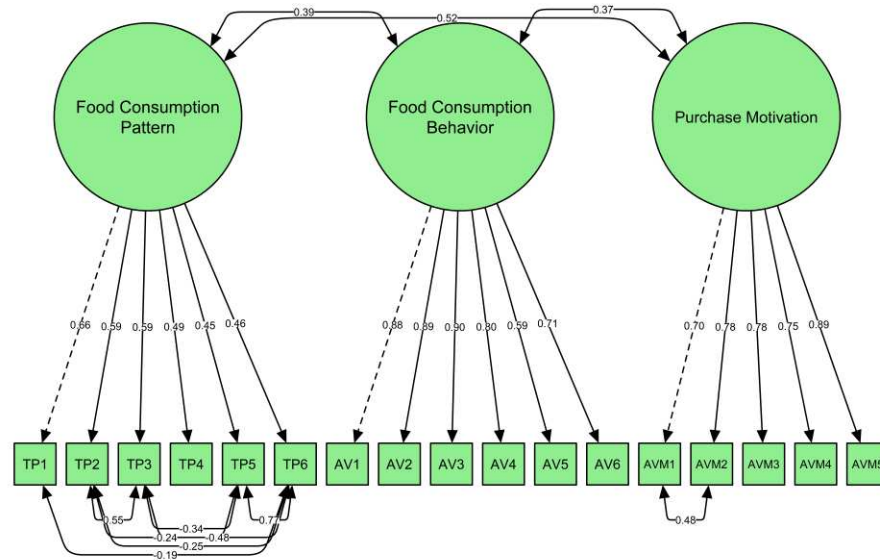


Fig. 3 Measurement model of the Impact of Food Inflation on Consumer Behavior Scale with standardized coefficients (Hungarian sample)

4.4. Reliability analysis of scales

We assessed the Cronbach's alpha and McDonald's omega coefficients for the reliability of scales, as shown in Table 3. In the Hungarian sample, Cronbach's alpha values were ranged from 0.70 to 0.92, and omega coefficients ranged from 0.83 to 0.94, demonstrating adequate to excellent reliability. In the Turkish sample, Cronbach's alpha values ranged from 0.56 to 0.90, and the omega coefficients ranged from 0.81 to 0.92. While Cronbach's alpha ($\alpha = 0.56$) was not adequate for the reliability of the Food Consumption Patterns scale, the omega coefficient ($\omega = 0.81$) demonstrated good reliability for this scale. Therefore, the omega coefficient was considered to provide a more accurate measure of internal consistency for the Food Consumption Patterns scale.

Table 3

Reliability analysis of scales for the Hungarian and Turkish Sample

Scales	Items	Country			
		Hungary		Türkiye	
		Cronbach's Alpha (α)	Omega (Ω)	Cronbach's Alpha (α)	Omega (Ω)
Fear of the Future	13	0.92	0.94	0.89	0.91
Hopelessness about the Future	6	0.75	0.83	0.81	0.88
The Future Anxiety Scale	19	0.91	0.93	0.90	0.92
Food Consumption Patterns	6	0.70	0.87	0.56	0.81
Food Shopping Behaviors	6	0.90	0.94	0.87	0.91

Purchase Motivations	5	0.88	0.92	0.87	0.89
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4.5. Correlation analysis

The correlation analysis examined the relationship among the fear of the future, hopelessness about the future, food consumption patterns, food shopping behaviors, and purchase motivations for the Hungarian and Turkish samples (Appendix 6). A positive and statistically moderate relationship was observed between the fear of the future and hopelessness about the future in both samples ($p < 0.01$). A positive and statistically weak relationship was found between the fear of the future and food shopping behaviors, while a negative and statistically weak relationship was observed between fear of the future and food consumption patterns ($p < 0.05$).

Although there was a negative and statistically weak relationship between the fear of the future and purchase motivations in the Turkish sample ($p < 0.05$), no significant relationship was found in the Hungarian sample ($p > 0.05$). In addition, no significant relationships were found between the hopelessness about the future and either food consumption patterns or food shopping behaviors ($p > 0.05$). However, a negative and statistically weak relationship was found between the hopelessness about the future and purchase motivations ($p < 0.05$). There was a positive and statistically weak relationship between food consumption patterns and food shopping behaviors and purchase motivations ($p < 0.05$). Finally, a positive and statistically weak relationship was observed between food shopping patterns, food shopping behaviors and purchase motivations ($p < 0.05$).

4.6. Structural Equation Modeling

We examined the structural associations among the variables for each sample by using structural equation modeling (SEM), as presented in Table 4. In the Hungarian sample, hopelessness about the future has positive associations with the fear of the future ($\beta = 0.603$, $p < 0.01$). Food consumption patterns were negatively associated with fear of the future ($\beta = -0.286$, $p < 0.01$), whereas food shopping behaviors ($\beta = 0.366$, $p < 0.01$) and purchase motivations ($\beta = 0.116$, $p < 0.01$) were positively associated with fear of the future.

Additionally, the R^2 value was 0.468, indicating that hopelessness about the future, food consumption patterns, food shopping behaviors, and purchase motivations together explained 46.8% of the variance in fear of the future.

The fit index values were $\chi^2/df = 3.17$, RMSEA = 0.080, SRMR = 0.080, NFI = 0.96, NNFI = 0.97, CFI = 0.97, GFI = 0.97, and IFI = 0.97, indicating that the model was within the range of good and acceptable fit.

In the Turkish sample, hopelessness about the future was positively associated with fear of the future ($\beta = 0.530$, $p < 0.01$). Food consumption patterns were negatively associated with fear of the future ($\beta = -0.379$, $p < 0.01$), whereas food shopping behaviors were positively associated with fear of the future ($\beta = 0.183$, $p < 0.01$). Purchase motivations were not significant associated with fear of the future ($p > 0.05$).

Additionally, the R^2 value was 0.434, indicating that hopelessness about the future, food consumption patterns, and food shopping behaviors together explained 43.4% of the variance in fear of future. Because the data are cross-sectional, these structural paths should be interpreted as associations rather than causal effects.

The fit index values were $\chi^2/df = 2.50$, RMSEA = 0.070, SRMR = 0.071, NFI = 0.95, NNFI = 0.97, CFI = 0.97, GFI = 0.97, and IFI = 0.97, indicating an acceptable to good model fit. The path diagrams of structural equation modelling for both Hungary and Türkiye are presented in Figure 4.

Table 4
Structural Equation Modeling Results in Hungary and Türkiye

Model 1 (Hungary)	Beta	Std. Beta	Std. Error	t	p	R ²	Fit Index
Hopelessness about the Future → Fear of the Future	1.195	0.603	0.086	13.892	$p < 0.001$	0.468	$\chi^2/df = 3.17^{\#}$
Food Consumption Patterns → Fear of the Future	-0.329	-0.286	0.057	-5.820	$p < 0.001$		RMSEA = 0.080 ⁺
Food Shopping Behaviors → Fear of the Future	0.316	0.366	0.024	13.367	$p < 0.001$		SRMR = 0.080 ⁺
Purchase Motivations → Fear of the Future	0.110	0.116	0.035	3.120	$p < 0.001$		NFI = 0.96 [#]

							NNFI=0.97 [#] CFI=0.97 [#] GFI=0.97 [#] IFI=0.97 [#]
Model 2 (Türkiye)	Beta	Std. Beta	Std. Error	t	p	R ²	Fit Index
Hopelessness about the Future → Fear of the Future	0.464	0.530	0.026	17.620	p<0.001	0.434	$\chi^2/df=2.50^{\dagger}$
Food Consumption Patterns → Fear of the Future	-0.366	-0.379	0.059	-6.151	p<0.001		RMSEA=0.070 [†]
Food Shopping Behaviors → Fear of the Future	0.147	0.183	0.017	8.777	p<0.001		SRMR = 0.071 [†]
Purchase Motivations → Fear of the Future	0.036	0.045	0.033	1.114	0.265		NFI=0.95 [#] NNFI=0.97 [#] CFI=0.97 [#] GFI=0.97 [#] IFI=0.97 [#]

#: Good Fit, †:Acceptable Fit; *p<0.05, **p<0.01

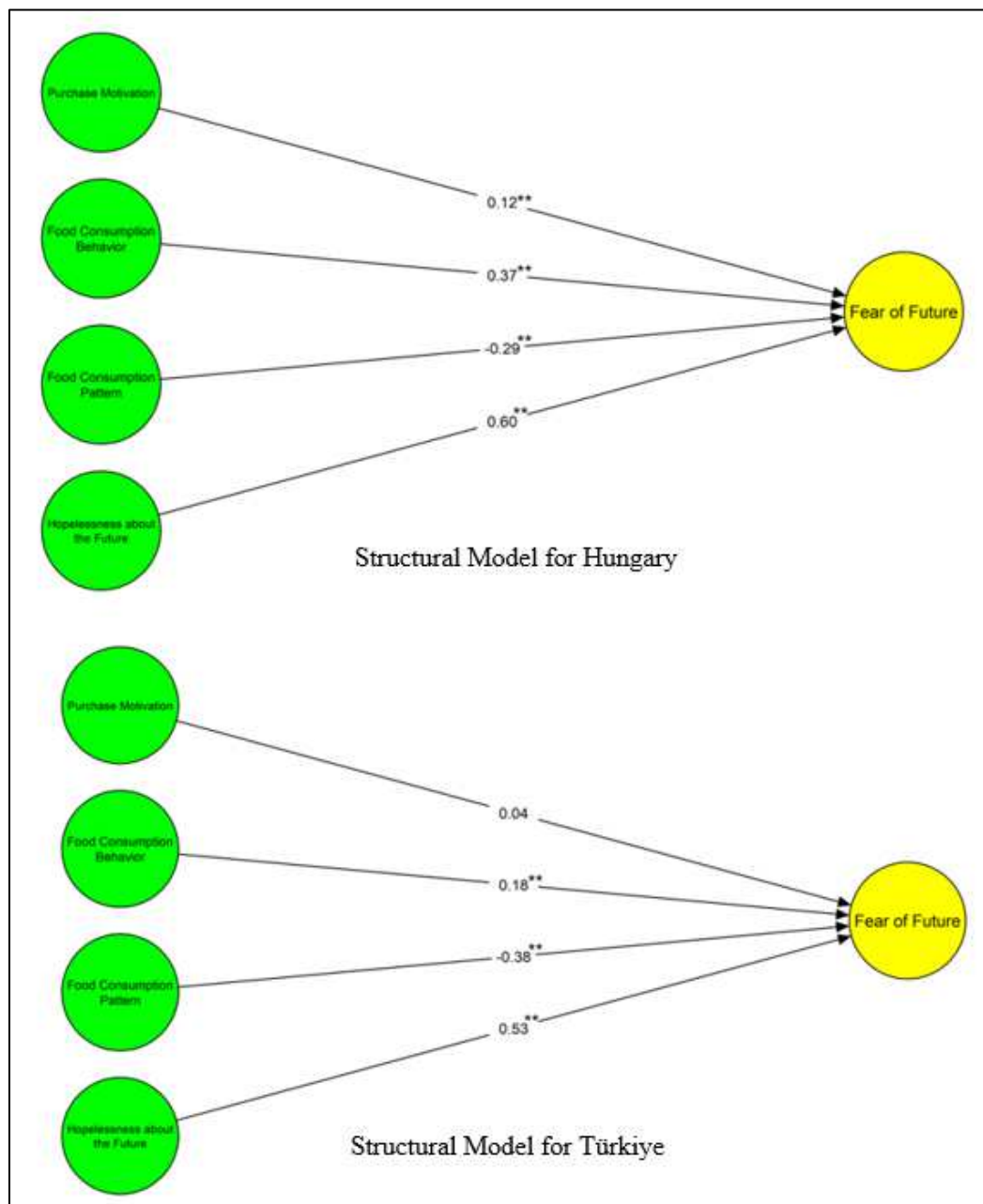


Fig. 4 Path diagrams in structural models for Hungary and Türkiye.

4.7. Comparisons of Characteristics

The comparisons of characteristics for the Hungarian sample are presented in Appendix 7. Food Shopping Behaviours and Purchase Motivations showed statistically significant differences by nationality ($p < 0.01$).

Hungarian students (4.96 ± 1.12) reported significantly higher Food Shopping Behavior scores than foreign students in Hungary (1.67 ± 1.15). Similarly, Hungarian students (3.89 ± 1.03) reported significantly higher Purchase Motivation scores than foreign students (1.00 ± 0.00).

Food Shopping Behaviors also showed a statistically significant gender difference ($p < 0.05$) with female students (5.05 ± 1.04) scoring significantly higher than male students (4.67 ± 1.35).

Hopelessness about the Future demonstrated a statistically significant difference by academic year ($p < 0.05$). Master's students (2.47 ± 0.73) scored significantly higher than third-year (2.13 ± 0.44), and first-year students (2.10 ± 0.57). Additionally, second-year students (2.31 ± 0.61) had significantly higher scores than first-year students (2.10 ± 0.57). No other variables showed statistically significant differences ($p > 0.05$).

Comparisons of characteristics for the Turkish sample are presented in Appendix 8.

- Food Shopping Behaviors showed a statistically significant difference by nationality ($p < 0.01$). Turkish students (4.86 ± 1.00) reported significantly higher Food Shopping Behavior scores than foreign students in Türkiye (4.47 ± 1.22).
- Fear of the Future displayed a statistically significant gender difference ($p < 0.01$). Female students (3.12 ± 0.74) scored significantly higher than male students (2.88 ± 0.73).
- Food Shopping Behaviors displayed a statistically significant gender difference ($p < 0.05$). Female students (4.97 ± 1.13) scored significantly higher than male students (4.66 ± 0.98).
- Hopelessness about the Future displayed a statistically significant difference across age groups ($p < 0.01$). Participants aged 25-34 (2.39 ± 0.66) scored significantly higher than those aged 35-44 (2.08 ± 0.63), and 18-24 (2.20 ± 0.72).
- Food Consumption Patterns displayed a statistically significant difference across academic years ($p < 0.05$).
 - o Second year's students (3.73 ± 0.62) scored significantly higher than first-year students (2.67 ± 0.67), and graduate students (2.10 ± 0.57).
 - o Master's students (3.68 ± 0.82) also scored significantly higher first-year students (2.67 ± 0.67).
 - o Third-year students (3.89 ± 0.82) also scored significantly higher than first-year (2.67 ± 0.67) and graduate students (2.10 ± 0.57).
 - o Fourth-year students (3.94 ± 0.68) scored significantly higher than second-year (3.73 ± 0.62) and graduate students (2.10 ± 0.57).
- Fear of the Future and Food Shopping Behaviors showed a statistically significant difference across income groups ($p < 0.05$). Participants earning TRY 5,000 or below (3.06 ± 0.66) scored significantly higher in Fear of the Future than those earning TRY 20,001 and above (2.74 ± 0.74). Similarly, participants earning TRY 5,001-10,000 (3.13 ± 0.74) scored significantly higher than those earning TRY 20,001 and above (2.74 ± 0.74).
- Food Shopping Behaviors among participants earning TRY 5,001-10,000 (5.05 ± 1.06) were significantly higher than those earning TRY 10,001-20,000 (4.63 ± 0.97), and TRY 20,001 and above (4.67 ± 1.05). No other variables showed statistically significant differences ($p > 0.05$).

Although the structural model identifies significant associations among the study variables, the cross-sectional design does not allow for causal inference.

5. Discussion

The comparative findings between Türkiye and Hungary reveal both convergences and divergences in future anxiety and food-related behaviors, which can be interpreted in light of socio-economic, cultural, and institutional contexts. In the Turkish sample, future anxiety shows clear gender differences, with women reporting greater fear and hopelessness compared to men. This finding corresponds with previous studies indicating that males and females are differently vulnerable in periods of uncertainty and crises (Norris and Inglehart 2003). Females also expressed higher feelings of concern about the future-related to gender roles and sociocultural roles, relative to Hofstede's (2001) cultural dimensions theory regarding the high uncertainty concerning Türkiye. However, in the Hungarian sample no statistically significant gender difference was observed. The identified gender difference concerned food shopping behaviours, with females reporting higher scores than males.

In Türkiye, income level differences were a more compelling factor in fear of the future findings, and this finding corresponds with prior evidence that economic insecurity remains a concern and emerges as one of the factors contributing to present future anxiety in an emerging economy (Standing, 2011). In Hungary, there were class-based differences concerning hopelessness, especially related to years of study. In contrast to Türkiye, class and completion of exam levels proves to contribute to a similar disparity that is based around higher education and labor market differences (Marginson, 2016). These within-sample differences suggest that economic circumstances and educational stage may be relevant contextual correlates of future-oriented anxiety. Nevertheless, the cross-sectional design does not establish the direction of these relationships.

Food-related dimensions include consumption, shopping behavior, and purchase motivations- these representations have socio-cultural underpinnings, and in Türkiye, economic downturns arising from inflation primarily affect food shopping behaviors, while purchase motivations appear to play a more limited role which is consistent with literature that macroeconomic volatility affects household consumption (Keyder, 2005). In Hungary, however, gender appear to be more influential in food shopping behavior and motivations, reflecting cultural heterogeneity and differences in consumer habitation and practices within Europe (Grunert, 2006). These results also concur with literature regarding identity formation around food and belonging (Douglas and Isherwood, 1996).

Overall, while findings demonstrate that Türkiye and Hungary share similar gendered vulnerabilities associated with future anxiety, the variation lies within the relative weighting given for economic position (versus cultural) placement. Türkiye reflects the importance of material conditions and inflationary elements, which aligns with other research on economic precarity in middle-income settings (Robinson and Acemoglu, 2012). Meanwhile, Hungary highlights the difference achieved through class and cultural markers, captured through a balance of cultural positioning and EU membership.

All in all, findings add to the early stages of literature on future anxiety and food-related behaviors and provide support for actions that are shaped by the context; socio-economic structures, cultural expectations, and various institutional and regulatory frameworks all play a role in asking about anxiety.

Researchers in behavioral finance have long illustrated that psychological states have systematic effects on financial behaviors, in so much as rational agents might not be the best reference to explain behavior (Barberis and Thaler, 2003). In this manner, future anxiety represents a relevant emotional state that may influence how individuals perceive risk and approach consumption–saving tradeoffs. By framing food inflation as domain-specific stressor, the study shows how changes in consumption-related behaviors are reflected in levels of future-oriented anxiety.

Using stress–response we argue that chronic exposure to food inflation erodes cognition, and subsequently benefits precautionary saving, less elaborate risk taking and prioritizing short-term consumption, consistent with loss aversion, and limited self-control. Underlining this perspective highlights cultural context, as reactions and coping differ qualitatively based on collectivist and individualist settings. Turkish and Hungarian student comparison thus provides cross-cultural support and furthers behavioral finance beyond a typically Western focus.

At a broader level, our findings are consistent with Shiller's (2017) narrative economics, supported by anxiety, as an experience of social spread, with corresponding effects on expectations and market

dynamics. Food inflation, as evident, visible economic data, could amplify narratives of scarcity, that result in market apprehension that could amplify volatility of markets with consumer-driven demand.

A summary of this work, as it contributes to behavioral finance by (i) linking future anxiety with financial decision processes, (ii) drawing together evidence of cultural moderation with actions and subsequent financial outcome, and (iii) as an exploratory factor in producing outcomes of food inflation both micro and macro level. What this does is to draw together an interdisciplinary study in finance, psychology, and marketing providing a novel perspective on how economic anxieties influence financial activity in daily life.

The results provide cross-sectional evidence of relationships between future-oriented anxiety and food-related consumer behaviors among business faculty students. They do not demonstrate that food inflation erodes cognition, changes saving or risk-taking behavior, or affects broader financial-market volatility, because these outcomes were not directly measured in the study.

6. Limitations and Future Research

Because the study used a cross-sectional design, the structural paths represent associations and do not establish temporal ordering, directionality, or causality. Reverse relationships and unmeasured confounding factors therefore remain possible.

We should acknowledge a few limitations to the study. The sample focuses entirely on students studying in business faculty parameters located in Türkiye and Hungary, which may limit the ability to generalize the outcomes beyond the "student" experience, broadly speaking, into different disciplines and/or age groups. Further, students are likely associated with fields of study and socio-economic origins that may step adjustment behavior under future anxiety.

This study has also following limitations. First, sampling was conducted via convenience sampling with students so our sample does not represent the general population. Second, as the study is dependent on self-reported measures, there is the possibility of bias in the respondents' answers provided. Additionally, the current research was conducted in two different countries (Türkiye & Hungary), so cultural and contextual variables may affect the outcome results, therefore researchers must consider a panel-data and/or experimental design in future research along with objective economic macro information (e.g. food price index or household income) and as many other countries with similar characteristics as possible to build on previous research. In addition, researchers could explore additional moderators and mediators such as Economic Literacy, Resilience and Social Support and/or collect actual behavioral consumption data as well as tie it to perceptual measurements. Future research could benefit from expanding sample contingencies; students in other fields of study, and students/non-students. This would advance the external validity of the study.

National culture was not measured directly at the participant level, and no formal test of cultural moderation was conducted. Accordingly, differences observed between the Turkish and Hungarian samples should be interpreted as contextual sample differences rather than as empirical evidence of national-cultural effects.

Another significant limitation of this study is that the data was collected within a single time frame. The study period coincided with a macroeconomic context characterized by high uncertainty and volatile inflation dynamics in both Türkiye and Hungary. Future concerns and adaptation behaviors to food inflation may be influenced by time-sensitive factors such as crisis severity, policy changes (scholarships, support programs, etc.), and labor market expectations. Future research should track change over time using longitudinal panels, repeated cross-sectional waves, or experimental/tracking studies using the same scales. Longitudinal research would permit a stronger assessment of temporal ordering, while experimental or appropriately designed quasi-experimental studies would be required to support causal inference.

Another limitation of the study is that all variables were collected using the same questionnaire form, at the same time, and solely through self-report. This situation may increase the risk of common method bias, particularly because perceptions related to anxiety and consumption behaviors are reported by the same individual. Participants may systematically distort their responses due to social desirability bias, the

desire to appear more “rational” or “thrifty” than they actually are. Future research could match survey data with objective behavioral indicators such as actual spending records, bank/POS data, cafeteria/market receipts, and digital traces (e.g., e-commerce history). This would allow for comparing scale scores with external criteria and more accurately assessing the real-world implications of consumption behaviors.

The developed structural equation model includes important components of consumption behaviors related to future concerns and food inflation; however, some key determinants at both the individual and institutional levels have not been incorporated into the model. In particular, institutional support mechanisms at the university level (meal grants, psychological counseling services, career centers), local commodity price structures, housing conditions, and social/financial support received from families are factors that can significantly influence both how students perceive economic pressure and their coping strategies. The design of this study does not allow for the disaggregation of such contextual variables. Future research should use multilevel modeling approaches that consider students' individual characteristics alongside university and country-level indicators. Furthermore, explicitly integrating policy variables (scholarships, support programs, price subsidies, on-campus meal support) into the model will strengthen both theoretical and policy-oriented inferences.

7. Conclusion

This study explores the associations between future anxiety and food price inflation – related consumer behaviors among university students with respect to two different nations. Data were collected in early 2025 based on an online questionnaire using two pre-tested scales: “The Future Anxiety Scale for University Students” (Geylani & Çiriş Yıldız, 2022) and “The Food Inflation Impact on Consumer Behavior Scale” (Haydaroğlu & Bilgiç, 2024) aimed at students of the business faculty in Türkiye and Hungary. This comparison provides insights into consumption decision-making process in two different socioeconomic and institutional settings.

Separate structural equation models showed that hopelessness about the future and food shopping behaviors were positively associated with fear of the future in both samples, whereas food consumption patterns were negatively associated with it. Purchase motivations were positively associated with fear of the future in the Hungarian sample but were not significantly associated with it in the Turkish sample. The within-sample comparisons also revealed different demographic patterns. A gender difference in fear of the future was identified in the Turkish sample. In the Hungarian sample, the observed gender difference concerned food shopping behaviors rather than future anxiety. Income-related differences in fear of the future were observed in Türkiye, while academic-year differences in hopelessness about the future were observed in Hungary.

These findings suggest that future-oriented anxiety and food-related consumer behaviors are interrelated within the two student samples. Socioeconomic, institutional, and cultural conditions may provide relevant contexts for interpreting the observed patterns. However, because national culture was not measured directly and cultural moderation was not formally tested, the results should not be regarded as confirmation of Hofstede’s cultural dimensions or as evidence that national culture caused the sample differences.

This research contributes to the theoretical understanding of young consumer behavior during crisis times, particularly highlighting how future-oriented anxiety is interlinked with food-related consumption behaviors under inflationary conditions. By jointly exploring two stressors that are rarely examined in tandem, psychological (future anxiety) and economic (food inflation), it fills a significant gap by providing a context for interpreting how uncertainty and financial constraints, simultaneously economic and psychological, are related to consumer behavior.

The research builds on existing literature by contributing to behavioural economics and consumer decision making through the integration of cultural psychology within the consumer decisions framework (Thaler & Sunstein, 2008). It identifies that the decision-making process of consumers during periods of

crisis is influenced by a variety of factors including material conditions, consumption patterns, and potential contextual influences (emotions and perceived uncertainty).

The practical implications of the research are equally important since consumer price sensitivity and basic needs reflect changes in consumer preference as an overall response to Inflation. These behaviors will have significant implications for the development and design of marketing communications strategies as well as social policies to assist students during periods of economic stress (Lichtenstein, Ridgway & Netemeyer, 1993). Future research could examine whether trusted digital communication channels and micro-influencers shape food-related purchasing decisions during inflationary periods. (De Veirman et al, 2017). Marketers and policymakers need to be more emotionally aware and culturally adaptive in their design of communication strategies.

Because the sample was limited to business faculty students, the participants may have had greater exposure to economic and financial concepts than the general student population. However, financial literacy was not directly measured, and the findings should not be interpreted as evidence of its moderating role..

Overall, the findings suggest that young adults respond to crises based on social, cultural and economic factors. Thus, by incorporating these elements, this study provides both theoretical and practical contributions to understanding young adult's behaviour and decision making processes during times of uncertainty.

Data Availability

The raw and processed datasets are provided as Supplementary Information and are available to the editors and reviewers for verification of the study. Direct identifiers were not collected, and the shared data have been checked to protect participant confidentiality.

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Appendix 1

Hofstede Cultural Dimension Analysis of Hungary and Türkiye

Cultural Dimension	Türkiye	Hungary	Explanation
Power Distance	68	48	Compared to Türkiye, power distance is considerably lower in Hungary; individuals within organizations are more likely to take on equal footing with superiors, accept fewer traditional hierarchies, and reject strict differences in subordination or authority.
Individualism	46	71	Typically, individuals are expected to make their own decisions and have greater autonomy, while in Türkiye, decision-making is mainly centralized, and superior-subordinate relationships are more often expected within organizations, giving more authority to those in higher positions. The individuals within Hungary place a greater emphasis on individual success, royalty, and independence in decision-making. Conversely, the Turkish culture is more collectivist, and a large emphasis is placed upon family ties and loyalty to groups for making decisions.
Motivation towards Achievement and Success	45	88	Besides being more likely to obtain and value status, Hungary demonstrates a value for competition, achievement, and risk-taking. In Türkiye, the society is more focused on cooperation and quality of life in addition to relationships and harmony among everyone.
Uncertainty Avoidance	85	82	Both Türkiye and Hungary are high uncertainty avoiders, meaning they each will prefer having rules and some assurance through structure. Though, Türkiye has a slightly higher tendency to be risk averse and favor structure compared to Hungary.
Long Term Orientation	35	45	Both societies exhibit future orientation that favors imported outcomes rather than ones built on perseverance. But, Hungary at times prefers planning and perseverance slightly more so than Türkiye.
Indulgence	49	31	Türkiye exhibits a more indulgent society, with the people more likely to obtain, express desires, and seek out satisfaction. Hungary is restrained and an individual of this society would not fulfill their desire and demonstrate more self-discipline.

Source: Hofstede Insights (2025)

Appendix 2

Economic Indicators for Hungary and Türkiye (2024)

Indicators	Türkiye	Hungary
Consumer Price Index	44.4	4.6
Food Inflation (%)	43.6	4.7
Youth Unemployment Rate (%)	15.9	14.3
GDP Growth Rate (%)	3.2	0.5

Source: Trading Economics Türkiye (2025); Trading Economics Hungary (2025)

Appendix 3

University Students Future Anxiety Scale

Survey Questions*
• "Factor 1 (GK - Fear of the Future)" and "Factor 2 (GU - Hopelessness about the Future)" • Choices: 5. Always, 4. Often, 3. Sometimes, 2. Rarely, 1. Never
GK1: I am afraid of the possibility that the problems I face will persist for a long time.
GU2: I believe that I will be happier in the future.
GK3: I am afraid of failing in the future.
GU4: I hope that I will achieve the things I desire in the future.
GK5: I am afraid that things in my life will take a turn for the worse.
GU6: My past experiences have prepared me well for the future
GK7: I am afraid of not being able to overcome difficulties in the future.
GU8: I look to the future with hope and excitement.
GK9: Even when everything is going well, I fear the possibility of something going wrong.
GU10: I have enough time to accomplish the things I really want to do.
GK11: Even when things go well, I get the feeling that something bad will happen.
GU12: I believe that I will be able to achieve my goals in the future.
GK13: I am afraid of what the future might bring.
GK14: I am anxious about not being able to provide good financial conditions for my family.
GK15: The thought of my plans being left unfinished devastates me.
GK16: The future seems blurry and uncertain to me.
GK17: I am afraid that economic and political changes will threaten my future.
GK18: I am afraid of the thought of making important decisions in the future.
GK19: I fear that a major disaster might happen soon.

Source: Geylani & Çiriş Yıldız (2022)

(*) Hungarian version

<i>GK1: Félek attól a lehetőségtől, hogy a problémák, amelyekkel szembesülök, hosszú ideig fennmaradnak.</i>
<i>GU2: Úgy gondolom, hogy a jövőben boldogabb leszek.</i>
<i>GK3: Félek attól, hogy a jövőben kudarcot vallok.</i>
<i>GU4: Remélem, hogy a jövőben el fogom érni azokat a dolgokat, amelyekre vágyom.</i>
<i>GK5: Félek attól, hogy az életem rossz irányba fordul.</i>
<i>GU6: A múltbeli tapasztalataim jól felkészítettek a jövőre.</i>
<i>GK7: Félek attól, hogy nem tudok megbirkózni a jövőbeni nehézségekkel.</i>
<i>GU8: Reménnyel és lelkesedéssel tekintek a jövőre.</i>
<i>GK9: Még akkor is, amikor minden jól megy, félek attól, hogy valami rosszul sül el.</i>
<i>GU10: Van elég időm megvalósítani azokat a dolgokat, amelyeket nagyon szeretnék.</i>
<i>GK11: Még ha minden jól is alakul, azon gondolkodom, hogy valami rossz fog történni.</i>
<i>GU12: Hiszek abban, hogy el fogom érni a céljaimat a jövőben.</i>
<i>GK13: Félek attól, hogy mit hoz a jövő.</i>
<i>GK14: Aggódom amiatt, hogy nem tudok jó anyagi feltételeket biztosítani a családomnak.</i>
<i>GK15: A gondolat, hogy a terveim befejezetlenül maradnak, nagyon megvisel.</i>
<i>GK16: A jövő homályosnak és bizonytalannak tűnik számomra.</i>
<i>GK17: Félek attól, hogy a gazdasági és politikai változások veszélyeztetik a jövőmet.</i>
<i>GK18: Félek a gondolattól, hogy a jövőben fontos döntéseket kell hoznom.</i>
<i>GK19: Attól tartok, hogy hamarosan bekövetkezhet egy nagyobb katasztrófa.</i>

Appendix 4

Scale of the Impact of Food Inflation on Consumer Behavior

Survey Questions*	
"Factor 1 (Food Consumption Patterns)", "Factor 2 (Food Shopping Behaviors)" and "Factor 3 (Purchase Motivations)" - Choices: 1- Significantly Decreased, 2- Considerably Decreased, 3- Slightly Decreased, 4- No Change/Does Not Apply, 5- Slightly Increased, 6- Considerably Increased, 7- Significantly Increased	
Food Consumption Patterns	
1.	The variety of foods I eat (e.g., vegetables, fruits, cheeses, nuts, etc.)
2.	The frequency of skipping main meals (breakfast, lunch, or dinner)
3.	The frequency of skipping snacks
4.	The quantity of food I consume
5.	The frequency of bringing main meals (breakfast, lunch, or dinner) with me
6.	The frequency of bringing snacks with me
Food Shopping Behaviors	
1.	The frequency of comparing food prices
2.	The frequency of choosing where to shop (markets, grocery stores, etc.) based on prices
3.	The frequency of tracking discounts on food products
4.	The frequency of researching food items that fit my budget
5.	The frequency of buying in bulk to stockpile food
6.	The frequency of preparing a shopping list before going shopping
Purchase Motivations	
1.	My level of attention to the healthiness of the food I buy
2.	My level of attention to the functional properties of the food I buy (e.g., probiotic, high-protein, multigrain)
3.	My level of attention to whether the food I buy is eco-friendly/sustainable
4.	My level of attention to the brand of the food I buy
5.	My level of attention to the naturalness of the food I buy

Source: Haydaroglu & Bilgiç (2024)

(*) Hungarian version

Élelmiszer-fogyasztási szokások	
1.	Az általam fogyasztott élelmiszerek változatossága (pl. zöldségek, gyümölcsök, sajtok, magvak stb.)
2.	A főétkezések (reggeli, ebéd vagy vacsora) kihagyásának gyakorisága
3.	Az uzsonnák kihagyásának gyakorisága
4.	Az elfogyasztott élelmiszer mennyisége
5.	A főétkezések (reggeli, ebéd vagy vacsora) magammal vitelének gyakorisága
6.	Az uzsonnák magammal vitelének gyakorisága
Élelmiszer-vásárlási szokások	
1.	Az élelmiszerárak összehasonlításának gyakorisága
2.	A bevásárlási hely (piacok, élelmiszerboltok stb.) kiválasztásának gyakorisága az árak alapján
3.	Az élelmiszerekre vonatkozó kedvezmények nyomon követésének gyakorisága
4.	Az anyagi keretembe illeszkedő élelmiszerek keresésének gyakorisága
5.	Élelmiszerek nagy tételben való beszerzésének gyakorisága
6.	Bevásárlólista készítésének gyakorisága a bevásárlás előtt
Vásárlási motivációk	
1.	A megvásárolt élelmiszerek egészségességére fordított figyelem mértéke
2.	Az általam vásárolt élelmiszerek funkcionális tulajdonságaira való odafigyelés mértéke (pl. probiotikus, magas fehérjetartalmú, több gabonát tartalmazó)
3.	Az általam vásárolt élelmiszerek környezetbarát/fenntartható voltára való odafigyelés mértéke
4.	Az általam vásárolt élelmiszerek márkájára való odafigyelés mértéke
5.	A megvásárolt élelmiszerek natúr voltára való odafigyelésem szintje

Appendix 5

Demographic Characteristics of the Participants

Variables		Hungary	Türkiye	χ^2	p
Nationality					
Hungarian/Turkish	f(%)	298 (54.60%)	248 (45.40%)	54.131	p<0.001
Foreign	f(%)	3 (4.90%)	58 (95.10%)		
Gender					
Male	f(%)	87 (32.60%)	180 (67.40%)	56.305	p<0.001
Female	f(%)	210 (62.70%)	125 (37.40%)		
Not mentioned	f(%)	4 (80.00%)	1 (20.00%)		
Age					
18-24	f(%)	273 (69.10%)	122 (30.90%)	199.824	p<0.001
25-34	f(%)	16 (9.80%)	148 (90.20%)		
35-44	f(%)	6 (15.80%)	32 (84.20%)		
45+	f(%)	6 (60.00%)	4 (40.00%)		
Class					
Prep.	f(%)	5 (100.00%)	0 (0.00%)	137.872	p<0.001
1	f(%)	98 (97.00%)	3 (3.00%)		
2	f(%)	64 (37.40%)	107 (62.60%)		
3	f(%)	99 (50.80%)	96 (49.20%)		
4	f(%)	19 (22.10%)	67 (77.90%)		
Masters	f(%)	16 (32.70%)	33 (67.30%)		
Income*					
TRY 5,000- / HUF 55,000-	f(%)	155 (69.50%)	68 (30.50%)	56.747	p<0.001
TRY 5,001-10,000 / HUF 56-115,000	f(%)	62 (40.80%)	90 (59.20%)		
TRY 10,001-20,000 / HUF 116,000-225,000	f(%)	47 (36.70%)	81 (63.30%)		
TRY 20,001+ / HUF 226,000+	f(%)	37 (35.60%)	67 (64.40%)		

(*) TRY=Turkish lira and HUF=Hungarian Forint; 1 HUF = 0.08857 TRY

Appendix 6

Correlation analysis between variables in Hungary and Türkiye

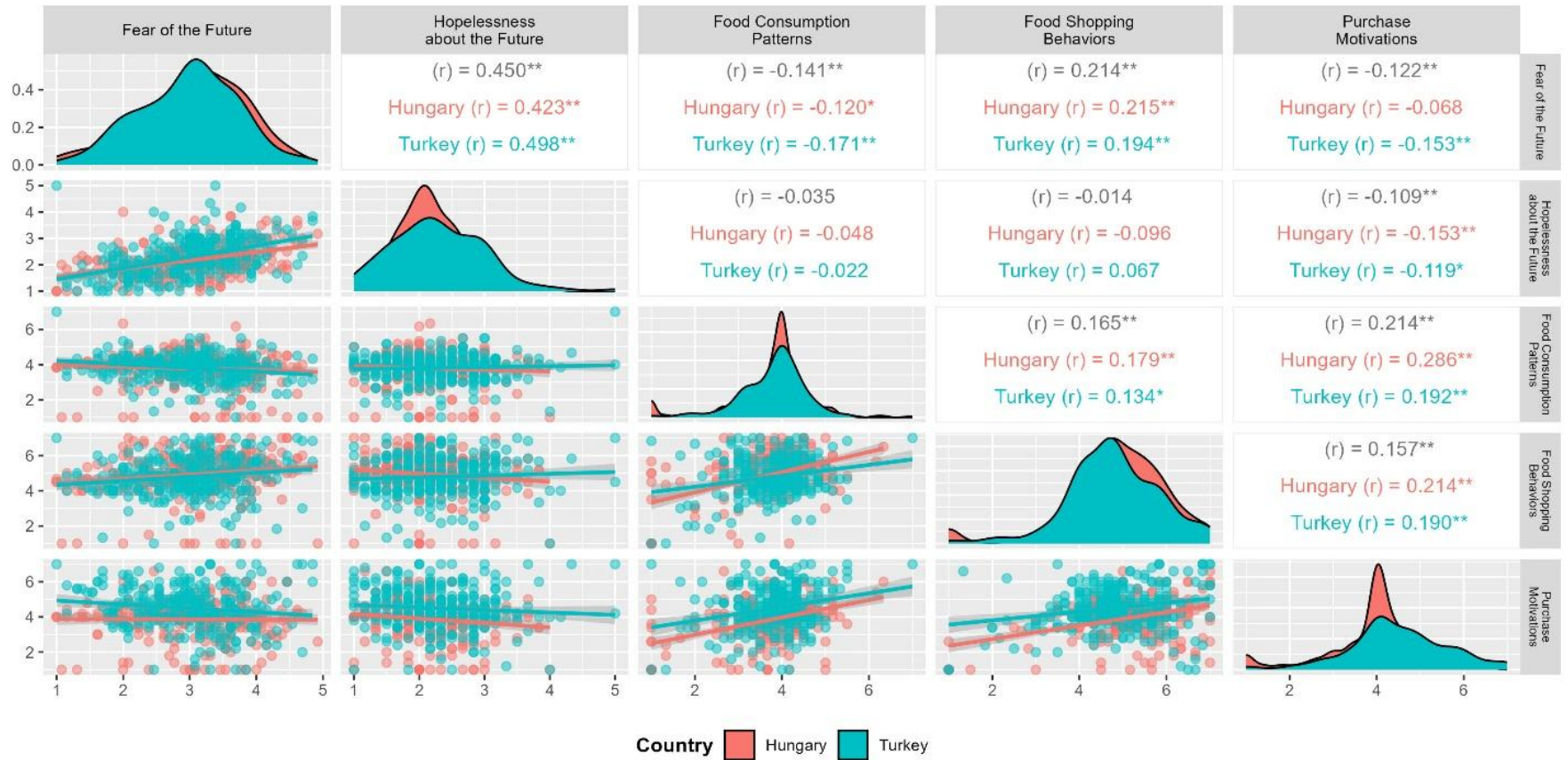


Fig. 4 Correlation analysis between variables in Hungary and Türkiye.

Appendix 7

Comparisons of Characteristics in Hungary

HUNGARY		Fear of the Future		Hopelessness about the Future		Food Consumption Patterns		Food Shopping Behaviors		Purchase Motivations	
Variables	n	$\bar{X} \pm \sigma$	p	$\bar{X} \pm \sigma$	p	$\bar{X} \pm \sigma$	p	$\bar{X} \pm \sigma$	p	$\bar{X} \pm \sigma$	p
1 Nationality											
Hungarian	298	3.07 ± 0.79	0.612 ^b	2.18 ± 0.56	0.109 ^b	3.79 ± 0.86	0.316 ^b	4.96 ± 1.12	0.005 ^{**b}	3.89 ± 1.03	0.004 ^{**b}
Foreign	3	2.85 ± 0.78		3.00 ± 1.00		2.33 ± 2.31		1.67 ± 1.15		1.00 ± 0.00	
2 Gender											
Male	87	2.75 ± 0.80	0.436 ^b	2.21 ± 0.55	0.436 ^b	3.86 ± 0.90	0.338 ^b	4.67 ± 1.35	0.028 ^{*b}	3.73± 1.15	0.413 ^b
Female	210	3.20 ± 0.74		2.16 ± 0.55		3.76 ± 0.86		5.05 ± 1.04		3.94 ± 1.01	
Age											
18-24	273	3.09 ± 0.75	0.265 ^d	2.18 ± 0.55	0.093 ^d	3.79 ± 0.86	0.470 ^d	4.94 ± 1.17	0.145 ^d	3.86 ± 1.06	0.072 ^d
25-34	16	2.79 ± 1.09		2.05 ± 0.65		3.50 ± 0.90		5.05 ± 0.94		4.35 ± 0.74	
35-44	6	3.18 ± 0.91		2.42 ± 0.57		3.89 ± 1.53		5.03 ± 0.40		3.67 ± 0.33	
45+	6	2.40 ± 0.95		2.64 ± 1.00		3.69 ± 1.38		3.69 ± 1.64		3.00 ± 1.67	
Class											
1	98	3.03 ± 0.71	0.541 ^d	2.10 ± 0.57	0.038 ^{*d}	3.77 ± 0.87	0.437 ^d	4.99 ± 1.02	0.395 ^d	3.86 ± 0.94	0.717 ^d
2	64	3.08 ± 0.91		2.31 ± 0.61		3.82 ± 0.76		5.13 ± 1.04		3.99 ± 0.92	
3	99	3.17 ± 0.68		2.13 ± 0.44		3.81 ± 0.92		4.78 ± 1.32		3.79 ± 1.23	
4	19	3.06 ± 1.01		2.36 ± 0.66		3.56 ± 0.89		5.26 ± 1.00		4.04 ± 0.96	
Master's	16	2.82 ± 0.93		2.47 ± 0.73		3.86 ± 1.21		4.60 ± 1.26		3.59 ± 1.13	
Income- HUF											
55,000-	155	3.14 ± 0.70	0.070 ^d	2.17 ± 0.57	0.648 ^d	3.71 ± 0.85	0.167 ^d	4.92 ± 1.10	0.946 ^d	3.81 ± 1.11	0.222 ^d
56-115,000	62	3.13 ± 0.77		2.24 ± 0.53		3.78 ± 0.98		4.96 ± 1.18		3.84 ± 1.02	
116,000-225,000	47	2.95 ± 0.96		2.08 ± 0.57		3.91 ± 0.94		4.97 ± 1.29		4.15 ± 1.03	
226,000+	37	2.76 ± 0.83		2.26 ± 0.59		3.83 ± 0.83		4.86 ± 1.30		3.76 ± 0.97	

*p<0.05, **p<0.01; a: Independent t Test. b: Mann-Whitney U Test. c: One-way ANOVA. d: Kruskal-Wallis Test, $\bar{X} \pm \sigma$: Mean ± Standard Deviation

Appendix 8:

Comparisons of Characteristics in Türkiye

TÜRKİYE											
		Fear of the Future		Hopelessness about the Future		Food Consumption Patterns		Food Shopping Behaviors		Purchase Motivations	
Variables	n	$\bar{X} \pm \sigma$	p	$\bar{X} \pm \sigma$	p	$\bar{X} \pm \sigma$	p	$\bar{X} \pm \sigma$	p	$\bar{X} \pm \sigma$	p
1 Nationality											
Turkish	248	3.00 ± 0.74	0.195 ^a	2.32 ± 0.68	0.072 ^b	3.82 ± 0.68	0.566 ^b	4.86 ± 1.00	0.005 ^{**b}	4.55 ± 1.13	0.197 ^b
Foreign	58	2.86 ± 0.72		2.18 ± 0.78		3.76 ± 0.96		4.47 ± 1.22		4.28 ± 1.27	
2 Gender											
Male	180	2.88 ± 0.73	0.005 ^{**a}	2.33 ± 0.69	0.208 ^b	3.83 ± 0.71	0.685 ^b	4.66 ± 0.98	0.004 ^{**b}	4.47 ± 1.13	0.497 ^b
Female	125	3.12 ± 0.74		2.23 ± 0.72		3.79 ± 0.78		4.97 ± 1.13		4.54 ± 1.22	
Age											
18-24	122	2.94 ± 0.77	0.447 ^c	2.20 ± 0.72	0.007 ^{**d}	3.87 ± 0.78	0.865 ^d	4.87 ± 1.09	0.813 ^d	4.46 ± 1.15	0.700 ^d
25-34	148	3.04 ± 0.72		2.39 ± 0.66		3.80 ± 0.67		4.78 ± 0.95		4.56 ± 1.17	
35-44	32	2.86 ± 0.69		2.08 ± 0.63		3.63 ± 0.90		4.52 ± 1.34		4.32 ± 1.11	
45+	4	2.75 ± 1.29		2.83 ± 1.37		4.08 ± 0.40		5.00 ± 0.76		4.75 ± 1.80	
Class											
1	3	3.15 ± 0.46	0.207 ^c	2.00 ± 0.83	0.258 ^d	2.67 ± 0.67	0.025 ^{*d}	3.67 ± 1.48	0.139 ^d	4.07 ± 0.70	0.345 ^d
2	107	3.11 ± 0.73		2.36 ± 0.62		3.73 ± 0.62		4.89 ± 0.98		4.37± 1.06	
3	96	2.92 ± 0.74		2.30 ± 0.74		3.89 ± 0.82		4.69 ± 0.98		4.60 ± 1.04	
4	67	2.91 ± 0.73		2.23± 0.71		3.94 ± 0.68		4.93 ± 1.09		4.67 ± 1.44	
Master's	33	2.83 ± 0.79		2.16 ± 0.82		3.68 ± 0.82		4.59 ± 1.28		4.30 ± 1.19	
Income- TRY											
5,000-	68	3.06 ± 0.66	0.008 ^{**c}	2.33 ± 0.62	0.199 ^d	3.82 ± 0.66	0.588 ^d	4.76 ± 1.10	0.039 ^{**d}	4.37 ± 0.92	0.481 ^d
5,001-10,000	90	3.13 ± 0.74		2.37 ± 0.68		3.75 ± 0.77		5.05 ± 1.06		4.52 ± 1.25	
10,001-20,000	81	2.94 ± 0.77		2.17 ± 0.71		3.74 ± 0.75		4.63 ± 0.97		4.45 ± 1.20	
20,001+	67	2.74 ± 0.74		2.28 ± 0.80		3.98 ± 0.75		4.67 ± 1.05		4.65 ± 1.21	

*p<0.05, **p<0.01; a: Independent t Test, b: Mann-Whitney U Test, c: One-way ANOVA, d: Kruskal Wallis Test, $\bar{X} \pm \sigma$: Mean ± Standard Deviation